THE LEGACY OF PLATO
THE IMPORTANCE OF PLATONISM TODAY

=//=

(revised 2022.12)

=//=

The topic, which is here to be taken up for discussion: *What is the significance of Plato for posterity, and for us today?* - is so comprehensive and so demanding that a whole long life of study would not suffice for a satisfying answer. No mortal individual can aspire to be able to survey such riches, nor to communicate it to other persons; but in the least we have been accorded some twenty minutes to dig up a few grains of gold. Allow me to begin by repeating a saying of the famous scholar, Paul Friedländer:

Der 'Timaios' wird vielleicht immer das unvergleichlichste Werk Platons bleiben, wie er die längste Zeit als sein Hauptwerk gegolten hat. Keine wahre Naturwissenschaft kann bestehen, ohne um ihre eigene Geschichte zu wissen. In dieser Geschichte aber gibt es wohl kein einzelnes Schriftwerk, das so tief und so weit gewirkt hat wie der 'Timaios'. Die Geschichte seiner Wirkung zu schreiben, wäre eine grosse Aufgabe.

I will here try to outline a few features of this history. I have already (ch.2.) given some hints to the intimate, but strained, relation between Plato and his pupil Aristotle. But it is also worth mentioning that Platonism in the Middle Ages mainly manifested itself as neo-Platonism, a motley mixture of Platonic and Aristotelian elements with a woof of Pythagorean speculation. It was in this form that Platonism eventually stamped the medieval attempts to create a synthesis of Greek philosophy and Christian theology. Decisive for this was that *Timaios*, at that time, was the only known work of Plato.

Throughout the Middle Ages, Christian neo-Platonism emitted some strong and vital stimuli which contributed to dominate the mental and cultural climate of that time. There is an intimate connection between the longing for eternity of Christian mysticism and the Platonic conception of eros (*ἔρος*). This synthesis of Christianity and Hellenism perhaps found its most beautiful expression in the lofty spires of the Gothic cathedrals. While the intellectual progress in the high Middle Ages was predominantly influenced by the rediscovery of the writings of Aristotle, Plato remained largely unknown until the dawn of the renaissance. Up to that time the widespread dominance of Aristotelianism threatened to reduce Platonism to an insignificant strand of clerical subculture.

Decisive for the outcome of this struggle was, that the two traditions competed at almost equal terms in the quiet contest between the representatives of the two medieval mendicant orders, or *fratres minores*: Franciscans and Dominicans. Franciscus and his brethren preferred to live in humble harmony with nature as created by God, whereas "the dogs of the Lord" (*domini canes*) prepared themselves by learned studies to serve faithfully as instruments for the papal inquisition. No wonder, then, that some of the most important impulses to the revolt against Aristotelism and the founding of a new science of nature came from the spiritual castle of Franciscans, the university of Paris.

The renaissance raised a new interest in Platon that soon spread all over Europe. Not long before 1500, the Polish priest and astronomer Nikolas Koppernigh became dissatisfied with the antique planetary system devised by Ptolemy. He accepted the Platonic liability to save phenomena by the simplest possible hypotheses, but stipulated that the geocentric hypothesis had to be replaced by the heliocentric one.

Despite the greatness of this new idea, it is probably best to view Copernicus as the one who ended the medieval epoch. The founding fathers of the new natural science were Kepler and Galileo. But it was first with Newton that classical physics came to maturity: by creating its classical paradigm, he sketched the program for future progress.

Ignoring individual disparities, one can say that the trifoil: Kepler, Galilei, Newton, jointly worked out the method of modern science. In this there is a hypothetic-deductive strand which goes directly back to Plato. What is new is the experiment, an element that is foreign to Platonism. In case one wishes to focus upon the heritage from Plato, in order to evaluate the similarities and dissimilarities in the thinking of these scientists, one will need to ponder their respective thoughts about the use of scientific hypotheses. How were their positions regarding the hypothetical strand in the science of nature?

We can establish that they agreed on the following points: A scientific hypothesis is primarily distinguished by its *mathematical* character. A hypothesis is only relevant in so far as it can help us to discern *the formal structure of reality*. Scientific knowledge emerges from viewing *empirical phenomena* in the light of *mathematical hypotheses* which are *the best instruments to save phenomena* in the simplest and most plausible way. Of all these points it holds that they go back to Plato or, at least, to Platonism.

Yet another point should be mentioned, both because it derives from Plato, and because it, strictly speaking, is a consequence of the first ones. It is a mistake to ask for the truth-value of a mathematical hypothesis. A hypothesis that aims at the discovery of structural laws valid for the world of phenomena can never in itself be true or false, but only more or less probable. Expressed in Platonic terms: one cannot obtain *epistéme* regarding nature, only *dóxa*. As we shall see, this was an issue of disagreement.

Kepler and Galileo both associated themselves with Plato. Kepler somewhere said: *It is not the observation of the heavens which has brought these insights forth in me. As intimated by the teaching of Plato, they were hidden at the bottom of my soul and were only called forth by my perception of reality*. Galileo expressed himself even stronger:

On the title page to my collected works should be written: Here it is shown by countless examples which great use can be made of mathematics with respect to conclusions in the field of natural science, and how impossible it is to philosophize in a competent manner without geometry, as was also claimed by Plato.

But even if they had not admitted their debt to Plato, it would have been possible to deduce it from their thoughts, their ideas. On a par with Plato, Kepler considered the Sun to be an image of God (cf. Plato's parable). This idea he utilized as an argument for the truth of the Copernican hypothesis. The Sun, being situated in the center of our universe, must be the most dignified of all heavenly creatures. From the Sun a power appears to determine the motions of planets in their orbits. But why six planets?

Plato taught that the universe is created by means of mathematics and geometry. Everything in the world is ordered harmoniously by numerical proportion and analogy. If we accept the hypothesis that the relative distances of planetary orbits are determined by the regular polyhedra in such a way that they are inscribed in and circumscribed by orbital spheres after model of chinese boxes, then the five polyhedra correspond exactly to the interspaces of the six planetary spheres. *Heureka*! thought Kepler, and calculated. By changing the natural order of the polyhedra a few times, he eventually succeeded in making his calculations fit the observations fairly well. This he considered as a brilliant confirmation of the Platonic view of the significance of mathematical harmony.

Judged in one way, we can say that Kepler reached his brilliant results in spite of his Platonism. Seen from another angle, we can say that Platonism is not at stake, since his use of the five polyhedra is no more Platonic than his formulation of the famous three planetary laws. In the end he found himself forced to give up an important element of Platonic method: he had to replace circular orbits with elliptical orbits, and uniform motion with the law of equal areas described by radius vector in equal intervals of time. In other words, he realized that a certain element in the method should be understood as a hypothesis, and that it had to be replaced by a more adequate hypothesis.

I have already characterized the Platonic program as mathematical in contrast to the Aristotelian one which was empirical. One would perhaps conjecture that Galileo, as a careful observer and experimenter, might have sided with Aristotle, against Plato. However, as the facts show, just the opposite was the case. How could this happen? Was not Galileo an empiricist, after all? Hardly, if that word is used in its modern sense. What shall we make of the fact that Galileo expressed his unrestricted admiration for Aristarchos and Copernicus precisely because they stuck to the heliocentric hypothesis, in spite of overwhelming empirical evidence for the geocentric one, and allowed reason "to exert force against the senses" instead of making it "a slave to superstition"?

Nevertheless, there is also a significant difference that brings Galileo more in line with Aristotle. In contrast to Plato, he constantly stressed the possibility of obtaining true insight in the secrets of nature. Like Plato, he spoke of God as a divine geometer. The great book of nature, which lies open to our senses, is full of divine wisdom and is expressed by mathematical symbols. Thus all true knowledge of nature is mathematical.

God's wisdom is infallible, just as his will is immutable. Nature being a mirror of God, its laws must be immutable and infallible too. Galileo was unwilling to accept with Plato that the universe is imperfect, due to its resistance to being made rational.

Against Aristotle, Galileo rejected the teleological concept of causality in favour of a mechanical one. But concurrently he claimed, on a par with Kepler, that it is possible to obtain final knowledge of true causes (*verae causae*). By this move he replaces the *Platonic* concept of *hypothetical truth* with the *Aristotelian* concept of *categorical truth*. One can say that such stance was needed in order to ensure a steady progress of science. From now on, one had to search for an explanation regarding even small deviations from the accepted laws of nature. However, this view is modified by an important proviso. When Galileo claimed the unconditional truth of his assumptions, it was always relative to "idealized phenomena". From the point of view of Plato, this Galilean amphibian is nothing but a chimaera. But, as history shows: even chimaeras can be useful!

In conclusion it should be admitted that, in Kepler as well as in Galileo, we find a tendency to blurr the obvious distinction of Plato between conjecture and knowledge, *dóxa* and *epistéme*. There seems to be a hidden connection between this tendency and the similar one to blurr the distinction beetween necessity and reason, *anánke* and *noûs*. Taken together, *these two short-cuts provide the conditions for the notorious idea of a mechanistic universe governed by perfectly deterministic laws*. In principle, these ideas would enable a superhuman intelligence to calculate the entire world course of *history* from its eternal world *program*, and thus to predict future events in the tiniest detail.

Having given a few samples of the impact of Plato on the history of physics and astronomy from antiquity to the renaissance I proceed to discuss his influence on modern philosophy, mainly represented by the names of Descartes, Leibniz and Kant.

Cartesian Platonism is chiefly found in the assumption of so-called inborn ideas. All mathematical knowledge has been conveyed to the human soul before its birth in a body as an essential part of its nature. This is a modern version of the Platonic theory of "recalling" (ἀναμνεσία). The only difference seems to be that Descartes did not accept the pre-existence of the human soul, contrary to Plato.

Also at another point we recover an important similarity to Plato. As well known, Descartes distinguished two kinds of substance, viz.: 1) thinking things (*res cogitantes*), and 2) extended things (*res extensae*), their temporal subsistence (*duratio*) constituting the *tertium comparationis*. The legacy of Plato is further disclosed in the fact that he identified spatial extension with material substance, his philosophical point being that this identification enables us to describe matter in geometrical terms.

Already Kepler had said that where there is space there is geometry. Descartes supplements this *dictum* of Kepler by introducing matter as the middle term, saying that *ubi extensio, ibi materia, et ibi geometria.* By this claim, his metaphysics guarantied the truth of his most important mathematical discovery, viz., that *arithmetics* and *geometry* can be unified into a single science: *analytic geometry*.

The third point where a connection can be traced is in the Cartesian aether theory. Descartes offers a mechanistic explanation of the phenomenon of gravitation, referring to vortices in a cosmic aether. This reminds of Democritus; but it reminds of Plato too. In the *Timaios* we are given this explanation of the motion of matter in space, and hence of gravitation, that it is due to a sort of "shaking" of the cosmic sphere "just like a man shaking grain in a sieve". The problem was that the Cartesian theory was not presented in a mathematical form. Newton's theory was in much better accord with Plato's program. But Newton's attitude to Platonism seems to be of a much more problematic character: whether Plato inspired his "true, mathematical" time / space is questionable.

Leibniz openly confessed himself to be a Platonist. In fact, the similarities between the two philosophers is very considerable, comprising: 1) a hypothesis of inborn ideas; 2) a hypothesis of *prae-natal* & *post-mortem* existence; 3) a program for a mathematical science of nature; 4) a monadology representing the micro-cosmos as a mirror of the macro-cosmos; 5) a hypothetical notion of truth regarding empircal knowledge.

Of particular importance is the fact that Leibniz described his own philosophy as: "the theory of the pre-established harmony". This *harmony* is a summary expression of the total world course of events in time and space, interpreted both *logically* as *program* and *empirically* as *history*. The parallel to the Platonic idea of the *cosmic paradigm* is, in fact, dazzling. It is therefore natural to suppose that Leibniz received inspiration to his idea of the pre-established harmony directly from the *Timaios* of Plato.

Even as regards Kant, I am inclined to recognize a close relation of dependence. What I am referring to is, of course, the Kantian concept of *the trancendental subject*, which is described as the instance that brings order to the world by conceptualization, just as the Demiurge is the instance that makes *kósmos* emerge from *cháos*. My thesis, then, is that the transcendental subject can be viewed as a modern ("de-mythologised") version of *Plato's Mastergod*. In fact, the analogy can be confirmed in detail.

Thus the Platonic *cháos*, with its in-the-air-hovering sense qualities, corresponds to the Kantian manifold of sense qualities presented to the intuition, ahead of their eventual conceptualization by our reason. A parallel is further to be found between the ordering of *kósmos* by virtue of arithmetical proportion and geometrical structure in Plato and the constitution of the universe due to reason's use of its own categories in Kant.

In passing it deserves mention that Hegel invented a synthesis of the idea of the Master-God and the idea of the transcendental ego which he baptized "der Welt-Geist". Hegel's world spirit, of course, is inconceivable without the world spirit of the *Timaios*. Then the only thing left for us here is to point out that this Hegelian concept of "Geist", in the writings of Marx, underwent a strange metamorphosis which changed the spirit of metaphysical idealism zu einer durchaus materialistisch konzipierter Begriff der Kapital.

So the circle is closed: the divine Mastergod is perverted to the diabolic Mammon! As Whitehead said: "Western philosophy is just a series of footnotes to Plato!" -

PS: I very much regret that age and weak eyes prevent me from verifying my references.