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Платон и платоноведение

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Livers and Mirrors: Physiology, Cosmology, and Ritual in Plato's *Timaeus*

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ABSTRACT. While the *Timaeus* is one of the ancient world's most influential cosmologies, its treatment of human anatomy and physiology is often met with derision. All modern commentators are able to grant is that the descriptions of man and his parts are "highly ironic" or "moral allegory". Here I shall argue that an especially strange passage on the function and rôle of the liver as a "mirror" of the lower part of the soul (70–72) is not only serious but, in fact, integral to the system as a whole. This, however, requires examining the doctrine of the four humours alluded to in the text and the culture of ritual sacrifice and divination in the ancient world. These reveal three layers of meaning that fit into the *Timaeus*' broader cosmology: the political, medical, and ritual. As this is a cultural, and not merely literary and philosophical examination, we shall draw from a wide range of sources and conclude that the *Timaeus* demands of us a more corporeal dualism, that closer to contemporary neuroscience than we would expect from a work on spheres, dancing stars, and cosmic reflections.

KEYWORDS: Plato, liver, humors, haruspicy, omentum.

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1. Introduction

The *Timaeus* is one of the world's most influential cosmologies. Regarded as a summation of Platonism, it enjoyed an extensive commentarial tradition in antiquity and has influenced subsequent thought from the court of the 'Abbāsīd Caliphate to Jacques Derrida. Our effort here will surround one of the text's more neglected sections and how it fits into the cosmology as a whole. This contribution does not circle round abstract philosophical objects or shapes, but things and doings — organs, rituals, politicians. We thus must give a broader cultural analysis to this engaging and vexing work of literature and high philosophy to demonstrate that part of its physiology depends on the medicine of Plato's day and its anatomy on the culture of animal sacrifice. Rather than regarding Platonic natural philosophy as facetious, our reading shows how the passage can be best understood when viewed through three layers of significance: medical, ritual, and political.

Most commentaries on the *Timaeus* drop off before the subject turns to the creation of the parts of man,¹ and most contemporary studies also concentrate on issues such as images, reflection, the infamous “receptacle” (ὑποδοχή) and “gap” (χώρα) of the first half of the text. The sections related to nature and biology are often treated with contempt, or the facile argument that Plato was peppering the reader with a large dose of irony.² Bury in his introduction to the Loeb edition fulminates: “unfortunately, it is just this standpoint which tends most to hamper the student of ‘nature’ by luring him to look for ‘design’ in the wrong place, and by fixing his gaze on what ‘ought’ to be rather than what is. Plato was too much of an idealist to be a good naturalist” (Bury 1929: 15). Certainly some passages do resemble the “just-so-stories” of fairy tales that should warrant a wry smile. Our maker fashioned our heads: “shaggy with hair, purposing that, in place of flesh, the hair should serve as a light roofing for the part about the brain for safety's sake,

¹ For example, Proclus stops at 44c, and Calcidius' translation and commentary at 53c, enough to include the head, eyes and hearing.

² See the summary in Struck 2014: 24. To this I would add Cornford 1937 and Raven 1985: 238: “bizarre rather than illuminating”.

providing a sufficient shade and screen alike in summer and in winter”.³ In the *Timaeus*, the World-Soul is *primus motor* (42) while the lower gods “did as well as they could (ὡς ἄριστον εἰς δύναμιν ποιεῖν)” (71) with the creation of the sensible world. What did not turn out was up to them. If doing cosmology means coming up with a system that can account for everything, there seems to be a lot of air blowing over the χῶραι. What cannot be accounted for by the philosopher is blamed on the world or its creators.

As Socrates states at the beginning of the text, this is a cosmology that is like a musical performance (see 29a), a *mythos* where the form of argumentation takes something from its subject.⁴ The Timaeian world conflates causality and authorship; or, rather, the modern notions of both causality and authorship are not those of the treatise. References of the individual creators in a particular passage can be observed as a kind of discourse marker, framing and distinguishing sections of the text. In this, despite their obfuscation, I believe the readings of figures such as Derrida (1993) and Deleuze (1993: 167 ff.) are correct in associating style, rhetoric, explanation, and substance, such is the explicit approach of the text itself.

Nevertheless, philosophers have made significant use of the *Timaeus* as, at least in parts, a valid account of the human body. Most significant of these was Galen of Pergamon who sought to reconcile Platonism, and the *Timaeus* especially, with later medical theories in his *De placitis Hippocratis et Platonis* and a lost commentary. Man as microcosm has a significant allure and Plato’s attempt to unite fundamental

³ τούτῳ δὴ λασίαν ἡμῶν ἀπηργάσατο τὴν κεφαλὴν ὁ ποιῶν, χρώμενος μὲν αἰτίοις τοῖς εἰρημένοις, διανοοῦμενος δὲ ἀντὶ σαρκὸς αὐτὸ δεῖν εἶναι στέγασμα τῆς περὶ τὸν ἐγκέφαλον ἔνεκα ἀσφαλείας κοῦφον καὶ θέρους χειμῶνός τε ἱκανὸν σκιὰν καὶ σκέπην παρέχειν, εὐαισθησίας δὲ οὐδὲν διακώλυμα ἐμποδῶν γενησόμενον (76cd), trans. by R.G. Bury (1929). Such reasoning is not absent from many contemporary Darwinist etiologies. See Gould’s influential criticisms of “Just So Stories” (Gould 1978). All classical references are to editions in the Perseus Database (<http://www.perseus.tufts.edu>), all translations are adapted from their sources, or my own when indicated.

⁴ ὧδε οὖν περὶ τε εἰκόνοιο καὶ περὶ τοῦ παραδείγματος αὐτῆς διοριστέον, ὡς ἄρα τοὺς λόγους, ὧν πέρ εἰσιν ἐξηγηταί, τούτων αὐτῶν καὶ συγγενεῖς ὄντας (29b). See the valuable literary study in Osborne 2000.

physics with physiology appealed to physicians with metaphysical aspirations.

Steel has rightly argued we should not apply Aristotle's aetiology to Timaeus' cosmology (Steel 2001: 108–109); central to Plato's physiology and anatomy is its moral significance. The passage regarding the liver we will examine is associated with the famous Chariot Allegory from the *Phaedrus* (246a–254e) to argue that Plato believed the person to have two (or three) distinct souls. The movement down from the head to the belly harmonises with the universe made up of purer and more beautiful things up above and nastier things down below. Even the “bizarre” association of the liver with prophesy in our passage appears in unexpected places, including a brief appearance in a Romantic section of Hegel's *Phenomenology of Spirit* (Hegel 1977: § 326).

From one point of view, the *Timaeus* is itself a very corporeal text. Images of perceptible creation are made after the form of the Eternal Living Creature (37) and descend down through humans to their retrograde forms in reincarnated animals. It is clear that the Platonic values of the beautiful and good are applied to the body, and that the body, like the rest of the world, has things which are more and less beautiful. A part of the soul that lingers around the midriff, and a liver that is a mirror, are indeed bizarre to our reckoning. But rather than imputing facetiousness on the part of the author, we will take his argument for what it is: a synthetic account that is intended to fit into the extraordinary system he has created. Though a handful of recent studies have examined the passage in question,⁵ none that I have been able to uncover have taken the text at face value. Even Struck in his persuasive paper argues that references to divination can only be “artful provocations” that make their arguments “by way of analogy” (Struck 2014: 29). Steel, otherwise sympathetic to Plato's anatomy, sees the divinatory context as “highly ironical” (Steel 2001: 118).

This is, in part, because Plato himself betrays little sympathy for the diviner, the μάντις who is the liver's social analogue in this pas-

⁵ Struck 2014, Steel 2001, Pelavski 2014, and Ayache 1997. We also accept here the relative chronology of the *Timaeus* proposed by Cherniss (1957).

sage. Yet this does not mean the author's references to divination are facetious. A close look indicates that such a reference is purposeful and direct because it situates this part of the body in political space. A clear aim of the *Timaeus* is to apply what Socrates said was his rather empty and airy model of the state (redacting Homer, banishing poets) to something more rotund, we can say "real" (18–19, cf. *R.* 9.592). Here Plato tacitly recognises and replies to criticisms of the *Republic's* loftiness by doing cosmology, making something that will arrive at, and account for, the world. The sections on contemplation, perception, and the body make for a thicker, richer cosmos deductively rather than inductively.

Another source of confusion for this passage is that the objects of reflection in the liver passage are obscure. A comparison of a very famous account of vision and refraction in the *Timaeus*, informed by the appropriate ancient medical context, will cast more light. Finally, the ritual context may aid in answering both the place of the liver and addressing another vexing question of Timaeian anatomy: the significance of the so-called "fish traps" (κῦρτοι) that rope around the abdomen.

An examination of a fantasising organ that makes use of ancient myth and ritual by means of a defunct medical theory is, as it turns out, highly relevant. Though Plato is a dualist, this text demonstrates to the many who would need it that he is certainly not a Cartesian dualist, as Steel aptly implies (Steel 2001: 22). Because life is the chief attribute of the soul, wherever life is there the soul is, too. Contemporary neuroscience continues to reveal the intimate connections between the brain and gut, psychology and the whole body (Lerner et al. 2017) that a sensitive and informed reading of Plato's physiology will appreciate. Even the picture of a populist in the *Republic* (9.560) as he who reflects the temperament of the people can give new insight as it casts our contemporary political discourse in its bilious light.

We will begin with an outline of this vital system of reflection in the *Timaeus* and how it dictates the structure of sensible creation. Sensation, especially vision and its sense impressions, is a vital part of this system and even long precedes the creation of sensory organs them-

selves. This discussion prepares us for an examination of our passage about the liver as the mirror of the lower part of the soul. To understand what this mirror is reflecting, we will show how this passage implicitly relies on the humoral doctrine of Plato's day. Understanding why the liver should be the source of visions and dreams then requires that we turn to the heptosopic tradition and ancient ritual. Finally, we will speculate on how ancient sacrifice might inform an understanding of a very obscure passage that also deals with the human body.

2. Sensation in *Timaean Cosmology*

The *Timaeus* does not seem to suffer from Dante's "Paradiso Syndrome" where that which is more and more exalted becomes less and less interesting. The higher spheres are filled with colours, flavours and textures. This means that faculties such as vision and sound are accounted for *before* sensible creation. Far more "bizarre" than the liver passage, and no less amusing than Aristophanes' disc-people of the *Symposium* (190), is the account of the head that comes rolling out to meet us long before the rest of the body (44d). This is because the round head is made in an image of the revolving World-Soul, but also because the question of appearances and the elements is dependent upon their appropriation by the faculty of vision.

Vision is a noble faculty, and origin of the all-important powers of observation (47b). The nature of sight is accounted for following Empedocles' emanationist theory of vision. Within the body is a pure fire that flows out of the eyes in an even and firm, or thick, stream (ῥεῖν λεῖον καὶ πυκνὸν ὄλον μὲν, 47b). This runs together with a fire in the air of daylight just as like-meets-like. Vision occurs when this stream then meets other substances; the result, through the eyes, permeates the body and the soul with the likeness between those substances in their movements (κινήσεις). With the coming of night, the eyes close and sleep ensues, bringing quiet (ἡσυχία) to the inner fire. But the substances of dreams (φάντασμα) come when a residue of earlier motions is left behind. The storing of impressions without an active

stimulus gives way to an excursion on the nature of reflection in mirrors:

τὸ δὲ περὶ τὴν τῶν κατόπτρων εἰδωλοποιίαν καὶ πάντα ὅσα ἐμφανῆ καὶ λεία, κατιδεῖν οὐδὲν ἔτι χαλεπὸν. ἐκ γὰρ τῆς ἐντὸς ἐκτὸς τε τοῦ πυρὸς ἐκατέρου κοινωνίας ἀλλήλοις, ἐνός τε αὖ περὶ τὴν λειότητα ἐκάστοτε γενομένου καὶ πολλαχῆ μεταρρυθμισθέντος, πάντα τὰ τοιαῦτα ἐξ ἀνάγκης ἐμφαίνεται, τοῦ περὶ τὸ πρόσωπον πυρὸς τῷ περὶ τὴν ὄψιν πυρὶ περὶ τὸ λείον καὶ λαμπρὸν συμπαγοῦς γιγνομένου. (46ab)

And thus it is the same with the formation of images in mirrors and clear and smooth surfaces of every kind. It is from the combination of inner and outer fires that in each instance they unite on the smooth surface and are deflected in various ways; that all such reflections necessarily result owing to the fire of the reflected face coalescing with the fire of the vision on the smooth and bright surface.

This then gives way to reflection on refraction, how images are reversed in mirrors and distorted. And this, in turn, leads to one of the *Timaeus*' characteristic leaps in frame: these effects are like those of secondary causes (συναίτια). They appear to simple persons to be the reasons behind things, but that is illusory. They are secondary to the first cause in God and merely serve to perfect his ideas (46d), reality unrefracted. Refraction then becomes a version of the Cave Analogy. Mirrors are thus associated with a less veritable reflection, illusory causes and, by extension, necessity.

Once vision has been explained along with a precursory account of hearing, the cosmology turns round again and begins another account of visible creation based on the copy of the copy (48–49) and the famous gap between them. As Lee (1966) has shown in his study, there are two more leaps: the object of sensation is another image which is first contrasted with the receptacle (48), and then with the forms. This leads to the conclusion of the three kinds: form, image, and receptacle where the image is contrasted with reality. The cycle is a repetition of the account of vision, now involving its objects (which are equivalent to εἰκόνες), their relationship to their substrate, and forms. Such is the representation of dependent reality on which the senses of smell

and taste rely, after a general account of sensation (65–67) with textures, colours, and flavours.⁶ By the foregoing it should be clear why necessity and a discussion of the causes comes *after* this section on the mixtures of sense objects (68e–69). Necessity operates externally to the divine will of the lower gods mixing rational elements (λόγοι) with what they cannot account for.

Indeed, separate from the harmonies and hierarchies of the *Timaeus*' nesting spheres, there is an overarching, non-circular, structural element in the influence of authorship and aetiology that has been mentioned above. In the first cycle of creation, the workings of the Father in time are effected through ποίησις and τεχνή (see 37d). The second “cycle” of sensible creation is effected by lower gods through λόγος and ἀνάγκη. Occupied with higher things, the Demiurge dictated man to the lower gods (41bc; 42e). Whereas the Demiurge made a reflection of perfection that must itself be less than perfect, the imperfect nature of these ministers of lower creation made the reflection of reflection even less perfect by their personal faults. With the best intentions, they made man subject to reason (λόγος), and what they could not accommodate by reason became subject to necessity (ἀνάγκη).⁷ Necessity then becomes a limiting force that must be accommodated rather than engaged with, reasoned around rather than reasoned through. Of the senses sight and hearing were exalted products of reason, the others of necessity (47e). With a regulating force introducing uncertainty and randomness into the system, these particular elements and qualities set up the account of fashioning the human body below the head.

3. *The Vision of the Liver (70–72)*

The human body is divided into three basic parts that are defined, like states, by their borders: the neck is the border like an “isthmus”

⁶ The place of the lower senses, the neglected sense of smell in particular, has received an excellent recent treatment by Volkova (2021).

⁷ Interestingly, Lee finds the discussion of necessity vexing at this point (Lee 1966: 352, n. 22). I would argue that is because pairing authorship-causality and λόγος-ἀνάγκη are metatextual features, like authorship is itself. They do not follow the cyclical and circular structure of so much of the rest of the text.

to protect the immortal part of the soul from the base and passionate. From there down to the diaphragm, the gods set the heart, and in the midriff they settled the lower part of the soul.

How the gods “placed” (κατοικέω) parts of the soul needs clarification. At least since Galen, there has been a tendency to regard Plato as holding that there are two or three separate “souls” placed *in* organs of the body: the rational soul in the brain, the passionate soul in the heart, and the vegetal soul in the liver. Frequently, following the dualism of *Phaedo*, *Phaedrus* and the *Republic*, the latter two souls are combined into the rational and concupiscent. We will not take up this vast and well-covered subject here, but merely concur with Steel (2001: 121–122) that here Plato does not say the soul is seated *in* some particular organ, but rather that a single soul has individual parts that are, as Jowett (1892) in his classic translation takes it, “placed *about* the midriff...”, etc.⁸ Aside from the political allusion, the language describing limits rather than locations is deliberate. This is, as Steel rightly notes, because the actual activity of the soul takes place in the circulatory system that runs through these places (Steel 2001: 122). All body parts come from the elemental origins of the marrow, seat of the “divine seed” — “for all the bonds of life, all that which binds the soul to the body, was implanted in [the marrow]”.⁹ Marrow was understood as the marrow of the bones, but also the brain, and was associated with the sinews and tubular structures that run out from the spine. I would argue that this is because the soul, from the creation of the Eternal Living Creature (37d) is associated with motion, as it is in most cultures. Nerves, vessels, sinews, all aid in motion or have things moving through them. This is no Cartesian pineal gland with a passive, pseudo-material soul within. Plato’s body is the prison house of the soul; but while incarcerated it had a much lighter regime than what we moderns give it.¹⁰

⁸ E.g., καὶ εὐήμερον ποιοῖ τὴν περὶ τὸ ἥπαρ ψυχῆς μοῖραν καταγκισμένην (71d).

⁹ οἱ γὰρ τοῦ βίου δεσμοί, τῆς ψυχῆς τῷ σώματι συνδουμένης, ἐν τούτῳ διαδοῦμενοι κατερρίζουν τὸ θνητὸν γένος: αὐτὸς δὲ ὁ μυελὸς γέγονεν ἐξ ἄλλων (73ab).

¹⁰ Is this not essentially Foucault’s argument in the first volume of the *History of*

Moving down from the neck, we are in the heart's territory. As in the *Republic* (581c), this is the “lover of victory” (φιλόνικον), or strife, set as a “guardhouse” (δορυφορική οἰκησις) to protect the upper from the lower so that it might, with the mind, “subdue the tribe of desires should they utterly refuse to yield to the word of command from the citadel of reason”.¹¹ Through the vascular system, the heart communicates external and internal states to the rest of the body for response. The heat which accumulates around it is cooled by the lungs so as to be calmed and more subservient to the mind.

All this is set against the roilings and cravings of the lower. Nourishment is a necessity, contrary to reason, and so it must be dealt with. The gut, like a manger (φάτνη), is then bound below the diaphragm like a “niggling beast” (θρέμμα). It is set as far away from the supreme part of the body so as to leave it in peace. Thus,

εἰδότες δὲ αὐτὸ ὡς λόγου μὲν οὔτε συνήσειν ἔμελλεν, εἴ τέ πη καὶ μεταλαμβάνοι τινὸς αὐτῶν αἰσθήσεως, οὐκ ἔμφυτον αὐτῷ τὸ μέλειν τινῶν ἔσοιτο λόγων, ὑπὸ δὲ εἰδώλων καὶ φαντασμάτων νυκτὸς τε καὶ μεθ' ἡμέραν μάλιστα ψυχαγωγῆσοιτο, τούτῳ δὴ θεὸς ἐπιβουλεύσας αὐτῷ τὴν ἥπατος ιδέαν συνέστησε καὶ ἔθηκεν εἰς τὴν ἐκείνου κατοικήσιν, πυκνὸν καὶ λείον καὶ λαμπρὸν καὶ γλυκὺ καὶ πικρότητα ἔχον μηχανησάμενος, ἵνα ἐν αὐτῷ τῶν διανοημάτων ἢ ἐκ τοῦ νοῦ φερομένη δύναμις, οἷον ἐν κατόπτρῳ δεχομένῳ τύπους καὶ κατιδεῖν εἰδῶλα παρέχοντι, φοβοῖ μὲν αὐτό, ὅποτε μέρει τῆς πικρότητος χρωμένη συγγενεῖ, χαλεπὴ προσενεχθεῖσα ἀπειλη, κατὰ πᾶν ὑπομεινῦσα ὀξέως τὸ ἦπαρ, χολώδη χρώματα ἐμφαίνοι, συνάγουσά τε πᾶν ῥυσὸν καὶ τραχὺ ποιοῖ, λοβὸν δὲ καὶ δοχὰς πύλας τε τὸ μὲν ἐξ ὀρθοῦ κατακάμπτουσα καὶ συσπῶσα, τὰ δὲ ἐμφράττουσα συγκλείουσά τε, λύπας καὶ ἄσας παρέχοι, καὶ ὅτ' αὐτὰν ἀναντία φαντάσματα ἀποζωγραφοῖ πραότητός τις ἐκ διανοίας ἐπίπνοια, τῆς μὲν πικρότητος ἡσυχίαν παρέχουσα τῷ μῆτε κινεῖν μῆτε προσάπτεσθαι τῆς ἐναντίας ἑαυτῇ φύσεως ἐθέλειν, γλυκύτητι δὲ τῇ κατ' ἐκείνο συμφύτῳ πρὸς αὐτὸ χρωμένη καὶ πάντα

Sexuality (Foucault 1990) and in his study of the influence of the modern on incarceration in *Discipline and Punish* (Foucault 1995)?

¹¹ ἵνα τοῦ λόγου κατήκοον ὄν κοινῇ μετ' ἐκείνου βία τὸ τῶν ἐπιθυμιῶν κατέχοι γένος, ὅπότ' ἐκ τῆς ἀκροπόλεως τῷ τ' ἐπιτάγματι καὶ λόγῳ μηδαμῇ πειθεσθαι ἐκὸν ἐθέλοι (70a).

ὀρθὰ καὶ λεῖα αὐτοῦ καὶ ἐλεύθερα ἀπευθύνουσα, ἴλεών τε καὶ εὐήμερον ποιῶ τὴν περὶ τὸ ἥπαρ ψυχῆς μοῖραν κατωκισμένην, ἔν τε τῇ νυκτὶ διαγωγὴν ἔχουσαν μετρίαν, μαντεία χρωμένην καθ' ὕπνον, ἐπειδὴ λόγου καὶ φρονήσεως οὐ μετεῖχε. (71a–d)

inasmuch as they knew that it would not understand reason, and that, even if it did have some share in the perception of reasons, it would have no natural instinct to pay heed to any of them but would be bewitched for the most part both day and night by images and phantasms, — to guard against this God devised and constructed the form of the liver and placed it in that part's abode; and He fashioned it dense and smooth and bright and sweet, yet containing bitterness, that the power of thoughts which proceed from the mind, moving in the liver as in a mirror which receives impressions and provides visible images, should frighten this part of the soul; for when the mental power bears down upon it with stern threats, it uses a kindred portion of the liver's bitterness and makes it swiftly suffuse the whole liver, so that it exhibits bilious colours, and by contraction makes it all wrinkled and rough; moreover, as regards the lobe and passages and gates of the liver, the first of these it bends back from the straight and compresses, while it blocks the others and closes them up, and thus it produces pains and nausea. On the other hand, when a breath of mildness from the intellect paints on the liver appearances of the opposite kind, and calms down its bitterness by refusing to move or touch the nature opposite to itself, and using upon the liver the sweetness inherent therein rectifies all its parts so as to make them straight and smooth and free, it causes the part of the soul planted round the liver to be cheerful and serene, so that in the night it passes its time sensibly, being occupied in its slumbers with divination, seeing that in reason and intelligence it has no share.

Immediately we are struck by three elements which distinguish our passage. The first is the obvious political and even colonial language. The faculties are not merely put in their organs but “planted” (κατοικέω) there, we could also say “settled” as in a population settled in a region by others. The superior part is placed in a “citadel” (ἀκρόπολις) and governs a clan (γένος) and a rabble (θρέμμα) in some other place. The heart is noble, but prone to an excess of heat. The only uses of the term δορυφόρος in the *Republic* are to describe the

spear-bearing guards who have to protect an unjust tyrant from his justly outraged people (8.567d). The colonial governor in the liver is sent to reflect the orders of the capital, but inevitably adopts some of the barbarous customs of the natives. Notable also is the rather extreme language where the liver is “bewitched” (ψυχαγωγεῖ) by the rumblings of the gut.

As Kuriyama (2011) remarks in his superb comparative study of medical systems, Western medicine is distinguished by its interest in *government*, a hierarchy of what part of the body is set, or sent. It would be easy, with Bury, to see this as all some *post quem* attempt to fit the facts of the world into what was actually a claptrap physics; or perhaps Plato was poking some fun at a popular physiology of the kind we can still find in pamphlets related to “folk medicine”. A closer examination reveals the text to be far more subtle.

Second, there are obvious similarities in the passage about the liver and that about sight and reflection. The surface of the liver is dense and sweet and bright (πυκνὸν καὶ λεῖον καὶ λαμπρὸν καὶ γλυκὺ, 71b) like the stream of vision (ῥεῖν λεῖον καὶ πυκνὸν ὄλον μὲν, 45b) and the mirror’s surface.

Third, if vision reflects the elements, what then is reflected in the liver? The source of the images from the gut is digestion, to which the lower soul, translating orders from the upper, sends bile for chastening and correction. What then is the product of this nourishment? What is the language into which the rational orders are translated?

The idea of health as representing a balance of certain vital juices is very much the doctrine of the humours, one of the most dominant theories of ancient medicine. The motions of the physical world and its elements are reflected and matched by the light of the eye, the motions of digestion are reflected in the liver. Just as with the emanation theory of vision, the liver’s reflection is not entirely passive — it receives commands from the upper soul but reflects its dark images back to the rational mind. Just as with all the other reflections in the *Timaeus*, the image changes the message received. Here we have a clear statement of qualities — hot, bitter, sweet, firm, bright, dark — reflected as “fan-

cies” — εἶδωλα — in the liver. They correspond to the elementary images — εἰκωνές — of vision reflected in a mirror. The clear analogies between the two passages present the liver as an organ of sensation. It receives impressions from above and below and reflects them in its own way.

4. The Humours and the Expressiveness of the Liver

Though Galen seemed to have taken humoral doctrine to be implied in this passage, modern commentators have not. Struck says he wished Plato would say where it was that the images in the liver come from (Struck 2014: 31). If my reading is correct, the objects of reflection in the liver are the εἶδωλα of the humours.

Though contemporary medicine has — with the leech and the cup — long abandoned humoral theory, the liver is still regarded as an organ intensely sensitive to its environment. Medicine gives 500 functions for the organ ranging from the production of digestive juices to a crucial role in the immune system (e.g., Roberts 1986: 206).

For many ancient medical theories, especially in Greece and China, the liver was the cardinal humoral organ, ultimate origin of both black and yellow bile (or ichor) and even the blood — three of the four.¹²

If then Plato’s account refers to some part of humoral doctrine, at least implicitly, which version is he referring to? The idea of a balance of qualities, and an associated political terminology (ἰσονομία/μοναρχία), dates at least to Alcmaeon of Croton (see Sassi 2007); and, according to Galen, Hippocrates first limited the humours to four.¹³

The only explicit reference to them in this text comes not in our passage, but toward the end of the *Timaeus*, under the discussion of

¹² This was the dominant, but not exclusive view. Most dissent surrounded the origins of blood and the importance of the heart. In *De partibus animalium*, Aristotle regarded the heart as the “citadel” of the body (*PA* 3.7, 670a25–26) and, on the basis of comparative anatomy, took the liver to be merely an excretory organ (*PA* 4.2, 676b–677b). From Galen until the anatomists of the 17th century, however, the humors, and the liver, were restored to their central position. The spleen was not regarded as an independent organ in the West until much later.

¹³ In *Hippocratis librum De natura hominis* 15.52.17–18 Kühn.

maladies. Plato states that all illnesses stem from a misbalance or a misplacement that is “contrary to the nature of the elements”.¹⁴ Here the congruence of the elements and humours is clear, with “the purest of triangles, smooth and unctuous”¹⁵ flowing in to the marrow, and explicit mention of blood, bile, phlegm, and ἰχώρος. Later bile is compared with putrefaction and decay, now explicitly (83), as it was implicitly in the passage above.

In his *De placitis Hippocratis et Platonis*, Galen specifically mentions the *Timaeus*’ passage regarding the liver as a means of discussing the basic harmonies between medicine and philosophy. In attempting to resolve the question of the location of the soul, he says that there is no difference between Hippocrates holding that veins and blood come from the liver and Plato that it is the seat of the concupiscent soul. Philosophers and doctors have different aims and interests. Each speaks for themselves and each depends upon the other.¹⁶ Plato, nonetheless, was not a physician, and Galen criticised his over-extension of a theory of the elements to the humours as being, at least how I understand his argument, a conflation of categories¹⁷ that offers little valuable insight. Galen’s implication is that Plato himself was the origin of this conflation.

Rather than rehearsing all the arguments concerning Platonic medical knowledge,¹⁸ or all of humoral theory,¹⁹ I propose what might have been a near contemporary influence on the *Timaeus* that might have

¹⁴ τεττάρων γὰρ ὄντων γενῶν ἐξ ὧν συμπέπηγεν τὸ σῶμα, γῆς πυρὸς ὕδατος τε καὶ ἀέρος, τούτων ἢ παρὰ φύσιν πλεονεξία καὶ ἔνδεια καὶ τῆς χάρας μετάστασις ἐξ οἰκείας ἐπ’ ἀλλοτριάν γιγνομένη (82a).

¹⁵ γένος τῶν τριγῶνων λειότατόν τε καὶ λιπαρώτατον (82d).

¹⁶ αἷμα μὲν ἐξ ἥπατος ἀποπλανᾶσθαι λέγων, πνεῦμα δ’ ἐκ καρδίας, θερμασίαν δ’ ἐξ ἁμφοῖν. ὄθεν οὐδὲ διήνεγκεν ἢ φλεβῶν ἀρχὴν εἰπεῖν τὸ ἦπαρ, ἢ αἵματος, ἢ τῆς ἐπιθυμητικῆς ψυχῆς, ἀλλ’ οἰκειότερόν πως ἰατρῶ μὲν ἐπὶ τοῖς σωματικοῖς ὀργάνοις, φιλοσόφῳ δ’ ἐπὶ ταῖς ψυχικαῖς δυνάμεσι ποιεῖσθαι τὴν διδασκαλίαν, ἔπειτα δὲ ἐπιδειχθέντι θατέρῳ θάτερον (5.577.10–16 Kühn).

¹⁷ *De placitis* 8.3 (5.667–671 Kühn). Steel (2001: 122–123) holds that Galen misreads Plato.

¹⁸ The best survey is that of Ayache (1997).

¹⁹ See Jouanna 2012.

helped the philosopher along and argue that the Timaeian physiology of the liver is important to the architecture of the text as a whole.

A passage from the “Anonymous of Paris” text, which represents a stage of Greek medicine between Hippocrates and Galen (Lewis 2020), compares different medical opinions regarding the source of inflammation in the liver. Eristratus attributed inflammation in that organ to a local increase in blood pressure building up between veins and arteries, Praxagoras to the putrefaction of stale and fresh humours, while Hippocrates opined that bilious humours accumulate in the liver and there expend their innate heat. The passage also notes: “According to Diocles it is an obstruction of the veins and an inclusion of the [re-sultant] heat [in the liver] that leads to inflammation at that particular place”.²⁰ This resembles Plato’s “blocked gates” above, which is likely a reference to the portal vein. Diocles of Carystus supposedly wrote a book on the humours that survives only in quotations. Attributed fragments attest to his formulation of four humours,²¹ efforts to distinguish black bile and black humour, with the latter being a sign of putrefaction.²² It is perhaps his theory that informs Plato’s association

²⁰ Anonymus Parisinus, *De morbis acutis et chroniis* 32 (170.13–23 Garofalo): “Ἡπατος φλεγμονῆς αἰτία: κατὰ μὲν Ἐρασίστρατον παρεμπτώσεως αἵματος ἐκ φλεβῶν εἰς ἀρτηρίας κατὰ τὰς ἀναστομώσεις γενομένης ἐν ἥπατι καὶ διατείνοντος ταύτας, τὴν φλεγμονὴν γίνεσθαι. κατὰ δὲ Πραξαγόραν, συμπλοκὴν ἐν τῷ μέρει τούτῳ χυμῶν προσφάτων ἐώλοισι. καὶ διὰ τοῦτο στάσιν καὶ σῆψιν καὶ τὴν τοῦτων φλεγμονήν. κατὰ δὲ Διοκλέα, ἔμφραξιν τῶν ἐν τούτῳ φλεβῶν καὶ ἐγκατάκλεισιν τοῦ θερμοῦ. ἐφ’ ᾧ τὴν φλεγμονήν. καθ’ Ἴππκράτην δὲ χολικῶν χυμῶν ἐνταῦθα συστάντων καὶ ἐκπυρουντῶν τὸ ἔμφυτον θερμόν, τὴν φλεγμονὴν γίγεσθαι (van der Eijk 2000: 206–208, fr. 119).

²¹ *Ibid.*: 78 (fr. 40.2). The actual attestations of these fragments is difficult as there are *post quem* and associative attributions. While noting this possibility, Jouanna (2012: 337) does not seem to notice that Plato does report the four humours in *Timaeus* (83). He is thus not correct that there is no fourth century attention to the doctrine, and it would seem highly unlikely that the *Timaeus* itself is its origin.

²² Fr. 27.12 van der Eijk (2000: 53). This distinction, with χολή as the off-scourings of the spleen, may allow Plato to conceive of “abstract” humours that are not identical to their physical correlates. This would then be another level of reflection. Diocles’ works were translated into Arabic in the 9th century (Das 2014), and it is possible this distinction led to the notion of “root” humours that was important to Islamic and mediaeval medicine. However, this is highly speculative.

of the liver, the humours, and the elements. However, it is more likely that Plato is merely using smatterings of the medical knowledge of his day to make a vastly broader point.²³ If, as Galen says, philosophers are more interested in the workings of the soul than the workings of the body, then the *Timaeus* is most especially interested in the workings of the body as an image, and a microcosm, of the things in higher souls.

To describe the microcosmic relationship in the passages of vision (46) and the liver (71) in greater detail, we would say that the rational part of the soul sees with light and the concupiscent “sees” with humours. As fire from the eyes catches with fire in the daylight air, the impressions which flow first up from the thrashings and grumbings of the manger (φάτνη) meet the liver and are refracted up to the mind. During the day the mind answers these reflections, and the liver responds correctively. The liver is a citizen of the higher places forced to live with the barbarians of the gut. Its humours are thus images of the pure elements, but lower ones, εἴδωλα.²⁴

This interpretation provides the moral dualism such a passage would expect. Reflection — in the fire of vision, mirrors, the surface of the liver — depends on the properties of smoothness, density, brightness, and sweetness. The “power borne out from the mind” (ἐκ τοῦ νοῦ φερομένη δύναμις) bears down on the liver and the result is “twisted, rough, and distorted”. Not only is this misbalance a source of illness, it turns the liver into a poor source of reflection. That fire and bile are the main culprits accords with the moral and political reading of anger, intemperance and the rash “victory-loving” heart (φιλόνηκον).

²³ Note the tone of despair in Ayache 1997: 55: “Il n’y est question que de quelques maladies, le registre thérapeutique est très sommaire, les explications biologiques sont imprécises et semblent parfois même contradictoires. La recherche de ses sources éventuelles ne permet pas de résoudre ces difficultés. On a pu déceler l’influence de doctrines médicales d’origines diverses, parmi lesquelles on a tour à tour reconnu des éléments orientaux, des emprunts à Empédocle, à Alcméon, à Philolaos, à Philistion, à Diogène d’Apollonie, et à certains auteurs de la *Collection hippocratique*”.

²⁴ Another medium of this δύναμις, is the system that irrigates the body “like water pipes in a garden” (77c). This accounts for the movement of nourishment up through the body. See Pelavski 2014 for a thorough and wholly physiological account of yet another set of interlocking symmetries.

Indeed, rather than the simplistic dualism that many would ascribe to Plato (e.g., Damasio 1994: 250), this is a rich interplay of reflections and refractions, of juices and rays, tastes and colours between body and mind. Furthermore, illness results not just from a misbalance of juices, but from faults of reflection, misunderstanding, sin from the distortion of ignorance. Rather than some anachronism, humoral theory shows us how subtly this passage expresses the fundamentals of Platonic philosophy.

Another structural parallel exists between the vision of the eye and the vision of the liver. As vision occurs when the fire of the eye is carried by the fire in the air, night is deprived of this fire and sleep turns over into fantasy. This fantasy then gives way to an account of refraction and an argument similar to that of the Cave Allegory (*R.* 514). The liver passage makes a similar gesture: the powers of the mind reign in the day, but night gives sway to the nattering of visions.²⁵ However, the liver as the origin of prophecy cannot be accounted for by the theory of the humours. This requires an examination of the central role the organ played in ancient divination and sacrifice.

5. Ritual and Divination

The *Timaeus*' discussion continues with an account of the liver's nightly activities:

μεμνημένοι γὰρ τῆς τοῦ πατρὸς ἐπιστολῆς οἱ συστήσαντες ἡμᾶς, ὅτε τὸ θνητὸν ἐπέστελλεν γένος ὡς ἄριστον εἰς δύναμιν ποιεῖν, οὕτω δὴ κατορθοῦντες καὶ τὸ φαῦλον ἡμῶν, ἵνα ἀληθείας πῆ προσάπτουτο, κατέστησαν ἐν τούτῳ τὸ μαντεῖον. ἰκανὸν δὲ σημεῖον ὡς μαντικὴν ἀφροσύνη θεὸς ἀνθρωπίνῃ δέδωκεν: οὐδεὶς γὰρ ἔννοος ἐφάπτεται μαντικῆς ἐνθέου καὶ ἀληθοῦς, ἀλλ' ἢ καθ' ὕπνον τὴν τῆς φρονήσεως πεδηθεὶς δύναμιν ἢ διὰ νόσον, ἢ διὰ τινὰ ἐνθουσιασμὸν παραλλάξας. ἀλλὰ συννοῆσαι μὲν ἔμφρονος τὰ τε ῥηθέντα ἀναμνησθέντα ὄναρ ἢ ὕπαρ ὑπὸ τῆς μαντικῆς τε καὶ ἐνθουσιαστικῆς φύσεως, καὶ ὅσα

²⁵ Note that when the argument about the liver is reprised later in the text (77bc), Plato reminds us that the lower part of the soul is animate, but passive, rooted, and stationary, like the chained observer in the Cave Allegory.

ἀν φαντάσματα ὀφθῆ, πάντα λογισμῶ διελέσθαι ὅπη τι σημαίνει καὶ ὅτῳ μέλλοντος ἢ παρελθόντος ἢ παρόντος κακοῦ ἢ ἀγαθοῦ: τοῦ δὲ μανέντος ἔτι τε ἐν τούτῳ μένοντος οὐκ ἔργον τὰ φανέντα καὶ φωνηθέντα ὑφ' ἑαυτοῦ κρίνειν, ἀλλ' εὖ καὶ πάλαι λέγεται τὸ πράττειν καὶ γνῶναι τὰ τε αὐτοῦ καὶ ἑαυτὸν σώφροني μόνῳ προσήκειν. ὅθεν δὴ καὶ τὸ τῶν προφητῶν γένος ἐπὶ ταῖς ἐνθέοις μαντεῖαις κριτὰς ἐπικαθιστάναι νόμος: οὓς μάντεις αὐτοὺς ὀνομάζουσιν τινες, τὸ πᾶν ἡγνοηκότες ὅτι τῆς δι' αἰνιγμῶν οὗτοι φήμης καὶ φαντάσεως ὑποκριταί, καὶ οὗτοι μάντεις, προφηῆται δὲ μαντευομένων δικαιοτάτα ὀνομάζονται' ἄν.

ἡ μὲν οὖν φύσις ἥπατος διὰ ταῦτα τοιαύτη τε καὶ ἐν τόπῳ ᾧ λέγομεν πέφυκε, χάριν μαντικῆς: καὶ ἔτι μὲν δὴ ζῶντος ἐκάστου τὸ τοιοῦτον σημεῖα ἐναργέστερα ἔχει, στερηθὲν δὲ τοῦ ζῆν γέγονε τυφλὸν καὶ τὰ μαντεῖα ἀμυδρότερα ἔσχεν τοῦ τι σαφὲς σημαίνειν. (71d–72c)

For they who constructed us, remembering the injunction of their Father, when He enjoined upon them to make the mortal kind as good as they possibly could, rectified the vile part of us by thus settling therein that which can divine, so that it may, at least in some degree, lay hold on truth. And that God gave unto man's foolishness the gift of divination a sufficient token is this: no man achieves true and inspired divination when in his rational mind, but only when the power of his intelligence is fettered in sleep or when it is distraught by disease or by reason of some divine inspiration. But it belongs to a man when in his right mind to recollect and ponder both the things uttered in dream or waking vision by the divining and inspired nature, and all the visionary forms that were seen, and by means of reasoning to discern about them all wherein they are significant and for whom they portend evil or good in the future, the past, or the present. But it is not up to one who has been in, and continues to be in, a state of inspiration, to be able to judge the apparitions and voices that he sees or utters; for it was well said of old that to do and to know one's own and oneself belongs only to him who is sound of mind. Thus also it is customary to set the class of prophets to pass judgement upon these inspired divinations; and they, indeed, themselves are named "diviners" by those who are wholly ignorant of the truth — they are not diviners but interpreters of the mysterious voice and apparition, for whom the most fitting name would be "prophets of things divined".

For these reasons, then, the nature of the liver is such as we have stated and situated in the region we have described, for the sake of divination.

Moreover, when the individual creature is alive this organ affords signs that are fairly manifest, but when deprived of life it becomes blind and the divinations it presents are too much obscured to have any clear significance.

Based on Plato's reasoning in the passage, the lower part of the soul as the origin of dreams at first seems to be another foil: there must be some reason that some active, and thus ensouled, force provides the visionary and the irrational. Plato's liver comes in the place of Freud's Unconscious, that Other will bubbling up its concupiscent images. The parallels to passages in the *Republic* (e.g., 346b), along with the account of vision above, might enforce such a notion.

Yet this would be ignoring a number of obvious references to the ritual culture surrounding Plato and his text. Take first another informative, liver-laden passage from the *Electra* of Euripides. While Orestes had concealed himself as a Thessalian guest, he accepted Aegisthus' request, or challenge, to aid in butchering an offering. As Aegisthus intones vengeance on his enemies (implying Orestes) the guest himself wordlessly prays for a restoration to his house. Having just killed and splayed the ox, Aegisthus makes for the σπλάγχνα, the noble organs:

ἱερά δ' ἔς χειρας λαβῶν
 Αἴγισθος ἤθρει. καὶ λοβὸς μὲν οὐ προσῆν
 σπλάγχνοις, πύλαι δὲ καὶ δοχαὶ χολῆς πέλας
 κακὰς ἔφαινον τῷ σκοποῦντι προσβολάς. (826–829)

As priest Aegisthus took the innards
 Into his hands and looked. There was no lobe
 Portal fissure and gallbladder
 Portend ill advents to the looker.²⁶

This is one of the most detailed references in ancient Greek literature to liver divination, heptoscopy. Aegisthus first reaches under the diaphragm, through the entrails up to the elbows; and, careful not to break the delicate membrane of the gallbladder underneath, cuts the tendon, portal vein and hepatic arteries that cover his arms with rich

²⁶ My translation — *W.T.*

dark blood as he pulls out the liver. This was the first thing to be done after the killing. The “lobe” is probably the process of the caudate lobe, an important protrusion used in divination, and the πύλαι, “gates” correspond to Plato’s anatomy.²⁷ The tragedian sets up the answer to Orestes’ prayer as he asks for an ax to hew the breastbone. Aegisthus would bend down to look over the rest of the σπλάγχνα and this lets Orestes raise up the ax and kill him, making real the divination Aegisthus had just made of his own fate.

While liver divination was not as important in ancient Greece as haruspicy was in Rome and the ancient Near East, it is clear the divination associated with sacrifice has greatly influenced Plato’s discussion.²⁸ Not only do we have similar references to anatomy, the *Timaeus* later states that the liver becomes “blind” when deprived of life (72b). Ancient Near Eastern (ANE) texts aver that the image the god has left on the liver is quickly effaced after death and must be read immediately. Indeed, rather like the reflection in a mirror, though ANE sources prefer metaphors of writing. After all, there were catalogues, libraries, that housed thousands of clay livers so diviners could compare past offerings and the historical events that followed them to prognosticate future ones. For example, a cuneiform inscription on a clay liver model from Mari reads: “When the country rebelled against Ibi-Sin, the liver appeared like this” (Passera 2014). Though haruspicy in the ANE and Etruscan Rome seems to have been far more important than heptoscopy in Greece, it is still well attested.

Indeed the most direct ritual connection to Plato’s passage may be in the beautiful Etruscan “Bronze Mirror of Vulci”.²⁹ It shows a figure labelled as Calchas bending down, rather like Aegisthus, and examin-

²⁷ Pathologically, the term could also be referring to blockage in the major bile ducts that lead to the gallbladder.

²⁸ For surveys of the heptosopic tradition see Collins 2008, for haruspicy, see de Grummond 2013 and Gottarelli 2017, for the Near Eastern tradition, see Jastrow 1908 and Jeyes 1992.

²⁹ Called “Mirror with engraving of Calchas” in the Vatican collections, URL: <https://www.museivaticani.va/content/museivaticani/en/collezioni/musei/museo-gregoriano-etrusco/sala-iii-bronzi/specchio-inciso-con-calcante.html>

ing a liver with what looks like a trachea and lungs laying on an altar nearby. Gottarelli (2017: 61) suggests that such an object might have been used for “mirror divination”. Perhaps, as the diviner flashed his mirrors before his patrons, the image of Calchas and the divining organ on the back gave his predictions greater force of veracity. Connections between livers and mirrors extend down through European folklore (Anderson 2002: 54).

Along with its importance for the humours, in part the liver was such an important organ for divination because of its very sensitivity. Even ancient sources were aware of the effects of an animal’s diet on its surface,³⁰ it is one of the few organs of the body that can regrow itself having lost tissue through disease or metabolic stress. With a discrete, dramatic placement, nourishing appeal, and a great deal of individual variation, the liver was well-suited for both sacrifice and oracles. It is not (*pace* Struck 2014: 29) that referring to liver divination means Plato believed it was, or should be, practised on humans. Plato’s system has the liver accounting for at least “some of the truth” that comes from an age-old practice that he does not respect, that is a dark reflection, but one he is obliged to acknowledge because it corresponds to reality.

Furthermore, heptoscopy reveals Plato’s design as much as, if not more than, humoral theory for it provides us with the last of the three classes that appear in the *Republic* (Book 5). The mind and λογός correspond to the guardians who select the philosophers. They command the passionate, “victory and strife-loving” (φιλόνηκον) heart which functions as a menial guard (δορυφόρος). The soul around the gut and midriff are the labourers who are the mangers (φάτναι) for the other two.³¹ The liver, then, is the μάντις who is their leader that through any means of deception, like the poets, bewitches (ψυχαγωγεί) them with mutterings and “fancy” (εἴδωλον, see *R.* 10.599a). The philosopher

³⁰ See *Vitr.* 1.9. This is also implied in Aristotle’s *PA* 4.2.

³¹ In *R.* 9.581a, the connection of the soul and the classes is already implied: ἄρ’ οὖν καὶ τὴν ἡδονὴν αὐτοῦ καὶ φιλίαν εἰ φαίμεν εἶναι τοῦ κέρδους, μάλιστα’ ἂν εἰς ἔν κεφάλαιον ἀπερειδοίμεθα τῷ λόγῳ, ὥστε τι ἡμῖν αὐτοῖς δηλοῦν, ὅποτε τοῦτο τῆς ψυχῆς τὸ μέρος λέγομεν, καὶ καλοῦντες αὐτὸ φιλοχρήματον καὶ φιλοκερδῆς ὄρθως ἂν καλοῖμεν.

cannot hold council without the civil tranquility secured by the guard, the passions of the rabble cannot be kept in check without the mystification of the priests and poets. Nature, society, and self now all fit into their respective cosmic circles, indeed those Socrates mentions at the beginning of this text (17a).

These subtexts would have been far more evident to Plato's contemporaries than they would have been even a few generations later. Aristotle's physiology granted pride of place to the heart, as the "citadel of the body" (*PA* 3.7, 670a25–26), as Indo-European culture does in general. Cicero excoriated haurspicy as utterly fraudulent with no basis in reason or nature (*Div.* 2.16). After centuries, Galen's synthetic efforts gave qualified support to Plato's understanding of medicine without the social references. Neo-Platonic theurgists had little time for *χυμοί* and *σπλάγχνα*. Modern physicians tend to see this anatomy only through the results of human dissection, a practice that was not widely used in the ancient world.

5.1. *Addendum: Ritual Culture and the κύρτοι*

Yet a ritual reading may aid in understanding another, more obscure reference in the text about which so far I may only offer a speculative source. In the microcosmic treatment of the human body, there is a circle that involves ropy things: sinews, nerves, vessels, vesicles, and the like (76d ff.). As mentioned above, these structures are the conduits of the soul's activities. Since anatomy did not clearly understand the nature of the substances carried by nerves or lymph ducts until the 19th century,³² Plato will give readings of these cordlike structures that seem to us highly exotic. When he turns to the midriff, he reprises the lower soul and liver argument (77b).

The text then forms another juncture where we are reminded of the connection between causality and authorship. When our "betters" made us "lessers", they chose to cut channels through our bodies and

³² In fact, the presence of lymph ducts in the brain has only recently been discovered (Da Mesquita et al. 2018).

irrigate them like a garden.³³ This is followed by a description of “veins” from the head down. By the account, we know he is speaking of any of the cordlike structures.

The text forms another juncture, where we must accept some basic principles that return to the discussion of the subtle forms of the elements.³⁴ This is because Plato is now going to account for how the irrigation system (ὕδραγωγία) of the body functions to nourish it. Next is a perplexing account of another structure, οἱ κύρτοι that, through air and fire, processes these elements.

τούτοις οὖν κατεχρήσατο ὁ θεὸς εἰς τὴν ἐκ τῆς κοιλίας ἐπὶ τὰς φλέβας ὑδρεῖαν, πλέγμα ἐξ ἀέρος καὶ πυρὸς οἷον οἱ κύρτοι συνυφηνάμενος, διπλᾶ κατὰ τὴν εἴσοδον ἐγκύρτια ἔχον, ὧν θάτερον αὐτὸ πάλιν διέπλεξεν δίκρουν· καὶ ἀπὸ τῶν ἐγκυρτίων δὴ διετεῖνατο οἷον σχοίνους κύκλω διὰ παντὸς πρὸς τὰ ἔσχατα τοῦ πλέγματος. (78b)

These [elements], therefore, God employed to provide irrigation from the belly to the veins, weaving out of air and fire a meshwork like a fish trap, having two inner ones at its entrance; and one of these he wove over again so as to make it bifurcated. And from the inner one he stretched as it were cords all over it in a circle up to the extremities of the net.

Pelavski has given a detailed study of these passages to argue that the analogy of “fish-weels” is not due to their bag-like, netted form, but to their function — catching nutrients (Pelavski 2014: 66–68). However, if the analogy is to an activity, it is not catching but weaving, and in a structure that resembles the discussion of the circulatory system above (77). The result of the god’s work is a woven form, and form is the only purpose to the analogy I can find in the passage. Pelavski is attempting to link Plato’s irrigation system to the human medicine we know and that is a valuable effort. Maintaining that a simile deals with a function and not an organ relieves us from anatomical accuracy.

³³ ταῦτα δὴ τὰ γένη πάντα φυτεύσαντες οἱ κρείττους τοῖς ἥττοσιν ἡμῖν τροφήν, τὸ σῶμα αὐτὸ ἡμῶν διωχέτευσαν τέμνοντες οἷον ἐν κήποις ὀχετούς, ἵνα ὡσπερ ἐκνάματος ἐπιόντος ἄρδοιτο (77c).

³⁴ τὸ δ’ ἐντεῦθεν ἤδη τὴν ὑδραγωγίαν παρεσκεύασαν τρῶπῳ τινὶ τοιῶδε, ὃν κατοψόμεθα ῥᾶον προδιομολογησάμενοι τὸ τοιόνδε (77d–78a).

We should remember that ancient medicine took much more from the altar and the butcher's shop than the morgue. Domesticated herbivores' digestive systems differ greatly from ours, and the culture of sacrifice may offer a more precise analogue to the "fish-traps" than modern medicine.

The κύρτοι are made of fire and air. This means they are bright and light, like the lungs. They have a netlike structure and spread throughout the midriff. The best candidate for such an organ, I would argue, is the omentum. The omentum, or in some common terminology, caul, is a form of connective tissue in the abdomen noted in ancient anatomy and associated with heat and digestion.³⁵ It wraps around organs as they develop in the foetus and helps to suspend them with filmy, stringy textures. It is a white, light, fatty substance with small sacs of air within.

The human omentum is very slight compared to that of other animals. Ruminants, with their many stomachs, have large, complex omenta that, when the skin is spread back, look in parts like a wavy net running over all the viscera. Though the passage in the *Timaeus* is obscure, this organ is a likely candidate.

If so, the ritual references here are also present, especially when we consider this is the territory of ἱεροί and μάντις. For this organ is ritually charged. As a fatty substance, it burns easily in the offering fire, looks white and pure, it appears when the carcass is opened as a veil concealing the noble organs.

It is probable that the "shining fat" (ἀργής δημός) Hesiod mentions in his telling of the myth of Prometheus (*Theogony* 540–541) is the omentum and other similar tissues. I shall argue in a future publication that this myth is, in fact, a "ritual scholion" that accounts for an old, Indo-European practice. Prometheus' deception of Zeus addresses the fundamental problematic of the ritual feast: what do we give the gods and what do we keep for ourselves? Since the omental tissues touch, running over and between the noble organs, by offering the omentum

³⁵ See Arist. *PA* 4.3, 677b. In all likelihood the term ἐπίπλοον accounts for all connective tissue below the diaphragm, including the peritoneum.

the sacrificer offers these organs as well. The omental offering is an example of ritual synecdoche.

If Plato's κύρτοι are indeed the omentum, the reference is far less clear than that of Hesiod and other Indo-European traditions.³⁶ And I do not see in this reference the types of macro/microcosmic layers we have in our liver passage. If anything, the reverence paid to it might stem from its superficial resemblance (in colour and distribution, not texture) to nerves, vascular, and other connective tissue that are associated with light, heat, and the soul; and that serves as an allusion to sacrifice and its associated myths.

The continued association of the lower, concupiscent soul and ritual is, nonetheless, characteristic of the phantasies of darkness, the visions of the liver and the vulgarity of the μόντεις that we see above and in other Platonic works.

Conclusion

Though Plato's account of the liver seems quaint, it is in fact consistent in language, reasoning, and context with the rhythm of macrocosmic and microcosmic images that structure the entire text. Were its arguments and references ironic, such a structure would not be sustained.

Rather than attempting to give us a valid anatomy, the *Timaeus* is incorporating its account of the origins and functions of the human body into a world of images and sensations. In this world there are things which function as meeting points, foci of reflection. This is true of the Eternal Living Creature (37), the eye (47), mirrors (46), and the liver (71–72), and may be true of other objects at certain junctures of the text. As the first two of these things are high and noble (though still lower than others), they reflect a purer truth. The liver is a mirror

³⁶ (Sanskrit *vapā*, from √*vap*, 'to scrape, cast, weave', cf. German *Netz*, 'caul, omentum') plays a vital role. Its hymns "stretch forth that which is bright in the animal offering" (*Satapathabrāhmaṇa* 6.2.2.14, my translation – *W.T.*). The sacrifice of the omentum is the central and most important part of the very complex animal sacrifice (see Thite 1970: 145–146). A future publication shall examine this tradition in detail.

for Plato because it does not reflect the truth directly, but distorts it through refraction. This is a moral argument; the appetites of the body distort the truth, the body is an inferior habitation for the soul. Thus the humour so liberally excreted by commentators over Platonic anatomy ought to be directed elsewhere. It is not so much a game played on the readers as it is directed toward what the author regards as low in his own society, including a possible jibe at the sacerdotal mysticism of the Pythagoreans.

A more interesting question arises when we consider the relationship between Plato's liver and humoral theory. Many authors speak of the circuits and cycles of the *Timaeus* as "analogies" of one another. We could read Plato's notion of the healthy liver in this passage as an analogy to a healthy, well-balanced mind; but this seems superficial. I would propose that Plato sincerely maintains that the elements have physical images in the four humours and that the χυμοί operate as liquid elements within the body. This is not only important in a moral or cosmological sense, it also suggests a physicalist communication between the inner and outer worlds that supplements non-physical ones, much like the passage of elements and shapes in other forms of perception. The directions later thinkers such as Theophrastus and Galen took the doctrine of the temperaments owes much to this view. Indeed, until the modern period, the humours were viewed as *physical emotions*, not as merely stimuli for internal states as we would now conceive of them. Black bile was not a harbinger or a trigger of melancholy, it *was* melancholy (Paster 2014). That this is so hard for us to conceive shows how deeply Cartesian dualism has severed us from the body. It is surprising that a supernal text like the *Timaeus* can serve as a reminder of our corporeality.

Indeed, the fancy and richness of the *Timaeus* should lead us to regret the, as Jean-Luc Marion puts it, "grey ontology" of science in the modern period (Marion 1998: 97). With the beauties of genetics and contemporary biology, it would seem a rich, new *Timaeus* would appear were we given to more synthetic thinking and less spiritual and social atomisation.

The importance of sacrifice in this passage suggests that ritual may be a subtext and illustrative element that has been sorely neglected. Frankly, a great deal of Anglo-Saxon and northern European scholarship would want to make Plato into an anticlerical Deist of the 18th century while his derision of priests and diviners seems actually closer to his disdain for hypocrites and sophists. Plato's works make significant and positive references to festivals and rituals that seem to bear no trace of irony to them, including this text itself (26e). Perhaps they appear for no more reason than to give the text an auspicious beginning; yet perhaps further research will reveal that the ritual element in the *Timaeus* is more pervasive than recent interpretations allow. Nightingale (2018) convincingly argues that the dancing of the stars in the firmament is a reference to ritual χορεία. The philosopher contemplating their movements is like the propitiator uniting with the god of the offering. I would argue that the κρατήρ in which the Demiurge mixed the World Soul is not far from the offering vessels that held libations in temples and that are such a common feature of Indo-European ritual. The image, in fact, reminds one of the Hindu myth of the *Sāgaramanthana*, the gods' churning the world ocean for nectar, or soma, as if it were a ritual vessel.

Finally, deeper examinations of ancient notions of mind-body relations can help to reveal how modern epistemology has adopted models that are no longer compatible with the results of cognitive science, or can point out some of its philosophical shortcomings. There are, indeed, many dualist traditions that do not conform to our present conceptions of the mind and body and that may help to offer forth future ones.

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