



July 1997

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Recommended Citation

Okrent, N. E. (1997). Descartes' Two Accounts of Mind Body Union. Retrieved from https://repository.upenn.edu/library_papers/6

Reprinted from *Kinesis*, Volume 24, Number 1, Summer 1997, pages 39-53.

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Abstract

First paragraph: Descartes was committed both to the Christian doctrine of the unity of man and to an experimentally oriented mechanistic science. Furthermore, he was committed to a dualistic metaphysics in which humans consist of a union of mind (*res cogitans*) and body (*res extensa*), which are absolutely distinct substances. There has been little agreement on how his explanation of union reflects his commitments. Some philosophers argue that Descartes' primary or only account of union was the "co-extension" view because it is compatible with the unity of man. As we will see, however, the co-extension account would not have satisfied Descartes' scientific inclinations. Philosophers who pay serious attention to the difficulties with the co-extension account argue that Descartes accepted or should have accepted the "natural institution" account of union, which is compatible with his scientific commitments. However, the natural institution account is guilty of a Platonism and arbitrariness that conflicts with the unity of man. I will argue that Descartes' desire to accommodate all his commitments drove him to accept and be devoted to both the co-extension and the natural institution accounts.

Keywords

Descartes, mind, body, rationalism, union, substance, Platonism, Aristotelian, metaphysics, mechanistic,hylomorphism, hylomorphic, mental, physical

Comments

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Descartes' Two Accounts of Mind-Body Union

Descartes¹ was committed both to the Christian doctrine of the unity of man and to an experimentally oriented mechanistic science. Furthermore, he was committed to a dualistic metaphysics in which humans consist of a union of mind (*res cogitans*) and body (*res extensa*), which are absolutely distinct substances. There has been little agreement on how his explanation of union reflects his commitments. Some philosophers (e.g., Balz 1967, 405-409; Grene 1991, 34) argue that Descartes' primary or only account of union was the "co-extension" view because it is compatible with the unity of man. As we will see, however, the co-extension account would not have satisfied Descartes' scientific inclinations. Philosophers who pay serious attention to the difficulties with the co-extension account argue that Descartes accepted (Cottingham 1992, 246-248) or should have accepted (Wilson, *Descartes*, 1978, 217) the "natural institution" account of union, which is compatible with his scientific commitments. However, the natural institution account is guilty of a Platonism and arbitrariness that conflicts with the unity of man. I will argue that Descartes' desire to accommodate all his commitments drove him to accept and be devoted to both the co-extension and the natural institution accounts.

Two Accounts Of Mind-Body Union: Co-extension and Natural Institution²

Descartes' most famous discussion of the co-extension theory is in the *Sixth Meditation*. He writes:

Nature also teaches me, by these sensations of pain, hunger . . . etc., that I am not merely present in my body as a sailor is present in a ship, but that I am very tightly joined and, as it were, intermingled with it, so that I and the body form a unit. If this were not so, I, who am nothing but a thinking thing, would not feel pain when the body was hurt, but would perceive the damage purely by the intellect, just as a sailor perceives by sight if anything in his

ship is broken . . . I should have an explicit understanding of the fact, instead of having confused sensations of hunger and thirst. For certainly these sensations of thirst, hunger, pain, and so on, are nothing but confused modes of thinking which arise from the union and, as it were, intermingling of the mind with the body. (CSM 2:56; cf. CSM 1:141)

Descartes makes two important claims about mind-body union in this passage. First, the intermingling of the mind with the body explains how mind and body form an unit. Second, sensations are not merely experienced *as if* the mind and body were united. Rather, sensations are experienced *because* they arise out of this “intermingling of the mind with the body.” These two claims are definitive of the co-extension view.

Descartes uses a number of models in his attempts to explain co-extension; all of them are vague and undeveloped. In the *Sixth Replies* he explains co-extension by comparing mind-body union to gravity. He writes:

While remaining coextensive with the heavy body, [gravity] could exercise all its force in any one part of the body. . . . This is exactly the way in which I now understand the mind to be coextensive with the body—the whole mind in the whole body, and the whole mind in any one of the parts. (CSM 2:298)

Mind is related to body in the same way as gravity was commonly thought to be related to a rock: as an “informing” substance that is co-extensive with the body and united with it. In *The Passions of the Soul* he seems to suggest that the whole mind is united to the whole body because the body is a sort of unity “which is in a sense indivisible because of the arrangement of its organs, these being so related to one another that the removal of any one of them renders the whole body defective” (CSM 1:339). In other words, the body is functional only insofar as all the vital organs operate, so the mind is co-extensive with the vital organs.

Finally, in a letter to Elizabeth of May 21, 1643, Descartes asserts that everyone has an immediate, unanalyzable understanding of mind-body union. He asserts that the union formed by the intermingling of mind and body is a “primitive notion” that is understood independently of knowl-

edge of mind and body, the other primitive notions.³ As opposed to the other two primitives, “the things that pertain to the union of the mind and the body are recognized only obscurely by the understanding alone...yet they are known very clearly by the senses” (Blom 1978, 113). The obscurity of co-extension is expanded upon in *Conversation with Burman*. Descartes says, “this [intermingling of mind and body] is very difficult to explain; but here our experience is sufficient” (*Conversation*, 28).

Descartes’ constant switching of explanatory models and his comment to Burman reflect his difficulties with co-extension. He had no clear idea of how the co-extension view operated or what a proper model for it would have been. On the other hand, the natural institution account is more clearly set out. He writes in the *Sixth Meditation*,

When the nerves in the foot are set in motion in a violent and unusual manner, this motion, by way of the spinal cord, reaches the inner parts of the brain, and there gives the mind its signal for having a certain sensation, namely the sensation of the pain as occurring in the foot. . . . It is true that God could have made the nature of man such that this particular motion in the brain indicated something else to the mind: it might, for example, have made the mind aware of . . . something else entirely. (CSM 2:60)

Descartes makes two distinct points. First, mind and body are linked through God’s institution of an arbitrarily designed human nature. Second, sensations which seem to be in the body are in fact in the mind, and the mind seems to be in the body but is actually in the pineal gland (CSM 1:208, 217). The passage describes how movements in the body are experienced as sensations in the mind. “Unusual movements” in nerves travel up the spinal cord to the pineal gland, where the mind takes it as a signal to have a sensation. Each motion is correlated with an appropriate sensation; for example, a motion originating in the foot is experienced *as if* it were a pain in the foot. So, despite our experiences to the contrary, all sensations take place in the mind. Rather than being an intrinsic connection between the body and the mind, the natural institution is arbitrarily implemented by God. Mind-body interaction occurs through an arbitrary natural institution that God implements between the pineal gland and the

mind.

In the natural institution account of union, the mind is the subject because it thinks and is conscious of sensations and passions, whereas the body is merely a mechanism. As such, Descartes seems driven into the claim that a person is a mind using a body. This notion of personhood is clear in the following passage from the *Passions*:

The soul has its principal seat in the small gland located in the middle of the brain. From there it radiates through the rest of the body by means of the animal spirits, the nerves, and even the blood . . . the mechanism of our body is so constructed that simply by this gland's being moved in any way by the soul or any other cause, it drives the surrounding spirits toward the pores of the brain, which direct them through the nerves to the muscles; and in this way the gland makes the spirits move the limbs. (CSM 1:341)

This passage describes how the mind can cause complex actions in the body simply by operating in the pineal gland. As Gorham rightly points out, passages like this suggest that Descartes understands the mind to operate like a pilot guiding a ship: "It is indeed this inward 'pilot' position of our will that allows it to direct and control the outward movements of our body" (Gorham 1994, 230). In fact, the natural institution account explicitly stresses that the mind and the body need not be united to explain "feelings and appetites." Descartes writes, "the ultimate and most proximate cause of the passions of the soul is simply the agitation by which the spirits move the little gland in the middle of the brain" (CSM 1:349). In the natural institution account, passions do not provide a reason for co-extension; the mind interacts with the body only at the pineal gland, which receives motions and animal spirits from the body.

At this point it is worth reiterating why the co-extension and natural institution accounts are incompatible. The co-extension theory is based on two claims. First, a fundamental characteristic of union is the extension or intermingling of the mind throughout the body. Second, the intermingling of the mind with the body is crucial in explaining how events in the body become sensations in the mind. The natural institution account de-

nies both claims. The co-extension account describes the unity of mind and body in terms of the whole mind being in the whole body and in any of the body's parts, whereas the natural institution account describes the unity of mind and body in terms of the nerves, blood and "animal spirits" that radiate throughout the body. Sensations arise out of an intermixing of mind and body in the co-extension account, but are explained by an arbitrary linking of the mind with the mechanized body in the natural institution account. The two views are incompatible.

Descartes' Religious And Scientific Commitments

Despite their incompatibility, Descartes held both accounts concurrently in almost all of his published writings; the co-extension and natural institution accounts are side by side in the *Discourse* (CSM 1:139-141), *Meditations* (CSM 2:56-60) and *Passions* (CSM 1:203-204). Why would he hold incompatible notions of union? While it is possible that he had a confused notion of mind-body dualism, a more interesting explanation is available. He was determined to give up neither his religious nor his scientific commitments. The co-extension account was required so he could explain the unity of man; the natural institution account was required so he could keep his scientific integrity. He needed two distinct accounts of union to encompass all of his commitments. The remainder of this paper attempts to prove that this interpretation is correct by discussing the importance of the unity of man and mechanistic science to Descartes, and by arguing that the two accounts are necessary to encompass both.

Descartes was loyal to the Catholic church. He was educated at a Jesuit school, and he frequently wrote of his dedication to Catholic Dogma (CSM 1:15, 141-142, 201, 291, 300-301; *Conversation*, 36, 46). Without further evidence to the contrary, it would be perverse to take these expressions of faith as lies. When he tells Burman, "certainly, [Christian] Theology must not be subjected to human reason" (*Conversation*, 46), we should take him at his word.

Nevertheless, Descartes held a view of mind-body dualism that was dangerously close to contradicting the Christian doctrine of the unity of man. The orthodox view of the unity of man, which was elaborated by

Aquinas,⁴ was that humans cannot be identified with either the soul or the body, but only with a union of the two. Gilson explains, “[for Aquinas] man . . . is neither his body, since the body subsists only by the mind, nor his mind, since this would remain destitute without the body; he is the unity of a soul which substantializes his body and of the body in which this soul subsists” (Gilson 1936, 187-188). A human is a unity of a soul and a body, both of which are incomplete by themselves. The greatest threats to the unity of man was Platonism and accounts of union in which humans are accidental beings (*ens per accidens*).

Platonism is dangerous because it identifies people as souls and considers souls to be completely independent of their bodies (Aquinas 1984, 47). Gilson points out that in a Platonist account “the man [would be] only his soul, or, if you prefer it, it is the soul that is the man” (Gilson 1936, 283). It asserts that people are souls “inhabiting” bodies. In comparison, the orthodox view was that only a unity of mind and body can be a person (Aquinas 1984, 49). Furthermore, if people were souls without bodies, then there would be no way to individuate them. It is the soul’s attachment to a body which distinguishes it from others (Aquinas 1984, 49). Given the orthodox view, the Platonic “person” would lack a personal identity. As such, Platonism is heretical.

A second danger to the unity of man comes from theories which imply that man is an accidental being. Aquinas asserts that for a being per accidens, “death, which signifies the separation of mind and body, would not be a substantial corruption, and this is obviously false” (Aquinas 1984, 47). Similarly, Voetius points out that if humans were accidental unions of mind and body it would follow “that an angel, or a demon in the body of someone possessed . . . is neither more nor less a unity than the soul which is in the body” (Voetius, “Narratio,” 1955, 187). A human body possessed by a demon would be just as essential and natural a unity as a human mind united to a human body. Because a person would be essentially a mind and only accidentally a body, there would be nothing essential to minds that marked them as being attached to particular bodies. For example, I could be joined to the body of a woman without my identity thereby being altered. This would violate Catholic dogma regarding personal identity.

Descartes was aware of the doctrine of man⁴ and was aware that

his radical dualism brought him dangerously close to giving an account of accidental union. Balz follows Gilson in claiming that “Descartes recoiled from some of the consequences of his metaphysical foundations for science . . . [and] was loath to accept the dualistic view of body and soul. [For] this view imperils, as he knew well, the unity of the human being” (Balz 1951, 80).⁶ Indeed, Descartes strongly reacted to any interpretation of his dualism that led to Platonism or accidental union. In correspondence with Regius he writes:

Give out that you believe that a human being is a true *ens per se*, and not an *ens per accidens*, and that the mind and body are united in a real and substantial manner. You must say that they are united not by position or disposition...for this too is open to objection and, in my opinion, quite untrue—but by a true mode of union, as everyone agrees. (CSM 3:127)

When a man is considered in himself as a whole, we say of course that he . . . is an *ens per se*, and not *per accidens*; because the union, by which a human body and soul are joined to each other, is not in itself accidental, but essential, since without it a man is not a man. (CSM 3:130)

Throughout his writings, Descartes argues that man is an essential union of mind and body. There is no reason not to take him at face value: he is committed to *ens per se* human beings and anti-Platonism in regards to mind-body union.

To stay true to his commitment to the unity of man, Descartes had to accept the co-extension view. Despite Descartes' protestations to the contrary, the natural institution view of union does present mind as being Platonic. In the natural institution account, the mind operates from the pineal gland, giving “orders” by redirecting animal spirits to various parts of the body and receiving information through the pineal gland. Thus, the mind has “its seat” in the pineal gland and uses the body for as long as it is functional. In the natural institution account, therefore, there is nothing to suggest that people are anything but minds making use of a body. Furthermore, the natural institution is an arbitrary linking of mind and body.

Given this account, God could have constructed me so that I feel my sister's pains and she feels mine. Furthermore, if mind and body were united as the natural institution theory describes, I would have no more of an intrinsic connection to *my* body than I do to my sister's. In this sense, humans would be beings per accidens. Clearly, the natural institution account contradicts Catholic dogma concerning the unity of man. Descartes had to offer an account of mind-body union was neither Platonic nor accidental. The co-extension account, which Descartes explains with the scholastic form-substance vocabulary, accounts for the essential union of mind and body. Descartes accepted the co-extension account of mind-body union because he was committed to the unity of man.

For several reasons, Descartes was also committed to the natural institution theory. First, the co-extension account of union was scientifically problematic. Mind and body are united, but "the human mind is [incapable] of conceiving quite distinctly and at the same time both the distinction between mind and body, and their union," (Blom 1978, 113) and "it is by availing oneself only of life and ordinary conversations, and by abstaining from meditating and studying that exercise the imagination, that one learns to conceive the union of the soul and the body" (Blom 1978, 113-114). To Burman, Descartes said that the intermixing of mind and body couldn't be explained, only known through uncritical observations. Descartes could not have been happy with this conclusion. After all, one of the main goals of the *Meditations* was to provide a method of ridding ourselves of uncritically learned beliefs so that a firm basis of knowledge could be built out of clear and distinct ideas (CSM 1:12-15, 53). When discussing the co-extension account, however, he asserted that we simply have to uncritically accept sensations and common belief. We can imagine how difficult it must have been for him to claim that vague sensations and uncritical intuitions of an inexplicable phenomenon provide a firm basis for knowledge. In comparison, the natural institution account of union must have been much more satisfying to Descartes' scientific sensibilities.

Second, the natural institution account of union is compatible with Descartes' views on human physiology, whereas the co-extension account is not. Seeing that the pineal gland does not have a double, he argued that "there cannot be any other place in the whole body where the

soul directly functions," he writes:

Insofar as we have only one simple thought about a given object at any one time, there must necessarily be some place where the two images coming through the eyes, or the two impressions coming from a single object through the double organs of any other sense, can come together in a single image or impression before reaching the soul, so that they do not present to it two objects instead of one. (CSM 1:340)

Descartes argues that impressions of objects must come together at one point, the pineal gland, which is where the soul functions. Physiological issues also influenced the way he understood mistaken sensations. Consider the example of someone who feels a pain in her "foot" after it has been amputated.⁷ If sensations arise from the intermixture of mind and body the pain would be inexplicable, for there would be no foot with which the mind could interact. Insofar as sensations arise out of the intermingling of mind and body, and sensations are experienced in the body by the mind, there is no explanation for the sensations of pain in a non-existent foot. The natural institution theory explains the pain by pointing out that malfunctioning nerves at any point between the foot and the brain could make the mind feel as if there was a pain in the foot.⁸

Descartes' conception of the body as an "universal machine" was the third reason that he was attracted to the natural institution account. The mechanizing of the body was just a part of his overall project of mechanization, and so the success of his mechanistic physics depended upon his being able to mechanize the human body. Understanding the motivations for his larger project will give us a sense of why it was important to Descartes that he have a notion of union which was consistent with the mechanization of the body.

Descartes was unhappy with the scholastic world-view. The scholastics explained causality and change in terms of substantial forms that operated as an "intrinsic motor in created substances, or substantial principle of motion which is internal and proper [to the thing in question]" (Voetius, "Narratio," 1955, 70). But "explanations" appealing to substantial forms are tautologous. For example, a scholastic explanation of a

stone falling would be that it was “thus created by God and thus, according to the faculties impressed upon [it], aim[s] at [its] ends as an arrow to its target” (Voetius, “Narratio,” 1955, 79). In other words, a stone falls because it has been “impressed” with a “falling power” that is natural and appropriate to it. This is not an explanation, but rather a description or definition. Descartes understood that substantial forms do no explanatory work, so he left them out of his philosophy. Instead of “internal motors,” he demanded that explanations be made in terms of “external motors” operating as efficient causes.

Furthermore, he had the goal of making scientific explanation “mathematical” in form. More precisely, he wanted to use explanations which are reducible to “geometrical” concepts. Descartes writes:

I found no [clear and distinct notions in matter] except for the notions we have of shapes, sizes and motions, and the rules in accordance with which these three things can be modified by each other—rules which are the principles of geometry and mechanics. And I judged as a result that all the knowledge which men have of the natural world must necessarily be derived from these notions. (CSM 1:288)

His “mathematization” of science was carried through by explaining all natural phenomena in terms of efficient causes and geometric descriptions. Only a mechanized world would be properly “geometric” and have no need for substantial forms.

It was essential to Descartes’ mechanistic project that he be able to explain the body in mechanistic terms. As we have seen, the human body is like the natural world in being extended substance, and, therefore, it is part of the natural world. If a mechanistic explanation of the body’s functions could not be provided, he would have to give up either his mechanistic physics or his notion of body as being nothing but *res extensa*. His awareness of this dilemma is apparent when he writes, “[if I can not explain the human heart in mechanistic terms then] all the rest of my philosophy comes to nothing” (CSM 3:134). So he mechanized as much of the body as possible: every bodily function but those controlled by the mind. The list of functions which he “reduced” to purely mechanical procedures

is extensive. It includes:

digestion of food, the beating of the heart and arteries, the nourishment and growth of the limbs, respiration, walking and sleeping, the reception by the external sense organs of light, sounds, smells, tastes, heat, and other such qualities, the imprinting of ideas of these qualities in the organ of the "common" sense and the imagination, the retention or stamping of these ideas in the memory, the internal movements of the appetites and passions, and finally the external movements of all the limbs which aptly follow both the actions and objects presented to the senses and also the passions and impressions found in the memory. (CSM 1:108)

If Descartes had accepted only the co-extension account, this description would have been superfluous.

The natural institution account is compatible with a mechanistic explanation of the body. Descartes writes, "when God unites a rational soul to this machine . . . he will place its principle seat in the brain, and will make its nature such that the soul will have different sensations corresponding to the different ways in which the entrances to the pores in the . . . brain are opened by the nerves" (CSM 1:102). In this passage it seems that the mind and the mechanized body are made for each other--God merely has to make the initial connection. Natural institution is consistent with physiological facts, explains most of the actions of the body without appealing to the mind as a substantial form, and is a suitable account of union for a mechanistic science. If Descartes had only accepted co-extension, it would have been difficult or impossible to continue with the project of mechanization. And, as we have seen, Descartes' science was motivated by a strong notion of how the world should be understood--"geometrically" and without substantial forms.

Descartes required the natural institution account to satisfy his scientific commitments and to allow his project of mechanism to go forward. However, he was also a Catholic who was devoted to religious dogma. As a religious man deeply committed to the unity of man, he was obligated to provide an account of union that would be neither Platonic nor accidental. The natural institution account was both, so he explained

the unity of man with the co-extension account. Descartes needed both the natural institution and the co-extension accounts. Because the two accounts were incompatible, they could not be brought together in one theory of union. Therefore, he had two distinct accounts: one that was in accordance with mechanistic science, and one that made sense of the unity of man.

Interpretations in which Descartes is presented as having or preferring only one of the accounts of union are based on the belief that he gave religion priority to science or vice versa. The texts do not support these interpretations. Rather, the texts show that his philosophy is marked by a deep tension between his religious and scientific views. This is what we should expect. It would be surprising if Descartes, who struggled to overturn many deeply entrenched ideas of scholastic philosophy and physics, had developed a philosophy which was not marked by deep tensions. The interpretation of union presented in this paper reflects this tension. Furthermore, it is more charitable⁹ to interpret Descartes as holding both accounts of union. To interpret him as holding only the co-extension account is to assert that he held an ineffable, scientifically inexplicable account of union. To interpret him as holding only the natural institution account is to assert that he gave up the unity of man. Either interpretation forces on Descartes a notion of union that he would have found very unattractive. I have argued that he wanted to avoid both unattractive views and acted accordingly, by holding two distinct accounts of union.

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Notes

¹ The following abbreviations are used in parenthetical references. *The Philosophical Writings of Descartes*, trans. John Cottingham, R. Stoothoff and D. Murdoch, 3 vols. (Cambridge: Cambridge University Press, 1985). Volumes 1-3, are noted as CSM 1, CSM 2 and CSM 3, respectively. *Conversation with Burman*, trans. John Cottingham. (Oxford: Clarendon, 1976) is abbreviated as *Conversation*.

² I follow Margaret Wilson in naming Descartes' two accounts of mind-body union "co-extension" and "natural institution." Furthermore, her consideration of the two accounts has significantly influenced my own. However, Wilson and I come to different conclusions about the significance of the fact that Descartes held these two views.

³ See Henri Gouhier, *La Pensee Metaphysique de Descartes*. Paris: Librairie Philosophique, 1962), 329-334.

⁴ The Jesuits accepted Thomistic philosophy and theology as the official doctrine of the order. Since Descartes was educated at a Jesuit school and kept in close contact with Jesuits throughout his life, it is safe to assume that he would have, at least, respected Aquinas as an important source of orthodox belief.

⁵ compare CSM 2:56 and Thomas Aquinas, *Questions On the Soul*, trans. J. Robb. (Milwaukee: Marquette University Press, 1984), 47.

⁶cf. CSM 2:296.

⁷ cf. CSM 1:208, 217.

⁸cf. *Conversation*, 29.

⁴ On the face of it, this is an odd claim. Charitable interpretations typically do not conclude that the philosophical views in question are internally inconsistent. However, this paper has attempted to explicate Descartes' philosophical commitments: the unity of man on the one hand, mechanism and clarity on the other. I have suggested that Descartes would not have given up either of these commitments. Consequently, *from Descartes' point of view*, my interpretation is charitable.

References

- Aquinas, Thomas. *Questions On the Soul*. Trans. J. Robb. Milwaukee: Marquette University Press, 1984.
- Balz, Albert. *Descartes and the Modern Mind*. Hamden: Archon, 1967.
- Balz, Albert. *Cartesian Studies*. New York: Columbia University Press, 1951.
- Blom, John. *Descartes: His Moral Philosophy and Psychology*. New York: NYU Press, 1978.
- Cottingham, John. "Cartesian Dualism: Theology, Metaphysics, and Science." In *The Cambridge Companion to Descartes*, ed. John Cottingham, 236-257. Cambridge: Cambridge University Press, 1992.
- Descartes, Rene. *Conversation with Burman*. Trans. J. Cottingham. Oxford: Clarendon, 1976.
- Descartes, Rene. *The Philosophical Writings of Descartes*. 3 vols. Trans. John Cottingham, R. Stoothoff and D. Murdoch. Cambridge: Cambridge University Press, 1985.
- Gilson, Etienne. *Index Scholastico-Cartesien*. Paris: F. Alcan, 1912.
- Gilson, Etienne. *Spirit of Medieval Philosophy*. Trans. A. H. Downes. New York: Scribner's, 1936.
- Gorham, Geoffrey. "The Harvey-Descartes Controversy." *Journal of the History of Ideas* 55, no. 2 (1994).
- Gouhier, Henri. *La Pensee Metaphysique de Descartes*. Paris: Librairie Philosophique, 1962.

Grene, Marjorie. *Descartes among the Scholastics*. Milwaukee: Marquette University Press, 1991.

Grosholz, E. R. *Cartesian Method and the Problem of Reduction*. Oxford, 1991.

Hatfield, Gary. "Descartes' Physiology and Its Relation to His Psychology." In *The Cambridge Companion to Descartes*. Ed. John Cottingham. Cambridge: Cambridge University Press, 1992.

Hoffman, Paul. "The Unity of Descartes' Man." *Philosophical Review* 95 (1986): 339-370.

Rodis-Lewis, Genevieve. "Limitations of the Mechanical Model in the Cartesian Conception of the Organism." In *Descartes: Critical and Interpretive Essays*, ed. M. Hooker, 152-170. Baltimore: Johns Hopkins University Press, 1978.

Schmalz, Tad. "Descartes and Malebranche on Mind and Mind-Body Union." *Philosophical Review* 101 (1992): 281-325.

Voetius. "Narratio." Quoted in J. A. van Ruler. *The Crisis of Causality: Voetius and Descartes on God, Nature and Change*. New York: Brill, 1955.

Wilson, Margaret Dauler. "Cartesian Dualism." In *Descartes: Critical and Interpretive Essays*, ed. M. Hooker, 197-211. Baltimore: Johns Hopkins University Press, 1978.

Wilson, Margaret Dauler. *Descartes*. New York: Routledge, 1978.