

PART III

CHAPTER 3

CONTEMPORARY THOMISM

Ernst Mayr, who was committed to the empirical claims of modern science, expressed an understanding of hylomorphism: living, mental beings such as humans have only physical components; they are exhaustively decomposable into the same fundamental physical materials found in nonliving things.¹ A much more common account sees the human person in Aquinas's anthropology as almost completely integrated form and matter, a composite substance. That is, "we are psychically incarnate, and all of our psychological activities – except acts that essentially occur without matter and so have their being entirely separate from matter – have some physiological substrate and manifestations."² According to this view, Aristotelian formal causation can account for the causal power of consciousness; it has the power to shape and control the associated neuronal events.³

As seen in the chapter on Christian dualism, there is diversity in scholars' interpretation of Aquinas' philosophy.⁴ This is also the case in relation to scholarly understanding of his use of hylomorphism. Because of the importance of Aquinas in the formation of what this thesis has termed the traditional Catholic view of the human person, these interpretations need to be reviewed. It is especially important since some of these interpreters have engaged in dialogue with contemporary scientific accounts mind and body.

We begin with a contemporary statement of hylomorphism and the whole, followed by 3 accounts of hylomorphism applied to brain-mind and consciousness. Next, there

¹ As cited in William Jaworski, "Hylomorphism: What It Is and What It Isn't," *Proceedings of the American Catholic Philosophical Association* Vol.85 (2011), pp.173-187 (p.178)

² Daniel D.De Haan, "Thomistic Hylomorphism, Self-Determination, Neuroplasticity, and Grace: The Case of Addiction," *Proceedings of the American Catholic Philosophical Association* Vol.85 (2011), pp. 99-120 (p.102)

³ Eric LaRock, "Is Consciousness Really a Brain Process?," *International Philosophical Quarterly* Vol.48 No.2 (June 2008), pp.201-229 (p.239)

⁴ But it ought to be heeded, that admiration for Thomas Aquinas' ideas ought not shield us from the importance of other thinkers and their work to assimilate Aristotle's thought. Thomas M.Osborne, Jr, "Unibilitas: The Key to Bonaventure's Understanding of Human Nature," *Journal of the History of Philosophy* Vol.37 No.2 (April 1999), pp.227-250 (p.250)

is a modern consideration of body, soul and self in Aquinas' philosophy in mind. Then, an unusual historical perspective on the mind-body problem, followed by an unusual engagement with Aquinas by a neuroscientist; finally, a critical note about Rahner who has been influential in widening the scope of Christian anthropology.

Hylomorphism and the Whole

M.J.Dodds O.P. explores Aristotle's hylomorphism and formal causality in light of mind-brain questions.⁵ 'Top-down causality,' which explains the parts in terms of the whole in contrast to reductionism which explains the whole in terms of the parts, is akin to causality in Greek philosophy and Aquinas, but has been overlooked in science since Galileo.⁶ For Dodds, the top-down causality in 'whole' brain activity appears to direct activities of the 'parts'. Individual neurons or 'parts' does not explain complex brain activities, the 'whole'.

This could be challenged by physicalists, e.g. in the loss of speech due to a stroke. But we stay with Dodds' reasoning. Science deals with efficient causes: forces or agents producing changes. But substantial form acts as a formal cause in determining the possibility-of-being to exist as one type of substance or another.⁷ He uses the common example of a block of clay gradually shaped into a sphere. The clay has the possibility of becoming a sphere and becomes actually spherical when it attains a particular shape. The clay can become spherical by someone applying efficient causality, pull and push, to the clay. The clay will be round only when it actually has a round shape.⁸ On another level of causality, therefore, it is the round shape that enables the clay to be round, and not so by resultant forces. It acts as a formal cause instead of as an efficient cause. At the level of substance, every substantial form acts by means of formal causality too, and its effect cannot be accounted for by efficient causality.⁹

If science discovers that the part does not explain the activity of the whole, what does? Dodds looks to substantial form to account for the being of the whole as a

⁵ Michael J.Dodds OP, "Hylomorphism and Human Wholeness: Perspectives on the Mind-Brain Problem," *Theology and Science* Vol.7 No.2 (2009), pp.141-162

⁶ Dodds, *Hylomorphism and Human Wholeness*, p.142

⁷ Dodds, *Hylomorphism and Human Wholeness*, p.146

⁸ Dodds, *Hylomorphism and Human Wholeness*, p.147

⁹ Dodds, *Hylomorphism and Human Wholeness*, p.154

whole. He says it better grasps the unity of the human person and the relation of mind to brain. What makes a dog to be a dog accounts for why the dog acts like a dog and is a dog. It explains its inner activity, its parts down to the atomic size, and not only regarding the dog's outwardly observable activities.¹⁰

Furthermore, the ability to think of our own thinking, suggests transcendence. If human action transcends materiality, then “the human substantial form (which is the source of that action) must also transcend materiality in some way. If so, the human substantial form is unlike the substantial form of any other material thing.”¹¹ But in the accidental form of roundness in clay that is spherically shaped, Dodds explains how the roundness cannot exist separated from the clay, and the clay cannot exist without a shape. Both the formal principle, the shape, and the principle of possibility, the clay, cannot exist without the other. This is true also with the substantial forms of material things.¹²

Followers of hylomorphism would contend that it is the intelligent, conscious, reasonable, and responsible activities proper to human beings that are in a sense independent of the material.¹³ Dodds concurs, arguing that if the human substantial form transcends materiality, it may continue to exist without its co-principle of possibility-of-being. Yet the human substantial form is not a complete substance and is not the whole human person, but one part of the person because human wholeness requires both form and matter.¹⁴ Aquinas thinks that it is incorrect to call such a soul a ‘person’ as only at the resurrection, when the soul is united once more to the human material principle in some way, will there be a complete human substance known as a person.¹⁵ The soul is a continued human existence wherein human immortality can be affirmed, avoiding dualism.

¹⁰ Dodds, *Hylomorphism and Human Wholeness*, p.147

¹¹ Dodds, *Hylomorphism and Human Wholeness*, p.152

¹² Dodds, *Hylomorphism and Human Wholeness*, p.152. As the circuitousness of the clay sphere, its accidental form, does not endure by itself, when the clay is moulded into a cube or other figure, hence the substantial form of a material substance does not endure by itself, when that substance ceases to be. That is, when its possibility-of-being is actualised by another substantial form, such as when a dog dies and longer exists as a dog.

¹³ Andrew Beards, “John Searle and Human Consciousness,” *The Heythrop Journal* Vol.35 No.3 (July 1994), pp.281–295

¹⁴ Dodds, *Hylomorphism and Human Wholeness*, p.152

¹⁵ Dodds, *Hylomorphism and Human Wholeness*, pp.152-153

Human substantial form is proposed by Dodds as a coherent understanding of mind-brain relations. The whole human person is one being in virtue of that one substantial form which accounts for all the parts: from quarks, atoms, molecules, cells; existing ‘as human.’¹⁶ The faculty for self-reflection and abstract thought is ‘intellect’ or more broadly, ‘mind.’ The power of thought, the mind, can act on the brain, as a human physical organ. Through the mode of causality the human substantial form acts on its co-principle of possibility-of-being so as to actualise the person with a functioning brain and active mind. The human substantial form itself may be called a ‘soul.’¹⁷ Since human forms transcend materiality, it may be called a ‘spiritual soul’ to distinguish it from substantial forms or souls of other animate things.

Hylomorphism, Brain-Mind and Consciousness

Here are three thinkers who further engage with brain-mind matters. They acknowledge in their own ways the realities of physicalism, tilting towards that philosophy, nevertheless they also admit some difficulties in Thomist thought today.

1. Advocating hylomorphism, J.Haldane says his views in philosophy of mind are inclined towards non-dualist, non-physicalist, perhaps dual aspect or neutral monism.¹⁸ It was functionalism that steered psychology and philosophical psychology, the analysis of concepts in psychology, towards materialism; leaving behind phenomenal consciousness or qualia.¹⁹

Haldane is interested in some version of physicalism, observing how contemporary philosophers of mind display Cartesianism in their pre-occupation with qualia. “I remain agnostic about the possibility of a naturalistic account of qualia...phenomenal consciousness is widely supposed to be the problem for physicalism. I think a degree of romantic subjectivism may lie behind this, as if the key to reality is how we feel in our experiences.”²⁰

¹⁶ Dodds, *Hylomorphism and Human Wholeness*, p.154

¹⁷ Dodds, *Hylomorphism and Human Wholeness*, p.154.

¹⁸ John Haldane, “A Return to Form in the Philosophy of Mind,” *Ratio* Vol.11 No.3 (December 1998), pp.253–277 (p.270)

¹⁹ John Haldane, “The Metaphysics of Intellect(ion),” *Proceedings of the American Catholic Philosophical Association* Vol.80 (2006), pp.39-55.

²⁰ Haldane, *A Return to Form*, p.270

He sees merits in an idea from H. Putnam that the ‘qualitative character’ of a sensation is simply the physical realisation of a state that has the purpose of signalling the presence of some characteristic in the surrounding environment or in the body. Yet it must appear peculiar to permit the possibility of token identity for qualia but resist physicalism as a general explanation for nature of mind.²¹

But here Haldane could ask about hylomorphism, that it is not a physicalist explanation. However it should become clearer. Haldane thinks consciousness is not the hardest problem. Sensory consciousness is easier to explain materialistically.²² Less yielding to physical scrutiny is intellection of a higher order. That is, the ancient and medieval view of mind is not of sense processes mediated by the body but rather relating to abstract judgements. The accepted view of consciousness being the hard problem for materialism contrasts to pre-modern thought and thus may be open to a materialist account.²³

Haldane’s examples are enlightening. First he distinguishes subjective facts and ‘spaces’ from objective ones, e.g. being in a room in winter by an open fire, listening to music via a sound system. That is the objective situation. The phenomenal world corresponds to that: feeling warmth and hearing rhythms and melodies. Materialism wants to know how they are related; since experiences are physical, how the subjective is part of the objective.

The two are related because the contents and structure of the two spaces appear to be isomorphic.²⁴ Heat and sound are physical and phenomenal. To feel more heat, one moves closer to the fire. To hear the music louder, one moves closer to the speakers. Subjective space is “objective space *as experienced*. The correspondences of location and intensity point towards identities.”²⁵ The ideas of Descartes are cited: the idea of the sun is the sun existing in the understanding. That is, this is not formal, as the sun exists in the heavens but objectively in the manner it generally exists in the mind.

²¹ Haldane, *A Return to Form*, p.270

²² Haldane, *The Metaphysics of Intellect(ion)*, p.45

²³ Haldane, *The Metaphysics of Intellect(ion)*, pp.46-47

²⁴ Haldane, *The Metaphysics of Intellect(ion)*, p.47

²⁵ Haldane, *The Metaphysics of Intellect(ion)*, p.47

Haldane comments that it may be objected that this is dualism still. Maybe it is, but if so it is a formal one rather than a material one.²⁶

Following Aquinas, Haldane holds that the “reception of a sensible form in the sense faculty is a material process, be it that the particular matter in which the form was received into the sense was not part of the subject in which it originated.”²⁷

Consciousness can be materialised. However, there is no probability of a materialist explanation of intellection, epistemologically or ontologically. This is the Thomistic idea of the immateriality of the intellect and involves the soul.²⁸ It avoids obstructions from the neo-Cartesian obsession with phenomenal consciousness.²⁹

Second, Haldane uses the example of looking at Molly the cat. Both our eyes and Molly feature individualised sensible forms of the cat’s fur colours. Nevertheless, when we think that cats are animals, the contents of our mental acts are not of a specific cat or several known cats. Instead it is catness, *per se*. This catness, *per se*, is an immaterial universal and abstract thing. So if intellection involves a cognitive faculty receiving forms this way, then that faculty and its acts are immaterial. In other words, “if purely conceptual thought involves universals and is thereby immaterial, then since acting follows being (*agere sequitur esse*) the faculty or power is itself immaterial.”³⁰

According to Haldane, *agere sequitur esse* means that if thought is a not a physical activity, then the intellectual powers are non-physical. Thus the substance to whose nature the powers belong are also not physical. Current attribute dualists tend to view the brain and the higher reaches of the central stem as the physical substance which have some non-physical properties too. But Haldane urges that a proper understanding of substantiality ought to mean rejecting the notion that a completely physical particular could be the bearer of intrinsic attributes that are not physical.

The mistake of the Cartesian is to believe that non-physical attributes infer an exclusively incorporeal substance as bearer. In these opposing views Haldane says

²⁶ Haldane, *The Metaphysics of Intellect(ion)*, p.48

²⁷ Haldane, *The Metaphysics of Intellect(ion)*, p.48

²⁸ Haldane, *The Metaphysics of Intellect(ion)*, pp.48-52

²⁹ Haldane, *The Metaphysics of Intellect(ion)*, p.54

³⁰ Haldane, *The Metaphysics of Intellect(ion)*, p.51.

the assumption is that the only options are material, ‘physical’ substances, or immaterial ‘psychical’ ones. Hylomorphism offers a way to reject that assumption, since it affords the possibility of psychophysical substances, substances from whose single nature physical mental activity flows out.³¹

2. Some followers of Aquinas acknowledge limitations in his account of hylomorphism. This is a feature of the work of G.Klima, who grants that the case for the immateriality of the intellect does rely heavily on several of Aquinas’ metaphysical positions, e.g. on individuation and the distinction between singular and universal cognition. He concedes that to contemporary eyes, these may appear to be dubious and bleakly obscure, and expressed in a foreign conceptual scheme.³²

However he argues that, when we see something, the processes in the eyes, optical nerve and cerebral cortex result in seeing some thing. But for Aquinas, intellectual operations like forming universal concepts are the activities of the intellective soul alone: Klima explains, “we do not think with our brains. Our brains simply provide highly processed sensory information for our thinking performed by our intellect, but the intellectual activity itself is not the activity of our brains.”³³ There is an ‘interface’ between the soul’s immaterial intellect and the soul-informed brain about what type of mechanism is able to channel information between various modules of the same information-processing unit.³⁴

It follows that being a subject of its activity and the inherence of this power, the soul must be a subsistent substance itself. As the soul’s activity is not inherent in the living body, but in the soul alone, Klima argues that it can in principle exercise this activity whether it is united with the body or not. But because only something existing can be active, then the soul ought also to be also able to exist whether it is united with the body or not. Hence, it is immortal with its natural ability to survive separation from the body.³⁵

³¹ Haldane, *A Return to Form*, p.271

³² Gyula Klima, “Aquinas on the Materiality of the Human Soul and the Immateriality of the Human Intellect,” *Philosophical Investigations* Vol.32 No.2 (April 2009), pp.163–182 (p.180)

³³ Klima, *Aquinas on the Materiality of the Human Soul*, p.172

³⁴ Klima, *Aquinas on the Materiality of the Human Soul*, p.172

³⁵ Klima, *Aquinas on the Materiality of the Human Soul*, pp.172-173

3. C.J.Deavel has some reservations about modern science's emphasis on the brain. She believes Aquinas would argue that we cannot understand by means of a bodily organ like the brain, because the determinate nature of the bodily organ would block knowledge of certain material things: his rejection of the possibility that the brain could be the organ of understanding sets him against contemporary materialism.³⁶

Whereas materialists hold that humans have knowledge of material objects, Aquinas asks about the nature of the human intellect to be able to have this knowledge. The intellect must be immaterial. Deavel comments that if Aquinas is correct in this overall thinking, then the immaterial soul has an operation proper to itself, i.e. knowing, apart from the body. The soul can subsist apart from the body. There is an argument trying to show that even knowledge of material objects demonstrates that the intellectual soul must be immaterial.³⁷

She finds that the foremost difficulty with the idea that the intellect is bodily is not that the grey, concrete and mushy brain would think only about this grey and mushy self. The difficulty is that the brain has a set physical structure. Even if we assume “for the moment that this structure could somehow be suited to receive the natures of material things – and this is a huge assumption – we are still left with the problem that a single physical structure would be *limited in the range of the natures of material things that it could know.*”³⁸

Deavel holds that the intellect can know that the natures of all material things even all things that are, material or otherwise, then it cannot also have constraints on its scope of proper objects which material organs all have. The suggestion that the intellect uses a physical organ as an instrument of its knowing encounters the same problem. In other words, the intellect is not bodily.

³⁶ Catherine Jack Deavel, “Thomas Aquinas and Knowledge of Material Objects: Proper Objects of Cognition,” *Proceedings of the American Catholic Philosophical Association* Vol.83 (2009), pp.269-278 (p.269). Deavel replies to objections by contemporary Thomist scholars Norman Kretzmann and Robert Pasnau.

³⁷ Deavel, *Thomas Aquinas and Knowledge of Material Objects*, p.270

³⁸ Deavel, *Thomas Aquinas and Knowledge of Material Objects*, p.276

Critical Comment

Both Bennett and Hacker's unrelenting Wittgensteinian critique of neuroscience research, and the present metaphysical interpretations of hylomorphism, have an overall sense of being anti-Cartesian and 'deflationary'.³⁹ One difference is that the mysteriousness of brain and mind matters is alleviated by clarifying concepts and language in the case of Bennett and Hacker.⁴⁰ However it is arguable that the mystery can be resolved or at least assisted by accepting into the discussion, as hylomorphism does, notions of immaterialism, the intellect and the soul. Aristotelian-Thomistic philosophers are thinking on a different level and speak a different language to neuroscientists. Hylomorphism's responses acknowledge the reality of the immaterial, the soul, which by nature is metaphysical, not neurobiological.

Nonetheless, it is also true that hylomorphism appears to be rather unappreciative of the difficulties raised against it by nonreductive physicalists interested how in brain, mind (and perhaps soul) interrelate. There is general agreement on the physicalist connections of brain-mind are agreed. Confusion and memory loss are characteristic of some dementias, caused by brain decline, and not necessarily deficiencies in the intellectual soul. The human soul as the form which *informs* matter cannot configure a very sick body, damaged brain or confused mind: which all affect consciousness.

If Haldane's hylomorphism is inclined, as he says, towards non-dualist, non-physicalist views, then that may answer intriguing questions which could be asked: if Aquinas was philosophising today, would he still teach hylomorphism, and what are its closest relatives? And Haldane's ideas suggest it would be nonreductive, non-dualist, dual aspect monism. These are fertile grounds for dialogue.

The interface Klima raises between the soul's immaterial intellect and the soul-informed brain is reminiscent of Eccles' hypothetical discussion about 'psychons'.

³⁹ Hanfling notes McGinn's estimation that Wittgenstein's ideas on consciousness are 'deflationary.' Oswald Hanfling, "Consciousness: 'The Last Mystery'," in Severin Schroeder (ed.), *Wittgenstein and Contemporary Philosophy of Mind* (Basingstoke, UK and New York: Palgrave, 2001), pp.57-58. Hanfling quotes Wittgenstein, "Where does my investigation get its importance from, since it seems only to destroy everything interesting, that is, all that is great and important?...what I am destroying is nothing but houses of cards, and I am clearing up the ground of language on which they stood. (*Philosophical Investigations*, section 118)." (pp.57-58)

⁴⁰ The human soul may be a proper subject for philosophy though less obviously so for the sciences and philosophy in the English-speaking Analytic tradition.

The precise account of the soul-brain relationship is not attainable and perhaps never attainable unless the soul is better understood. There is less possibility for dialogue in this speculative area.

Deavel's problem that a single physical structure would have restrictions on the range of knowable material things seems natural to physicalists. Yet, hylomorphism vastly expands what expected knowing capabilities of the human subject, and the identity of the subject beyond space and time, post-mortem.

Hylomorphism does appear to be too immaterial, for the largely material worldview of modern science. Dialogue seems possible if and only if there is some agreement on the terms and some common understanding of the soul or at least a willingness to admit its possible existence.

Hylomorphism, Body, Soul and Self

The earlier discussion of brain decline raises a question about the evolved brain at the centre of neuroscience, which is where it rightly ought to be, but it seems too physical and limiting for a complete socio-cultural and spiritual vision of human beings. Identity is the focus and hylomorphism has explored this matter. We follow two contemporary philosophers committed to hylomorphism.

1. G.Gleeson favours hylomorphism but first examines two competing positions:⁴¹ 'Animalism' and the persistence of highly evolved, complex organisms of the species *homo sapiens*; 'Personism' and the persistence of self-conscious rational subjects, i.e. persons, 'subjects of experience'.⁴²

Most philosophers have assumed that animals and persons must be distinct types of entities because they each have distinctive persistence conditions. If true, then if what it is for me to continue to exist as the same animal diverges from what it is for

⁴¹ Gerald Gleeson, "Person, Body, Gender: Philosophical Reflections on the 'What are We?' Question," *The Australasian Catholic Record* Vol.79 No.3 (July 2002), pp.285-298. Gleeson looks at contemporary philosophy, the Thomistic metaphysics in traditional philosophical anthropology, and calls for a renewal of Christian accounts of the human person beyond the 'rational animal'. He compares contemporary searches for persistence conditions to Scholasticism's method of examining actions to understand natures.

⁴² Gleeson, *Person, Body, Gender*, p.288. He notes that personism is different to European 'personalist' philosophies.

me to continue to exist as the same person, then I cannot be both an animal and a person.⁴³

Animal identity continues through organic life, whereas continuing to exist as the same person requires continuity of rational activity. Animalism seriously acknowledges that humans are *homo sapiens*, but the Animalist has to fully explain mental life, personal subjectivity and consciousness. Personism emphasises rationality and self-conscious, acting subjects, but the Personist needs to explain how 'persons' relate to living bodies or the 'animal' that a person is embodied in.⁴⁴

Gleeson notes, if I am a self-conscious subject, then for Personists *I* can only persist as a person; I was never an unconscious embryo, and cannot continue in any Persistent Vegetative State (PVS).⁴⁵ For Animalists, if *I* am fundamentally an animal, continuing existence means that some living organism continues as integrated biological life, even without showing personal capacities. Life could have begun as an unconscious embryo or be ending in the PVS. As animals, it appears we are not always persons and we no longer exist when the animal die. Personism suggests that we are not really members of the human species, though Animalism suggests that we are persons only at some stages of life.⁴⁶

For Christians, Personism is appealing because it enables persons to be re-constituted in some resurrected form, although it rejects embryos and persistently unconscious patients as persons. Animalism could appeal to Christians inasmuch as it holds continuity of life from the embryo to death, yet Christian belief in resurrection obliges some continuity of organic life through death. If we are truly animals, even animals of a distinct type, then it appears we are only 'persons', in the modern sense, during particular points in our lives.⁴⁷

⁴³ Gleeson, *Person, Body, Gender*, p.288

⁴⁴ Such issues are raised in Scott Campbell, "Animals, Babies, and Subjects," *The Southern Journal of Philosophy* Vol.39 No.2 (Summer 2001), pp.157–167. Campbell argues that psychological theories of personal identity can prevail over objections based on animals, and that psychological theorists can accept that babies are persons, despite what many psychological theorists contend.

⁴⁵ Gleeson, *Person, Body, Gender*, p.289. In other words, it sees we are not identical with an embryo or the persistently unconscious human being.

⁴⁶ Gleeson, *Person, Body, Gender*, p.289

⁴⁷ Gleeson, *Person, Body, Gender*, p.290

But, Personism and/or Animalism are unable to accommodate many traditional Catholic convictions, e.g. that life commences as a human embryo, life is to be respected as personal from conception to death; death is the end to mortal life; existence continues after death, and the new resurrected life involves bodily existence as a complete human being.⁴⁸

Catholic thought appears to contain two conflicting claims, says Gleeson. 1. Being a conscious subject is not necessary for being a person; being a living human organism is sufficient, e.g. embryos or a persistently unconscious patient. 2. Being a living human organism is not necessary to being a person; being a conscious entity is sufficient as in the case of the human soul after death.⁴⁹

He admits that traditional notions of bodies separated from souls at death, ceasing to be human bodies and 'residual substance' souls, are explanations no longer philosophically fashionable.⁵⁰ Though Aquinas saw beings as 'living substances' with a 'principle of life and activity', or a 'soul', in modern times says Gleeson 'souls' became outmoded as explanations. A human being can be viewed as a unified entity, *a thing* of a certain kind or a 'substance', from which follows 'principles' to explain the nature of a thing of this kind. But a modern philosopher seeks intelligibility about the way less complex things come to constitute more complex things.

A Thomistic understanding is closer to the position of contemporary Animalists than that of Personists, because matter-form humans (as in hylomorphism) are a certain kind of animal, biologically. The soul is not an explanatory principle in contemporary biology. Yet, says Gleeson, at least some biologists acknowledge that the constitutive and wholistic relationships that comprise living things at successive levels of complexity need explanations, from cells to neurological systems. These observable relationships provide 'scientifically accessible correlates' of the metaphysical principle of soul.⁵¹

⁴⁸ Gleeson, *Person, Body, Gender*, p.290

⁴⁹ Gleeson, *Person, Body, Gender*, p.290

⁵⁰ For Gleeson this is because modern philosophy has changed from analysis and explanation of 'principles' to analysis and explanation of 'elements', or 'things' into which more complex 'things' are decomposed. Gleeson, *Person, Body, Gender*, pp.293-294

⁵¹ Gleeson, *Person, Body, Gender*, p.295

He contends that science cannot verify the existence of a soul, but science does highlight the 'unity in complexity' that a living organism is, and thus the need for an explanation such unity. 'Person' in the Thomistic account is explained in terms of existence and relationship, not essence, property, kind or function. To be a person is to *exist in a distinct way*, in relation to others, and ultimately in relation to God; not to be a distinct 'kind of thing'.⁵² Only a metaphysical concept of person as 'subject of existence in relationship', rather than as a 'subject of conscious experience', "will be able to link personhood in this life with personhood in the next life (and to accommodate the kind of 'diminished' personal existence of the 'separated soul' that is (logically, if not temporally) presupposed by the resurrection of the body)."⁵³ Personhood is expressed as *existence and relationality*, of the type of beings humans are: animals from *homo sapiens* species whose principle of life (form) is the spiritual soul.

2. D.Hershenov also favours hylomorphism and also identifies neo-Lockean or psychological approaches that deny humans are animals.⁵⁴ The psychological accounts arise from thought experiments involving cerebrum (brain) transplants or where the human body is replaced by synthetic material but mental functions are unchanged. Hence humans are not animals, a view that is inconsistent with traditional Catholic beliefs. Our animal nature is that we are contingently animals, i.e., humans are living creatures who can still *exist* without being *alive*, for instance being in purgatory.⁵⁵

For Hershenove, hylomorphism is a third way. Human are unlike all other animals, being created in God's image with particular mental capacities.⁵⁶ Animalists who deny the technical impossibility of brain transplants are like those in the 1940s who never contemplated kidney transplants.⁵⁷ They may accept that such transplants

⁵² In traditional Thomistic language, the person was said to be 'the supposit', the *subject* who exercises the act of existence (*esse*). Gleeson, *Person, Body, Gender*, pp.297-298

⁵³ Gleeson, *Person, Body, Gender*, p.298

⁵⁴ David B.Hershenov, "A Hylomorphic Account Concerning Personal Identity," *American Catholic Philosophical Quarterly* Vol.82 No.3 (Summer 2008), pp.481-502

⁵⁵ Hershenov, *A Hylomorphic Account*, p.483

⁵⁶ Hershenov, *A Hylomorphic Account*, p.482. That is, a hylomorphic account of personal identity enables humans to be considered animals while also facilitating an intuitive response to thought experiments which point to our identity being important to our survival.

⁵⁷ They also say that "they will only worry about incorporating such bizarre events into their metaphysics when they actually occur which renders them a sort of ontological ostriches." Hershenov, *A Hylomorphic Account*, p.483.

could occur but claim that we would not ‘go’ with our brain. In real life our psychology and our ‘self’ never separate, but in thought experiments it appears possible that this could occur.⁵⁸

Where the whole brain or cerebrum with a person’s psychology is transplanted into another body, many believe they have switched bodies-animals if their unique brain is now in another animal body.⁵⁹ In the other experiment, where there is replacement of organic body parts with inorganic [non-living] substitutes, this would mean that it will no longer be a living creature. Hershenov says no organism would survive material transformations that replace every part except the cerebrum with inorganic matter. The cerebrum combined with inorganic parts will together not compose an organism because such parts will not collaborate in ways typical of living things. Robotic parts are reciprocally reliant on vital organ systems,⁶⁰ but robotic parts do not decay or grow together. Having just a cerebrum left, consisting of organic matter will not succeed in being an organism.⁶¹

In the cerebrum transplant, according to animalists, an organ has been removed but you, the animal, remain in a PVS and a partly empty skull. The Thomistic idea is that the human animal is distinctive, with a soul capable of free acts and reason. What remains is “a mindless animal that does not have the capacity for thought and action...If the soul provides the capacity for rational thought, and the person will be found where their soul is, then one has some reason to claim that the soul and the person have moved when the cerebrum does.”⁶²

Most of the matter that had composed a person before the cerebrum’s removal, afterwards ceases to do so because the soul that enables unique mental capacities no longer configures that matter. The new body, consisting of the matter that previously was configured by the soul, will not even have dormant mental capacities since they

⁵⁸ Hershenov, *A Hylomorphic Account*, p.489

⁵⁹ Thus if “people can leave behind their body or animal, then it appears that they are not identical to an animal for no one can leave himself behind.” Hershenov, *A Hylomorphic Account*, p.485

⁶⁰ Hershenov, *A Hylomorphic Account*, pp.485-486.

⁶¹ “The cerebrum is merely an organ whose cognitive operations do not meet the conditions for being a living organism – it does not engage in the homeostatic, metabolic, boundary-preserving, and anti-entropic functions characteristic of a living entity.” Hershenov, *A Hylomorphic Account*, p.485

⁶² Hershenov, *A Hylomorphic Account*, p.492 Hershenov says the soul of the person will configure less matter during the transplant operation than it did before the cerebrum was removed. Afterwards it will configure more yet different matter when the cerebrum has been ‘replanted’.

have departed with the transplanted cerebrum. Hershenov explains, “one mindless animal has been replaced by a distinct thinking animal with the acquisition of a single organ because there was a rational soul configuring that organ. The soul that configured the cerebrum during the transplant procedure comes to configure the entire organism that receives the transplant.”⁶³

In the thought experiment with inorganic parts replacement, if each organ except the cerebrum is replaced by an inorganic counterpart, the capacity for thought is deemed intact. Biological processes stop, e.g. metabolism. The person has ceased to be alive but has not ceased to exist, as the soul configures just the remaining organic part of the brain or it also actually configures the inorganic parts too.⁶⁴ The latter may be the case if the person can control some of the inorganic parts. However these inorganic parts do not decay, grow or interact: one may prefer the former interpretation.

Either way, the person survives the loss of life functions. The person has ceased to be alive but not ceased to exist, meaning that the person is not essentially alive. “No animal that is essentially alive can survive without being alive.”⁶⁵ Thus for Hershenov, although human persons are identical to human organisms, we are so in the same way that I may be identical to a father, husband, mother, wife, and teacher. None of these terms selects me in virtue of properties that are essential to me. Just as I am not essentially a spouse, parent or teacher, thus I am not essentially an animal. I am partly coincident with these entities but not identical to each one.⁶⁶ Human beings not essentially animals.

Critical Comment

While there are limitations in the animalistic and psychological theories of personal identity, at least these are further advanced than a position known as ‘Identity Mystics’, whereby for human beings the claim is that there are no informative criteria of identity over time.⁶⁷ Older hylomorphic ideas on the self have interpreters

⁶³ However, a cerebrum transplant is different to someone with a brain injury wherein the soul is present but can no longer configure all of its matter, resulting in deficits in an individual’s thoughts. Hershenov, *A Hylomorphic Account*, p.495

⁶⁴ Hershenov, *A Hylomorphic Account*, p.497

⁶⁵ Hershenov, *A Hylomorphic Account*, p.497

⁶⁶ Hershenov, *A Hylomorphic Account*, p.497

⁶⁷ Dean W. Zimmerman, “Criteria of Identity and the ‘Identity Mystics’,” *Erkenntnis* Vol.48 Nos.2-3 (March 1998), pp.281-301

such as Gleeson and Hershenov who acknowledge the contemporary milieu yet engage with philosophical theories like Personism and Animalism, and speculative thought experiments about brain.

In any dialogue with secular and scientific thought, one needs to concede the tension in Catholic teachings identified by Gleeson. First, being a living human organism is sufficient to be a person, e.g. PVS patient, thus a conscious subject is not necessary. Hershenov concurs, that while human persons are identical to human organisms, it is analogous identity e.g. although I am not essentially a spouse, parent or teacher, I am also not essentially an animal. But Gleeson's second component of the tension is that being a conscious entity is sufficient to being a person e.g. the human soul after death; one need not be a living human organism. For Hershenov, human animal nature means that they are contingently animals; we are living creatures who can still *exist* without being *alive*. Overall, this appears to discard the animal aspect of human nature, at least temporarily after death.

Present-day thinkers may dispute Gleeson's idea that "person" can be applied to the human soul *post-mortem*. But it ought to be remembered that personal identity is a significant though not exclusive part of a larger notion of person.⁶⁸ The brain alone cannot be the complete self over a lifetime, because the brain is not my *self*. As we discussed earlier, a brain-dominated view of self cannot bear the whole burden of meaning for persons, mind, soul and socio-cultural life.

Critiques of Hylomorphism

While hylomorphism has contemporary advocates, it also has contemporary difficulties, which may affect its explanatory role today. Three philosophers comment on some modern complications for the Aristotelian-Thomistic account of mind-body.

⁶⁸ Christian Smith, *What Is a Person? Rethinking Humanity, Social Life, and the Moral Good from the Person Up* (Chicago and London: University of Chicago Press, 2010). The notion of person is significant in Boethius, Joseph W. Koterski, "Boethius and the Theological Origins of the Concept of Person," *American Catholic Philosophical Quarterly* Vol.78 No.2 (Spring 2004), pp.203-224. On stipulating definitions of persons, see Jenny Teichman, "The Definition of *Person*," *Philosophy* Vol.60 No.232 (1985), pp.175-185; for a developmental view see John Barresi, "On becoming a person," *Philosophical Psychology* Vol.12 No.1 (March 1999), pp.79-98

1. The concept of form is ambiguous; what type of distinction is that between the substantial form of an individual substance and the substance itself?⁶⁹ The individual substance is something more and thus something truly separate from its substantial form.⁷⁰ G.P.Barnes analyses subatomic particles of the human body as ‘substance-independent matter’ where identity does not rely on its composing this specific substance: a human being.

One can think of instances of the electrons, protons and neutrons of the atoms of gasses in air. They could be subatomic particles of molecules comprising the mixture, air, or be in the body’s molecules. However, the heart, kidneys, lungs, etc. are ‘substance-dependent matter’. The body’s substance-dependent matter is essentially specified by the substantial form of a human being. That is, it is essential to hearts, lungs, and kidneys to be the matter of a living human being. Their identity as matter depends on their relation to the whole human being that they make up.

But it is not essential to electrons, protons and neutrons to make up a human being.⁷¹ It can be argued that a real distinction between the matter and the form of a substance is found only in the substance-independent matter of a substance.

Barnes explains, “it is only the substance-independent matter that persists through substantial changes. So the substance-independent matter of a human being must be really distinct from the substantial form of that human being. However, this does not require us to say that the substance-dependent matter of a human being is really distinct from the substantial form.”⁷² Naturally, Barnes’ view is also subject to criticism, e.g. some see philosophical difficulties with the idea of multiplicity of substantial forms.⁷³ Nevertheless it seems fair to say that the the concept of form is problematic.

⁶⁹ Gordon P.Barnes, “The Paradoxes of Hylomorphism,” *The Review of Metaphysics* Vol.56 No.3 (March 2003), pp.501-523 (p.509)

⁷⁰ Barnes, *The Paradoxes of Hylomorphism*, p.512

⁷¹ Barnes, *The Paradoxes of Hylomorphism*, p.513

⁷² Barnes, *The Paradoxes of Hylomorphism*, p.513

⁷³ Michael Hector Storck, “Parts, Wholes, and Presence By Power: A Response To Gordon P. Barnes,” *The Review of Metaphysics* Vol.62 No.1 (September 2008), pp.45-59. Cf. also Marie McGinn, “Real Things and the Mind Body Problem,” *Proceedings of the Aristotelian Society* Vol.100 No.1 (June 2000), pp.303-317.

2. The soul in Aristotle and Aquinas presents other difficulties, when viewed as a spiritual principle created by God.⁷⁴ P.Coghlan identifies two reasons why Aristotle believed in the rational or intellectual soul in humans to be immortal and spiritual.⁷⁵ One, the ancient principle that like is only known by like. Two, humans are able to think of all things, entailing something in human nature to facilitate this.

Both reasons, says Coghlan, are not persuasive nowadays. The first reason invites the question: whether a body can know immaterial ideas without a spiritual soul. The second reason is countered by the human power to think without an active spiritual intellect. Materialists face problems too: they need to argue against the point that thoughts do not seem to be in space and time in the way that electrochemical processes in the brain are. Even if brain events are correlated with specific thoughts or intentions, we still need to grasp the thought *as thoughts*, not as physical phenomena. Also, rational activities e.g. reading an article, cannot be fully explained by patterns of light affect the eyes and electrical signals to the brain. It needs to refer to meanings of the words written by the author.⁷⁶

There is a tension in Aristotle and post-Aquinas Catholic thought between understanding the soul as a spiritual part of the self that humans think with; and the rational soul as the organising principle of the living human body. To suppose that humans think with a spiritual part of themselves is to adopt the dualism of soul and body which Aristotle's hylomorphic theory was meant to resolve, argues Coghlan. Humans clearly rely on their brains to think but they do not think with any part of themselves.⁷⁷ It is more of a Platonic idea that God creates the soul and infusing that into an individual body, rather than Aristotelian view. Because thinking is a non-material activity, it becomes attributed to the soul as the spiritual principle, rather than a body or any of its organs. Therefore, thinking stops being an activity of the whole person.⁷⁸

⁷⁴ Such is the traditional Catholic account. Peter Coghlan, "Persons, Souls and Embryos," *Pacifica* Vol.6 No.2 (June 1993), pp.165-178

⁷⁵ Coghlan, *Persons, Souls and Embryos*, p.171. Coghlan discusses these points in relation to the book Norman M.Ford SDB, *When did I begin? Conception of the Human Individual in History, Philosophy and Science* (Cambridge: Cambridge University Press, 1988).

⁷⁶ Coghlan, *Persons, Souls and Embryos*, pp.171-172

⁷⁷ Coghlan, *Persons, Souls and Embryos*, p 172. Coghlan relies on Peter T.Geach's 1969 book, *God and the Soul*. Similar ideas are expressed by M.Bennett and P.M.S.Hacker in their critique of neuroscience thinking as we shall see.

⁷⁸ Coghlan, *Persons, Souls and Embryos*, p 174

Viewing the soul as a spiritual principle leads to a notion of the soul as a separate part of the self. This is no longerhylomorphic theory of matter and form being “strictly complementary – no matter without form, no form without matter. It becomes, instead, Platonic or Cartesian dualism.”⁷⁹ As form of the body, it is also difficult to grasp how the soul can survive the death of the body, i.e. whether the rational life-principle is the means to account for both the personal survival after death and the non-material nature of rational acts. If my soul is “the specific life I possess as a bodily individual, then, whatever may survive the death of my body can only be me in the most attenuated sense and I must look to the resurrection of my body if I am to live fully again.”⁸⁰ Coghlan looks to John Mahoney’s idea, following Teilhard de Chardin, of spiritual activities ‘welling up’ from the physical nature due to God’s creative actions. However that also raises questions.⁸¹

3. Contrary to A.Kenny’s book *Aquinas on Mind*, J.P.O’Callaghan counters that St.Thomas has no philosophy of mind. O’Callaghan argues there is a change in Aquinas’ understanding of cognition from an Augustinian *philosophy of mind* to a fuller Aristotelian *psychology*. Aquinas has “no philosophy of mind, because he does not think there is any such thing as the mind as described by Kenny. The reasons for denying the existence of this mind have to do with Aquinas’s greater appropriation of Aristotle’s account of the soul in the ‘Treatise on Man’.”⁸² There can be an Aristotelian influence on the understanding of the soul; perhaps, says O’Callaghan, the greatest contribution Thomists can make to contemporary philosophy of mind.⁸³

Ideas about mind today contain a methodological Cartesianism, e.g. psyche and mind, “how can the thing exhaustively described empirically be related to, or identified with, the thing ‘irreducibly’ analysed philosophically.”⁸⁴ O’Callaghan counsels philosophers in the Thomistic tradition to question Cartesian methodological dualism. There is a loss of substantial form. The mind attaches a

⁷⁹ Coghlan, *Persons, Souls and Embryos*, p.175. Contemporary Thomists are aware of these questions as we shall see in later parts.

⁸⁰ Coghlan, *Persons, Souls and Embryos*, p.175

⁸¹ Coghlan, *Persons, Souls and Embryos*, p.176

⁸² John P.O’Callaghan, “Aquinas’s rejection of mind, contra Kenny,” *The Thomist* Vol.66 No.1 (January 2002), pp.15-59 (p.15)

⁸³ O’Callaghan, *Aquinas’s rejection of mind*, p.52

⁸⁴ O’Callaghan, *Aquinas’s rejection of mind*, pp.53-54

level of reality to our animal biological life and interacts with biological life and provides an account of the unknown causal relationship. Later this will become the problem of consciousness.

Regarding contemporary nonreductive and reductive physicalism, some do not see Aquinas as a simple substance dualist, but rather view him on the side of nonreductive physicalism. Take a bronze sphere's 'sphericity': is it 'over and above' the bronze object? No, there sphericity is not the bronze. Generally, the form of X is other than the matter of X, although it is not some thing 'over and above' X. When bronze is shaped into a sphere, the sculptor is not adding some thing to it, 'over and above' it. She/he modifies its shape.⁸⁵

Moreover, it does not follow then to ask how the sphericity acts on the bronze or what it causes in the bronze: like efficient causation applied to mental causation. The sphericity does nothing to the bronze to make it a bronze sphere. This is the task of the sculptor. Instead, the sphericity *is* the actuality of the bronze being a sphere.⁸⁶ Aquinas does not have a Cartesian obsession with introspection and consciousness, indeed because he does not, says O'Callaghan, share the Cartesian obsession with the mind.⁸⁷

Critical Comment

Even if one accepts 'forms,' Barnes' discussion points to real problems in how to grasp and express them today. They appear historically and philosophically interesting and may be of academic interest to those who investigate the world of matter without the concept of form. However for Aquinas, Catholic teachings and other thinkers, the concept is valid and has been reinterpreted for the contemporary situation including the brain.

Coghlan identified above a tension between the soul as a spiritual part of the self that humans think with, which he regards as is dualistic of mind and body; and the rational soul as the organising principle of the living human body. Then there is the identity of non-material nature after death. The tension is aided by the diversity in

⁸⁵ O'Callaghan, *Aquinas's rejection of mind*, p.56

⁸⁶ O'Callaghan, *Aquinas's rejection of mind*, p.56

⁸⁷ O'Callaghan, *Aquinas's rejection of mind*, p.59

scholarly opinion, e.g. Stump's dualist reading of Aquinas, and O'Callaghan's differences with Kenny and O'Callaghan's view that Thomas takes the side of nonreductive physicalism. It is ironic that for such a systematic careful thinker as Aquinas who wrote in the precise language of Latin, there is a singular precision among Thomist schools of thought. Perhaps to resolve the tension one must understand it, to name the problem before trying to solve the problem, after conceding there is a problem. And this has proven difficult.

Why isn't the mind-body problem found in mediaeval philosophy?

This question is posed and addressed by P.King and can be enlightening for the present discussion, given the influence of medieval philosophy on traditional Catholic beliefs concerning the soul. Unlike their Greek forerunners, Christian philosophers were committed to the teaching of separated human souls.⁸⁸ But philosophers in the Middle Ages, like the ancient Greeks, lacked ready ways to ask the central question: 'What is the relation of sensation to the body on the one hand and to the mind (or soul) on the other hand?' For 'body', Latin offers *corpus*, and for 'mind' or 'soul' *mens*, *animus* / *anima*, *ingenium*, and even *spiritus* or *ratio*.

The trouble occurs with the term 'sensation'.⁸⁹ There was no Latin word for this concept, implying that literate mediaevalists did not need to discuss 'phenomenal content'. The issue for them was how physical or physiological processes could affect the incorporeal human intellect. Up to the thirteenth century, "worries about the 'phenomenal content' of sensing were simply not on the philosophical agenda at all, whether by a single expression or a more complex description."⁹⁰ Nevertheless, the term *sensatio* eventuated and it became a small step to the mind-body problem. All that was needed was to grant that sensations are essentially non-physical. King notes that with William of Ockham's dogmatic commitment to the existence of separated human souls, it is a short step.⁹¹ While 'sensatio' was only used twice in

⁸⁸ Peter King, "Why Isn't the Mind-Body Problem Medieval?" in Henrik Lagerlund (ed.), *Forming the Mind: Essays on the Internal Senses and the Mind/Body Problem from Avicenna to the Medical Enlightenment*, Studies in the History of Philosophy of Mind, Volume 5 (Dordrecht: Springer, 2007), pp.187-205. See also M.W.F. Stone, "The Soul's Relation to the Body: Thomas Aquinas, Siger of Brabant and the Parisian Debate on Monopsychism," in Tim Crane and Sarah Patterson (eds.), *History of the Mind-Body Problem*, London Studies in the History of Philosophy (London and New York: Routledge, 2000), pp.34-69

⁸⁹ King, *Why Isn't the Mind-Body Problem Medieval?*, p.188.

⁹⁰ King, *Why Isn't the Mind-Body Problem Medieval?*, p.189

⁹¹ King, *Why Isn't the Mind-Body Problem Medieval?*, p.191

the millions of words of Aquinas, it was more explicitly used by Ockham who writes about *sensationes* as accidents in the soul.⁹²

Yet John Duns Scotus distinguishes acts of understanding from acts of sensing.⁹³ Sensing is not exactly physical since non-living organic bodies do not sense; nor is it exactly mental since disembodied souls do not have it. By contrast, understanding is possible in a disembodied soul because its subject who understands is intrinsically nonmaterial. Sensations are not associable with ideas that constitute the Cartesian Mind, which has a contentious relationship to the body in modern philosophy. Between mind and body, the line was drawn to mark off the processes of sense-perception to the body side and thus indispensable for sensation.

Ockham also saw the idea of disembodied sensation as absurd; and sufficient grounds for the real distinction between the sensitive and the intellective souls in humans.⁹⁴ The line becomes: the living (sensitive) body, a composite of sensitive soul and organic body, is distinguished from the intellective soul, able to exist, bodiless.

However not all medieval philosophers, e.g. Scotus, accepted the real distinction between the sensitive and intellective soul. Scotus held that in humans, the sensitive soul and the vegetative soul are the *same* as the intellective soul. If the sensitive and intellective souls are not in fact distinct, then they are in fact the same or the same thing (*res*) metaphysically. High Middle Ages philosophy was committed to the doctrine that at least the intellective soul can survive death. Accordingly, the sensitive soul can exist in a disembodied form. Its actions, therefore, are not fundamentally bound to the body, especially sensing, or at least its product, sensation. Hence, it also can exist in a disembodied soul. And this is the mind-body problem in medieval form, at least for those philosophers who deny the real distinction between sensitive and intellective souls.⁹⁵

⁹² The timing of Ockham's ideas is more or less right, says King. "We would expect the ground for the philosophical agenda pursued by modern philosophy to be prepared in the Middle Ages, and Ockham's philosophy casts a long shadow over the intervening years." King, *Why Isn't the Mind-Body Problem Medieval?*, p.191

⁹³ King, *Why Isn't the Mind-Body Problem Medieval?*, p.193ff.

⁹⁴ King, *Why Isn't the Mind-Body Problem Medieval?*, p.196

⁹⁵ King, *Why Isn't the Mind-Body Problem Medieval?*, p.196

King turns to the most noted, indeed first philosopher who denied the real distinction between the sensitive soul and the intellective soul: Aquinas. Thinking and choosing are mental operations which do not need bodily organs. Sensing is different, e.g. hearing through the ear. The powers are not in the soul alone but in the compound as their subject. The soul thinks and chooses whereas the compound hears and sees. Souls empower bodies to see, yet souls need bodies to exercise that power. It is a small step therefore to *rejecting* the medieval mind-body problem.

Aquinas asks if all the powers of the human soul continue in the soul after separation from the body. His answer, says King, shows that he, as with Ockham, thought it strictly impossible after death for there to be ‘sensations’ or acts of the ‘sensitive soul’ in the soul.⁹⁶ Aquinas distinguishes between the source of an ability and the subject of the ability. King’s example is how dancing is a physical activity that requires knowledge of how to dance generally and how to dance a specific dance. A dancer who loses her legs will have the applicable knowledge but cannot apply that in herself. If a medical breakthrough enabled her legs to be regenerated, she could dance again. The person as a whole dances, yet her ability to dance is based on her knowledge. Similarly with the ability to sense: it is based in the soul, flows out from it, however in itself is an action not of the soul alone but of the embodied soul.

As King says, the medieval mind-body problem thus founders in the move from ‘sensory powers belong to a soul that can exist apart from the body’ to ‘sensory powers can be actualised in a soul that exists apart from a body.’ Philosophers who uphold the unitary nature of the human soul can concede the first point while denying the inference of the second point.⁹⁷ A medieval mind-body problem would be a *reductio ad absurdum* for any reasonable Aristotelian philosophy of mind.⁹⁸ As for Plato, the body was necessary for sensing and hence cannot exist apart from the body. There is no allowance for disembodied sensation, and consequently no room for a mind-body problem, even in the Platonist tradition, in the early Middle Ages.⁹⁹

⁹⁶ King, *Why Isn't the Mind-Body Problem Medieval?*, p.198, cf. *Summa Theologiae* Ia Q.77 Art.8.

⁹⁷ King, *Why Isn't the Mind-Body Problem Medieval?*, p.199. In footnote 25, King notes that “versions of Aquinas’s move are found in other philosophers who endorse the unitary human soul. Duns Scotus, for example, uses nearly the same terminology as Aquinas, asserting that the single human soul ‘contains’ each of the formally distinct souls virtually (*virtualiter*).”

⁹⁸ King, *Why Isn't the Mind-Body Problem Medieval?*, p.199

⁹⁹ King, *Why Isn't the Mind-Body Problem Medieval?*, p.203

Critical Comment

It could be wondered whether grasping why the mind-body problem transpired may divulge hints of possible grounds for dialogue between neuroscientific and traditional Catholic perspectives. For the genesis of the mind-body problem King looks to the distinction between primary and secondary qualities. ‘Real’ properties were basically quantitative: primary qualities of shape, size, speed, direction. Secondary qualities were somewhat lost, migrating from the external world, as found in Antiquity, to the only place remaining that seemed mystifying in quantitative terms: the mind. Since Descartes the standard examples of ‘phenomenal qualities’ have been perceptual properties: the smell of wet leather, the sound of a tree falling and the classic one, pain.¹⁰⁰

A simple solution may not be forthcoming. For mediaevalists, colours, sounds, and smells were all trouble-free qualitative characteristics of the world with no unfathomable ‘phenomenal’ aspect.¹⁰¹ Such a thought emerges in the Thomist thinking below. For King, colours naturally could be the contents in mental acts, but they were contents in precisely the same way as the shape of the table. There may be difficulties but none about their supposed ‘feel.’ Yet, once the world was denuded of secondary qualities, their unreal existence in the mind prepared the way for the mind-body problem.¹⁰²

Knowledge has advanced tremendously since mediaeval times, for instance about the visual fields. For visual perception, the neural pathways from the retina to the cerebral cortex are anatomically organised with wonderful precision.¹⁰³ In all areas of these pathways, there is point to point localisation. Exact clinical tests can appraise the integrity of the neuroanatomical structures, and the most revealing ones are tests that map the visual fields.¹⁰⁴ While it may be too much of a retrograde step to revert to mediaeval understandings, at least the notion of what King calls a “trouble-free” acceptance of phenomenal qualities may be attractive.

¹⁰⁰ King, *Why Isn't the Mind-Body Problem Medieval?*, p.204

¹⁰¹ These are “no more to be eliminated in favour of chunks of matter in motion than are the latter in favour of quarks or superstrings.” King, *Why Isn't the Mind-Body Problem Medieval?*, p.204

¹⁰² King, *Why Isn't the Mind-Body Problem Medieval?*, p.204

¹⁰³ D.A.Simpson and J.L.Crompton, “The visual fields: An interdisciplinary history I. The evolution of knowledge,” *Journal of Clinical Neuroscience* Vol.15 No.2 (February 2008), pp.101-110

¹⁰⁴ This knowledge was reached before neuroimaging and included data from visual cortex damage due to missile wounds sustained during war. Simpson & Crompton, *The visual fields: An interdisciplinary history I*, p.101.

Puzzles about consciousness arise from the notion that a *physical* account of the world would omit *experience*. But experiences are not behaviours e.g. hope, sorrow etc. are the “outer husk of the *inner* psychological reality with which each subject is intimately acquainted.”¹⁰⁵ This ‘realm of consciousness’ is deemed mysterious. But such puzzlement is actually Cartesian: causal interactions in a material realm leading to things *categorically distinct from matter* as experiences. The Cartesian world comprises two categorically separate domains: the mental as consciousness; and the material and its extensions.¹⁰⁶

On pain, King notes that classical and medieval philosophy understood pain to be produced by damaged or overloaded sense-organs. It is a sign that a sense-organ is not functioning correctly. It is no more intrinsically mental than colour or shape.¹⁰⁷

A Case of Return Engagement with Aquinas

As observed above, contemporary scholars sympathetic with Aquinas’ ideas have expanded his thinking and its associated tradition to include questions about identity, mind, and the brain,. But it could be asked, has there been a reciprocal level of interest on the part of critics of Catholic and Thomistic thought to learn the concepts and language of Tommaso and expand, for example, scientific thinking to include a more metaphysical outlook on the data about human beings? Here is an unusual case.

In a rare collaboration, neuroscientist Walter J.Freeman looks to Thomas Aquinas to elucidate twenty-first century brain dynamics. Humans and other animals continuously construct and hold their grasp of the world by using small fragments of sensory information. Freeman turns to nonlinear brain dynamics for an explanation, whose philosophical foundation originates in Aquinas. The fundamental concept of intention in Aquinas is “the inviolable unity of mind, brain and body. All that we

¹⁰⁵ Bennett & Hacker, *Philosophical Foundations*, p.261

¹⁰⁶ Bennett & Hacker, *Philosophical Foundations*, p.262

¹⁰⁷ King, *Why Isn't the Mind-Body Problem Medieval?*, p.204. The reference is to Wallace I. Matson “Why Isn't the Mind-Body Problem Ancient?” in Paul K. Feyerabend & Grover Maxwell (eds.), *Mind, Matter, and Method: Essays in Philosophy and Science in Honor of Herbert Feigl*. (University of Minnesota Press, 1966). King intended his paper to be the sequel to Matson’s.

know we have constructed within ourselves from the unintelligible fragments of energy impacting our senses as we move our bodies through the world.”¹⁰⁸

Freeman views this idea of the self as closed, autonomous, and self-organizing, as being created over 700 years ago and yet, left by Descartes, Leibniz and Spinoza 300 years ago. But it now re-surfaces in philosophy and re-establishes the original meaning of intention. Aquinas’ notion of the unity of brain, body and soul/mind, shelved by mechanists and replaced by Brentano and Husserl, has been revived by Heidegger and Merleau-Ponty, but in phenomenological terms that are cloudy to neuroscientists.

Freeman says that there is no existing philosophical system other than Aquinas’ which better fits with nonlinear brain dynamics.¹⁰⁹ Questions about how the brain can *a priori* create its own goals and then find the right images in memory are problematic. There is no Cartesian pilot; there is a gap in the theory because no one wants a homunculus.¹¹⁰ In the first half of the twentieth century, pragmatists, gestaltists and existentialists used concepts of pre-existing goals and expectations. Then in the second half of that century, nonlinear dynamics broke through in mathematical, physical and chemical sciences, e.g. ideas of ‘dissipative structures’ by Prigogine. Applying this to brains, ‘circular causality’ was proposed to account for indeterminacy of feedback, whereby the components of a system can largely determine their own behaviour.

Freeman chooses Aquinas for three reasons. Two of these are: to understand the roots the concept of intention which is needed to fill the explanatory gap between his electrophysiological data and the goal-directed behaviour of animals; then because Aquinas was the principal architect of the Western worldview before the Cartesian-Copernican-Newtonian revolution that established linear dynamics.¹¹¹

¹⁰⁸ Walter J. Freeman, “Nonlinear Brain Dynamics and Intention According to Aquinas,” *Mind and Matter* Vol.6 No.2 (2008), pp.207-234 (p.207)

¹⁰⁹ Freeman, *Nonlinear Brain Dynamics*, p.207

¹¹⁰ Freeman, *Nonlinear Brain Dynamics*, p.209

¹¹¹ In other words, “There is no better source of new insights than that offered by a mummified system of thought which preceded the present doctrines of linear causality and subject/object duality, whereby external ‘objects’ cause internal ‘representations.’” Freeman, *Nonlinear Brain Dynamics*, p.210. Freeman’s other reason is that his ‘Treatise on Man’ in *Summa Theologica*, is now widely available through the Encyclopedia Britannica (Aquinas 1272).

Most of Aquinas' work, says Freeman, is irrelevant to neuroscience, yet his ideas on phenomenology and the functions of bodies and brains are very relevant.¹¹² He quotes substantially from Aquinas' *Summa Theologica*, Part I, on mind and body. He suggests a modern description can be easily articulated by substituting 'mind' for 'soul', and 'material' for 'corporeal'. For instance, Q.75, "of man, who is composed of a spiritual and a corporeal substance."¹¹³

The Thomistic distinction between matter and its unique 'forms' is explained by Freeman as the forms of material things that the intellect knows. It knows *what* each material being is, and all material things are what they are because of their forms. He draws the link to the brain as the immediate and distinct effects of repeated stimuli onto receptors, and through them into the brain. They are individual and transient forms of matter; were the brain were to collect and save all of those impressions streaming in from all senses, the brain could not know anything.¹¹⁴

'Phantasm' has been explained as 'sense-experience' and 'quale' and apparently related to 'experience' in post-Heideggerian phenomenologists such as Merleau-Ponty. Freeman sees problems for phenomenologists to find neural correlates of such phenomena since it needs awareness for logical analysis and verbal description.

A neurobiological example is the nose, comparing the pattern of response to an odorant of the olfactory receptors against the pattern of neural activity created in the olfactory bulb; the receptor axons end in the brain. Freeman asks, what is the form of an odorant? A chemical species has an affinity for a subtype of chemoreceptor cell in the nose and there are thousands of these. Each inhalation excites a small portion of the available chemoreceptor cells, yet it is a different portion with each breath.

Through processes of learning the olfactory bulb builds a pattern of synaptic connections, which joins together the neurons in the bulb that were excited by the

¹¹² That is, "the main differences between his and my worlds stem from his preoccupation with enabling humans to understand their relation to God and mine with being [sic.] science into the service of humanity by understanding the internal dynamics of brains." Freeman, *Nonlinear Brain Dynamics*, p.211

¹¹³ Freeman, *Nonlinear Brain Dynamics*, p.213. Later Freeman says the texts of Aquinas "emphasize the uniqueness of each person (and animal) in the make-up of its intellectual soul (mind), owing to the creation of phantasms from personal experience and the composition of knowledge from them." (p.217)

¹¹⁴ Freeman, *Nonlinear Brain Dynamics*, pp.213-214

receptors. From that pattern the bulb generalises across the class of receptors. Furthermore, the bulb links all prior olfactory experience into each of its activity patterns on every sniff. The distinctive and individual odorant-driven activity patterns survive as ‘phantasms’ only long enough so as to contribute to the bulb. Then they are washed away.¹¹⁵

Contrary to Aristotle who thought the forms of objects were imported by the soul, Aquinas, says Freeman, taught that the forms in material objects were replaced by the constructions in the mind. The multiplicity of phantasms among varied observers of the same object demonstrated that the singular form of the object is not accessed.¹¹⁶ The experimental data show that the microscopic stimulus-driven neural activity pattern in sensory cortex is replaced by a [larger] mesoscopic abstraction and generalisation that is transmitted through the brain, although the unknowable material event is absorbed and deleted. This transition from matter to phantasm is important in grasping the applicability of Thomist intention to nonlinear brain dynamics.¹¹⁷

There subsequently developed the metaphor of the body as a machine, which enabled Descartes to mathematise human function. The Cartesian revolution in neuroscience was, according to Freeman, Thomas Willis’ distinction between automatic (reflex) and ‘voluntary’ behaviour in 1558. Neurology and neurobiology textbooks still carry these labels into the present day, even though Dewey and others have noted these to have religious rather than scientific sources. The understandings of these terms need to be revised in the light of nonlinear brain dynamics. This can be promoted via cooperation between neuroscientists and philosophers, guided by new readings of the works of Aquinas.¹¹⁸

¹¹⁵ The central pattern does not represent any of the odorant presentations. These are unknowable and of no further use. Freeman interprets experimental data derived by recording neural activity in behaving animals. Freeman, *Nonlinear Brain Dynamics*, p.215.

¹¹⁶ Freeman, *Nonlinear Brain Dynamics*, p.222

¹¹⁷ Freeman, *Nonlinear Brain Dynamics*, p.222. Freeman remarks, “I know of no other philosophical doctrine that captures so effectively the neurobiological substrate of this interface between matter and mind.”

¹¹⁸ Freeman, *Nonlinear Brain Dynamics*, p.232

Critical Comment

This exploration is a notable accomplishment and while Freeman may appear to be retrieving selected ideas of Tommaso, it still requires intelligence to utilise the metaphysical vocabulary and argumentation, and then adapt them to a contemporary context. If anything, it shows that outside philosophical circles, Tommaso's thought has substance can be recognised as having enduring merit. The fact that not more brain researchers have discovered or used Tommaso's ideas may be simply because Freeman is a maverick in this regard. Another possible reason is that others have not had the same enthusiasm for openness to dialogue, or at least to think *meta-*physically. Overall, Freeman's work demonstrates what may be possible coming from the scientific side of the dialogue between religion and science.

Critical Analysis

The traditional Catholic teachings about the soul undoubtedly encounter difficulties when confronted by the neurosciences, but today many Thomists know about these. They do not abandon hylomorphism but refine it, incorporating newer brain knowledge. Similarly, the lack of a clear mediaeval mind-body problem, as highlighted by King, implies that such problems are really those of modernity.¹¹⁹ Thus scientific progress and modern issues require innovative answers, or at least a modified interpretation of earlier thinking. Freeman and others have shown some possibilities on how to cross the centuries and worldviews, both from the contemporary side and the historical-philosophical side.

C.Ernst OP notes that in scholastic philosophy 'the soul' is only in place *per accidens*; but care is needed to renew the philosophical meaning of 'soul', because it leave the impression of something 'located' in the body, "not-body" but only vaguely situated therein.¹²⁰ A recreated soul meant that it is a principle that makes possible and actual the kind of being-in-a-situation which is proper to humans. This is achieved by beginning from humans' being-in-a-situation and moving back to the

¹¹⁹ Geoffrey Gorham, "How Newton Solved the Mind-Body Problem," *History of Philosophy Quarterly* Vol.28 No.1 (January 2011), pp.21-44

¹²⁰ Cornelius Ernst, O.P., "Introduction," in Karl Rahner (trans. C.Ernst, O.P.), *Theological Investigations Volume I: God, Christ, Mary and Grace*. (London and New York: Darton, Longman & Todd; The Seabury Press, 1974), pp.v-xix (p.xiv)

‘soul’, and not the opposite way. Humans ‘inhabit’ the earth, dwell ‘in’ cities by making tools of inhabitation and shared in the community.

The human ‘world’ including art, civilisation, religion, morality and science may once have been identified with the cosmos. Nevertheless Ernst, a translator of Rahner’s works, says we can now see that this identification was properly a mythical reconciliation of inner and outer, we no longer live under the vault of heaven but in an historical culture. The fundamental actualization of human existence is the generation of meaning.¹²¹

Theologians proposing a more scientifically-open understanding of the body/soul, thereby employing concepts departing from traditional hylomorphism and metaphysics, are usually followers to some extent of Rahner. His ideas have been persuasive and characterise the work of Haught, Edwards and others. It is certainly not strict Thomism, not always hylomorphism, yet it is spiritual; Rahnerians use concepts and language based on the knowing subject. Indeed Rahner’s early work *Spirit in the World*,¹²² was on the Thomistic metaphysics of knowledge. By spirit Rahner means “a power which reaches beyond the world and knows the metaphysical world.”¹²³

Staying for a moment with Rahner, he said that today’s (1983) natural science means theologians cannot be content with traditional views on spirit and matter, on a spiritual soul and biologically material entity.¹²⁴ He was thinking particularly of evolution. Science cannot reduce humankind to the animal level and overlook the fact that “human beings are creatures with a language property to themselves, creatures of culture and of history. Therefore we say: human beings are bodily creatures who have a fundamentally unlimited transcendental and unlimited

¹²¹ Ernst, *Introduction*, pp.xiv-xv

¹²² Karl Rahner (trans.W.Dych SJ), *Spirit in the World* (London and Sydney: Sheed and Ward, 1968), translation of *Geist in Welt*, 1957. This work is part Rahner’s overall project in philosophy and theology, see Thomas Sheehan, “Rahner’s transcendental project,” in Declan Marmion and Mary E.Hines (eds.), *The Cambridge Companion to Karl Rahner* (Cambridge and New York: Cambridge University Press, 2005), pp.29-42

¹²³ ‘World’ is the name Rahner gives to the reality accessible to the immediate experience of man Rahner, *Spirit in the World*, p.liii

¹²⁴ The original German version was published in 1983. Karl Rahner (trans. H.M.Riley), “Natural Science and Reasonable Faith: Theological Perspectives for Dialogue with the Natural Sciences,” in *Theological Investigations Volume XXI* (London: Darton, Longman & Todd, 1988), pp.16-55 (p.28)

openness to being as such in knowledge and freedom.”¹²⁵ The distinction of matter and form is “hardly found anymore” due to the empiricism of the subhuman sphere and no longer as helpful as it was previously.¹²⁶

The system of empirical data does not separate the human reality which “school theology” does in speaking of the immortal soul “as though what is meant by this were an element within the totality of man which can be encountered immediately and in itself, and distinguished empirically and in test-tube from the rest of him. This is understandable pedagogically, but ultimately a primitive conception.”¹²⁷ It is a primitive dualism stemming from Greek anthropology.

However, Rahner’s thought is open to different interpretation. As discussed earlier, a serious pitfall in neuroscience and its interpretation has been systematically argued by Bennett and Hacker, namely that there is in it a crypto-Cartesianism inherent in much of neuroscience language about mind, brain and body. Like Bennett and Hacker, F.Kerr also follows Wittgenstein but with theology in mind, yet he is anti-Cartesian.

Kerr names Rahner as an example of theologians who recognise the importance for theological reflection of the Cartesian prominence given to the individual.¹²⁸ He (Kerr) sees problems with the Rahnerian subject and how modern theology is saturated with Cartesian assumptions. While highlighting Rahner as the most influential Roman Catholic theologian of the day, Kerr also says there is charm to Rahner’s system which can hide things from the philosophically unwary, e.g. epistemological preliminaries are a pointer to Cartesian theological notions.¹²⁹

¹²⁵ Rahner, *Natural Science*, p.42

¹²⁶ Rahner, *Natural Science*, p.44

¹²⁷ Karl Rahner (trans. W.V.Dych), *Foundations of Christian Faith: An Introduction to the Idea of Christianity* (New York: Crossroad, 1978), p.30

¹²⁸ Fergus Kerr, “The Modern Philosophy of Self in Recent Theology” in Russell et.al. (eds.), *Neuroscience and the Person*, pp.23-40 (p.26)

¹²⁹ Kerr, *The Modern Philosophy of Self*, p.28. Kerr also describes Rahner’s *Foundations of Christian Faith* as “an acknowledged masterpiece of modern theology...but it is always as the cognitive subject that people first appear in Rahner’s theology. Students alerted to the bias of the Cartesian legacy would suggest that that language or action, conversation or collaboration, are more likely starting points.” (p.28)

On the soul, Kerr, a Thomist scholar, thinks Rahner believed the soul be a solitary individual, but “the Rahnerian self turns out to be nothing less than ‘pure openness for absolutely everything’.”¹³⁰ He (Rahner) is criticised for his preoccupation with the cognitive subject, for making other people marginal in his epistemology, with the stress on the subject’s capacity for self-consciousness and self-reflexiveness, and for his openness for absolute being. “Rahner’s most characteristic profundities are embedded in an extremely mentalist-individualist epistemology of unmistakably Cartesian provenance. Central to his whole theology, that is to say, is the possibility for the individual to occupy a standpoint beyond his immersion in the bodily, historical, and the institutional. Rahner’s consistently and individualist presentation of the self emphasizes cognition, self-reflexiveness, and an unrestricted desire to know.”¹³¹

This represents major criticism of a substantial figure. Inevitably Kerr’s critique will itself attract rejoinders,¹³² but the intention here is not to polarise Thomists, Wittgensteinians, Rahnerians or others. Rather, to merely point out that many of those differing with the traditional Catholic understanding of the soul have followed Rahner in some respects. Yet in the spirit of inquiry into truth, Rahner’s writings are subject to analysis. There may be debate and this might be also an invitation to dialogue on important aspects of Christian anthropology in light of neuroscience and evolution.

Conclusions

If the soul in Aquinas and Catholic tradition is, “an element within the totality of man which can be encountered immediately and in itself, and distinguished empirically and in test-tube from the rest of him,”¹³³ this would be tantamount to dualism. However, the Catholic teachings are insistent on unity of body and soul to become the person, in this life. Any dualism is noticeably *post-mortem* a temporary separation awaiting resurrection.

¹³⁰ Kerr, *The Modern Philosophy of Self*, p.29

¹³¹ Kerr, *The Modern Philosophy of Self*, p.30

¹³² Ethna Regan, “Not Merely the Cognitive Subject: Rahner’s Theological Anthropology,” in Pádraic Conway and Fáinche Ryan, (eds.), *Karl Rahner: Theologian for the Twenty-first Century*, Studies in Theology, Society and Culture. Vol.3 (Oxford: Peter Lang, 2010), pp.121-140

¹³³ Rahner (trans. Dych), *Foundations of Christian Faith*, p.30

Modern accounts of hylomorphism have attempted to account for brain-mind relationships as a wholistic drive against reductionism, freeing the discussion from this-world physicalism. Hylomorphism is the principal language for articulating the body-soul existence in light of divine transcendence.

Hylomorphism's engagement with brain matters and analytic philosophy has led to an updated understanding of hylomorphism, which may disappoint or be unconvincing to other physicalist thinkers. For their part, most modern Thomists resist any notion that the sciences can 'materialise' the soul in the directions that Murphy and colleagues have argued; they go so far as to eliminate the soul in their nonreductive physicalism ("Whatever happened to the soul?").

To conclude, it is worth returning to the question asked above, if Aquinas was a philosopher now, would he still reason with Greek philosophy and hylomorphism? A conservative reply would be yes. The translator of Tommaso's so-called 'treatise on man'¹³⁴ appears to imply that Tommaso's ideas are timeless, where scientific advances throws light on "the nature of embodiment in detail, but the immortal spirit there remains even when the Copernican earth proves to be no Privileged Centre."¹³⁵ In introducing Tommaso's text, T.Suttor says that human access to "the non-material world of meanings" is similarly not essentially Darwinist-Mendelian theory, electrical analysis of the brain, or psychoanalysis. These and other discoveries have often "caused a painful breaking of images, and have strangled much ancient rhetoric, but they have left intact the main structure of the anthropology of the following pages."¹³⁶

But John Paul II recognises that St.Thomas was "impartial in his love of truth. He sought truth wherever it might be found... Looking unreservedly to truth, the realism of Thomas could recognize the objectivity of truth and produce not merely a philosophy of "what seems to be" but a philosophy of "what is"."¹³⁷ As noted in Part II, four standard methods in neuroscience have only been in existence in the last 40 years: CT (1972), PET (1975), SPECT (1976) and MRI (1980).¹³⁸ Given his search

¹³⁴ That is, *S.T.* Ia. Q.75-Q.83, in Suttor (trans.), Aquinas, *Summa Theologiae, Volume 11*, p.xvi

¹³⁵ Suttor (trans.), Aquinas, *Summa Theologiae, Volume 11*, p.xvii

¹³⁶ Suttor (trans.), Aquinas, *Summa Theologiae, Volume 11*, p.xviii

¹³⁷ John Paul II, *Fides et ratio*, No.44; pp.69-70

¹³⁸ Gray & Orton, *Medical Physics*, passim

for truth, it is highly likely that if Tommaso were writing today, he would do what another philosopher called for, “what St. Thomas did with Aristotle, we urgently need a philosophically up-to-date theology to do with neuroscience.”¹³⁹

Reviewing the mind-body problem over fifty years,¹⁴⁰ J. Kim expresses the present mind-body problem as “finding a place for the mind in a world that is fundamentally and essentially physical.”¹⁴¹ There are various competing positions such as mental causation and ontological reductionism, and the idea that only physically reducible mental properties are causally effective.¹⁴² Kim finds that Cartesian substance dualism is not useful for mental causation and that mind-body reductionism is thus needed to preserve mental causation. Mental properties are reducible if they are cognitive or intentional properties; but irreducible if they are qualitative properties of consciousness or qualia. His concluding view is “a slightly defective physicalism,” but as a general worldview there is no credible alternative to physicalism. “Physicalism is not the whole truth, but it is the truth near enough, and near enough should be good enough.”¹⁴³

If dualism is unacceptable to many, and physicalism is incomplete, then hylomorphism may seem a viable alternative. It certainly supports the spiritual nature of human beings, which is characteristic of Christian beliefs and is now more openly presented with scientific information about human nature. If the neuronal grounds of personhood are not guaranteed over time, e.g. neurodegeneration, then perhaps an account which incorporates the spiritual dimension is worth further consideration. This is the traditional Catholic view and is returned to in the next chapter.

¹³⁹ D'Arcy, *Towards the First Golden Age?*, p.303

¹⁴⁰ Jaegwon Kim, “The Mind-Body Problem after Fifty Years’ in Anthony O’Hear (ed.) *Current Issues in the Philosophy of Mind* (Cambridge: Cambridge University Press, 1998), pp.3-21. Or as summed up in the title of his book, Jaegwon Kim, *Mind in a Physical World, An Essay on the Mind-Body Problem and Mental Causation* (Cambridge, Massachusetts: The MIT Press, 1998).

¹⁴¹ Kim, *The Mind-Body Problem after Fifty Years*, p.5

¹⁴² Jaegwon Kim, *Physicalism, or Something Near Enough* (Princeton: Princeton University Press, 2005), p.174.

¹⁴³ Kim, *Physicalism, or Something Near Enough*, p.174