

Pain and Pleasure in Plato's Physiology

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We trace the development of Plato's physiology of pleasure and pain from a rudimentary account in the *Gorgias* to a sophisticated account in the *Philebus*. In the earlier account Plato treats pains as lacks and pleasures as replenishments. In the later account he treats pleasures and pains as in part object directed mental states. In particular, he treats pains as perceptions of disintegrated states which lack determinate being. We argue that Plato's later account constitutes a considerable advance on previous theories of pain and on his own earlier theory. However, we point out that modern research has shown that Plato is wrong to identify pains with perceptions of disintegrated states. Nevertheless, we suggest that had Plato known about the results of modern research, he would have been able to say that pains are perceptions of threats of disintegration into the indeterminate.

Introduction

A number of Plato's dialogues contain discussions of pleasure and pain. Plato is primarily interested in the nature of pleasure and pain because he wants to discuss the relative merits of two theories of the nature of the good, one which holds that it is ἡδονή (pleasure) and the other

which holds that it is *τό φρονεῖν*, *τό νοεῖν* (wisdom or thinking). In the *Philebus*, which presents Plato's most sophisticated story about pleasure and pain, Socrates makes a number of claims about the good. At 20d, he claims that the good is something *τέλειον* (finished, no further addition is possible) and *ικανόν* (sufficient in that it lacks nothing).¹ He says that it is the whole and complete fulfilment of desire, something which is the aim of any creature that apprehends it. Socrates argues that pleasure as such cannot be the good (and pain the bad). On the view he presents the human good includes certain kinds of pleasure, but thought is the more important ingredient. To defend this view, Plato relies on both a metaphysical and a physiological theory of the nature of pleasure and pain. We will be focussing on his physiological account of the nature of pain.

Plato holds that pain is painful due to a belief-like component that it contains, not due to its sensory character. This claim initially strikes us as grossly implausible. However, in a previous paper in *Greek Research in Australia* we argued that modern research has provided some evidence for it (Couvalis and Usher, 2003a; see also Couvalis and Usher, 2003b). In that paper, we did not discuss Plato's physiology in any detail. We will now trace the development of Plato's physiology from a rudimentary account in the *Gorgias* to a sophisticated story in the *Philebus*.

Plato

¹ We have followed the normal convention of referring to passages in Plato, which is to refer to the page numbers and column letters of the standard edition of the works of Plato, edited by Stephanus. These page numbers and column letters are repeated in all modern editions of Plato's works.

This will allow us to see the merits of Plato's late account clearly. We will then argue that while modern research has made Plato's late physiology obsolete, some of its important features can be preserved in a modernised form. This will allow us to see how aspects of his theory of the good might be preserved.

Situating Plato's physiology

Plato's scientific and biological theories were not grounded in empirical research and may seem odd, eclectic, and antiquated (Lloyd, 1968: 79–85). It is widely acknowledged that Plato's biology and physiology were influenced by existing theories. He had no first-hand experience or any collection of case histories on which to rely. However, he does seem to have had a deep interest in, and been influenced by, both the physiological theories of the φυσιολόγοι and contemporary medical theory and practice.² Plato uses some of their fundamental ideas as the basis on which he develops his own sophisticated account. By the late dialogue *Timaeus*, Plato gives a comprehensive and systematic physiological theory that includes highly original accounts of digestion, nutrition and respiration, and an advanced physics of the elements earth, air, fire and water.

It is generally accepted that Plato was very familiar with the views of the φυσιολόγος Empedocles, whose account of pleasure and pain seems to have been standard in Plato's time. Empedocles had two fundamental cosmological principles. One principle was that like acts on like. The four elements combined in the body (earth, air, fire, water) act on the same elements outside them in the external world. The other principle was that an organic substance or function requires

² The *φυσιολόγοι* gave proto-scientific explanation of cosmic and natural processes by appeal to λόγος (argument) and material causes, often but not always in a chance process, instead of by μῦθος (myth). The theories of the *φυσιολόγοι* go far beyond what we would nowadays call physiology, encompassing physics, biology and cosmology. To some extent, their theories were influenced by observation.

a mixture of elements in a proportion proper to that particular substance or function (Gosling and Taylor, 1982:19–20). An ancient note on Empedocles shows that he had a view on pleasure and pain that included the notion of desiring. Empedocles says that “pleasures occur by [or perhaps ‘to’] likes from likes, and according to what is deficient with a view to the filling up, so that that which is deficient (has) the desire for the like” (Gosling and Taylor, 1982:21).

Alcmaeon of Croton, a contemporary of Empedocles, claimed that health is *ισονομία* (equilibrium) of various powers in the body like the hot, the cold, the wet, and the dry (Gosling and Taylor, 1982:23). Disease occurs when there is a *μοναρχία* (predominance) of any one of these powers. This theme was inherited by the Hippocratic school of medicine. In their writings health was said to involve a proportion of the elements of the body (Lloyd, 1978:262). Pain and disease occur when the balance is upset, producing an excess or a deficiency or separation of one or more elements (Lloyd, 1978:262). Treatments employed by the Hippocratics often take the form of a purge and special diet in an attempt to restore the balance of elements (Lloyd, 1978:266). The Hippocratics had more interest and faith in observation than Plato, as their use of case studies suggests. But they also clearly used a physiological theory to underpin their empirical data. The numerous discussions in Plato of the goodness of harmony and proportion suggest that he was impressed by medical theory, as does Plato’s claim that philosophy like medicine returns disharmonious and disproportionate bodies, soul, and even states to harmony.³

The physiology of the *Gorgias*

This principle of like’s desire for filling with like towards some proper proportion of elements is inherited and developed by Plato. In the

³ *Gorgias*, 476–480, 500f, 504, 505b 507f, 512, 521, 525. *Charmenides*, 156c; *Phaedrus*, 270; *Symposium*, 186cf, 188; *Republic*, 556e; *Timaeus*, 82–86a; *Philebus*, 31d; *Laws*, 653b, 691cd; *Sophist*, 228.

Gorgias he uses a very simple physiological model to explain pleasures and pains. At 496 pain is identified with ἐπιθυμία (desire) and ἔνδεια (want, in the sense of a deficiency or lack of something). The πλήρωσις (replenishment or filling) of a deficiency or lack is identified with pleasure. As examples Socrates talks of hunger as an ἔνδεια while eating is the filling of the need or deficiency and is pleasant. The same goes for thirst and drinking when thirsty. In both cases pleasure occurs as a result of the filling of some lack that is painful. At 497c Socrates emphasises that once the painful lack has been filled the pleasure ceases. Plato has Socrates exploit the theory and argue that pleasure is, in fact, mixed with pain. Plato has Socrates use the theory to argue that eating when hungry is a pleasure mixed with pain (λυπούμενον χαίρειν: 496e5) — the pleasure only occurs because there is a lack, and all lacks are painful. When the lack is filled the pain vanishes and so then does the pleasure.

Plato has Socrates attempt to convince Callicles that the happiest man has no wants and neither painful lack nor pleasant filling. At 492e an unconvinced Callicles likens the presence of neither an in nor out flow as the life of a stone or corpse. So at 493–494 Socrates tells a story originally told by a Sicilian (presumably Empedocles). The story is about people in Hades who toil endlessly to fill their appetites. Their numerous appetites are said to be like leaky jars, what goes in just as quickly flows out, much like a bird that was known to defecate while eating. The passage hints that in some way the filling of them should be seen as laborious and foolish, and made even more difficult because their souls are like sieves. At 494b Socrates says that for much to run in there must be large holes for it to flow out of and at 492e–494b he had argued that the temperate man is happier for seeking not an abundance of filling but the minimisation of loss.

Plato continues to develop these points in all his subsequent discussions of the topic. The similes and stories he has Socrates recount are used to show what Plato takes to be the important consequence of the physiological model: that being complete, full, sufficient, is the end, and hence the good. The loss of proportion because of deficit or excess is

bad and the filling or correction only instrumentally good. Completion and proportion are not attained by maximising the number and size of fillings, as Callicles argues at 492–494, but by the making up of lacks towards our proportionate mixtures. On this account some pains are instrumental goods, as good as the best pleasures.

The *Gorgias* is Plato's first explicit use of a physiologically inspired theory to argue for ethical conclusions. However there are a number of problems that are immediately apparent with this theory. First, lack is treated as identical with want or desire and both are identified with pain. And filling, satisfaction, and pleasure are also naively thought to be identical. While these things may well occur together and are strongly related in some cases, it is possible to conceive of situations which do not fit the model well. Lacking something does not always mean we feel a pain or a desire for filling. Many lacks conceivably go unnoticed, or only come to our attention at a certain magnitude, and even then may fail to motivate us. The filling of lacks is not always pleasant, and eating when one is full can be pleasant as in the case of dessert. An account of desire seems necessary but none is given. At 494c–e when giving an example of scratching an itch Socrates seems to switch from talking of lacks and fillings to desire and satisfaction. He does this presumably because it would not make sense to conceive of an itch and the scratching of it as some kind of lack and filling in any straightforward way. Consider the pain of a broken arm. According to a theory of lacks and fillings, the pain of the break is a lack that makes possible a healing (a filling) which must be pleasant, but this seems rather implausible without further argument.

A related problem is that while the simple model used may cover some examples it is too thin to adequately account for the huge variety of things that the terms “pleasure” and “pain” are used to describe. Plato uses the terms widely, as is clear from the fact that he treats thirst as a painful state. His discussion of the coward's pain and pleasure at 498 shows that Plato believes extreme anguish, worry and fear are like pains. Yet there is no account of how these pains and pleasures involve

the filling of lacks. Likewise when one considers the great range of things that we call enjoyment, joy, and pleasure, some of them seem highly cognitive and not to involve any bodily lack.⁴ The pleasures of a good comedy, or of viewing a sculpture, of realising that you have won a race, do not seem to fit the filling of deficiency model. For the same reasons the model seems ill equipped to explain the pleasure one gets in anticipation of good things like thinking about how much someone will be thrilled by the good news you are bringing them, or to account for the suffering from anticipation of bad things.

The mind seems to have an important role in desiring and in both pleasant and painful experiences but its precise role is left unexamined in the *Gorgias*. Socrates says at 496e that pleasure and pain occur together at the same time and in the same part of us, whether we call it the body or the ψυχή (soul or mind). He talks at 503e–505b and at 506d–507 about the role of the ψυχή in desire and in maintaining good order and proportion, and subdivides it into two parts, a rational part and an unruly and insatiable part. He argues that the good life requires organisation of these parts. But the role that the ψυχή plays in desiring, and pleasures and pains that do not involve bodily lacks, are unexplained.

The physiology of the *Philebus*

The more advanced account of pain and pleasure that Plato gives in the *Philebus* comes after he has Socrates give some metaphysical foundation for his physiology in the passages from 23b–27c. We hear that anything that exists consists of elements and qualities — such as the hot, the dry, the cold and the moist — which are characteristic of that thing. As examples Socrates at 25e–26c mentions specific mixtures like health and good climate as mixtures of definite and proportionate amounts. Divergences from this proportionate mix are to varying degrees bad since they result in things like disease or drought. As

4 Some of the Greek words he uses are τέρψις, χαίρειν, λύπη, ἄλγος.

far as the human organism is concerned the *κατά φύσιν*, our natural constitution or attunement, is a harmonious and proportionate mixture, created by *νοῦς* (intelligence) in the cosmos, which sets *πέρας* (determination) on things that are *ἄπειρον*, (indeterminate). At 29b–30d Socrates says that the *ψυχή* has a share of the greater cosmic *νοῦς* and just as the cosmic *νοῦς* establishes order in the cosmos, the human *ψυχή* through the medical art can re-establish order when things are disturbed in the body.

At 28a Socrates puts pain and pleasure in the class of the *ἄπειρον*, the boundless or indeterminate. They are unlimited and indeterminate in themselves, ever capable of increase or decrease. What sets limits or determination on them is the nature of the being they are associated with. At 26d the “offspring” of *πέρας* and the *ἄπειρον* is a *γένεσις* (a becoming) of *οὐσία* (determinate being). And later at 54c–55 Socrates says that as pains and pleasures are *γένεσις* they have no *οὐσία* like successful mixtures such as the *κατά φύσιν*, health, good climate and even music have. In the case of the human organism the stable maintenance of determinate being would be best, but this is not possible because of the nature of humankind. At 42c–43c Socrates says that we are constantly shifting in state and always subject to disturbances and the return from such disturbances. The *κατά φύσιν* once attained, is not furthered by passing beyond all limits. This leads only to a lack in *οὐσία* which is disproportion, disease and in the most severe cases, death.

Having argued for this metaphysical basis, Plato in the passages 31a–53c now focuses on the physiology of pains and pleasures. At 31d–32b he has Socrates speak broadly of the disruption of harmony in living creatures as painful, while the reverse, return towards harmony, is pleasant. At 31e hunger and thirst are described as disintegration and pain, while the *πλήρωσις* is pleasure. Socrates immediately elaborates, stating that when the body is heated or chilled we have a *λύσις* (dissolution) which is painful while the process of recovery to normal temperature and *οὐσία* is pleasant. With the metaphysical discussion fresh in mind, at 32a–b Socrates sums up as succinctly as he can:

When the *κατά φύσιν* of *πέρας* and *ἄπειρον* that forms a living organism is *φθορά* (destroyed), this destruction is pain, while the return towards its own nature, this general restoration from destruction is pleasure.

If we recall the simple discussion of lacks and fillings in the *Gorgias* we see that here Socrates speaks of more than just the filling of physical lacks. He also speaks of the destruction and dissolution of the natural constitution, and of its restoration. He broadens the notion of lack and filling. For instance, at 35e he has Socrates speak of pleasures and pains as both emptyings and fillings related to the preservation and destruction of animals.

One of the obvious advances is that there is now a clear distinction between lack, desire, and pain, and between replenishment, satisfaction, and pleasure. Later in the *Philebus*, Plato modifies this model further by making perception by the *ψυχή* the essential part of pleasure and pain. At 42c–43a Socrates says that while there are always emptyings and fillings, decay and growth, separations and combinations, from and to the *κατά φύσιν* due to the continual flux, they are not always perceived. At 33d–34a Socrates acknowledges the existence of a neutral state where the movements, though they are going on, are not perceived, the *ψυχή* being oblivious to them. At all times a human is deviating from determinate being. But not all deviations are perceived. When they are it is because there is *αἴσθησις*, a perception or affection of both the body and *ψυχή* described as a *σεισμός* (disturbance) that affects both.

Two important points are established by the introduction of perception. The first is that there is now a clear distinction between what are, broadly speaking, disturbances (lacks and dissolutions) and pain, and between restoration (fillings and returns from disturbance) and pleasure. Plato accounts for the fact that we are not always aware of every disturbance and restoration by saying that we are oblivious to many of them. However, he still argues that some pleasures are really pain and pleasure mixtures, since there is perception of both disturbance and restoration, and he calls these a kind of false pleasure and pain. At 44c–50d he has Socrates give a medical-sounding critique of these

mixed pleasure and pain states, and it is argued that the mixture makes for intensity. They depend on antithetic processes that may be in the body, or in the body and the ψυχή or just in the ψυχή. The replenishment and pleasure is more intense because of the concurrent lack or disturbance. Interestingly Plato at 47d–48b has Socrates include many emotional states in this category, such as rage, lamentation, and spite. At 50e–55b Plato also has Socrates discuss some pleasures and pains that are pure and true since they occur without the perception of the antithetical disturbance in the case of true pleasures or restoration in the case of true pains.

The other important advance in the *Philebus* is that Plato gives a sophisticated and insightful account of the role of the ψυχή in desiring. He emphasises the role of the ψυχή in pleasures and pains of the body and introduces pleasures and pains which are only of the ψυχή. They are not attended by disturbance or recovery in the body but are the pleasant or painful anticipations by the ψυχή of disturbance and recovery. In describing these pleasures and pains however, Plato has Socrates return to the description of pain as lack, and pleasure as the filling of lack. This may be because he wants his physiological account to tie in with his metaphysical claims that lacks and fillings are not οὐσία but γένεσις.

In the passages 34e–36c Plato has Socrates discuss several psychic functions that are involved in all pains and pleasures. Crucially important is the discussion at 34a of memory as the preservation of perceptions. Memory is linked with desire, a painful πάθος (affection) of the ψυχή that involves remembering what objects or conditions would fulfil the lack. The passages at 35b–d make clear that hunger, for example, is not only a perception by the mind of emptiness in the body, it also has within it the desire (a painful state) for the object of replenishment corresponding to the lack.⁵ At 34b Socrates states that in addition to being the seat of desire and memory the ψυχή is capable, through recollection, of re-experiencing a past pain or pleasure,

⁵ Excepting young children and infants, 35a–36c. See also Couvalis and Usher 2003b for differences in pain experience in children.

and can thus re-experience by itself what it has experienced with the body.

What Plato seems to be arguing is that pleasures and pains are intentional (object directed) states. This makes more plausible pleasures of the ψυχή like the anticipation of good things, or the suffering of mental or emotional pains from fear of anticipated evils. The ψυχή being in pain because of some perceived lack can anticipate the coming restoration and enjoy it in the certainty of expectation. This attribute and function of the ψυχή means we can have radically false pleasures and pains, where there is the perception of pleasantness or painfulness even though there is, in fact, no lack or replenishment going on. These pleasures and pains are discussed in the passages 36c-41a. They are said to accompany both true and false memories, beliefs and judgements, all of which make discourses in the ψυχή. Many of these discourses are hopes and fancies about the future and the past. Many also concern the present. At 42a the falseness of a discourse is said to "imbue" the pleasures and pains with their own condition. If our judgement about our being restored or depleted is false, it makes the pleasures and pains mere caricatures of true pleasures and pains.

Can Plato's account be modernised?

Plato's account in the *Philebus* of pleasure and pain constitutes a considerable advance on his previous account and, it seems, on preceding Greek accounts. However, modern research on pain has made clear that Plato is wrong to identify paradigmatic pain, like cutting your finger with a knife, with perception of a lack or of disintegration.

The two kinds of fibres which are most important in paradigmatic pain transmit electrical signals from the skin to the spinal cord and brain. A *delta* fibres, which are surrounded by a substance called myelin, transmit signals extremely quickly. C fibres, which are unmyelinated, transmit signals relatively slowly. Both types of fibres respond preferentially or solely to stimuli which damage tissue or are such that any small increase in their activity would damage tissue. *Ad* fibres are

more specialised than C fibres. For instance, there are *Ad* fibres which preferentially respond to strong mechanical stimulation, there are those which respond to temperatures above 45° Celsius and below 23° Celsius, and there are those which respond to irritant chemicals. C fibres typically respond to all three kinds of stimuli. However, C fibres often provide information which allows us to work out the precise location of a painful stimulus on the surface of the skin (Grahek, 2001: 140). Some C fibres are particularly sensitive to chemicals released after injury. Their activity is involved in the tenderness which spreads around the damaged part of the body, promoting conditions that aid in healing, resting the injured part for example (Grahek, 2001:134–35). The firing of *Ad* fibres is important in immediate acute pain. The firing of C fibres is important in chronic pain. Neither type of fibre responds to lacks in the body or person.

Nevertheless, there are a number of important points in Plato's account that are on the right track. We have pointed out elsewhere that modern research bears out some significant points in Plato's account of the painfulness of pain. As Plato thought, the painfulness of pain cannot be plausibly identified with pain sensations, but is most plausibly understood to be a cognitively sophisticated state, analogous to a belief. (In modern philosophical jargon, it is a propositional attitude.) In addition, the same kinds of emotional states that are involved in the painfulness of paradigmatic pains seem to be involved in the painfulness of non-paradigmatic pains (Couvalis and Usher, 2003a, 2003b). A further way in which Plato might be right is that it may be the case that the nature of paradigmatic pain can only be defined via an account of its normal or proper function, which is to preserve the body from damage and disintegration. The nature of pain cannot be grasped merely by considering its sensory characteristics. Nikola Grahek has recently argued that if paradigmatic pain is to be properly defined, even its sensory characteristics must be understood to be indicators of potential bodily damage (Grahek, 2001:144–45) While this view has not yet been adequately defended in the literature, it is by no means out of the question.

Plato is attracted to a rather odd model in which pain is a perception of a lack or of disintegration because Plato would like to say that pleasure is not itself the good, and that if it is a good, it is at best a remedial good. He would like to say that pleasure itself cannot be the rational ultimate end of our actions because it is a kind of perception which is not even the perception of something which really has οὐσία. It is the perception that determinate being is coming into existence (being restored). The pleasantness of pleasure is due to the fact that it is perceived that a process is being completed. For instance, the pleasantness involved in drinking water if we are thirsty is a perception that we are being restored to our proper state as human beings via a process which is directed to this τέλος (end). When we have been restored, the pleasure ceases. The τέλειον (finished, perfect) state is one in which we feel no pleasure or pain. To help him say something like this Plato conceives of pain as a perception of a disintegrated state which lacks determinate being. While we have seen that Plato cannot say this, he might be able to say that paradigmatic pain is a kind of perception that something is threatening to disintegrate us. On this account, pain would be the perception of the threat of disintegration into the indeterminate.

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