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# A MODERATE DUALIST ALTERNATIVE TO CARTESIAN DUALISM

Theresa M. CREM

A PERENNIAL problem in philosophy regards the nature of man. Certain dualists, such as Plato and Descartes, envisioning man as a matter-spirit composite, consider these to be essentially opposed realities. Not only is it difficult to explain the unity of man's nature by these principles, but the unity and harmony of the material universe seem threatened as well. Monists attempt to solve this difficulty by eliminating the spiritual principle in man, a solution which ultimately renders man and his activities incomprehensible.

This article will examine another alternative, a dualism not having the extreme features of the Platonic or Cartesian views, which may therefore be termed "moderate." Cartesian dualism and its weaknesses will first be considered, followed by comparison and contrast with moderate dualism. In this context, the testimony of contemporary scientists supportive of moderate dualism will also be considered.

## CARTESIAN DUALISM

By the application of his methodic doubt, Descartes arrived at the principle which was to be the starting point of his philosophy, *Cogito, ergo sum*. However, the self whose existence is thereby proved is purely a mind, i.e., a spiritual substance. Substances are not directly known in themselves, but only through their activities. However thought, the only essential attribute of this self, has no affinity to corporeal activities and does not presuppose extension, which is the essential attribute of material substance.<sup>1</sup>

Although in some contexts Descartes identified the self with mind or soul, he preferred the term « mind » because the term « soul » had traditionally come to mean the life principle, the source of vegetative, sentient, and (in man) rational activities.

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1. *Meditation II; The Philosophical Works of Descartes*, tr. E. Haldane and G.R.T. Ross, corrected ed. (Cambridge: The University Press, 1931) I, 151-152. *Reply to Objections*, II; HR, II, 64. Cf. *ibid.*, V; HR, II, 212.

Descartes did not attribute those activities which we share with other living beings to the soul but considered the soul to be only the principle whereby we think. Therefore, he used the term «mind» to distinguish his concept of soul from the traditional one.<sup>2</sup>

But what of the human body? Certainly, it is commonly thought that the body is at least part of oneself. At this stage of Descartes' reflections, the body was still subject to doubt. In the first *Meditation*, he had placed under doubt all things which are known through the senses, since it is more prudent never to place complete confidence in instruments which have at some time proved to be deceptive. Thus, the entire material world, including his own body, was subjected to doubt.<sup>3</sup>

However, in the sixth *Meditation*, Descartes reinstated the material world, and with it his own body, on the grounds that if our belief in its existence were an illusion, God would be deceiving us, which is contrary to the Divine perfection. Nevertheless, on the basis of the essential difference in their activities, Descartes considered body and mind to be distinct.

Descartes claimed that we know two substances to be really distinct from one another if we can conceive each one clearly and distinctly without the other. But we have clear and distinct ideas of a created substance which thinks and of a created substance which is extended; therefore, it follows that body and mind are distinct substances.

Similarly because each one of us is conscious that he thinks, and that in thinking he can shut off from himself all other substance, either thinking or extended, we may conclude that each of us, similarly regarded, is really distinct from every other thinking substance *and from every corporeal substance*.<sup>4</sup>

This clearly indicates the real distinction of one's mind even from one's own body.

In reply to the objection, similar to that of certain contemporary philosophers, that it is the body which thinks, Descartes stated that in no way can it be seen that human bodies think, but that the same men possess both thought and a body. The thinking thing, however, has nothing in it belonging to body, and the body itself has nothing about it of the nature of thought. It is because body and mind are so closely united that inattentive people are led to think that body and mind are not distinct. Further reflection, however, leads one to conclude otherwise.<sup>5</sup>

Likewise, those who think that "parts of the brain join their forces with the soul to form thoughts" are misled by being habituated to the soul's union with the body. They have never experienced separation from the body and therefore are of the opinion that it is needed in order to think.<sup>6</sup>

In fact, the mind, being of an immaterial nature, cannot receive into itself any corporeal representation. Whether it thinks of something material or immaterial,

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2. *Ibid.*, 210.

3. HR, I, 146, 148.

4. *Principles of Philosophy*, I, 60; HR, I, 243-244. Italics mine. Cf. *Meditation VI*; HR, I, 190.

5. *Objections*, VI; HR, II, 240. *Reply to Objections*, VI; HR, II, 256-257. Cf. *ibid.*, IV; HR, II, 103.

6. *Ibid.*, II; HR, II, 33.

the mind employs itself alone. Imagination, on the other hand, is an entirely different power. It can only be exercised in reference to material things, and it employs a corporeal representation to which the mind applies itself without, however, this representation being received into the mind.<sup>7</sup>

One may wonder, then, about the nature of the Cartesian relationship between the mind and the brain. The answer to this question depends upon what kind of mental activity is involved. In the case of « pure » thought the brain is not involved at all; for the mind is definitely not the brain and employs itself alone. The only representations employed in pure thought are ideas which, according to Descartes, are not images. The latter are pictures in the imagination, i.e., in some part of the brain.<sup>8</sup>

Hence, the mind can act independently of the brain, since the brain is of no use in pure thought. Its only use is for imagining and perceiving. Yet it would seem that in order to recollect thoughts we have previously had, the brain is needed. "For the recollection of the thoughts which the mind has had during the period of its union with the body, it is necessary for certain traces of them to be impressed on the brain; and turning and applying itself to these the mind remembers."<sup>9</sup> In this way, Descartes explained that the immature brain of an infant, or indisposition caused by physical abnormality may make the brain unfit to receive such impressions, and thus recollection of thoughts we have had at such times is rendered impossible.

This leads to the question of the relationship among the body, the mind, and the self. In the sixth *Meditation*, Descartes twice referred to himself as a composite.<sup>10</sup> Yet, in the same work, he seemed to regard himself solely as a mind — one which in fact happens to be joined to a body, but which could with no essential difference exist apart from the body.<sup>11</sup> Thus, there appears to be an ambivalence in the Cartesian view. On the one hand, man appears to be envisioned as a composite, but on the other, the self seems to be equated with the mind.

It is also worth noting that Descartes viewed the human body in mechanistic terms. He compared the body to a clock and claimed that the body has movements of its own apart from the influence of mind.

I consider the body of a man as being a sort of machine so built up and composed of nerves, muscles, veins, blood and skin, that though there were no mind in it at all, it would not cease to have the same motions as at present, exception being made of those movements which are due to the direction of the will, and in consequence depend upon the mind.<sup>12</sup>

One might be led to resolve the above-mentioned ambivalence by saying that Descartes regarded himself solely as a mind only until he had established the

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7. *Ibid.*, V; HR, II, 229, 231.

8. *Arguments Demonstrating the Existence of God*; HR, II, 52.

9. *Reply to Objections*, V; HR, II, 211-212.

10. HR, I, 192-193.

11. *Ibid.*, 188, 190.

12. *Meditation VI*; HR, I, 195.

existence of material things, for only mental existence is directly revealed by the *Cogito*. But once the existence of material things had been proved, then he regarded himself as a composite.

This interpretation seems to be in accord with Descartes' response to Arnauld who accused him of arguments leading to a Platonic position. Descartes was quite indignant at what he believed to be an unwarranted misinterpretation.

I thought I took sufficient care to prevent anyone thence inferring that *man* was merely a *spirit that makes use of a body*; for in this Sixth Meditation in which I have dealt with the distinction between mind and body, I have at the same time proved that mind was substantially united with body; and I employed arguments, the efficacy of which in establishing this proof I cannot remember to have seen in any other case surpassed.<sup>13</sup>

We shall return presently to these arguments in the sixth *Meditation*, but it can now be said that the proposed solution to Descartes' ambivalence does not fully satisfy this writer. For even after having established the existence of the body and his close union with it, he still continued to distinguish between the "I" or "self" and the body. He identified the self with the mind or soul ("a thinking and unextended thing") and claimed that the self could exist without the body.<sup>14</sup>

A more likely explanation seems to be that Descartes used the word "man" to signify the composite of mind and body, whereas the "I" or "self" usually (though not always) refers to the thinking subject.

Just because I know certainly that I exist, and that meanwhile I do not remark that any other thing necessarily pertains to my nature or essence, excepting that I am a thinking thing, I rightly conclude that my essence consists solely in the fact that I am a thinking thing (or a substance whose whole essence or nature is to think).<sup>15</sup>

Only the existence of the thinking subject can be directly established by the *Cogito*, and since the body plays no part in pure thought, the thinking subject is necessarily a mind or soul.

Whether or not this is considered a satisfactory explanation, it is clear from what has been seen that Descartes considered the composite to be a unity of two independent substances: an immaterial soul or mind which can exist without the body, and a mechanistic body which has operations independently of the mind, and which would have such operations even if it were to exist without the mind. When describing this unity in the *Discourse*, Descartes rejected the Platonic analogy of the pilot to the ship because he did not think it adequately expressed the intimacy of the relationship between mind and body.<sup>16</sup> Much the same thought is expressed in the sixth *Meditation* to which he refers in his reply to Arnauld.

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13. *Objections*, IV; HR, II, 84. *Reply to Objections*, IV; HR, II, 102. Italics his.

14. *Ibid.*, V; HR, II, 190.

15. *Meditation*, VI; HR, I, 190.

16. *Discourse on Method*, V; HR, I, 118.

Nature also teaches me by these sensations of pain, hunger, thirst, etc., that I am not only lodged in my body as a pilot in a vessel, but that I am very closely united to it, and so to speak so intermingled with it that I seem to compose with it one whole. For if that were not the case, when my body is hurt, I, who am merely a thinking thing, should not feel pain, for I should perceive this wound by the understanding only, just as the sailor perceives by sight when something is damaged in his vessel; and when my body has need of drink or food, I should clearly understand the fact without being warned of it by confused feelings of hunger and thirst. For all these sensations of hunger, thirst, pain, etc. are in truth none other than certain confused modes of thought which are produced by the union and apparent intermingling of mind and body.<sup>17</sup>

In this reply, Descartes also spoke of the mind as being "substantially united" to the body. But it is difficult to reconcile the concept of substantial unity with his position that man is composed of two distinct, complete, independent substances. If body and mind are independent substances which are not essentially changed by virtue of their union, the resulting unity seems to be accidental rather than substantial. In fact, even the body, envisioned as a machine, would have only accidental unity.

The unity possessed by a machine is purely extrinsic, conferred by its maker, consisting of the unified functioning of parts. It is a unity of place and local motion. It would seem that in Descartes' view, the composite also would possess a unity of this kind: purely a unity of function, as exemplified in sensory activity. It must be remembered that only *some* functions of the individual would be of this kind. For pure thought would not involve the body, and the automatic activities of the body would not involve the mind or soul.

Descartes attributed the union of body and mind to the Divine causality, which has brought them together in so intimate a manner as to constitute a single thing. Yet, they remain really distinct from one another despite this union, for God still has the power to conserve them apart from one another.<sup>18</sup>

But yet I understand in a complete manner what body is (that is to say I conceive of body as a complete thing), merely by thinking that it is extended, has figure, can move, etc., and by denying of it everything which belongs to the nature of mind. Conversely also I understand that mind is something complete which doubts, knows, wishes, etc., although I deny that anything belongs to it which is contained in the idea of body. But this could not be unless there were a real distinction between mind and body.<sup>19</sup>

We see from this passage that Descartes not only considered body and mind to be really distinct, but also complete in themselves. On the question of completeness, the Cartesian ambivalence again comes to the fore. Descartes' notion of created substance was univocally applicable to spiritual and to material creatures, and was defined as that which requires nothing other than the Divine concurrence in order

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17. HR, I, 192.

18. *Principles of Philosophy*, I, 60; HR, I, 244.

19. *Reply to Objections*, I; HR, II, 22-23.

to exist.<sup>20</sup> Therefore, if body or mind were said to be incomplete substances, in the sense of not being able to exist by themselves, this would for Descartes entail a contradiction in terms. Still, in the composite, Descartes envisioned body and mind as uniting to form a single self-subsisting thing.<sup>21</sup>

Such a composite certainly bears the characteristics of an extrinsic unity. Just as the maker of a machine unites the parts so that they can function in a unified way, so God unites body and mind. And as the parts of the machine remain really distinct and capable of existing alone, the same is true of body and mind. Furthermore, if the self is identified with the mind alone, the body cannot be part of the self. It is difficult to see here the characteristics of a substantial unity!

Since, for Descartes, man's unity is really a unity of function, we must now ask how he explained this cooperative functioning. Descartes described it as an interaction of the immaterial mind and the material body. The difficulty of explaining the interaction of such disparate parts is one of the major criticisms of contemporary identity theorists.

Descartes envisioned interaction as a reciprocal relationship in which mind influences body and body influences mind. In both aspects there are intermediaries, namely, the pineal gland and the animal spirits. The pineal gland, he claimed, is located in the middle of the brain and is the organ which is directly influenced by the mind. The animal spirits, on the other hand, are considered to be very subtle parts of the blood which, rarefied by the heat of the heart, flow from that organ to the brain. As they reach the brain, they can both influence and be influenced by the pineal gland.<sup>22</sup> The animal spirits are described as "a very subtle wind, or rather a flame which is pure and vivid, and which continually rising up in great abundance from the heart to the brain, thence proceeds through the nerves to the muscles, thereby giving the power of motion to all the members."<sup>23</sup>

In brief, action from mind to body occurs when our bodily movements are the result of a mental command. As we have already seen, Descartes envisioned the body in mechanistic terms. Many physical processes, such as digestion, respiration, and the circulation of the blood, occur automatically without the intervention of mind. However, other activities, such as speech and walking, are willed. In order to produce the latter, the mind must move the body. It does so by influencing the animal spirits at the pineal gland; they in turn pass through the nerves and move the muscles which control certain parts of the body.<sup>24</sup>

Action from body to mind occurs when the passions are produced. Descartes employed the term "passion" in a general sense to signify our perceptions. He pointed out that the objects of our external senses, such as color, sound, etc., excite movements in our nerves which are thus communicated to the brain, and these

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20. *Principles of Philosophy*, I, 52; HR, I, 240.

21. *Reply to Objections*, IV; HR, II, 99.

22. *Passions of the Soul*, I, 31, 34; HR, I, 345-347.

23. *Discourse on Method*, V; HR, I, 115. Cf. *Passions of the Soul*, I, 10; HR, I, 336.

24. *Ibid.*, 41, 43; HR, I, 350-351.

movements in the brain cause diverse perceptions to become evident to our minds. Not only is external sensation included among these perceptions involving the aspect of interaction from body to mind, but also the activity of the imagination which occurs spontaneously, rather than deliberately.<sup>25</sup> In a stricter sense, the term "passion" refers to emotions, such as feelings of joy, anger, and the like.<sup>26</sup> In all of these instances, the nerves or the animal spirits are the means whereby changes are produced in the brain, or more specifically, in the pineal gland which in turn affects the mind.

When discussing interaction in terms of perception, Descartes included sense knowledge, both external and internal. However, pure intellection was not included. Just as the body has activities of its own in which the mind does not share, so the mind (soul) in its activity of pure thought does not depend upon the body. However, when the mind considers material things, it may turn to the imagination in order to seek there a similitude of what it is conceiving. E.g., our understanding of a triangle is pure intellection, whereas our internal visualizing of this figure is imagining. The difference between pure intellection and imagination, as well as the limitation of imagination, can readily be seen from the fact that although we can understand a chiliagon, a figure composed of a thousand sides, as easily as we can understand a triangle, a chiliagon cannot be imagined distinctly.<sup>27</sup>

It is clear from the above that Descartes considered the mind and the brain to be distinct. However, when the mind turns to the imagination, the latter involves the brain. In such instances, there would be a relationship between mind and brain, but it would be at most an extrinsic one.

It remains unclear, however, why the mind should thus turn to the imagination. Since innate ideas are clear and distinct, whereas the act of the imagination requires a special effort and can be confused, as the example of the chiliagon well illustrates, what is the advantage of this relationship? In other words, since the chiliagon can be clearly understood, but only confusedly imagined, would it not be preferable simply to eliminate the activity of the imagination, at least in instances of this kind?

This question leads to a similar, though broader, question regarding the body-soul relationship in Descartes' philosophy. If body and soul are independent substances, each having operations of its own, what purpose is served by their union? It would seem that for Descartes the body is merely a hindrance to the soul, presenting it with sense perception which is obscure, confused, and often a source of error, not to mention the illnesses and infirmities to which the body is subject and which affect the efficiency of mental operations.<sup>28</sup> Although Descartes did say that the body is the instrument of the soul, he also said that it is unnecessary. An imperfect, unnecessary instrument certainly seems superfluous. According to the

25. *Ibid.*, 13, 17, 21, 23; HR, I, 338, 340-342.

26. *Ibid.*, 25; HR, I, 343.

27. *Meditation VI*; HR, I, 185-186.

28. *Reply to Objections*, V; HR, II, 208-209.



Cartesian view, the matter-spirit composite seems to be a most unlikely and perplexing entity!

Of course, a similar problem arises in Platonism. Plato's solution was that the soul is imprisoned in the body as a punishment for a misdeed committed in a former, purely spiritual existence. This earthly life, besides being a punishment, also offers the soul an opportunity to purify itself through study and asceticism, thereby regaining its former state of liberation from the body. Descartes, on the other hand, offers no solution to this problem.

#### MODERATE DUALISM

Moderate dualism, the position of Aristotle and St. Thomas, is founded upon hylemorphism; therefore, a brief explanation of this theory is in order. Aristotle held that all material things are composed of a potential principle, prime matter, and an actualizing principle, substantial form. Prime matter, being merely a potency for existence, has no actuality of its own and consequently no existence apart from form. All characteristics of the composite flow from the form as the actualizing principle.<sup>29</sup> Both matter and form are envisioned as essentially incomplete, as substantial principles, rather than as substances in the strict sense. Unlike Descartes, Aristotle considered the term "substance" to be analogous and strictly applicable only to the composite. Only in a broad sense can matter and form in themselves be termed substances, i.e., insofar as they are constitutive principles of the composite.<sup>30</sup>

The basic principles of hylemorphism apply to living as well as to non-living things. With regard to both, the substantial form is the intrinsic principle of the existence of the composite. However, because life is recognized as a special kind of existence, the substantial form of a living thing is called a life principle or soul.<sup>31</sup>

The Aristotelian concept of soul is therefore quite different from the Cartesian mind/soul. Aristotle envisioned the soul as the primary actuality of the living thing, i.e., as the intrinsic principle of its living existence and all of its secondary actualities. In man, the latter include rational functions, but also other living functions, as well as the actualities of the composite which are not properly living. Hence, for Aristotle the living thing is not composed of two substances, body and soul; it is, on the contrary, a single substance resulting from the information of matter by a soul.

Just as life is the only existence possessed by the living thing, so the soul is its

29. ARISTOTLE, *Phys.*, I, 7, 191a8-15; 9, 192a13-34; II, 1, 193b7-8. St. THOMAS, *In Octo Libros Physicorum Aristotelis Expositio*, ed. P.M. Maggiolo (Taurini: Marietti, 1954), I, l. 13, n. 118; l. 15, nn. 131, 135-139; II, l. 2, n. 153; *De Principiis Naturae ad Fratrem Sylvestrum*, ed. Raymond Spiazzi (Taurini: Marietti, 1954), c. 1, nn. 338-340; c. 2, nn. 346, 349; c. 4, nn. 356-357, 359.

30. ARISTOTLE, *Meta.*, V, 8; *Phys.*, I, 9, 192a2-6. St. THOMAS, *In Duodecim Libros Metaphysicorum Aristotelis Expositio*, ed. Raymond Spiazzi (Taurini: Marietti, 1950), V, l. 10; *In I Phys.*, l. 15, n. 132; *In Aristotelis Librum de Anima Commentarium*, ed. secunda Pirota (Taurini: Marietti, 1936), II, l. 1, n. 213.

31. ARISTOTLE, *Phys.*, II, 2, 194b9-15; *De Anima*, II, 1, 412a14-22. St. THOMAS, *In II Phys.*, l. 4, n. 175; *In II De Anima*, l. 1, nn. 219-223.

only substantial form. In the living composite, the body does not have a form of its own making it a body, upon which a soul is superimposed, making it a living body. When a living thing dies, the soul is replaced by non-living substantial forms which, united to prime matter, constitute the corpse. The corpse, then, is substantially a different body — in fact, a mass of chemicals lacking substantial unity — from the living body.<sup>32</sup>

From this we can see that Aristotelian-Thomistic dualism is quite different from Cartesian dualism. I call the former “moderate” rather than “extreme” because it considers man as composed not of two complete, independent substances, but of two essentially incomplete principles. The only complete entity is the composite.<sup>33</sup> The Cartesian ambivalence, which at times identifies the self with the mind and at others with the composite, and the Cartesian difficulty of upholding man’s substantial unity when composed of two complete substances are not found in moderate dualism. To put it in the words of St. Thomas:

There had been much uncertainty about the way the soul and body are conjoined. Some had supposed a sort of medium connecting the two together by a sort of bond. But the difficulty can be set aside now that it has been shown that the soul is the *form* of the body. As he [Aristotle] says, there is no more reason to ask whether soul and body together make one thing than to ask the same about wax and the impression sealed on it, or about any other matter and its form. For, as is shown in the *Metaphysics*, Book VIII, form is directly related to matter as the actuality of matter; once matter actually *is* it is *informed*. Moreover, although, as he goes on to say, being and unity are variously predicated (in one way of potential, and in another way of actual, being), that is primarily and properly a being and a unity which has actuality. Just as potential being is only a being under a certain aspect, so it is only a unity under a certain aspect; for unity follows being. Therefore, just as the body gets its being from the soul, as from its form, so too it makes a unity with this soul to which it is immediately related.<sup>34</sup>

The greater unity of man in Aristotelian philosophy is reflected in his theory of knowledge. Like Descartes, Aristotle considered the intellect to be immaterial and incapable of receiving any material representation. However, unlike Descartes, Aristotle believed the intellect to be *tabula rasa*; therefore, no ideas are innate. All intellectual knowledge comes through the senses by abstraction from the phantasm, the image produced by the internal senses.<sup>35</sup>

The phantasm, however, is needed not only for the acquisition of knowledge but, being the *permanent* foundation of intellectual knowledge, is required for any kind of intellectual activity. When utilizing knowledge previously acquired, the

32. ARISTOTLE, *De Anima*, II, 1, 412a14–29. St. THOMAS, *In II De Anima*, l. 1, nn. 219–229.

33. ARISTOTLE, *Ibid.*, 412a7–10. St. THOMAS, *Ibid.*, n. 215.

34. *Aristotle's De Anima in the Version of William of Moerbeke and the Commentary of St. Thomas Aquinas*, tr. Kenelm Foster and Silvester Humphries (New Haven: Yale University Press, 1951), II, l. 1, n. 234. Italics theirs.

35. ARISTOTLE, *De Anima*, III, 4, 429a18–28, 429b30–430a1; 5, 430a14–18. St. THOMAS, *In III De Anima*, l. 7, nn. 677–686, 692; l. 9, n. 722; l. 10, nn. 730–731, 733, 742.

intellect “turns back” to the phantasm in a process called “conversion.”<sup>36</sup> Since the phantasm entails physical modification of the brain, the relationship between the intellect and the brain is constant.

A note of clarification about this relationship is needed, however. It is not one of intrinsic dependence, as is the case with the sensory powers, both external and internal. As revealed by sensory activity, which always retains material characteristics, the sensory powers are intrinsically linked to organs — end organs, in the case of the external senses; the brain, in the case of the internal senses. Intellectual activity, on the other hand, resulting in the production and utilization of totally immaterial ideas, does not intrinsically involve bodily organs. Nevertheless, because of the cooperation between senses and intellect, both in abstraction and in conversion, there is a dependence of the intellect on sensory organs,<sup>37</sup> especially on the brain, the organ of the internal senses. Such a dependence may be termed “extrinsic.”

Unlike Descartes, who gave no reason for the cooperation between intellect and imagination, St. Thomas explained why conversion is necessary. The process of abstraction ultimately results in the production of abstract ideas which represent the universal essences of things. Since the individual characteristics of things are not included, ideas represent reality in an incomplete fashion. Phantasms, however, are representations of individuals as such. Therefore, by utilizing ideas and phantasms simultaneously (conversion), universal essences are understood as they truly exist, i.e., as having existence in individual things.<sup>38</sup>

Another difference between Cartesian and moderate dualism is Descartes' contention that we turn to the imagination only when dealing with material things. The moderate dualist claims that the dependence of the intellect on the phantasm for abstraction and also for conversion extends even to our knowledge of spiritual realities, such as God. It is true that no phantasm can represent such realities, but we have no direct knowledge of the spiritual. Our knowledge of the spiritual is by deduction and by comparison with material things, and this necessitates use of the phantasm.<sup>39</sup>

For the moderate dualist, there is properly speaking no question of interaction. This is necessitated by the Cartesian position that body and mind (soul) are complete, independent substances. For the moderate dualist, although matter and soul are distinct principles, the body is not equivalent to matter. The living body is the result of the soul informing matter. The fact that the human soul is spiritual does not alter the application of the basic principles of hylemorphism.<sup>40</sup>

36. ARISTOTLE, *Ibid.*, 4, 429b5–9; 8, 432a6–8. ST. THOMAS, *Ibid.*, I, 8, nn. 700–703; I, 12, n. 781; I, 13, nn. 791–792.

37. ARISTOTLE, *Ibid.*, 4, 429a25–27, 429a29–429b5. ST. THOMAS, *Ibid.*, I, 7, nn. 684–685, 688–699; I, 10, n. 742.

38. ARISTOTLE, *Ibid.*, 429b10–21; 8, 432a13–14. ST. THOMAS, *Ibid.*, I, 8, nn. 712–713, 716–717; I, 12, n. 784; I, 13, n. 794; *Summa Theol.*, I, q. 84, a. 7.

39. ST. THOMAS, *Ibid.*, ad 3.

40. ST. THOMAS, *In II Phys.*, I, 4, n. 10.

What sometimes poses a problem for the understanding of a hylemorphic composite including a spiritual soul is the concept of matter and spirit as antithetical realities. Although there is some truth to this, overemphasis of this aspect tends to obscure another truth: matter and spirit are complementary realities. Perhaps this may be explained by means of an analogy. The living and the non-living are in a sense opposed; yet, they are complementary, in the sense that living things utilize non-living elements. One can say that such elements have a potency to be assimilated by living things.

Something similar may be said of the matter-spirit relationship. Though they are distinct and, in a sense, opposed realities, matter has an obediential potency to be utilized by spirit. The highest actualization of this potency in the natural order is the union of matter with the spiritual, rational soul to constitute the human person.

A number of contemporary thinkers have shed light on the complementary nature of matter and spirit from the viewpoints of several disciplines. One of the most renowned is Père Pierre Teilhard de Chardin. In *The Phenomenon of Man*, Teilhard emphasized the distinction between what he termed the "within" and the "without" of things. In living things of a higher order, especially in man of whom we have direct experience, the "within" or interior is immediately evident and constitutes what is commonly termed "consciousness." Yet, Teilhard maintained that even the lower orders of being, the inanimate, have their "within,"<sup>41</sup> and he believed that reality as a whole will never be properly understood until this fact is recognized.<sup>42</sup>

A difficulty arises because the scientific method, basing itself on the measurable aspects of things, is able to attain only the "without" or exterior, a difficulty which compounds itself as one proceeds from the lower to the higher orders of being.<sup>43</sup> Therefore, as Teilhard pointed out, great scientists find themselves going beyond this method when attempting a comprehensive explanation of reality. This certainly indicates that, despite its great utility, the scientific method is unable to explain even the material world in its totality.

Because the "interior" in the case of man manifests itself in the phenomenon of consciousness, Teilhard equated the "interior" with consciousness, while admitting that it has varying degrees. He wrote of a "conscious inner face that everywhere duplicates the 'material' external face"<sup>44</sup> but added that greater complexity in matter goes hand in hand with a more perfect consciousness. "Spiritual perfection

41. *The Phenomenon of Man* (New York: Harper & Bros., 1959), p. 56: "It is impossible to deny that, deep within ourselves, an 'interior' appears at the heart of beings, as it were seen through a rent. This is enough to ensure that, in one degree or another, this 'interior' should obtrude itself as existing everywhere in nature from all time."

42. *Ibid.*, p. 35: "The time has come to realise that an interpretation of the universe — even a positivist one — remains unsatisfying unless it covers the interior as well as the exterior of things, mind as well as matter."

43. *Ibid.*, pp. 54-55.

44. *Ibid.*, p. 58: "... an inner face which is hidden for the most part, but which suddenly shows itself, bursting through into certain other regions of our experience."

(or conscious 'centreity') and material synthesis (or complexity) are but the two aspects or connected parts of one and the same phenomenon."<sup>45</sup>

But why did Teilhard wish to extend consciousness to the whole of material reality? Is this not a gratuitous assumption? By way of answer, Teilhard explained that the fundamental unity of the world demands that a phenomenon, even if observable only in some beings, must be present at least in a rudimentary form throughout the universe. He then added that "the term 'consciousness' is taken in its widest sense to indicate every kind of psychism, from the most rudimentary forms of interior perception imaginable to the human phenomenon of reflective thought."<sup>46</sup>

Nevertheless, it seems to this writer that such an extension does violence to the meaning of the term "consciousness" and obscures the gradations of being in the universe. Although Teilhard's identification of the "interior" with "consciousness" may be understood in the light of his claim that he was dealing only with phenomena,<sup>47</sup> and consciousness is the phenomenon which reveals our interior, it would still seem preferable to avoid such identification. Instead, one could employ the term "interiority" to signify the characteristic applicable to all beings, while reserving the term "consciousness" for the phenomenon of awareness which reveals the interiority of certain beings. Rather than violating the unity of the world, this mode of expression would seem to manifest its diversity in unity.

In fact, Teilhard did something comparable to this in his explanation of how the living come from the pre-living by reaching a critical point.<sup>48</sup> He did not extend the concept "life" to all things, yet neither did he speak of the "non-living", precisely because he did not view them as antithetical realities, but rather saw the pre-living as ordered to the living. In a similar vein, he spoke of the conscious emerging from the "pre-conscious", although he regarded the latter as a rudimentary form of consciousness.<sup>49</sup>

Teilhard restricted the use of the term "consciousness" in the strict sense to those beings possessing a nervous system.

There exists in living organisms a selective mechanism for the play of consciousness. We have merely to look into ourselves to perceive it — the nervous system. We can only really come to grips in a positive way with one single "interiority" in the world: our own directly, and at the same time that of other men by immediate equivalence, thanks to language. But we have every reason to think that in animals too a certain inwardness exists, approximately proportional to the development of their brains.<sup>50</sup>

He then went on to say that the nervous system constitutes the "exterior" which is

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45. *Ibid.*, pp. 60-61.

46. *Ibid.*, pp. 56-57.

47. *Ibid.*, p. 29.

48. *Ibid.*, pp. 78-79.

49. *Ibid.*, pp. 88-90.

50. *Ibid.*, pp. 143-144.

parallel to consciousness on the “interior.”<sup>51</sup> In my opinion, it would be preferable to restrict the use of the term “consciousness” to beings possessing a nervous system.

Just as the emergence of life and then of consciousness constitute important steps in the evolutionary development of the world, so the rise of human intelligence signifies an even greater advance. In order to clarify what he meant by human intelligence, as distinguished from what is sometimes loosely called the “intelligence” of animals, Teilhard indicated that the distinctive attribute of true intelligence is reflection, i.e., “the power acquired by a consciousness to turn in upon itself, to take possession of itself *as of an object* endowed with its own particular consistence and value: no longer merely to know, but to know oneself; no longer merely to know, but to know that one knows.”<sup>52</sup>

According to Teilhard, the capability of reflection was not attained by degrees, but “at one single stroke,” for a being either has the ability to reflect upon itself or lacks it. “If the threshold of reflection is really... a critical transformation,... it is impossible for us to imagine an intermediary individual at this precise level. Either this being has not yet reached, or it has already got beyond, this change of state.”<sup>53</sup>

For Teilhard, the emergence of reflective intelligence entails not a mere change of degree, but a change of nature,<sup>54</sup> which gives man a certain transcendence over the rest of nature, but for which nature has made assiduous preparation. For the “exterior” must be proportional to the “interior.”

It is true that in the end, from the organic point of view, the whole metamorphosis leading to man depends on the question of a better brain. But how was this cerebral perfecting carried out — how could it have worked — if there had not been a whole series of other conditions brought together at just the same time? If the creature from which man issued had not been a biped, his hands would not have been free in time to release the jaws from their prehensile function, and the thick band of maxillary muscles which had imprisoned the cranium could not have been relaxed. It is thanks to two-footedness freeing the hands that the brain was able to grow; and thanks to this, too, that the eyes, brought closer together on the diminished face, were able to converge and fix on what the hands held and brought before them — the very gesture which formed the external counterpart of reflection. ...we are happy to admit that the birth of intelligence corresponds to a turning in upon itself, not only of the nervous system, but of the whole being.<sup>55</sup>

But this transformation, resulting in man, affects more than a single species.

The biological change of state terminating in the awakening of thought does not represent merely a critical point that the individual or even the species must pass through. Vaster than that, it affects life itself in its organic totality,

51. *Ibid.*, p. 146.

52. *Ibid.*, p. 165. Italics his.

53. *Ibid.*, p. 171.

54. *Ibid.*, p. 166.

55. *Ibid.*, pp. 170-171.

and consequently it marks a transformation affecting the state of the entire planet.<sup>56</sup>

Just as the emergence of life added the biosphere, composed of the flora and fauna of the globe, to preceding geological strata, so the emergence of thought superimposed what Teilhard termed the "noosphere," initiating the dawn of a new evolutionary era. To consider man as only one more animal species is "an error in perspective which deforms and uncrowns the whole phenomenon of the universe." The effects of intelligence on the planet are easily seen in its material transformation — the subjection of plants and animals to man through agriculture and domestication, the building of cities, etc. — and also in the spiritual effects of civilization and culture. And in recent years we have seen man's influence extending itself beyond the limits of this planet. As Teilhard put it rather poetically, with hominisation the earth "finds its soul."<sup>57</sup>

That Teilhard regarded thought as a spiritual activity is undeniable. In fact, what characterized Teilhard was his profound awareness of the pressing need to integrate the spiritual and material aspects of our being, both for theoretical and for practical reasons.<sup>58</sup> His solution, an essential feature of his concept of nature, was to extend the spiritual aspect to the totality of the material universe. For he identified the spiritual with the "within" or consciousness in the broad sense.

As already stated in the context of consciousness, this extension seems unfounded, if the spiritual is regarded as an *intrinsic* principle in the universe, which is clearly the way in which Teilhard did regard it. Nevertheless, I believe much can be learned from Teilhard which illuminates the moderate dualist position.

Though they are not identical, it seems reasonable to relate Teilhard's "within" to the Aristotelian concept of essence, especially in the light of Teilhard's statement, "the essence of the real could well be represented by the 'interiority' contained by the universe at a given moment."<sup>59</sup> The "without," on the other hand, would correspond to accidents, especially to the accident quantity which is the primary accident of material substance, rendering it measurable.

Evolutionary progress in the material world may be envisioned as increasingly more complete actualizations of the potency of prime matter by ever more perfect substantial forms, preparing the way for the reception of the most perfect of forms, the spiritual human soul. There must always be a proportion between matter and form, and for the reception of a given form, matter must be properly disposed. The evolutionary process, then, was the manner in which matter acquired the proper disposition, i.e., the kind of organization or structure required for the support of human life. As Teilhard rightly observed, the appearance of man in the world introduced something radically new and different, and it seems most reasonable to ascribe this difference to the advent of an intrinsic spiritual principle in the world: the soul of man and its consequent spiritualizing effects on the planet.

56. *Ibid.*, p. 180.

57. *Ibid.*, p. 182.

58. *Ibid.*, p. 62.

59. *Ibid.*, p. 143.

Teilhard, the paleontologist, was by no means the only man of science to envision the penetration of matter by spirit. Another outstanding example was Sir Arthur Eddington, astronomer, physicist, and philosopher of science. There are striking resemblances in the thought of these two men. Like Teilhard, Eddington stressed the limitations of the scientific method, which essentially consists in extending and sharpening our sense organs by auxiliary apparatus of precision.<sup>60</sup> Though surprisingly fruitful, this method is limited to the measurable aspects of reality. When science states the properties of bodies in terms of physical quantities, it is giving us pointer readings revealing the response of various metrical indicators to the presence of these bodies. Scientific investigation, therefore, cannot lead to knowledge of the intrinsic nature of things.<sup>61</sup> At most, it constructs a world which is symbolic of the everyday world, a "world of shadows" relating to impressions which can be traced to external sense organs.<sup>62</sup>

From this it obviously follows that scientific knowledge is not comprehensive for two reasons, one on the part of the object of knowledge, the other on the part of the knowing subject. On the part of the object, it has already been stated that the scientific method leaves the intrinsic nature of things (or as Teilhard would say, their "within") untouched. Therefore, it certainly cannot convey a complete understanding of reality. On the part of the knowing subject, there are many aspects of our consciousness that are not simply sensations, and science is based upon an extension of external sensory perception. As Eddington eloquently put it:

Life would be stunted and narrow if we could feel no significance in the world around us beyond that which can be weighed and measured with the tools of the physicist or described by the metrical symbols of the mathematician... it is good to exercise an appreciative imagination and not always to be remorselessly dissecting our environment after the manner of the mathematical physicists. And it is good not merely in a utilitarian sense, but in some purposive sense necessary to the fulfilment of the life that is given us... in these moods we catch something of the true relation of the world to ourselves — a relation not hinted at in a purely scientific analysis of its content.<sup>63</sup>

Also like Teilhard, Eddington assigned a primacy to consciousness. Consciousness is the primary datum which leads to all else. Our consciousness of sense impressions leads to an awareness of the world and to the kind of question that can eminently be answered by the scientific method. But "we recognise that other fibres of our being extend in directions away from sense impressions... man [is not merely] a bundle of sensory impressions, but conscious of purpose and responsibilities to which the external world is subordinate." In other words, Eddington

60. *The Nature of the Physical World* (New York: Macmillan, 1929), p. 91. For Eddington's well-known allegory of the ichthyologist illustrating the selective subjectivism of science, see *The Philosophy of Physical Science* (Cambridge: The University Press, 1939), pp. 16 f.

61. *The Nature of the Physical World*, pp. 251-260, 270-275, 303-304.

62. *Ibid.*, Introd., pp. xv-xvii: "Science aims at constructing a world which shall be symbolic of the world of commonplace experience. ...The external world of physics has thus become a world of shadows. ... The frank realisation that physical science is concerned with a world of shadows is one of the most significant of recent advances." Cf., *Ibid.*, pp. 109, 331-332.

63. *Ibid.*, pp. 317, 319-320. Cf., p. 107.



claimed that the whole of our conscious experience is by no means exhausted by the sensations which give rise to the elaboration of science, but rather, there are other conscious states which "have at least equal significance with those which are called sensations."<sup>64</sup>

It is this "other side" of our consciousness, our higher faculties, which gives us an insight into the "underlying character of the world which physical measurements do not betray" and which enables us to "bridge the domains of experience belonging to the spiritual and physical sides of our nature"<sup>65</sup> by leading to an awareness of a spiritual world.

From this perspective we recognise a spiritual world alongside the physical world. Experience... comprises more than can be embraced in the physical world... those who in the search for truth start from consciousness as a seat of self-knowledge with interests and responsibilities not confined to the material plane, are just as much facing the hard facts of experience as those who start from consciousness as a device for reading the indications of spectroscopes and micrometers.<sup>66</sup>

But exactly what is the "spiritual world" to which Eddington makes reference? To answer this question we must turn to the insight furnished by consciousness. Our mental activity as directly revealed to us in our consciousness is certainly not to be identified with brain activity measurable by science.

The physiologist can trace the nerve mechanism up to the brain; but ultimately there is a hiatus which no one professes to fill up. Symbolically we may follow the influences of the physical world up to the door of the mind; they ring the door-bell and depart.<sup>67</sup>

Just where the final leap into consciousness occurs is not clear. We do not know the last stage of the message in the physical world before it became a sensation in consciousness... *I do not believe that the activity of matter at a certain point of the brain stimulates an activity of mind; my view is that the activity of matter there is a metrical description of certain aspects of the activity of mind.* The activity of the matter is our way of recognising a combination of the measures of structure; the activity of the mind is our insight into the complex of relations whose comparability gives the foundation of those measures.<sup>68</sup>

In other words, consciousness makes us aware of mental activity, including thought, which we commonly associate with the brain. But when the scientist examines the brain, the properties he discovers are not identical to thought. We must remember, however, that since the scientific method does not reveal the nature of things, we cannot attain the inner nature of the brain through scientific examination. The only avenue we have to this inner nature is through our consciousness of mental activity. According to Eddington, it would be more reasonable

64. *Ibid.*, p. 288. Cf., p. 323, 332, 334.

65. *Ibid.*, p. 91. Cf., p. 324.

66. *Ibid.*, pp. 288-289. Cf., pp. 323, 332.

67. *Ibid.*, pp. 88-89.

68. *Ibid.*, p. 268. Italics mine.

to suppose that this nature is spiritual and consequently compatible with thought rather than material and therefore incompatible.

We realise that science has nothing to say as to the intrinsic nature of the atom. The physical atom is, like everything else in physics, a schedule of pointer readings. The schedule is, we agree, attached to some unknown background. Why not then attach it to something of spiritual nature of which a prominent characteristic is *thought*. It seems rather silly to prefer to attach it to something of a so-called "concrete" nature inconsistent with thought, and then to wonder where the thought comes from. We have dismissed all preconception as to the background of our pointer readings, and for the most part we can discover nothing as to its nature. But in one case — namely, for the pointer readings of my own brain — I have an insight which is not limited to the evidence of the pointer readings. That insight shows that they are attached to a background of consciousness... *There is nothing to prevent the assemblage of atoms constituting a brain from being of itself a thinking object in virtue of that nature which physics leaves undetermined and undeterminable.*<sup>69</sup>

But is it solely the brain which is of a spiritual nature? Eddington did not think so. Like Teilhard, he believed the inner nature of the universe to be uniform and essentially the same as our minds, which is why he called it "mind-stuff." Consciousness just happens to be the only window whereby we can catch a glimpse of this inner nature. This does not mean that the attributes of consciousness are present throughout the universe — "only here and there does it rise to the level of consciousness"<sup>70</sup> — but that its inner nature is such that it is "capable of manifesting itself as mental activity."<sup>71</sup> Clearly, an investigation of this side of our experience does not pertain to the domain of exact science.<sup>72</sup>

The inability of science to attain knowledge of the mind as a result of the limitation of the scientific method was also emphasized by the eminent physiologist and Nobel Laureate in medicine, Sir Charles Sherrington. He indicated the extraordinary success of modern science in unifying phenomena under the concept "energy." The breadth of applicability of this concept attests to its analytic depth and renders coherent the whole perceptible world as to both its animate and inanimate aspects. In a sense, this distinction has lost its former importance, for the living thing is scientifically explainable in terms of an energy system. This, of course, does not deny that there are differences between living and non-living things from the point of view of their unity and their final causes. As Sherrington pointed out, when a living thing dies, changes occur which rapidly become irreversible, and the single coordinated system of energy disintegrates, its parts distributed among a million other systems. Still, the living thing has been "explained" in terms of energy, and much of its former mystery has been dispelled.<sup>73</sup>

69. *Ibid.*, pp. 259-260. Italics his.

70. *Ibid.*, p. 276-282.

71. *Ibid.*, p. 260.

72. *Ibid.*, pp. 279, 288, 325.

73. *Man On His Nature*, 2<sup>nd</sup> ed. (Cambridge: The University Press, 1953), pp. 233-237.

There is, however, one phenomenon which intractably resists absorption into the concept "energy," and that is the phenomenon of mind.

Thoughts, feelings, and so on are not amenable to the energy (matter) concept. They lie outside it. Therefore they lie outside natural science... we know nothing of any relation between thoughts and the brain, except as a gross correlation in time and space... though living is analysable and describable by natural science, that associate of living, thought, escapes and remains refractory to natural science. In fact natural science repudiates it as something outside its ken. A radical distinction has therefore arisen between life and mind. The former is an affair of chemistry and physics; the latter escapes chemistry and physics... If... we continue to subsume mind under life, we have to distinguish it as an activity of life selectively and uniquely apart from the rest.<sup>74</sup>

Along these same lines, Sherrington held that science can explain the formation and structure of the eye, its nerve connections with the right points of the brain, and the complex activity which is necessary for seeing. But the "seeing" itself? That is where the energy-scheme forsakes us. It tells us nothing about any "seeing." In phraseology reminiscent of Eddington, Sherrington said that the energy-scheme brings us to the threshold of the act of perceiving and there bids us "good-bye." It brings us to the very place and time which correlate with the mental experience but goes no further.<sup>75</sup>

As to place, the mind is related to the nervous system of the body. But in lower animals, whose nervous system can be said to be diffuse, there is no plainly recognizable or demonstrable mind — though it may well be that mind in a rudimentary form is present. A recognizable correlation between mind and nervous system occurs only when the nervous system has become more complex, i.e., when a brain is present. It is with the latter that recognizable mind correlates.

However, this correlation of mind and brain is not self-evident and has been revealed primarily by the art of medicine. In fact, Sherrington pointed out that Aristotle, who made such a great contribution to the understanding of mind, was unaware of this link, and that even the contribution of Freud was in no way dependent on brain anatomy.<sup>76</sup>

The link between brain and mind is still poorly understood. "Reference to the brain at present affords little help to the study of the mind." In fact, an examination of the brain's cell structure reveals nothing that suggests anything mental; for brain cells are clearly nerve cells having the same microscopic appearance and chemical character as the nerve cells unrelated to mind in other parts of the body. From this Sherrington concluded that the facts concerning the brain's cell structure do not support the position that the brain derives its mind from a cumulative mental property of its individual cells.<sup>77</sup>

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74. *Ibid.*, pp. 229-230.

75. *Ibid.*, pp. 113, 238.

76. *Ibid.*, pp. 186-190.

77. *Ibid.*, pp. 211, 223.

Thus, like Eddington, Sherrington did not think that the inability of the exact sciences to explain mind was due to their lack of development, but rather, to the unique character of mental phenomena.

No attributes of "energy" seem findable in the processes of mind. That absence hampers explanation of the tie between cerebral and mental. Where the brain correlates with mind, no microscopical, no physical, no chemical means detect any radical difference between it and other nerve which does not correlate with mind... To correlate with that physiological entity, a suite of mental experience, a complex of thought, feeling, conation, an activity no doubt, but with what if any relation to electrical potential, heat and chemistry... The two for all I can do remain refractorily apart. They seem to me disparate; not mutually convertible; untranslatable the one into the other.<sup>78</sup>

Despite the fact that Sherrington did not identify the brain and the mind and hence considered reality essentially twofold, he did see characteristics of the brain which seem to fit this organ to being the mind's correlative. Although there are other educable systems in the nervous system, the roof of the forebrain or cortex in man is "so educable as to be practically a new thing in the world."<sup>79</sup> The cells of the cortex, the latest in evolutionary development, are less stereotyped and are more plastic and open to modification. They compose "the organ which *par excellence* can learn."<sup>80</sup>

Being the "region where brain and mind meet,"<sup>81</sup> the cortex is the organ which renders voluntary activity possible. Even in certain motor acts which are performed by spinal reflex there is a second component, the influence of the cortex, which "increases the finesse, skill, adaptability and specificity of the motor act." When deprived of such influence and reduced to its reflex foundation, such acts, especially in man, are "imprecise, inconsequent, and without skill." In other words, the cortex is the organ which correlates the motor act with the mind. In a sense, the body and its mind "become one."<sup>82</sup> Evolutionary change seems to be in the direction of motor acts being increasingly under cortical dominance, which renders possible conscious control.<sup>83</sup>

Much the same opinion was expressed by Eddington in his claim that developments in modern physics no longer support the deterministic view of human acts. But how can one explain the mechanism of voluntary acts? His belief is that the mental decision affects not a single atom, but large groups of atoms in the brain, which in turn control the processes that result in our voluntary acts. The physical part of the brain immediately affected by the mental decision would have to have an organization, a kind of interdependence of behavior of the atoms, not found in inorganic matter. The unity of consciousness is reflected in the unity of

78. *Ibid.*, pp. 247-248.

79. *Ibid.*, p. 218.

80. *Ibid.*, p. 223.

81. *Ibid.*, p. 208.

82. *Ibid.*, pp. 182-183.

83. *Ibid.*, p. 245.

these organized atoms, which as individuals would not differ from other atoms lacking such organization. If one recalls Eddington's contention that there is a nature unknown to science underlying the atoms constituting the brain, one can understand his belief that the mental decision is really a single phenomenon, with the scientific description of the behavior of brain atoms merely the metrical aspect of the decision.<sup>84</sup>

Sherrington also stated that the connection of the brain with mind seems to rest on the organization of the brain, and that such organization involves large areas. In most regions of the cortex, the area injured must be large before mental defect can be observed. In fact, surgeons can remove large areas of the cortex from conscious patients without their noticing difference or change.<sup>85</sup>

Since Sherrington regarded energy and mind to be irreducible, for him reality is unmistakably twofold. Man is therefore composed of two distinct elements, "an energy-system and a mental system conjoined into one bivalent individual." Yet, Sherrington stressed man's unity, considering him an integrated, psycho-physical individual, and claiming that Nature in dealing with this duality treats it as a unity<sup>86</sup> — a belief that Aristotle also shared.<sup>87</sup>

It is this energy-mind duality in the order of reality that leads to the gulf between neurology, which studies the brain, and psychiatry, which deals with mental health. At present, brain science has little help to offer psychiatry, a difficulty which will no doubt be lessened as the science progresses, since there is a link between the brain and the mind, and certain mental illnesses are known to have organic causes. However, because the brain and the mind are not identical, because mind cannot be examined as a form of energy, there will always be an unbridgeable chasm between neurology and psychiatry.<sup>88</sup>

The energy-mind duality also explains why the study of mind has not shared in the remarkable progress made by the physical sciences. The quantitative methods so useful in the study of nature prove almost useless in the study of mind. As Sherrington indicated, the ways of regarding mind have not radically changed in over 2000 years, whereas the contemporary view of nature is a "new world of thought" in comparison with that of the ancients.<sup>89</sup>

A further consequence of the energy-mind duality is that there is much which is outside the scope of science. As Sherrington put it, "the man of science as such [is] not the whole man but a fractional man."<sup>90</sup> In order to be whole, he must combine his scientific part with the rest of his humanity. A part of this extra-scientific domain is the realm of ethical values, which means that to be fully human

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84. *Op. cit.*, pp. 310-315.

85. *Op. cit.*, pp. 181, 208.

86. *Ibid.*, pp. 200, 250-251, 256-257.

87. *Ibid.*, pp. 150, 189, 255.

88. *Ibid.*, pp. 190, 222, 227-229.

89. *Ibid.*, p. 246.

90. *Ibid.*, p. 273. Cf., EDDINGTON, *The Philosophy of Physical Science*, pp. 221-223.

man must combine his scientific knowledge and his ethical judgment. Indeed, his survival depends upon it.

A psychiatrist who has found a source of enlightenment in Aristotelian-Thomistic moderate dualism is Anna A. Terruwe. Recognition of her original work in the practice of psychotherapy has spread beyond her native Holland and has attained international dimensions.

Just as the physician turns to the sciences of anatomy and physiology for knowledge of normal structure and functioning in order to understand the deviation of physical disease, so the psychiatrist, who treats mental illness, must have a knowledge of mental health. For this he depends upon psychology. A problem arises, however, because modern experimental psychology is largely based upon a study of the behavior of animals and of abnormal human beings. Little attention has been paid to normal human behavior.

The same may be said of Freudian theory. Freud made the important discovery that repression is a cause of neurosis and devised a therapy of analysis to remove repression. But since he lacked adequate psychological knowledge, he felt compelled to construct a theory which would provide an understanding of the neurosis and serve as a basis for therapy. However, Freudian theory was primarily based upon observation of neurotic patients and therefore presents a distorted view of human nature.<sup>91</sup>

So it was that when Anna Terruwe began her practice and tried to understand and treat her patients on the basis of her professional knowledge, she found it wanting.<sup>92</sup> However, unlike the majority of her colleagues, Terruwe had also become acquainted with Aristotelian-Thomistic psychology and with the basis that this discipline offers for the explanation of repression, the cause of most neuroses. As she puts it :

Rational psychology has been for me the key to an entirely new insight into the nature of the neurosis and, at the same time, to an entirely justified and successful method of therapy.<sup>93</sup>

When I applied this theory in my practice the therapeutic results corresponded entirely with my expectations. It was not long before my ideas... enabled me to distinguish between two different repressive factors in obsessive-compulsive neuroses, namely, fear and energy. This led not only to the recognition of what I have called energy neurosis... but also to a specific treatment method for both fear and energy neurosis. In the years that followed I discovered a third type of neurosis... which I called fear neurosis camouflaged by energy... in the last few years I came to realize that some neurotic conditions are not the result of repression, but rather of the frustration of man's most fundamental drives by reason of external circumstances... This condition... was given a name of its own: frustration neurosis.<sup>94</sup>

91. A.A.A. TERRUWE, *Psychopathic Personality and Neurosis*, (New York: Kenedy and Sons, 1958), ch. 5.

92. *The Neurosis in the Light of Rational Psychology* (New York: Kenedy and Sons, 1960), pp. xix-xxi.

93. *Psychopathic Personality and Neurosis*, p. 15.

94. *The Neurosis in the Light of Rational Psychology*, pp. vii-viii.

According to her own testimony, then, a knowledge of rational psychology has enabled this talented physician not only to devise successful therapeutic methods for patients who did not respond to traditional methods of treatment,<sup>95</sup> but it gave her a new theoretical insight which ultimately led to important discoveries of formerly unrecognized distinct clinical entities.

Terruwe's work has been evaluated for over three decades by many professionals, including doctors who have studied with her and witnessed the therapeutic success of her original methods.<sup>96</sup> One expert, P.J.A. Calon, professor of medical and developmental psychology at the University of Nijmegen, stated:

In essence Dr. Terruwe's study centers on Aquinas' doctrine that man's emotions are directed by nature to be guided by his rational powers. She is fully justified in basing her work on Aquinas' teachings about the emotional life of man, as until now it has remained unsurpassed in excellence by any modern hypothesis, both in the splendor of its many facets, and in the depth of its anthropological perspectives, and in the countless possibilities for its further development through modern scientific discoveries... Dr. Terruwe's work is an important contribution to a synthesis in which the old is not rejected merely because it is old, nor the new accorded a priori acceptance, but in which major traditional thinking provides the light that guides us in the solution of problems in psychology and psychiatry.<sup>97</sup>

As the basis of her work, then, Terruwe utilizes the Thomistic position of man's essential unity which manifests itself through the hierarchical subordination of the vegetative and sentient functions to his rational life.<sup>98</sup> The spiritual "constitutes the very essence of the human personality; it is the most real proper 'self.'"<sup>99</sup>

Consequently, the penetration of spirit into matter is the principle of unity in the human being and the root of mental health. If we examine mental illness, we see some degree of impairment of this normal penetration and subordination of the emotions to the intellect, which results in a dichotomy foreign to the normal personality. This may have an organic basis, as in the psychopathic personality and the various types of psychoses, or it may not, as in the neuroses. In the latter, there is an unnatural repression of one emotion by another emotion, rendering the action of the repressed emotion unamenable to rational control.<sup>100</sup>

Although of these scientists only Anna Terruwe is a Thomist, each of them through the intermediary of his own discipline manifests an intimate relationship between matter and spirit which points to the validity of the moderate dualist concept of man.

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95. Anna A. TERRUWE and Conrad W. BAARS, *Loving and Curing the Neurotic* (New Rochelle, N.Y.: Arlington House, 1972), pp. 9-10.

96. *The Neurosis in the Light of Rational Psychology*, p. x.

97. *Ibid.*, p. xii.

98. *Loving and Curing the Neurotic*, chs. 1-3.

99. *Psychopathic Personality and Neurosis*, p. 88.

100. *Ibid.*, pp. 21-27, & ch. 6. Cf., *Loving and Curing the Neurotic*, pp. 49-50, & ch. 4.

Unlike that of the extreme dualist, this concept represents man not as an uneasy composite of two disparate and opposing entities, matter and spirit, but rather as a substantial unity founded upon the complementary nature of matter and spirit. Prime matter, a potency for all substantial forms, is nevertheless most fully actualized when informed by spirit. Since the spiritual soul is man's primary actuality from which all else flows, one can truly say that every aspect of human nature, that every human activity, is permeated by the spiritual. This is a far cry from the Cartesian concept of the body as an automaton having activities in which the mind/soul does not share.

The penetration of matter by spirit is the hierarchical principle in man, ensuring the subordination of his lower powers to the rational powers. This explains, for example, why man's sensory powers are not exactly the same as those of animals, but rather serve as instruments of his rational powers.

But what of the conflict between man's lower powers and his spiritual nature, a struggle which all experience in some manner and to some degree? Does this not lend credence to the extreme dualist position and militate against the concept of matter and spirit as complementary entities? If this conflict is considered normal, yes. But not if it is envisioned as a disorder which is the moral equivalent of disease and therefore a deviation from what nature intends.<sup>101</sup>

In conclusion, let us note that Thomistic dualism, while giving due recognition to both the spiritual and the material aspects of man's nature, in no way detracts from the unity and harmony of the universe. Unity does not necessarily entail uniformity, although those under the influence of the scientific method may easily be led to think in those terms; for this method attains reality from a quantitative, and therefore essentially homogeneous, point of view. Just as the reduction of man to a purely material entity is a misapplication of the principle of parsimony, so the extension of a spiritual principle to the entire universe goes beyond what is warranted by the evidence and is a violation of the principle of parsimony. A spiritual principle should never be introduced if a material principle suffices for an adequate explanation. If thought is the property which reveals the presence of the spiritual, and if there is no evidence of thought being present throughout the universe, why conclude that the inner nature of the entire universe is spiritual? It is by recognizing the complementary nature of matter and spirit, rather than by reducing reality to an artificial uniformity, that Thomism not only affirms man's essential unity, but also sees him as the crown of a unified and harmonious material universe.

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101. To philosophy this disorder remains a mystery, but theology considers it one of the effects of original sin. Man's rebellion has introduced various forms of disorder into creation.