PART III

CHAPTER 4
CONTEMPORARY CATHOLIC MAGISTERIUM

This third part of the thesis has been exploring an updated Catholic understanding of the soul by considering the question of dualism, which has some influence still; followed by considerations of Christian materialism, and contemporary Thomism as the *de facto* "official" or recommended philosophy in the Catholic tradition. Our attention now turns to where we commenced, that is, the official teachings of the Catholic Church. There are numerous insights from Part II, and ways these ideas can challenge what has been taught by the church's magisterium, and what might be re-thought. It is reasonable to hold that any re-thinking and updating of the official teachings can only occur through mutual dialogue with the neurosciences and philosophers.

We follow this path by beginning with a recent example of this dialogue which illustrates what is possible but also what difficulties lie ahead. Then we analyse some of the differences which have become evident in these deliberations on the relationship between the brain and the soul. Next, we consider a noticeable caution on the part of the magisterium, with no urgency evident in seeking to resolve matters and doubts raised by scholars. Finally, a serious look at the nature of the relationship the church has with science, and the influence this might have on the church's understanding of the soul.

'Neurosciences and the Human Person'

A recent and relevant meeting was organised by the Vatican's Pontifical Academy of Sciences, which convened a working group of experts to discuss 'Neurosciences and the Human Person: New Perspectives on Human Activities.' The working group considered questions at the boundaries of the neurosciences and philosophy,

emphasising progress made by the scientific approach to what it means to be a human person.[1]

The subjects covered at the meeting include some which were also reflected in this thesis: human brain evolution, the mechanisms of consciousness, the capabilities for evaluation, decision making and self-control, the formation of beliefs in a social group, the sense of self, and the importance of education for human brain development. The participants found points of convergence between the scientific and philosophical approaches, but also observed that many points remain debatable.

The working group concluded by recognising the interdisciplinary convergence and its difficulties. They found that one of the most complex questions in the interdisciplinary approach is to clarify the different meanings a word can have in varying disciplines, e.g. the 'self' in neuroscience, psychology and philosophy. Reported differences include the epistemological status given to the object under investigation, the language used, and the methods applied in research.

The neural sciences study the material aspects of the brain and the cognitive and executive functions that rely on the brain, aiming to explain different facets of thought using this computational and material. But metaphysical anthropology attends to aspects of the subject that may not only be thought of without matter but can also be without matter.

Their example is the perception of time, dissociated from the typical succession of physical movement and associated with the mental principles normal human praxis: "the insatiable thirst for knowledge, life and happiness, realist philosophy (past and present) considers that knowing the truth and tending towards good and justice are specific to human beings."[2] Through knowledge and will, the human person draws on the absolute yet does not halt at material realities, but aspires to symbolic understanding, science and perfect knowledge, and desires non-market goods, i.e. goods without a price, e.g. dignity, mutual esteem, and happiness.

[1] Georges M.M. Cardinal Cottier et.al., Neurosciences and the Human Person: New Perspectives on Human Activities, Working Group 8-10 November 2012, Statement of the W.G. [sic.] on Neurosciences and the Human Person, www.casinapioiv.va/content/accademia/en/events/2012/neurosciences/neurosciencestatement.html
[2] Cottier et.al., *Statement of the W.G.*

It was proposed that future discussion examine to what extent these non-material aspirations can be linked to the material reality of the brain. It is a reachable goal and ought to be important for cognitive neuroscience.

On the brain, the working group recognised that science has confirmed the existence of trillions of connections between the billions of neurons and neuronal circuits of the human brain, and their consequences inside the body. However, the working group noted that in general philosophers of the Socratic tradition do not agree that this results in the conclusion that human intelligence and will are just neural events that happen in the brain. Neuroscientists acknowledge that the brain integrates all bodily functions. From the point of view of the philosophers at the meeting,

> this does not mean that it [the brain] gives the body its ontological vital unity, which is given by the soul: '*vivere viventibus est esse*' (Aristotle, *De Anima*, II, 4, 415 b 12). For Thomas Aquinas (and contemporary thinkers of his school), this emergence or independence in acting reveals the independence of being. The being (*esse, actus essendi*) does not belong to the compound but to the intellective soul proper (the soul subsists in its *esse*, which it communicates to the body and takes back when the body dies and ceases to 'exist').[3]

Following the church's traditional approach, the working group maintained that being (to be more precise, *esse* as *actus essendi*) adheres immediately and thus inseparably to the subsistent form. Therefore, the human soul is thought to be incorruptible and thereby immortal, created individually and directly by God.

It is no surprise to learn that the statement reported how this philosophical conception, particularly the focal question of the relationship between the brain and the soul, produced intense debates in the group of scientists and philosophers. The philosophers pointed out that brain functions alone may not be sufficient to serve as a basis for ethical and ontological statements about the status of the human person.

[3] Cottier et.al., *Statement of the W.G.*

Humans with severe impairments of brain functions cannot be denied humanity and dignity, a point raised in previous chapters of the thesis.

There were agreements and differences. The scientists and the philosophers agreed that the brain gives vital unity. Moreover, there was a consonance of thinking that "the brain acts as the neural central driving force of existence" and that "brain death is the death of the individual."[4] However, the traditional philosophers' position was that "the soul is the principle differentiating between living beings and is the unifying essence. Whereas organs, the brain included, and the potencies (i.e. the intellect, the will, the senses) are called secondary principles of unity, of coordination and of operation, the individual is the first principle of action and attribution."[5]

Another differences was that the neuroscientists at the meeting said that autonomous action and self-attribution could arise solely from the spontaneous patterns of brain activity that "auto-organize to provide internal models and motivations to act, including moral operations (behaviours and emotions)."[6] In contrast, the philosophers present said that autonomous action and auto-organisation is the characteristic of living beings (Aristotle, *De Anima*, 412 a 12). Like microorganisms and plants, many of them do not have a brain but a substantial principle of unity which is the soul. Thus the soul is the subject however in an active and coordinative sense in the different species of living beings of the different species which becomes, in the human person, a principle and responsible subject capable of reflecting on himself/herself.

The working group highlighted how current knowledge about the organisation of the human brain and how it generates mental states already offers important contributions to what the human person is. But like any scientific enterprise, the answers that it provides remain limited, the group said. There was a call for scientists and philosophers to search for a better language that may bridge the gaps between the disciplines and levels of analysis, including the language of values, responsibility, dignity and justice, concepts of consciousness and self-consciousness,

[4] Cottier et.al., *Statement of the W.G.*
[5] Cottier et.al., *Statement of the W.G.*
[6] Cottier et.al., *Statement of the W.G.*

mind and soul, form and information. The hope is that this may help to bring together the natural sciences, the social sciences and the humanities.

The working group was thankful for the discovery by the neurosciences of the centrality of the brain, which gives "a new starting point for our recognition of the status of the human being. Today, we can be both actors and spectators of our own actions and of ourselves – the first-person perspective of the subjective self is complemented by the third-person perspective of neuroscience."[7]

In addition to contributing to the conceptual search, the working group thought that cognitive neuroscientists also have an important responsibility now with regarding the many challenges in the world today, e.g. the legal system may benefit from improved understanding of conscious and non-conscious determinants of human behaviour, but is also challenged by this. Existing institutions like prisons may need extensive reconsideration in light of the growing insights into the human brain and the possibility of modifying and educating it.[8]

Critical Comment

The practice of the Pontifical Academy of Sciences is to invite eminent scientists, philosophers and theologians to participate in gatherings.[9] Some of these scholars have been cited in this thesis, some of whom are scholars we have cited in the thesis, e.g. Jacques Mehler, and Michael S.Gazzaniga.[10] They may or may not be from a faith tradition but are or were world specialists in their field, such as the Nobel laureate J.C.Eccles.[11] Other deceased academicians include discoverer of penicillin, Alexander Fleming, and physicist Louis de Broglie, while other Nobel laureates appointed were Guglielmo Marconi, Max Planck, Roger Sperry, Erwin Schrödinger,

[7] Cottier et.al., *Statement of the W.G.* It was also noted that only human beings can observe the functioning of their brains from the outside while also interpreting the data from inside, using conscious self-reflection. This dual approach has ramifications which can be explored.

[8] In other words, "Prison (deprivation of freedom to move) should never be just a punitive institution but also, and above all else, it should protect society against dangerous individuals, act as a deterrent, and be corrective and educational for those who are imprisoned." Cottier et.al., *Statement of the W.G.*

[9] See the papers presented by scholars in A.Battro, S.Dehaene and W.Singer (eds), *Neurosciences and the Human Person: New Perspectives on Human Activities,* Proceedings of the Working Group 8-10 November 2012, Scripta Varia 121 (Vatican City, 2013).

[10] In Part II of the thesis, Gazzaniga's comments were quoted, about an imaginary demented person he called "gramps," a shadow of his original self. Gazzaniga, *The Ethical Brain*, pp.51-52

[11] For example, John C.Eccles and Otto Creutzfeldt (eds), *The Principles of Design and Operation of the Brain,* Study Week 19-24 October 1988, Scripta Varia 78 (Vatican City: Pontificiae Academiae Scientiarvm, 1990)

Werner Heisenberg and Charles Sherrington. This demonstrates a willingness on the part of the Academy (any by extension, the church) to discover new developments, to debate and even disagree, which are surely signs of genuine dialogue.

On this point, the working group statement of 2012 acknowledged difficulties which members of the Academy had with some of the scientific presentations, and which is probably characteristic of how some find the 'dialogue' at Vatican events. However, at least the working group suggested possible ways to advance the dialogue. The final statement of the working group was guided by experimental cognitive psychologist Professor Stanislas Dehaene.

One idea was to clarify the terms which are used diversely in the disciplines. Another significant and methodological point was to acknowledge the different objects of study by the specialists. Specifically, the neural sciences examine the material aspects, however metaphysical anthropology has a more far-reaching perspective, e.g. "the subject that may not only be thought of without matter but can also be without matter."[12] Empirical scientists would find this hard to accept. Yet if they are at least open to this sort of thinking, they might acknowledge that their training, instrumentation and experimental methods may not provide them with the tools to assent or dissent from metaphysical claims.

In any dialogue, disagreements inevitably arise and should be acknowledged. In this case, a major difference was the view that human intelligence and will are mere neural events that occur in the brain. The neuroscientists at the meeting thought that the brain integrates all bodily functions. But the philosophers present thought the vital ontological unity of the body was given by the soul. The working group continues with themes which are discussed in Part I of the thesis: the body adheres inseparably to the subsistent form, the soul. Thus, the human soul is thought to be incorruptible and thereby immortal, created individually and directly by God.

The existence of God immediately introduces both a major metaphysical factor, the soul; and a theological factor, the Creator, which may or may not trouble secular scientists. Certainly, whether they believe in the human soul, or even the existence

[12] Cottier et.al., *Statement of the W.G.*

of a divine creator, is not really a methodological impediment to scientific research. They can continue their experiments all the same.

The recommended future areas of dialogue are less contentious, such as, the extent that non-material aspirations can be associated with the physical reality of the brain. The proposed search by scientists and philosophers for a better language which could build bridges between levels and disciplines does suggest more foundational work and philosophical analysis is needed, e.g. the language of values, self-consciousness, mind and soul, form and information. For the Academy the goal is to unite the natural sciences, the social sciences and the humanities. This reflects the Catholic sense of the unity of knowledge.

Further Differences

Differences between scholars are sign of the thoughtful exchange of ideas, and also of conflicts between disciplines. The thesis agrees with the reasoning of those philosophers who maintain that brain functions alone may be insufficient as a foundation ontological and ethical accounts of the human person. Like the Pontifical Academy of Sceince's working group, Part II of the thesis also considered severe impairments of brain functions and the question of human dignity, as an example of the ethical implications of our understanding our the human person. This suggests a possible future area of ongoing dialogue. As we said earlier, human dignity should not be a too controversial area of discussion.

Vatican II's document *Gaudium et spes* esteemed the "progress of the sciences" which enlightens the nature of human beings, opening "new avenues to truth."[13] There was encouragement of to incorporate the findings of the new sciences and theories and the understanding of the most recent discoveries, with Christian morality and the teaching of Christian doctrine so "that their practice of religion and their moral behavior may keep abreast of their acquaintances with science and of the relentless progress of technology: in this way they will succeed in evaluating and interpreting everything with an authentically Christian sense of values."[14]

[13] Vatican II, "Pastoral Constitution on the Church in the Modern World, *Gaudium et Spes*," in Austin Flannery (Ed.), *Vatican Council II, The Conciliar and Post Conciliar Documents* (Dublin and Clonskeagh: Dominican Publications/Talbot Press, 1975), no.44; p.946
[14] Vatican II, *Gaudium et Spes*, no.62; p. 967

Despite this positive approach from the Council, the Academy working group and similar bodies have named limitations in and divergences with what they take to be the scientific vision of human persons. The scientific vision of human persons seems to lack a recognition of transcendence and has no words about the soul as understood in metaphysical anthropology. About the neurosciences the best that might be said is that there is some agreement about the importance of the brain in understanding the human person.

The centuries of tradition does entrenched a 'traditional' Catholic account of the soul which has informed its liturgy, worship, and eschatology. The working group's philosophers appear to be resolute in praising the discoveries of neuroscience. It seems resistant to forging a new synthesis just yet.

Considered Restraint in Deliberating on Areas of Doubt

Perhaps the magisterium will not commit to resolving the nature of the relationships between the brain and soul, because so much is unknown. A related case, also involving the soul, is the status of the early embryo and questions about ensoulment and personhood.[15] Tommaso followed Aristotle in holding that God created the intellective soul in the male embryo after forty days and after 90 days for the female.[16] When discussing procured abortion, the Vatican declaration clearly left aside the question of the moment "when the spiritual soul is infused. There is not a unanimous tradition on this point and authors are as yet in disagreement…It is not within the competence of science to decide between these views, because the existence of an immortal soul is not a question in its field."[17] This again reflects the

[15] See for example: Jason T.Eberl, "A Thomistic Perspective on the Beginning of Personhood: Redux," *Bioethics* Vol.21 No.5 (June 2007), pp.283–289; Rose Koch-Hershenov, "Totipotency, Twinning, and Ensoulment at Fertilization," *Journal of Medicine and Philosophy* Vol.31 No.2 (2006), pp.139-164; David Albert Jones, *The Soul of the Embryo: an enquiry into the status of the human embryo in the Christian tradition* (London: Continuum, 2004).

[16] Norman M. Ford SDB, *When did I begin? Conception of the Human Individual in History, Philosophy and Science* (Cambridge: Cambridge University Press, 1988), pp.41ff; also, Norman Ford SDB, "The Human Embryo as Person in Catholic Teaching," *The National Catholic Bioethics Quarterly* Vol.1 No.2 (Summer 2001), pp.155-160. Ford maintains that the genetic code alone is not sufficient to constitute a human individual but its activation does, which happens about fourteen days after fertilisation (p.160). But respect for human embryos is morally inviolable from conception.

[17] Sacred Congregation for the Doctrine of The Faith (SCDF), "Declaration on Procured Abortion," in Austin Flannery OP (ed.), *Vatican Council II, More Post Conciliar Documents*, Vatican Collection Volume 2 (Collegeville, Minnesota: The Liturgical Press, 1982), footnote 19, p.452

above concern by members of the working group that there are proper limits to scientific research.

Returning to the matter of ensoulment, it is a philosophical question which includes two other points. 1. Supposing a delayed animation, there is nonetheless a human life, preparing for a soul wherein the nature received from parents is completed. 2. It is sufficient that this presence of the soul is probable, something which cannot be disproved, in order that "the taking of life involve accepting the risk of killing a man, not only waiting for, but already in possession of his soul."[18]

The Vatican's instruction *Dignitatis Personae* (2008) reaffirmed the teaching in *Donum Vitae* (1987) that "the presence of the spiritual soul cannot be observed experimentally."[19] That is, no empirical data could be adequate in itself to lead to the recognition of a spiritual soul, however the science of human embryology can offer indications for discerning "by the use of reason a personal presence at the moment of this first appearance of a human life: how could a human individual not be a human person? The Magisterium has not expressly committed itself to an affirmation of a philosophical nature."[20]

John Paul II taught that above all scientific debates and "those philosophical affirmations to which the Magisterium has not expressly committed itself, the Church has always taught and continues to teach that the result of human procreation, from the first moment of its existence, must be guaranteed that unconditional respect which is morally due to the human being in his or her totality and unity as body and spirit."[21]

This situation might be thought similar to about past examples where the church made pronouncements on empirical matters. The controversy over the heliocentric theory of the solar system, however, was about the physical universe, and so too with human evolution. In contrast to these cases, the Catholic account of the soul is something that is not essentially pertaining to the body or anything physical. Rather

[18] SCDF, *Declaration*, footnote 19, p.452
[19] Congregation for the Doctrine of the Faith, *Dignitatis Personae*, no.5; p.11
[20] Sacred Congregation for the Doctrine Of The Faith, *Instruction on Respect for Human Life*, I,1; p.21
[21] John Paul II, *The Gospel of Life, Evangelium Vitae* (Homebush, NSW: St.Pauls, 1995), no.60; p.114

it is the spiritual principle of human beings. So it seems wise for the Catholic teaching not to enter the scientific realm to make judgements on disputed scientific issues, e.g. the moment of ensoulment in the early embryo.

Open, Thomist-influenced, yet critical relationship with science

John Paul II looks to Tommaso and his dialogue with the Arab and Jewish thought of his time.[22] With the growth of the first universities, theology came more into contact with scientific research and other studies. While Saint Albert the Great and Saint Thomas upheld the organic link between theology and philosophy, they were the first to recognise the autonomy which philosophy and the sciences needed to operate well in in their own fields of research. Yet from the late Middle Ages onwards, the rightful distinction between the two forms of learning gradually became "a fateful separation".[23]

In addition, Aristotle had conceived the experimental sciences as "ancillary" to "*prima philosophia*" [First philosophy]. This term, says John Paul II, can scarcely be used today due to the principle of autonomy referred to above. All this suggests that a Catholic outlook looks for overall linkages and presumes a unity of knowledge, whilst respecting disciplinary autonomy. As noted above, secular scientists are not searching for metaphysical connections and questions of meaning, existence and purpose.

The general, more recent and more open magisterial perspective on the sciences is encapsulated by John Paul II where he says that reference to the sciences is "often helpful, allowing as it does a more thorough knowledge of the subject under study; but it should not mean the rejection of a typically philosophical and critical thinking which is concerned with the universal."[24] Furthermore, there is the "threat to be reckoned with," *scientism,* which is the philosophical notion which admits the positive sciences but not validity of forms of knowledge, and relegating religious, theological, ethical and aesthetic knowledge to the world of mere fantasy.[25]

[22] John Paul II, *Fides et ratio,* no.43, p.67
[23] John Paul II, *Fides et ratio,* no.45, p.70
[24] John Paul II, *Fides et ratio,* no.69, p.98
[25] John Paul II, *Fides et ratio,* no.88, p.124

Scientism emerged previously in the history of ideas as positivism and neo-positivism, which adjudged metaphysical statements to be meaningless. Scientism, John Paul says, "dismisses values as mere products of the emotions and rejects the notion of being in order to clear the way for pure and simple facticity… The undeniable triumphs of scientific research and contemporary technology have helped to propagate a scientistic outlook, which now seems boundless, given its inroads into different cultures and the radical changes it has brought."[26]

What warrants the critical role of the magisterial perspective is the thinking on truth. John Paul II looked to Tommaso, who was profoundly convinced that "whatever its source, truth is of the Holy Spirit"[27] Tommaso he says was impartial in his love of truth, and the Magisterium has recognised his passion for truth; "and, precisely because it stays consistently within the horizon of universal, objective and transcendent truth, his thought scales 'heights unthinkable to human intelligence'."[28]

This would explain the esteem which the magisterium and the tradition holds for Tommaso's thought and why Catholic teachings are mostly expressed in Aristotelian-Thomistic. It also is the grounds on which the magisterium critiques philosophical, theological, and even scientific theories and discoveries, particularly where it is developed into a technology which affects human beings ethically, e.g. reproductive technologies.

Thus there are past cases when the Catholic Church's magisterium exercised this critical function in a way that suggests religion and science are in conflict with one another; that is, Barbour's first model of the relationship. John Paul II has recognised these. He writes, "[Galileo] declared explicitly that the two truths, of faith and of science, can never contradict each other, 'Sacred Scripture and the natural world proceeding equally from the divine Word, the first as dictated by the Holy Spirit, the

[26] John Paul II, *Fides et ratio,* no.88, p.124
[27] "omne verum a quocumque dicatur a Spiritu Sancto est" John Paul II, *Fides et ratio,* no.44, p.69. The quotation is *Summa Theologica* I-II, 109, 1 ad 1, and *Ambrosiaster, In Prima Cor* 12:3: *PL* 17, 258.
[28] John Paul II, *Fides et ratio,* no.44, p.69. The quotation is from Leo XIII, Encyclical Letter *Æterni Patris* (4 August 1879): *ASS* 11 (1878-79), 109.

second as a very faithful executor of the commands of God', as he wrote in his letter to Father Benedetto Castelli on 21 December 1613."[29]

Vatican II is then quoted, "Methodical research, in all realms of knowledge, if it respects... moral norms, will never be genuinely opposed to faith: the reality of the world and of faith have their origin in the same God" (*Gaudium et Spes* 36). His remarks on Galileo are not normally associated with the censured scientists, that he "sensed in his scientific research the presence of the Creator who, stirring in the depths of his spirit, stimulated him, anticipating and assisting his intuitions."[30]

In practice this has meant that wherever there is a perceived conflict with science or a threat from "scientism", the magisterium will debate, disagree with, warn and even censure ideas which are diverging from the "horizon of universal, objective and transcendent truth."[31]

The case of Galileo has been thoroughly examined.[32] Yet it may be worth looking at the issue briefly, if anything to exemplify the conflict and dialogue between the magisterium and the sciences. Science historian J.D.Moss explains that the Medieval and Renaissance methods for proving a scientific theory were demonstrations according the Aristotelian canons. The premises of this demonstration, expressed as a syllogism, were based on principles or sense experience and explained the causes of phenomena. Then the principles or causes enable one to express a proof in a valid form of the syllogism, and frame a 'necessary demonstration'. When this has been achieved, it can only then be stated the ideal has been attained: perfect knowledge, *episteme* (Greek) and *scientia* (Latin).[33]

The Aristotelian texts included the *Prior* and *Posterior Analytics* and *Physics.* Moss refers to Kepler's letter to Galileo wherein he expresses frustration at the Aristotelians: "the obstinate critics of innovation, for whom anything unfamiliar is

[29] John Paul II, *Fides et ratio,* footnote no.29, p.148
[30] John Paul II, Address to the Pontifical Academy of Sciences (10 November 1979): Insegnamenti, II, 2 (1979), 1111-1112, which he quotes in John Paul II, *Fides et ratio,* footnote no.29, p.148
[31] John Paul II, *Fides et ratio,* no.44, p.69
[32] Maurice A. Finocchiaro, *Retrying Galileo, 1633-1992* (Berkeley: University of California Press, 2005)
[33] Jean Dietz Moss, *Novelties in the Heavens, Rhetoric and Science in the Copernican Controversy* (Chicago: University of Chicago Press, 1993), p.3.

unbelievable, for whom anything outside the traditional boundaries of Aristotelian narrow-mindedness is wicked and abominable."[34] These Aristotelians described by Kepler were conservative academics who resolved all questions by appealing to Aristotle's texts. Text here meant the Greek texts wherein lay the truth of Aristotle. There were unremitting conflicts about cryptic passages, alongside Latin and Arabic commentaries and the associated scholastic tradition. Debates continued in Kepler's day. For other pioneering natural philosophers, and for Kepler and Galileo, the textual scholars were "the enemies who scorned anything in natural philosophy not already approved by 'the philosopher'."[35]

It was the clash between scholastic philosophy and Galileo which held against him. A Dominican friar who publicly defended Galileo, Tommaso Campanella, published an essay in 1622, *Apologia pro Galilaeo, mathematico fiorentino* also known as *Apologeticus pro Galilaeo,* in which some eleven arguments made against Galileo are treated in his first chapter. Three were about the incompatibility with scholasticism.[36] Moss notes that while Campanella [a Dominican] respected Thomas Aquinas [also a Dominican], he thought the highest bar to the advancement of knowledge was the obstinacy of the Peripatetic worshippers of Aristotle, the philosopher whose thought Aquinas had reconciled with theology.[37]

Then again, it ought to be noted that the Jesuits had been especially charged with saving the teachings of Aristotle. The Dominican friar's relentless attack on all matters Aristotelian may have partly powered by the Dominicans' bitter rivalry with the Jesuit order; including resentment of the power the Jesuits had gained in Rome.[38] Politics and history can cloud any serious pondering of the issues at hand, as Galileo found.

Conclusions

The above considerations seem to suggest that in developing a contemporary understanding of the soul one would need to acknowledge respect for the thought of

[34] Moss, *Novelties in the Heavens,* p.88
[35] Moss, *Novelties in the Heavens,* p.89
[36] Moss, *Novelties in the Heavens,* p.153
[37] Moss, *Novelties in the Heavens,* p.149
[38] But also recognises in Campanella a free spirit who would detest any proscription of investigation. Moss, *Novelties in the Heavens,* p.158

Tommaso. And yet this need not take the form of a nostalgic worship of the Medieval texts of Tommaso and their subsequent commentators. Rather emphasis might be given to Tommaso's quest for truth and openness to dialogue with non-Christian sources.

On the other hand, it needs to be acknowledged that a contemporary Catholic teaching on the soul already exists, being recorded in the *Catechism,* and enunciated in Part I of this thesis. As noted it is presented in the church's traditional philosophical terms, with some welcome biblical and theological dimensions. The question remains: where might the future development of the doctrine might emanate from?

A noteworthy fact is that while the Vatican has its own professional observatory, and a related research group in the United States, it does not have a neuroscience laboratory. Yet there is the Pontifical Academy of Sciences and other related pontifical bodies such as the Pontifical Academy of Social sciences. As a result, innovative scientific scholarship directly about the human body/soul will probably not be published by the Vatican's own neuroscientific researchers but rather through its scientific conferences and expert working groups. In this way, the magisterium will not be actively engaging in empirical investigations and research programs as such, but maintains its interest in learning from the scientific literature, philosophers and science-theology scholars.[39]

Recent dialogue between the Pontifical Academy and neuroscientists in particular, as examined above, suggests that more dialogue will be necessary for any significant revision of Catholic teachings about the soul. The scientists will need to be more convincing; the Academy members (representing the magisterium) will need to be more accepting, more open to change. In view of this, and also the vast amount of

[39] It hopefully will not be surprising to recall that the brain has been discussed at the magisterial level, even as far back as 1964. Pope Paul VI, "Address to the Plenary Session and to the Study Week on the Subject 'Brain and Conscious Experience,' 3 October 1964," *Papal Addresses to the Pontifical Academy of Sciences 1917-2002 and to the Pontifical Academy of Social Sciences 1994-2002,* Pontificiae Academiae Scientiarvm Scripta Varia 100 (Vatican City: The Pontifical Academy Of Sciences, 2003), pp.183-185; see also Pope John Paul II, "Address to the Plenary Session and to the Study Week on the Subjects 'Agriculture and the Quality of Life', and 'The Principles of Design and Operation of the Brain,' 31 October 1988," *Papal Addresses,* pp.301-305

scholarship referred to in Part II above, the conclusions that this thesis offers will necessarily be modest