

THE BEAUTY OF THE WORLD IN PLATO'S *TIMAEUS*

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ABSTRACT: In the *Timaeus* Plato describes the world as the 'most beautiful' (*kallistos*, 29a5) of generated things. Perhaps indeed this is the first systematic description of the beauty of the world. It is, at any rate, one of the most influential statements of the theme. The Stoics were deeply convinced by it and later, in the third century A.D., at a time when contempt and hate for the world were propagated by Gnostic movements, Plotinus, interpreting the *Timaeus*, would write magnificent passages on the beauty and value of the world. But what does Plato mean by the 'beauty' of the world? What makes the world beautiful? In this paper these questions are approached first (1) by a brief discussion of the distinction which Plato appears to make in the *Timaeus* between beauty and the good. In one passage (*Tim.* 87c) 'measure' seems to relate to this distinction. It is suitable then (2) to look at a section of another late work of Plato, the *Philebus*, where the themes of beauty, goodness and measure may be compared in more detail. The theme of measure then takes us back (3) to the *Timaeus*, in order to examine the role played by measure, in particular mathematical measure, in constituting the beauty of the world. I discuss in detail the way in which mathematical structures make for the beauty of soul and body in the living whole that is the world.

KEYWORDS: Aesthetics, Antiquity, harmony, the beautiful and the good, *kalos kagathos*.

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¹ See P. Hadot (1992) 185-8.

tinus, interpreting the *Timaeus*, would write magnificent passages on the beauty and value of the world.²

But what does Plato mean by the 'beauty' of the world? What makes the world beautiful? In this paper these questions will be approached first (1) by a brief discussion of the distinction which Plato appears to make in the *Timaeus* between beauty and the good.³ In one passage (*Tim.* 87c) 'measure' seems to relate to this distinction. It will be suitable then (2) to look at a section of another late work of Plato, the *Philebus*, where the themes of beauty, goodness and measure may be compared in more detail. The theme of measure will then take us back (3) to the *Timaeus*, in order to examine the role played by measure, in particular mathematical measure, in constituting the beauty of the world. I would like to discuss in detail the way in which mathematical structures make for the beauty of soul and body in the living whole that is the world.

1. A Distinction between Beauty and the Good

We are often reminded that the 'beautiful' (*kalos*) and the 'good' (*agathos*), in ancient Greek texts, are closely related in meaning. 'Beautiful', we find in these texts, can refer to moral quality and is not affected by a separation of aesthetics from ethics characteristic of modern thought. The closeness of the beautiful and the good in ancient Greek discourse is said in a nutshell by the expression *kalos kagathos*, which designates an admirable person.⁴ It thus seems prudent to be careful of separating beauty from the good when speaking of Greek philosophical texts. Yet in Plato's *Timaeus* the main speaker, Timaeus, does seem to make a distinction between the beautiful and the good in some parts of his speech. If he does indeed do this, we would need to know in what way the distinction is made and what the distinction means for the relation between beauty and the good.

A first passage where the distinction can be found is at the beginning of Timaeus' speech, where he raises the question as to which model it was that the divine craftsman of the world, or demiurge, would have used in making the world:

We must go back to this question about the world: After which of the two models (*paradeigmata*) did [the world's] builder (*tektainomenos*) produce it – after that which is always in the same unchanging state, or after that which has come to be? If, now (*men*), this world is beautiful (*kalos*), and (*te*) its maker is good (*agathos*), clearly he looked to the eternal; on the contrary supposition (which cannot be spoken without blasphemy), to that which has come to be. Everyone, then, must see that he looked to the eternal; for the world (*men*) is the most beautiful (*kallistos*) of generated things and (*d'*) he is the best (*aristos*) of causes.⁵

² Plotinus, *Enn.* II 9, 17; V 8, 8 and 13.

³ The relation between beauty and the good in Plato's earlier work is discussed in a recent issue of *Classical Philology* (2010).

⁴ See, for example, Plato, *Timaeus* 88c6.

⁵ *Tim.* 28c5-29a6. I quote the translation by F. Cornford (1935), somewhat modified.

The Greek particles *men/te*, *men/de* suggest that the beauty of the world is contrasted with the goodness of the demiurge. It is because the demiurge is good and wishes the good that he makes a world which is most beautiful. The same contrast can be found a little later in the text:

Desiring, then, that all things should be good and, so far as it might be, nothing imperfect, the god took over all that is visible – not at rest, but in discordant and unordered motion – and brought it from disorder into order, since he judged that order was in every way the better. Now it was not, nor can it ever be, permitted for the best (*aristō*) to produce anything but the most beautiful (*kalliston*). (30a2-7)

The goal of the demiurge is the good, that is, he wishes to produce a world which is unified, self-sufficient, complete, harmonious, which functions correctly.⁶ In producing this world, by imposing order, he achieves this goal and the result is a world which is most beautiful. We might infer then that the beauty of the world is what results when the good of the world is achieved.

Before developing these ideas in more detail, we should note that the world is the most beautiful of *generated things*. The model of the world (what I will call the 'intelligible paradigm') is *also* described as 'most beautiful', the most beautiful of *intelligible things* (30d2).⁷ It thus seems that the question of the relation between the good and beauty concerns two levels: that of the model and that of the product made after the model. If the product, the world, is most beautiful because in it the good is achieved as far as possible, then in what sense is the model most beautiful? Perhaps in the sense that it is precisely the *model* of how the good can be realized. At any rate, we can say for the moment that the beauty of the world is not described simply by saying that the world realizes the good intended by the demiurge: it does this by being modelled after the most beautiful intelligible model (28a6-b2, 30c5-d2). To this we should also add that it is not just (or simply) the model that makes the world beautiful: by being a living animal having intelligence, the world can be 'more beautiful', 'most beautiful' (30b2-6).

Bringing these aspects together one might say then that the question of the relation between beauty and the good in the *Timaeus* involves several levels: the relation between the good and the beauty of an intelligible paradigm or model; the realization of the good as the beauty of the world through the world's relation to the intelligible paradigm and through the ensouled and rational life of the world. Before pursuing these themes further in the *Timaeus*, it may be useful to take account first of the treatment of the relation between the good and beauty in the *Philebus*.

⁶ The goal of the legislator in the *Laws*, the good, can be expressed by terms such as unity, friendship, harmony, happiness (688a, 693bc, 701d, 715c, 962a). Unity, friendship, harmony are also found in the world produced by the demiurge in the *Timaeus* (32c2, 34b4-9), a world which is a "happy (*eudaimôn*) god" (34b8).

⁷ Beauty also characterizes the political model developed by the legislator in the *Laws* (746b8).

2. At the Entrance of the Good

A distinction between the good and beauty appears towards the end of a discussion presented in the *Philebus* concerning the good, understood as that which can make human life happy (11b4-5, d4-6). The competing claims of pleasure and intelligence to be the good are considered and neither, by itself, seems to satisfy completely.⁸ A long analysis is proposed, differentiating between sorts of pleasure and sorts of intelligence (and knowledge), with a view to making a selection and a mix of them that would come near to the good.

Then here, one might say, we have at hand the ingredients, intelligence and pleasure, ready to be mixed, the materials in which, or out of which, we as builders (*dèmiourgois*) are to build our structure – that would not be a bad image.⁹

Since neither pleasure nor intelligence can claim to be, by itself, the complete good (61a1-2) and thus claim 'first prize', the question arises as to which of them may still obtain a 'second prize':

We shall have to grasp the good, either precisely or at least in rough outline (*tupon*), if we are to know to what we must give, as we put it, the second prize. (61a4-5)

It is proposed then to look for *where* the good is, as one might look for somebody by finding out first where the person lives (*oikêsin*, 61a9-b2). The good would seem to 'reside' in a certain mixture of kinds of knowledge and pleasure. This mixture includes forms of knowledge and pleasures which are pure and true and accompany virtue. Other pleasures which bring folly, evil and irrationality are to be excluded from a mixture that is to be the 'most beautiful' and peaceful, if one wishes to see, in the mixture, what the good might be "in man and in the universe" (63e7-64a3).

To me it appears that in our present discussion we have produced what might be called an incorporeal ordered system (cosmos) for the rightful control of a body which is ensouled... We now stand already at the entrance (*prothurois*) of the residence of the good. (64b6-c3)

What makes a mixture valuable and good is "the nature of measure (*metrou*) and symmetry (*summetrou*)" (64d9).

So now we find that the power of the good has taken refuge in the nature of the beautiful. For measure and symmetry everywhere, I imagine, are beauty and virtue. (64e5-7)

Although the progression of this argument is somewhat allusive, it does suggest a distinction between the good and beauty, as if beauty were where the good 'resides' (or 'takes refuge'). Beauty itself seems to have to do with an order in which the principal factors that make the order valuable are measure and symmetry. As this incorporeal

⁸ See already *Rep.* 505bd.

⁹ 59d10-e3. I quote the translation by R. Hackforth (1945), somewhat modified. The image of the demiurge takes up a theme introduced earlier in the *Philebus*, at 27b1, of a demiurge who is a cosmic ruling intelligence (28c7) identified as Zeus (30d1-2).

order is described in the following pages, we find that what is of primary importance or value in the mixture is measure, the measured and the appropriate (66a6-8), which are followed, in declining order of importance, by symmetry, the beautiful, the complete and sufficient and suchlike (66b1-2). After them come intelligence, forms of knowledge and, finally, in the last place, certain pleasures (66b6-c5).

The images used in these final pages of the *Philebus* of a residence and its entrance seem to concern domestic architecture rather than something on a more monumental scale. Even so, it seems that analogies can be made with the cosmic construction of the *Timaeus*. The good, in the *Philebus*, is tracked down in its 'residence', which is approached by its entrance. The good takes refuge in the beautiful. The beautiful has to do with an order (*cosmos*), in which measure and symmetry appear to be crucial: they are responsible (*aitia*, 64d4) for giving the order its value. The order, in the mixture of ingredients, is constructed by the speakers in the dialogue, in particular Socrates, as an order *for* the life of a soul in body that may thereby be happy. The order itself is incorporeal, a model, we might say in a comparison with the *Timaeus*.

The analogies this suggests with the cosmic making of the *Timaeus* reinforce our impression in the *Timaeus* that the good is indeed to be distinguished from beauty, that beauty is where the good is found. In particular, the *Philebus* gives much emphasis to the importance of measure in producing an order where beauty comes to be. It is the moment then to return to the *Timaeus* and to the function of measure in the ordering of the world.

3. Measure in the World

A connection between the good, beauty and measure is suggested by Timaeus towards the end of his speech, when dealing with the relation between the human soul and body:

All that is good is beautiful, and what is beautiful is not without measure; accordingly a living creature that is to possess these qualities must have symmetry. Symmetries of a trivial kind we readily perceive and compute; but the most important and decisive escape our reckoning. For health or sickness, goodness or badness, the symmetry or lack of measure between soul and body themselves is more important than any other. (87c4-d3)

What is good is beautiful, and what is beautiful presupposes measure. 'Symmetry' (*summetria*) here seems to be the opposite of 'without measure' (*ametria*): as concerning the relation between soul and body, the one involves health and virtue, the other sickness and vice in soul and body. But prior to the relation between soul and body in humans, there is the symmetry constituted by the making of soul in general and of the body of the universe. I would like thus to go back to these more fundamental 'symmetries', as they are described earlier in Timaeus' speech, in order to

identify in particular what measure or symmetry it is that can make soul and body beautiful.¹⁰

(i) The Making of Soul (*Tim.* 35a-39e)

The demiurge of the world makes soul first (a)¹¹ by constituting (35a1ff.) what Cornford¹² describes as 'soul-stuff', a third kind of *ousia*, made up by mixing together 'being', 'identity' and 'difference', as these three are found in indivisible and in divisible being (presumably that which is unchanging and what is changing and generated, as these had been distinguished earlier, at 29a). The mix appears to be complete (although some force [35a8] is required to join 'difference' to 'identity!'). The 'soul-stuff' thus produced seems to be seen as a sort of two-dimensional strip or band: it must have both length and breadth, since it will later be divided 'lengthways' into further bands (36b7), but length seems to be its prominent dimension.

The demiurge then (b) divides this stuff (35b4ff., lengthways?) by measuring off intervals in it (36a1, *diastêmata*). This is done by marking off a portion of the whole (35b4-5), then by doubling and tripling, successively, this portion (so, by doubling the portion 1, doubled: 2, doubled: 4, doubled: 8; and by tripling 1, tripled: 3, tripled: 9, tripled: 27), giving the series of intervals thus produced: 1, 2, 3, 4, 9, 8, 27. The portion functions, I believe, as a measure, which, by doubling and tripling in alternating succession, produces a series of determinate intervals (or lengths) which are in proportion to the measure as doubles and triples of it. These proportions constitute "geometrical" progressions (1, 2, 4, 8; 1, 3, 9, 27) or "geometrical equalities" (identical ratios in $1 : 2 = 2 : 4 = 4 : 8$; and in $1 : 3 = 3 : 9 = 9 : 27$), the progressions being produced by the successive and alternating operations of doubling and tripling. The length of the first portion, used as measure, is not given (and perhaps not pertinent).

Once the succession of proportional intervals are marked out in the soul-stuff and thus *divide* it, these intervals are then *united* (36a) by the insertion in the intervals of two other proportionalities (which had been distinguished by the Pythagorean Archytas), harmonic and arithmetic proportions, which give 'identical' (*tautô*) and (quantitatively) 'equal' (*isô*) relations (36a3-5).¹³ The 'hemiotic' (2 : 3), 'epitritic' (3 : 4) and 'epogdoadic' (8 : 9) intervals thus produced are completed by a final interval: 256 : 243.

¹⁰ I cover in the following roughly the same ground as G. Vlastos (1975), chapters 2 and 3, but in search of different things.

¹¹ 35a1 suggests a contrast between (a) that "out of which" soul is put together and (b) the 'way' in which it is put together.

¹² In his translation (above note 6).

¹³ See Archytas fr. 2 (in C. Huffmann 2005, with commentary). The three proportionalities might be expressed as follows (see Huffmann 2005, 169): Geometrical proportion is based on identity of ratios (e.g. $1 : 2 = 2 : 4$, i.e. the ratio of 2); harmonic proportion is based on the same fraction of the extremes (e.g. $6 : 8 = 8 : 12$, i.e. the mean exceeds and is exceeded by the same fraction [$1/3$] of each of the extremes); arithmetic proportion is based on identical quantity (e.g. $2 - 1 = 3 - 2$, i.e. the same quantitative difference of 1).

The summary I have just attempted to give of Plato's text is intended to emphasize (I hope reasonably) certain points: that an essentially one- (verging on two-) dimensional being is structured by imposing determinate intervals which both divide it and unite it; these intervals are proportions (of a given measure of the being) which express identity in the form of different kinds of equality (identity of ratios in geometrical and harmonic equality, quantitative identity in arithmetic equality). The proportions are first generated by operations of doubling and tripling a measure, operations which can be thus be considered as ways of making identity dimensional, at various degrees (doubling, then tripling): the intervals thus constituted, as equalities, are dimensional expressions of identity. The structure of soul-stuff thus consists of proportions (see 37a4), which give it identity in the form of different kinds or degrees of equality. Degrees of equality also mean degrees of inequality (equality of ratios in inequalities of quantities, and the reverse). Thus geometrical equality can also be described as an "unequal proportion" (*anisô summetrô*, *Laws* 744c).¹⁴ Degrees of equality can be supposed to obtain in relation to their proximity to identity.

The mix of ingredients making up soul-stuff serves to introduce the capacity in soul to know both intelligible and sensible beings (37a2-37c5), whereas the structuring of soul by a system of proportions seems to be designed to introduce the account of the movements of the heavens and their production of time. The demiurge splits the soul-stuff, once structured, lengthways into two bands (36b7), each band being bent into a circle, the outer circle being designated (*epephêmisen*) by the demiurge as that of the identical, the inner that of the different (36c4-5). The outer circle is that of the invariant movement of the fixed stars. The inner circle, that of the different, is divided again into 7 unequal circles (those of the sun, moon and planets), of which three correspond to the double, three to the triple interval (36d2-3), three having a 'similar' speed, four a dissimilar speed, all moving in ratio (*logô*, 36d6).

Without going into the mechanics of this system, the way in which it articulates the distances and speeds of heavenly bodies, we can at least observe that it reflects a hierarchy of value in which the identical precedes the different and the different expresses itself in degrees of (in)equality, the double and triple, the similar and dissimilar. The structured, proportionate, movements of the heavens mark out in turn the parts of time, the most evident of which are the divisions into day, month and year. Time expresses, imitates, in number (*kat' arithmon*, 38a7), which must mean here in proportions (see also 38a7), the unity of its eternal model, the intelligible paradigm (37d6, 39e1).¹⁵

¹⁴ Such proportions as the equal and the double are referred to as 'symmetries' in *Rep.* 530a1; *Phileb.* 25d11-e1.

¹⁵ There appears to be a problem here. In speaking of the making of time, *Timaeus* seems to have the demiurge redouble his efforts to imitate the intelligible paradigm (37c6-d1), even though it seems that time results from the structure of soul. Does *Timaeus* wish to remind us of the theme of the imitation of the intelligible paradigm, which is not made explicit in the demiurge's making of soul? Or is *Timaeus*, as in some other places, confusing things a bit?

At this point it might be useful to take stock of what has been seen so far, as it might relate to the questions raised at the beginning of this paper. If what makes the beauty of the world is the realization of the good in it, this realization is achieved through imitation of the most beautiful model, the intelligible paradigm, and through the presence of rational soul in the world (above part I). Now if time, as the proportionately structured movements of the heavens, is an imitation of the intelligible paradigm, these proportions are first given to soul when it is constituted by the demiurge. It seems to follow from this that the demiurge imitates the intelligible paradigm in structuring soul. Rational soul makes the world beautiful in that it is structured in proportions which make of the ordered heavenly movements that it carries out an imitation of the intelligible paradigm. The proportions, as different kinds of equality/inequality, are expressions of different degrees of identity/difference, at first in the quasi one-dimensional nature of soul and then in the two (or three) dimensional heavens.

(ii) The Making of the Elements (53c-56c)

If the world, as a whole, is the most beautiful of generated things, it is not uniformly beautiful or perfect. The heavens represent what is most perfect in the world, which also includes lower levels of existence, a hierarchy amusingly suggested in the conclusion of Timaeus' speech in the account of the fall of souls from their former, stellar lives to the depths of slithering, murky, aqueous indignity. Having described the making of soul in the world, Timaeus also needs to account for the making of body. Body is constituted of the elements of fire, air, earth and water, and so Timaeus offers an account of how these elements are produced. If the demiurge makes the soul-stuff, before structuring it, he does not make the stuff of the elements, which pre-exists as a chaotic, irrational, indeterminate *milieu* (52d-53b), but simply imposes rational order on it (e.g. 53b4-5). Timaeus approaches the constitution of the elements in two steps, discussing first (53c-54d) certain mathematical structures, and then (54d-56c) dealing with the production of the elements from these structures.

The discussion of mathematical structures concerns geometrical figures, in particular different kinds of triangles. In comparison with the one-dimensional, linear structures of the proportions used in ordering soul, geometrical figures are two-dimensional structures out of which three-dimensional bodies can be built. A possible explanation of Timaeus' concentration on triangles would be that they are the simplest rectilinear figures (out of them squares and oblongs can be produced), whereas circles seem to be the privilege of the heavens. Timaeus asserts (53c8-d2) that all triangles derive from triangles having one right angle and two acute angles, which triangles he distinguishes into two kinds: those with equal sides and two half right angles (right-angled isosceles triangles, in Cornford's terminology); and those with unequal sides and two unequal angles (right-angled scalene triangles). He then says:

This [geometrical shape]...we suppose to be the origin (*archê*) of fire and the other bodies... But the causes (*archas*) of these from above (*anôthen*) god knows and he of men who would be a friend of god. (53d4-7)

I return in a moment to this enigmatic passage.

After having raised the question as to what the four 'most beautiful', dissimilar bodies might be that can be changed into each other, Timaeus returns to his triangles and then tells us (54a1-2) that there is only one form (or nature) of the isosceles triangle, whereas there are unlimited sorts of scalene triangles, of which the most 'beautiful' is that which, when doubled, makes an equilateral triangle (54a7). It appears thus that the most beautiful triangle is the equilateral triangle and the scalene triangle that can produce it by doubling. The equilateral triangle is characterized by equality (of sides and angles) and the best scalene triangle achieves this beauty by doubling, thus turning its inequality (of sides and angles) into the equality of the equilateral triangle. Equality and doubling thus obtain here also, as in the structure of soul, but now in the two-dimensional proportions of plane figures.

Timaeus then constructs the bodies of the four elements from these 'numbers' (*arithmôn*, 54d4). One element is composed of 4 x 6 isosceles triangles constituting a cube (earth), whereas the other three are made up of scalene triangles, the first (fire) being a pyramid, having equal and similar parts (2 x 3 x 4 scalenes), the second and third (air and water) being an octahedron and an icosahedron, i.e. multiples of these triangles (2 x 3 x 8; 2 x 3 x 20). The section closes with the following summing up:

And with regard to their number (*plêthê*), their motions, and their powers in general, we must suppose that the god adjusted them in due proportion, when he had brought them in every detail to the most exact perfection permitted by Necessity willingly complying with persuasion. (56c2-7)

4. Some conclusions

For the purposes of this paper we do not need, I think, to get involved further in Timaeus' elemental Legoland.¹⁶ Perhaps enough indications have been collected from Plato's text to support the following inferences as regards the relations between the good, beauty and measure as they characterize the world. I have suggested that what makes the world beautiful is the realization in it of the good. This realization is achieved in that (a) the demiurge orders the world in imitation of the most beautiful model, the intelligible paradigm. But what makes the world beautiful, we have also seen, is that (b) it is animated by rational soul. These two aspects come together in that the order of heavenly movements and of time, an imitation of the intelligible paradigm, reflects the structure of rational soul, as the demiurge articulated soul when making it. From this we can infer that the demiurge imitates the intelligible paradigm in structuring soul, this imitation expressing itself in the heavenly movements carried out by soul. The structure in question is one made up of proportions ('symmetries') which correspond to various kinds of equality/inequality, which in turn correspond to degrees of identity/difference in a dimensional being. Identity,

¹⁶ In my account I have left out in particular the problem of the transformation of elements into each other, a process which the interchangeability of triangles is supposed to solve.

given dimension, becomes the equality between terms differentiated in that dimension. The account of the making of the elements, in which we reach the constitution of three-dimensional body, makes use of the same themes as those appearing in the structuring of soul: here also, equality, as a proportion constituting two- and three-dimensional objects (geometrical figures and bodies), is fundamental. It is produced by processes of multiplication (at first by doubling), which extend in a range going to greater degrees of inequality. It thus appears that the demiurge uses the same principles in ordering the elements and body as those he uses in ordering the soul, even if much distinguishes soul from body (for example, soul-stuff is made by the demiurge and it is not three-dimensional), and this order is essentially the same: it is an order of proportions expressing equality/inequality to different degrees and developing from one-dimensional being to three-dimensional body.

I have suggested that equality is identity expressed in a dimension marked off by differentiated terms. The origin or principle of equality, the *archê* mentioned in the passage (53d4-7) cited above (p. 7), would then appear to be identity, as found in the intelligible paradigm. But perhaps this inference is too audacious, since such things are only known by god and by the man “who would be the friend of god”. It may also be too audacious to suggest as well that what makes the intelligible paradigm itself ‘beautiful’ is that realizes it, *as a paradigm* (as Platonic Form), the good. But such an inference might be made in analogy with the beauty of the world. The beauty of the world, in which the good is realized, is achieved through its structuring in terms of proportions (equalities) which express in particular, I suggest, identity in the intelligible paradigm.

In organizing a good city in the *Laws*, distributing property in terms of geometrical equality, the lawgiver exhorts us with these words:

Don't ignore likeness, equality, identity and the harmonious, either in number or in any faculty producing what is beautiful and good (*kalôn kagathôn*). (741a)

The citizens of a good city, and we as inhabitants of the world of the *Timaeus*, can observe these principles as expressed in the heavens and organize our lives so that they too will become beautiful and good (see *Tim* 47bc).

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