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Leibniz and Des Bosses on the Aristotelian Corporeal Substance

LUCIAN PETRESCU*

ABSTRACT This paper presents Leibniz and Des Bosses's views on extension and the corporeal substance. It presents Des Bosses's philosophical project as a way of shedding light on the well-known correspondence between the two and uses a previously unexplored text: Des Bosses's outline of a metaphysical treatise of his own. The paper argues that Leibniz introduced the notion of a substantial bond, at the demand of Des Bosses, in order to secure the reality of extension; that Des Bosses had strong views on matter and extension, which could not be satisfied by Leibniz's proposal; that these views led him to reject Leibniz's notion of the substantial bond; consequently, that Leibniz's notion of corporeal substance was incompatible with the views on matter and extension defended by Des Bosses; and, finally, that Des Bosses developed his metaphysical ideas in 1735 by using Leibnizian insights for his agenda.

KEYWORDS Leibniz, Des Bosses, corporeal substance, Aristotelianism, hylomorphism, Jesuit philosophy

A FEW MONTHS BEFORE HIS DEATH, Leibniz wrote to Des Bosses,

My doctrine of composite substance seems to be the very doctrine of the Peripatetic school, except that their doctrine does not recognize monads. But I add them, with no detriment to the doctrine itself. You will hardly find another difference, even if you are bent on doing so.¹

It is tempting to take Leibniz's profession of Aristotelian orthodoxy as circumstantial: the entire correspondence he had with the Jesuit Father Bartholomew Des Bosses (1706–1716) is based on a project of reconciliation between his "system" and the dogmas of the Catholic Church, mediated by Aristotelian philosophy.² But even

¹May 29, 1716/LDB 365.

²Des Bosses presented this plan: *Atque ex hoc scrupulo meo consilium meum, quale sit, dispicis: nempe ut notiones tuas salva, quantum fieri potest, earum substantia phrasibus Aristotelicis, aut potius has illis, et utrasque dogmatibus Ecclesiasticis accommodem* (January 25, 1706/LDB 6). As expected, Leibniz was delighted by the idea: *Te vero, Vir Eximie, cum rectum iter ingredi videam emendandae atque exornandae philosophiae ad usum Scholae, ut juvenus non poenitendis principiis imbuatur, etiam atque etiam (pro ea quam mihi indulges libertate) hortari audeo, ne in re tanta Reipublicae, imo Ecclesiae desis* (February 2, 1706/LDB 8). He advised Des Bosses

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so, this circumstantial determination does not undermine Leibniz's claim. After all, his lifelong effort to reform the notion of substance envisioned a revival of the Aristotelian metaphysics of form and matter within a more defensible physics: an "emended peripatetic philosophy," as he called it.³ While Des Bosses embarked enthusiastically on this irenic project, as the years went by and the arguments unfolded in the correspondence, he came to express less confidence in the possibility of such a philosophical feat. For his part, Leibniz thought he was getting ever closer to Aristotelianism. This divergence suggests that they had different views either about Aristotelian metaphysics, or about Leibnizian metaphysics, or about both. I look here at the reasons for this divergence: in what sense Leibniz thought that he was an Aristotelian, and in what sense thought Des Bosses that Leibniz was not one. While Leibniz's views from the correspondence with Des Bosses have been explored extensively in the literature, Des Bosses has been usually presented as merely Leibniz's dialogue partner. This essay will concentrate on Des Bosses and his philosophical project. A better understanding of his thought will give us not only a better historical knowledge of the exchange with Leibniz, but also insight into how a Jesuit philosopher could approach Leibnizianism, i.e. what aspects of it were useful and what other aspects were unacceptable for an Aristotelian.

Born in 1668, Bartholomew Des Bosses studied humanities and philosophy and did his novitiate in Trier (1686–89).⁴ He taught afterwards at Aachen and Hadamar, and studied theology in Münster, where he also became a professor of theology. He moved to Hildesheim in 1705, on a chair of theological controversies. In 1706, he went from Hildesheim to Hannover to find Leibniz, for unclear reasons, other than the admiration he professed in his letters. He continued his academic career in Cologne, where he died in 1738. His theological teaching duties explain perhaps why metaphysical subjects were not pursued with more drive, in spite of a manifest interest for them. His output is slim: a translation of a book belonging to the late Jansenist controversy (*Epistolae Abbatis N. ad Episcopum N. quibus demonstratur aequitas Constitutionis Unigenitus, etc.*, 1715), a Latin translation of the *Theodicy* (1719), a polemical tract concerning the efficacious election (*Annotationes aliquot a unius e Societate Jesu Theologi ad excerpta quaedam ex assertionibus P. Pii Schöling O. P.*, 1726), and a couple of other short pieces. Carlos Sommervogel names some *Fragments sur la géométrie, la métaphysique, etc.* not to be found, while Jean-Noël Paquot reports that he had gathered a "considerable number" of books on Aristotelian physics.

Both Leibniz and Des Bosses came to their encounter in 1706 with their own baggage and with their own agendas. Leibniz was interested in Church affairs, intellectual gossip, the Jansenist controversy, privileged information on censorship,

to compose a textbook on the model of the popular *Summa philosophiae quadripartita* of Eustachius a Sancto Paulo, the same model that Descartes had initially contemplated for his *Principia philosophiae*.

³LDB 374. See Fichant, "Mécanisme et métaphysique: Le rétablissement des formes substantielles (1679)," and "L'invention métaphysique." On Leibniz's Aristotelianism, see Mercer, "The Seventeenth-Century Debate between the Moderns and the Aristotelians: Leibniz and *Philosophia Reformata*," and *Leibniz's Metaphysics: Its Origins and Development*; D. Garber, *Leibniz. Body, Substance, Monad*.

⁴On Des Bosses, see Paquot, *Mémoires pour servir à l'histoire littéraire des dix-sept provinces des Pays-Bas*, 172–76; Sommervogel, *Bibliothèque de la Compagnie de Jésus*; Warnach, "'Ein Philosophischer Korespondent Leibniz'. P. Bartholomäus Des Bosses."

and the theologian's project of adapting the Leibnizian system to the philosophical views of the Society of Jesus. Des Bosses had, on the face of it, a genuine interest in Leibniz. But he also thought he could use Leibniz's philosophy for the defense of some Aristotelian positions concerning matter, forms, and hylomorphism. His lifelong project appears to have been none other than to revive Aristotelian physics against that of the moderns, in a largely Thomist perspective (according to Paquot), and to give a rational explanation of transubstantiation in the Eucharist.⁵

In what follows, I show that Des Bosses's agenda was incompatible with Leibniz's conception of corporeal substance outlined in the correspondence. In short, I hold the following story. Both Leibniz and Des Bosses were preoccupied with saving the reality of extension (as opposed to its phenomenality), but they had different understandings of how to do so and of why this was important. Leibniz offered the notion of the *vinculum substantiale* as a solution to the reality of extension, at Des Bosses's demand, and he moved towards considering a world of extended corporeal composed substances *alongside* the world of non-extended simple monads he was developing in those years. Des Bosses rejected Leibniz's understanding of the *vinculum* because he thought that it failed to account for a true Aristotelian notion of extension, as distinct from matter. Des Bosses had one big idea: the key to reviving Aristotelianism was to establish a real distinction between matter and extension. He saw in Leibniz's monadology a tool to demonstrate the existence of the Aristotelian (or Thomist) prime matter he was after. For Des Bosses, the *vinculum* proposed by Leibniz was nothing else than extension superadded to matter, and not a substance in its own right, as Leibniz wanted. Des Bosses's agenda determines, in the end, his rejection of Leibniz's notion of corporeal substance.

In the first section, I look at the way in which the concept of extension is developed in the correspondence and focus on Des Bosses's criticism of Leibniz. In the second section, I look more closely at Des Bosses's project as presented in an outline for a metaphysical treatise that he intended to write, but apparently never did. In his bibliographical notes, Sommervogel mentioned a letter from 1735 to an unidentified Jesuit correspondent in which Des Bosses sketched the subject of his projected metaphysical treatise. The treatise is called *Clavis Lycaeï*, the key to Aristotle's Lyceum, and is presented as something on which Des Bosses had worked for many years. The *Clavis Lycaeï* is probably a development of that "specimen" of a *Dissertatio peripatetica de substantia corporea* that he announced to Leibniz in 1712.⁶ The text of the letter (which contains the core metaphysical arguments that were to be developed in the book) was published by Michel de Certeau in 1966, but it has failed to attract scholarly attention so far.⁷ While the letter is not very long, it is

⁵Paquot (*Mémoires*, 173) writes, one generation after Des Bosses: "Le P. des Bosses eut surtout à cœur trois points, auxquels il donna toute son application: le 1. regardoit l'origine du Mal : le 2^d concernoit le sentiment de S. Augustin sur la grâce de l'Homme avant & après sa chute, & sur le don de persévérance : le 3^e, auquel il travailla jusqu'à sa mort, étoit le rétablissement de la physique d'Aristote, soutenue par S. Thomas. Persuadé que Kepler, Gassendi, Descartes, & Newton n'avoient rien imaginé, qui n'eût été renversé d'avance par ces deux chefs du Péripatétisme, & ayant apporté un soin infatigable à approfondir tous les mystères de cette secte, il entreprit de la relever du décri, où elle paroît tombée aujourd'hui."

⁶LDB 216.

⁷De Certeau, "La *Clavis Lycaeï* du Père Barthélemy des Bosses." LDB ignores the text, but the German edition of the correspondence includes a translation of it in an appendix.

enough to give us a consistent picture of how Des Bosses thinks about extension, monads, matter, Aristotelianism, and Leibnizianism.

I. 1712

In 1712, in his correspondence with Des Bosses, Leibniz introduced a new metaphysical notion, the *vinculum substantiale*, and much of the rest of the correspondence is devoted to the discussion of this notion and to its potential use in securing a sound conception of corporeal substance. The notion has puzzled many commentators, mainly because Leibniz's position in this text is evolving from letter to letter and is very hard to pin down. Without going into the details of the text, I want to begin by dissociating two problems to which the *vinculum substantiale* is supposed to be a solution. (1) One is the problem of *the reality of extension*: how can the Leibnizian non-extended monads give rise to a world of extended bodies or corporeal substances? Is extension a mere phenomenon, as Leibniz calls it, or can it be something physically real, grounded in substance itself—that is, in the monads? (2) The other is the problem of *the unity of corporeal substance*: if the notion of substance applies primarily to the simple substance (the monads), how can an aggregate of simple substances compose a composite corporeal substance that is an *unum per se*?

These two problems are closely connected by Leibniz in such a way that one cannot be dissociated from the other. The notion of a *vinculum substantiale* is meant to solve both of them. Leibniz will hold in this correspondence that the corporeal substance (a notion that he applies to organisms or machines of nature) is united in virtue of this *tertium quid*, a “real unifier,” a *vinculum*. At the same time, this principle of unity, also called a *realisans*, endows corporeal substance with continuity and a principle of resistance necessary for extension. In other words, extension can only be made real if the corporeal substance is united. Whether the notion of the *vinculum substantiale* is coherent and successful in securing a notion of corporeal substance for Leibniz is not my main concern here.⁸ The reason I dissociate, somewhat artificially, the two Leibnizian problems—the reality of extension and the unity of the corporeal substance—is that Des Bosses manifests a high interest in only one of them: extension.

⁸For Leibniz's conception of corporeal substance, see the following works: Adams, *Leibniz: Determinist, Theist, Idealist*; Fichant, “Leibniz et les machines de la nature”; Phemister, *Leibniz and the Natural World. Activity, Passivity and Corporeal Substances in Leibniz's Philosophy*; and Garber, *Leibniz. Body, Substance, Monad*. For an overview of the Anglo-Saxon debate over realism vs. phenomenalism in late Leibniz, see Hartz, “Why Corporeal Substances Keep Popping Up in Leibniz's Later Philosophy.” Among the literature on the Leibniz–Des Bosses correspondence, see Kahle, *Leibniz's Vinculum substantiale*; Rösler, “Leibniz und das *Vinculum Substantiale*”; Blondel, *Une énigme historique: Le ‘Vinculum substantiale’ d'après Leibniz et l'ébauche d'un réalisme supérieur*, and *Le lien substantiel et la substance composée d'après Leibniz. Texte latin (1893)*; Boehm, *Le ‘vinculum substantiale’ chez Leibniz. Ses origines historiques*; Mathieu, *Leibniz e Des Bosses, 1706–1716*; Frémont, *L'être et la relation*; Robinet, *Architectonique disjonctive, automates systémiques et idéalité transcendentale dans l'œuvre de Leibniz*, 83–110; Look, *Leibniz and the Vinculum Substantiale*; Look and Rutherford, *Introduction to LDB*. European commentators are more sympathetic to the notion than their trans-Atlantic counterparts, ranging from Frémont's appreciation of the central role of the transubstantiation in the development of the system to Blondel's recovery of the *vinculum* in his Christology.

As seen from his replies to Leibniz, Des Bosses is interested primarily in the problem of extension and its distinction from matter, and not in the problem of the unity of the corporeal substance. This fact could be explained by Des Bosses's Aristotelian background. One needs to keep in mind that Des Bosses comes to the discussion with Leibniz with a project of writing a treatise on the "Aristotelian" notion of corporeal substance. The Aristotelian position on corporeal substance that Des Bosses would have inherited from his Jesuit sources is in stark contrast with that of Leibniz. According to the Aristotelian (Thomist) position, the composite of matter and form, which constitutes all corporeal substances, is a given; it is only through a secondary act of abstraction that we inquire into its composition (e.g. out of matter and form or out of soul and body).⁹ In contrast, for Leibniz, the problem is one of unifying already given substances, the monads—hence the *vinculum* that glues them together. In a letter from February 12, 1706, Des Bosses expressed precisely this difference in the way the Aristotelians approach the corporeal substance, as opposed to Leibniz: the metaphysical union of the corporeal substance cannot be simply a *relation* that presupposes already constituted substances.¹⁰ It is thus important to retain that Leibniz's and Des Bosses's approaches to corporeal substance started from opposite directions. The primary substances for an Aristotelian are the corporeal substances, while the primary substances for Leibniz are the monads. Des Bosses did not need the *vinculum* as a solution to the unity of the corporeal substance, because they are already united for him (*unum per se*).

In this section, I take Des Bosses's perspective. I will leave aside the discussion of the unity of corporeal substance and Leibniz's intricate views on this, which have been sufficiently explored in the scholarship. I will present instead Leibniz's introduction of the substantial bond in 1712 as a response to the need for grounding the reality of extension, which was Des Bosses's interest, and Des Bosses's criticism of Leibniz.

1.1. Leibniz on Extension

One of the recurring ideas in Leibniz's self-critique of his monadology in the correspondence with Des Bosses is that it leads to a non-extended world, that is, a world of appearances, idealism, or phenomenalism.¹¹ In his later years, Leibniz recurrently expresses the view that physical bodies are merely "well-founded phenomena," with the only real substances, existing in the world, being the monads. There are several ways in which Leibniz explains how the monadology

⁹For the Thomist position, see e.g. the argumentation from *ST I*, q. 76, a. 1. For a recent commentary, see R. Pasnau, *Thomas Aquinas on Human Nature*, ch. 3.

¹⁰LDB 18: *Hoc mihi certum est: non posse eam [i.e. metaphysicam unionem] in modo relativo constitui. Relationes enim, uti alia accidentia substantiam jam constitutam supponunt. . . . Quare dicendum mihi videtur, hoc quidquid est quod praeter animam et corpus substantiam individuam constituit ipsam esse existentiam absolutam totius substantiae concretae quam Aristoteles et S. Thomas a materia et forma (quae scilicet substantiae essentia sunt) distinctam, unamque utrique communem statuunt.*

¹¹The term 'monadology' is used here in the sense of a doctrine, not to be confused with the text edited as "*Monadologie*" by Köhler in 1720 and as "*Principia philosophiae*" the next year in *Acta eruditorum*. It refers hereafter to the view that the ultimate elements of reality are simple substances, and that there is nothing ontologically real in the external world over and above the monads.

leads to phenomenalism and what phenomenalism means (while his overall thinking on this topic is more complex).¹² A basic way of understanding extension as phenomenal is the following: if all we have in the external world are individual monads, then bodies are mere aggregates of monads. Only the simple substances have true substantial unity, and monads do not interact in order to “unite” themselves in any real sense. In this sense, Leibniz writes to Des Bosses,

If you deny that what is superadded to monads in order to make a union is substantial, then a body cannot be said to be a substance, for in that case it will be a mere aggregate of monads, and I fear that you will fall back on the mere phenomena of bodies. . . . Each [monad] is, as it were, a certain world apart, and they harmonize with each other through their phenomena, and not through any other intrinsic intercourse and connection.¹³

In the absence of a substantial bond, Leibniz continues,

then all bodies with all their qualities would be only well-founded phenomena, like a rainbow or an image in a mirror—in a word, continuous dreams that agree perfectly with one another; and in this alone would consist the reality of those phenomena. For it should no more be said that monads are parts of bodies, that they touch each other, that they compose bodies, than it is right to say this of points and souls.¹⁴

If bodies are mere aggregates of monads, then extension is a mere phenomenon, a “coherent appearance” arising out of the harmonization of the perceptions of each monad. Leibniz suggests that this harmonization and unity is imposed by a perceiver upon a heap of monads, which constitutes, in reality, a mere aggregate, and hence the characterization of this view as “phenomenalism.” One of the problems that Leibniz faces here is the individuation of this phenomenal unity: how can we speak of a *single* harmony of perceptions that we can call “a body,” or how it is that each of us perceives the same artificial unity in a heap of monads as a single individual body. Leibniz develops this idea in an interesting passage from a supplementary study to the letter to Des Bosses from February 15, 1712. He suggests in this passage that, in order to secure the phenomenal unity of disparate perceptions, we should consider God as the ultimate perceiver. In this case, a heap of monads has an *absolute* phenomenal unity given by God’s perception of it, while our individual perceptions only impose *relative* phenomenal unities on the given heap of monads, which are dependent on our own individual perception of it:

If bodies are phenomena, and are judged by our appearances, they will not be real, since they will appear differently to others. Thus, the reality of bodies, space, motion, and time seems to consist in this: that they are the phenomena of God, that is, the object of his knowledge of vision. And the difference between the appearance of bodies with respect to us and their appearance with respect to God is in some way like the difference between a drawing in perspective and a ground plan. For whereas drawings in perspective differ according to the position of the viewer, a ground plan or geometrical representation is unique. God certainly sees things exactly such as they are according to geometrical truth, although likewise he also knows how each

¹²See Garber, *Leibniz. Body, Substance, Monad*, ch. 7, describing “a family of phenomenalisms” in Leibniz.

¹³May 27, 1712/LDB 241–43; a similar position is expressed at LDB 224–26.

¹⁴February 15, 1712/LDB 227.

thing appears to every other, and thus he contains in himself eminently all the other appearances.¹⁵

Leibniz had established, with the monadological view, a derivative character of extension against the Cartesian position that took extension as primary: extension presupposes a certain nature as primitive (monads) in the same way, Leibniz claimed, as a number presupposes the thing numbered.¹⁶ The downside of his view is that monads can only secure a phenomenal extension in direct relation with the mind of a perceiver. He explained at one point that the notion of extension is derivative in the same sense in which the notions of space and time are derivative: mere phenomena of a perceiver.¹⁷

Des Bosses, for his part, was not happy with the phenomenal character of extension, and he pushed several times for grounding extension in the monads themselves, not in the perceiver.¹⁸ Serious issues were at stake, not the least of which was the Catholic understanding of transubstantiation in the Eucharist, which relied on a robust notion of extension that sustained the species of the host, and supposed a transmutation between real corporeal substances, not between mere phenomena.¹⁹

As already mentioned, Leibniz began to seriously explore the reality of extension in 1712, triggered by Des Bosses's idea of writing a dissertation on the Peripatetic conception of the corporeal substance. Des Bosses was willing to send the treatise to Leibniz for comments (January 28, 1712, LDB 216), but Leibniz did not wait for the text and offered his own thoughts on the matter. It was obvious for Leibniz that such a dissertation could not work with the phenomenal conception of extension he had laid out, which had little to do with peripatetism. Nevertheless, he was intrigued by the idea of forging a peripatetic notion of corporeal substance in Leibnizian terms:

I shall read with great pleasure your dissertation on corporeal substance. If corporeal substance is something real over and above monads, as a line is taken to be something over and above points, we shall have to say that corporeal substance consists in a certain union, or rather in a real unifier superadded to monads by God, and that from the union of the passive powers of monads there in fact arises primary matter,

¹⁵LDB 231–33.

¹⁶Cf. a clear text on this, "Addition à l'explication du système nouveau" (1702 [?]), GP IV.589: *La fausse notion d'étendue que se forment les Cartésiens, comme si c'étoit un attribut primitif et capable de constituer une substance, leur fait beaucoup de tort, en les faisant croire, qu'on peut concevoir une substance sans action, au lieu que la notion de l'étendue est dérivative, à peu près comme celle du nombre et du temps, incapables de constituer une substance, car l'extension ou étendue est relative et suppose quelque nature qui est étendue et répétée, tout comme le nombre suppose quelque chose dont on fait le dénombrement (rem numeratam).*

¹⁷See January 13, 1716/LDB 362: *Extensionem concipere ut absolutum, ex eo fonte oritur quod spatium concipimus per modum substantiae, cum non magis sit substantia quam tempus.*

¹⁸See especially his letter from July 30, 1709, LDB 134–6, where Des Bosses claimed a continuity in the monads, as a principle of extension: *Sed puto monadas ipsas, de quibus sermo erat, ut meras Materiae modificationes aut terminationes considerari non posse, cum potius principia sint et fundamenta massae sive extensionis, imo potius extensio iuxta te est modificatio monadum seu substantiarum. Sed et monades continuitatem habent, extensio enim et continuatio ex repetitione substantiae oritur.*

¹⁹See Tilliette, "Problèmes de philosophie eucharistique. I. Descartes et Leibniz." Tilliette's excellent study is the reason I do not treat the topic of transubstantiation more extensively, in spite of its importance for the present discussion.

which is to say, that which is required for extension and antitypy, or for diffusion and resistance.²⁰

What Leibniz has in mind with this “real unifier” is to ground the unity of monads needed for extension in a superadded feature of the world, created directly by God, as opposed to an appearance of unity dependent on the perceiver. The “real unifier” presented in this letter gives rise to extension by uniting the primitive passive forces of the ingredient monads and thus “produces” antitypy, continuity, or diffusion of parts, which are properties of extension. In laying out this proposal, Leibniz distinguished two separate metaphysical paths: either one posits monads alone, together with phenomena constituted by God’s knowledge, and so extension too is a mere phenomenon (this time he proposed that God acts as the perceiver), or one posits a unifying *tertium quid*, that is, a direct product of God’s volition that produces continuation and extension:²¹

Thus, one of two things must be said: either bodies are mere phenomena, and so extension also will be only a phenomenon, and monads alone will be real, but with a union supplied by the operation of the perceiving soul on the phenomenon; or, if faith drives us to corporeal substances, this substance consists in that unifying reality, which adds something absolute (and therefore substantial), albeit impermanent, to the things to be unified.²²

It should be noted that Leibniz remains at a hypothetical level and that his proposal responds to a very specific demand from Des Bosses. He will bring a number of clarifications to the notion of the *vinculum substantiale* throughout the correspondence. An important change appears in August 1713, when Des Bosses points out that there is no reason to think of the unifier as ephemeral. Leibniz agrees and grants a permanent status to the substantial bond.²³ What interests the present discussion—namely, the notion of extension as a feature of the substantial bond—remains nevertheless the same throughout the correspondence. The substantial bond is said to add a principle of resistance to the composite substance, which is needed for extension (“if you add composite substances, I would say that in these things a principle of resistance must be added to the active principle or motive force [of the monads]”).²⁴ In short, Leibniz’s position is that “real continuity can arise only from a substantial bond.”²⁵

²⁰February 15, 1712/LDB 225.

²¹LDB 232: *addet aliquam novam substantialitatem seu vinculum substantiale, nec solius divini intellectus, sed etiam voluntatis effectus erit.*

²²LDB 225–27. Look (*Leibniz and the ‘Vinculum Substantiale’*) has insisted on the connection between the question of a “metaphysical union” between body and soul—a notion that Leibniz had refused to De Volder and Tournemine—and the proposal of the substantial bond. In my view, the substantial bond should be read as an effort of constructing an Aristotelian notion of extension, as an escape from phenomenalism, forged at the express demand of Des Bosses and for Des Bosses’s dissertation. Although the insufficiency of the pre-established harmony to explain the union of body and soul is in the background of the discussion, it is not the main concern for the introduction of the substantial bond. Cf. Garber (*Leibniz. Body, Substance, Monad*, 367–82), who also views the doctrine of the correspondence as a search for an alternative to phenomenalism, and Robinet (*Architectonique disjonctive*, 84–85), who rightfully points out that the *vinculum* is an avatar of the scholastic *forma corporeitatis*, a notion that Leibniz had discussed with Arnauld.

²³LDB 319: *Et ideo re expensa hactenus sententiam muto, ut putem jam nihil oriri absurdi, si etiam vinculum substantiale seu ipsa substantia compositi dicatur ingenerabilis et incorruptibilis.*

²⁴LDB 232.

²⁵LDB 371.

Des Bosses opposed this conception of the substantial bond in his reply from May 20, 1712, with two claims:

1) *The bond cannot be a substance*, as Leibniz wanted; it has to be an accident, for it *naturally* requires the monads it bonds; moreover, it is an absolute accident, and not a mode: “[W]e shall now have in bodies something absolute, distinct from monads, that is not a substance. And so body, since it superadds to the monads nothing except this absolute thing, will superadd only an accident to them.”²⁶

2) *This absolute accident is nothing more than extension*: “And so, in fact, it seems necessary to have recourse to some unifying thing, which can be called absolute accidental extension.”²⁷

Des Bosses’s criticism pictures a view quite different from that of Leibniz: the *vinculum* for him is an accident, identified with extension, whereas for Leibniz it is a substance, with extension being a mode of this substance. In order to understand Des Bosses’s criticism, we need to follow a parallel discussion on the ontological status of extension as either an accident or a mode, a question that has often been on Des Bosses’s mind and one to which he returns a number of times in the correspondence.

1.2. Des Bosses on Extension

In 1707, Des Bosses wrote to Leibniz:

And as we are discussing modes, I am eager to know what you think about the quantity of mass or extension that you somewhere say is nothing but the continuation or diffusion of the already presupposed striving and resisting, or resistance, of a substance. Is this very continuation or diffusion only a mode of substance, or is it something that is more than modally distinct from it, that is, an absolute accident?²⁸

Leibniz ruled out the scholastic notion of *real accidents* as accidents superadded to a substance and separable from it. He admitted only a distinction between substances and their modes, with no middle entity. He held extension to be a mode: as he explains, extension is only the continuation of situated things, just like a line is a continuation of points, and not a superadded entity.²⁹ Des Bosses, for his part, defended a position on extension as a real accident. Traditionally, the separation between extension as a real accident and the substance to which it is attached was needed by the Thomist explanation of the Eucharist: the extension of the host is kept, sustaining the species of the bread, while the substance of the bread (its matter and form) are replaced with Christ’s body. A real accident of the kind that Des Bosses has in mind has a middle status between a substance and a mode. For Des Bosses, extension has an accidental status because it presupposes the existence of a substance that is continued. It is a continuation of *something*. But extension is also something more than a mode, because it is susceptible to being separated by God’s power, and it therefore has a reality distinct from that of the substance in which it inheres.

²⁶LDB 237.

²⁷LDB 239.

²⁸July 21, 1707/LDB 91.

²⁹LDB 98: *Cum dico Extensionem esse resistentis continuationem, quaeris, an ea continuatio sit modus tantum? Ita putem: habet enim se ad res continuatas seu repetitas, ut numerus ad res numeratas.*

Des Bosses initially argues for the real distinction between matter and extension by appealing to Leibniz's monads: since non-extended substances such as the monads could not possibly produce extension on their own, extension could not be reducible to the monads, and therefore it must be a superadded entity. He wrote to Leibniz in 1712:

I am confirmed in the view accepted far and wide among us, namely, that extension is a real accident and not just a modal one. It is indeed an accident because it presupposes a primary being or substance that is already constituted, and it does not constitute a substance as matter and entelechy do. On the other hand, it is real and not modal because, just as nothing that is not active in itself can become active by a modification alone, so I cannot conceive how that which is not extended in itself (as matter and forms are not extended in themselves) could have the power to become extended from a mode alone. If you will concede that this one accident is real and coeval with matter, I shall not fear relegating the rest to the level of modes.³⁰

Des Bosses thus can use Leibniz's monads to argue for a received opinion on extension as a real accident. As we have seen, in 1712 Leibniz's position is that extension can only be grounded in the substantial bond itself, and not in the monads. Starting with 1712, Leibniz held that corporeal substances must consist in the substantial bond itself, and the connection between the monads and the substantial bond started to become more and more loose. Later in the same year, Leibniz explains that the bond requires the monads only "physically" and not "metaphysically" (i.e. without logical necessity):

I should think that composite substance, or that thing that produces a bond of monads, since it is not a mere modification of monads or something existing in them as subjects (for the same modification could not be in many subjects at the same time), depends upon monads. This is not a logical dependence (that is, such that it cannot be supernaturally separated from them) but only a natural one, namely, such that it requires that they unite in a composite substance, unless God wills otherwise.³¹

Once the substantial bond is introduced as a substance on its own by Leibniz, there is not much of a relation between monads and corporeal substance to speak of anymore (besides that of a vague "echo").³² The substantial bond is not, in the end, supposed to bond monads after all, and Leibniz moved toward a picture of things very different from what Des Bosses had in mind. This evolution presents serious consequences for Des Bosses. On the one hand, severing the ties between the corporeal substance and the monads undermined the only argument that Des Bosses had for positing extension as a superadded accident: he could no longer claim that extension needs to be superadded to monads, because the monads were, so to speak, out of the picture. The bond unites the monads physically, but not logically; as a substance, it can exist on its own, without the monads. On the

³⁰February 15, 1712/LDB 221.

³¹September 20, 1712/LDB 269–71. The metaphysical independence of the *vinculum* is restated a number of times until the end of the correspondence. See also May 29, 1716/LDB 366: *Interim vinculum hoc substantiale naturaliter non essentialiter vinculum est. Exigit enim monades sed non essentialiter involvit, quia existere potest sine monadibus, et monades sine ipso.*

³²April 6, 1715/LDB 336: *Monades influunt in hoc realisans, ipsum tamen in ipsarum Legibus nil mutabit, cum quicquid modificationum habet ab ipsis habeat quasi Echo, naturaliter scilicet, non tamen formaliter seu essentialiter, cum Deus ei tribuere possit quae Monades non dant, aut auferre quae dant.*

other hand, grounding extension in the substantial bond in the way that Leibniz did led inevitably to the view that extension is merely a mode, a property of the substantial bond itself.

From this point on, the dispute over the modal or accidental status of extension is moved over to the *vinculum*. Until the end of the correspondence, the positions remain unchanged: Des Bosses holds the *vinculum* to be an accident because it presupposes the monads, while Leibniz maintain that it is a substance on its own that does not need the monads. Since Leibniz refused a real distinction between the *vinculum* and extension, Des Bosses had to keep a real distinction between the bond (identified by him with extension) and the monads, in order to maintain that extension is a real accident superadded to the monads. For Des Bosses, this meant that the *vinculum* and the monads are not separate substances, but distinct metaphysical parts of the same substance. In the end, Des Bosses's rejection of Leibniz's notion of corporeal substance is due to the fact that he could not grant the level of independence between the monads and the substantial bond that Leibniz proposed.

We can conclude that Des Bosses developed a considered view on substance much different than that of Leibniz. Moreover, in wanting to keep the *vinculum* and the monads together, he had to relegate the monads to the status of incomplete substances, subordinated to the *vinculum*. Appealing to the Thomist distinction between essence and existence (a notion far removed from Leibniz), Des Bosses expressed the view that monads are independent complete substances with respect to their essence, but not with respect to their existence. It is only when united by a substantial bond that they have proper existence, but in that case they are no longer complete substances, since they are subordinated to the *vinculum*:

[M]onads, considered with respect to their essence by abstracting from all existence or physical actuality, are indeed substances and metaphysically complete primary beings, since they have metaphysical actuality, that is, an entelechy; but they are not complete in the manner of a physical substance, except insofar as and when a dominant entelechy bestows existence and therefore unity on the whole organic mass, for example on the body of the horse, so that this mass itself is subordinate to no other entelechy.³³

Des Bosses uses another analogy for the same idea: the status of the monads in composite substances is analogous to that of the elements in a compound (according to the Averroist and Thomist doctrine)—that is, they exist independently, with respect to their essence, but while in the compound their existence is subordinated to that of the compound (LDB 247). Just as, for Saint Thomas, body and soul lose their status as independent substances when joined together in the *per se* composite, so the monads lose their independent substantiality when unified by the bond. Otherwise, the composite substance could not be said to be a composite *of* monads.

The downside of Des Bosses's view on substance is that the monads are no longer the primary substances of Leibnizianism. Des Bosses's position was, in the end, quite contrary to Leibniz's basic achievements. I now turn to the document

³³June 12, 1712/LDB 247.

from 1735 where Des Bosses developed his ideas more extensively, two decades after his exchange with Leibniz. This document will tell us just how strongly Des Bosses felt about the real distinction between matter and extension.

2. 1735

Des Bosses's projected metaphysical treatise, the *Clavis Lycaeii*, seeks to prove, according to the letter from 1735 mentioned in the introduction, that "(1) matter is a *thing* distinguished from extension, and (2) that there is more than a *modal* distinction, consequently a *real* distinction, between matter and the primitive corporeal forms" [f. 5].³⁴ We find in this preoccupation a striking reflection of the discussion he had with Leibniz many years before. The two propositions are equivalent.

Des Bosses presents a first and straightforward argument proving them, which he intends to further develop in his book, in a geometrical order. The argument runs as follows: all geometers agree that extension is infinitely divisible, and even its smallest parts must be extended. By contrast, matter is made up of an infinity of non-extended indivisibles; hence matter must be distinct from extension. The minor is proved in the following way: matter is incorruptible, as all philosophers agree, and therefore must be composed out of incorruptible parts. Everything that is extended is also divisible and therefore corruptible; hence, matter must be composed out of non-extended indivisible parts (ff. 6–7). But since this argument is based on the "incomprehensible nature of the infinite," Des Bosses says, he will also provide other arguments along the way.

Fortunately, there are enough details in the letter to let us understand the scope of this demonstration more clearly. Des Bosses's philosophical project is inscribed in the Society's efforts against Cartesianism, and his treatise seeks to argue against the Cartesian identification of extension and matter. One of Des Bosses's targets is a book by one Etienne-Simon de Gamaches (1672–1756, Order of the Holy Cross), called *Système du Mouvement* (f. 5). Gamaches was a Cartesian appreciated by the Académie des Sciences who thought that the Newtonian idea of absolute space posed the threat of reverting to Aristotelianism. If Cartesians were to recognize absolute motion, Gamaches thought, they would also have to recognize an absolute space distinct from extension, because only in this way would they be able to individuate a body in motion with respect to space. An absolute space entails that something besides extension must be posited in matter. Once the identification of matter with bare extension is dropped, one would have no basis on which to deny the entrance of other entities, such as Aristotelian forms, into matter. As a matter of fact, one could in this way posit a plethora of other entities in matter, from powers and sensible qualities to secondary causes, substantial forms and even occult qualities. Thus, Gamaches argued, it was essential for Cartesianism to resist Newtonianism on this point, namely on the idea of absolute space, unless it wanted to revert to Aristotelianism.³⁵

³⁴De Certeau, "La *Clavis Lycaeii*." I use de Certeau's transcription and send to the folios of the manuscript. Translations are mine.

³⁵Gamaches, *Système du Mouvement*, 83–84: *Dès qu'ils [les cartésiens] savent qu'il n'y a point d'autre étendue que celle de la matière, il est clair que s'il veulent s'en rapporter à leurs propres idées, il faut qu'ils reconnaissent*

This was exactly what Des Bosses wanted: to revert to Aristotelianism and re-introduce forms and qualities in matter by establishing firmly that matter was really distinct from extension. A second part of his dissertation would deal with substantial forms (f. 11–12), thus following precisely the path that Gamaches feared.

For contemporary Jesuit authors, the demonstration that matter was distinct from extension was usually proven through the analysis of the mystery of the Eucharist: extension is separable from matter through God's power, because, as it appears in the Eucharist, the matter of the host can change into the body of Christ, while its extension and other qualities stay the same.³⁶ Francisco Suárez had famously stated at one point that the distinction between "quantity" (=extension) and substance could not be fully demonstrated from rational reasons, but that it must be held as a theological principle.³⁷ Although Suárez also provided a number of philosophical arguments against the Ockhamist identification of matter with extension (without holding them to be conclusive), his separation between theological and rational arguments dissatisfied Des Bosses.

This reliance on the mystery of the Eucharist to explain the distinction between matter and extension represents an odd development in Latin Aristotelianism. Saint Thomas and his followers had a more straightforward explanation: matter was pure potentiality, while extension was actualized matter. However, most Aristotelians largely abandoned the distinction between actuality and potentiality by the seventeenth century. The result was this curious inversion: instead of explaining the miracle of transubstantiation through the distinction between matter and extension, one explained the distinction between matter and extension through

que l'état des corps est non seulement indéterminé par rapport à nous, mais qu'il est encore indéterminable en lui-même. Je suis sûr qu'il n'y a point de cartésien dévoué à l'erreur du mouvement absolu qui, ayant fait cette réflexion, n'ait souvent été tenté de reconnaître un espace distingué de la matière; mais l'embarras, c'est qu'on sent bien que si la matière est autre chose que de l'étendue, il ne faut plus la restreindre à n'avoir pour propriétés que des figures et des simples changements de rapport de distance, et dès lors on n'est plus en droit de lui refuser ni les forces ni les vertus ni les qualités sensibles dont le Cartésianisme la dépouille. Il faut même souffrir qu'on réhabilite les causes secondes, les qualités occultes et les formes substantielles : car tout cela peut fort bien être l'apanage de ce qui constitue l'essence de la matière, si la matière et l'étendue ne sont plus la même chose.

³⁶See the argument as provided by Suárez, DM XL, 2, 8: *Prima ergo ratio pro hac sententia est quia in mysterio Eucharistiae Deus separavit quantitatem a substantiis panis et vini, conservans illam, et has convertens in corpus et sanguinem suum; id autem fieri non potuisset, nisi quantitas ex natura rei distingueretur a substantia. Neque sufficere potuisset distinctio modalis, quia substantia non potest esse modus quantitatis, ut per se notum est; debet ergo quantitas esse modus substantiae; at vero modus non est ita separabilis ab illa re cuius est modus ut sine illa esse possit, ut in superioribus ostensum est; ergo quantitas non est tantum modus, sed res distincta a substantia.* That the accidents of the host inhere in quantity, rather than directly in the substance, was a standard view (cf. Saint Thomas, *ST* IIIa, q. 77, a. 2), but not everyone inferred from it a real distinction between quantity and matter—namely, the nominalists did not. A nominalist position on the Eucharist was to say that the quantity of the *substance* of the bread was not maintained (its local presence as extended), but what was maintained were its quantified qualities (a quantified whiteness or a quantified taste). It was however harder to see how quantity could be applied univocally in this case to both these qualities and the substance, as Suárez pointed out in DM XL, sec. 8, art. 10. See Ockham's *Tractatus de Corpore Christi*, ch. 19 ("Quod omnes qualitates in sacramento altaris non sunt unum subiectum unius quantitatis"), in *Opera theologica*, X.129–31 and the entire *De Quantitate*, in the same volume, pp. 1–86. For discussions of quantity, see Maier's studies: "Das Problem der *Quantitas materiae* in der Scholastik," and "Das Problem der Quantität oder der räumlichen Ausdehnung."

³⁷DM XL, sec. 2, art. 8: *Approbatum sententia reipsa distinguens quantitatem a substantia. . . . Atque haec sententia est omnino tenenda; quamquam enim non possit ratione naturali sufficienter demonstrari, tamen ex principiis theologiae convincitur esse vera, maxime propter mysterium Eucharistiae.*

the miracle of transubstantiation. In this sense, it is understandable that Des Bosses wanted to prove the distinction between matter and extension without appealing to the mystery of the Eucharist, on purely rational reasons.

2.1. *Des Bosses on Indivisibles*

In order to do so, Des Bosses appeals to Leibniz. In a second argument for the distinction between matter and extension, Des Bosses uses a mathematical proof with which Leibniz had provided him years earlier, in a letter from April 24, 1709. Leibniz had showed him a simple geometrical argument for the fact that mathematical points are not part of matter, and therefore cannot give rise to extension.³⁸ But Des Bosses takes this argument in a very different direction, inquiring over the ontological status of indivisible mathematical points, an issue much debated in late scholasticism.

Des Bosses uses an alternative and equivalent mathematical example, all the while recognizing that Leibniz had provided this mathematical proof. He divides a circle into sectors and considers the common vertex of the sectors, that is, the center of the circle. These vertices cannot be extended, because they converge in a mathematical point, non-extended. Can such mathematical points be something pertaining to matter (*aliquid materiae*)? If the mathematical points were themselves material, we would have a case of compenetration, and it follows that matter is non-extended because it is capable of compenetration. If the mathematical points were modes or accidents of matter, they would be inseparable from matter, and it follows that matter is present in the center of the circle, and therefore capable of compenetration, and therefore non-extended (f. 9).

The geometrical indivisibles are an issue much discussed in the medieval literature on quantity (extended magnitude), to which Des Bosses refers here. We can use as a guide Suárez's extensive discussion from *Metaphysical disputations XL*, well-known in Jesuit circles. The indivisibles are non-extended mathematical points that are used to explain the continuum of a magnitude. An extended magnitude is made up not only of extended parts, but also of non-extended indivisibles. In the category of indivisibles, some are "terminative"—points, lines or surfaces—and some are "continuative," which link the parts. The indivisibles did not compose the magnitude; its extended parts did. But the continuity and limits of the magnitude were given by the indivisibles. Regarding the ontological status of the indivisibles, Suárez held that they were modes of the extended magnitude that contains them: a line is a mode of the extended quantity that it delimits.³⁹

³⁸LDB 124. Leibniz takes a triangle, draws a bisect line from one side to the vertex, and then divides the two triangles obtained again, and so on to infinity. Taken apart, each triangle obtained has its own vertex; taken together though, as to form a prism, they have a common vertex. Leibniz takes this to show that even with situation (*situs*, i.e. the situation of the triangles with respect to one another), one cannot have extension; extension adds continuity to situation (*Extensio quidem exurgit ex situ, sed addit situi continuitatem*).

³⁹The way this is expressed by Suárez is a little more complex. He argues, against the nominalist position, that points, lines, and surfaces are modes distinguished *ex natura rei* from quantity, but *realiter* identified with quantity (DM XL, sec. 5, art. 38: *hic non potest satis intelligi quod punctum aut quodlibet indivisibile terminans sit tantum modus ex natura rei distinctus et realiter identificatus quantitati quam terminat*). For Suárez's terminology of distinctions, see DM VII, sec. 1. A real distinction *ex natura rei* occurs when

This modal distinction between the indivisibles and the extended magnitude held by Suárez, to which most non-nominalist scholastics subscribed, dissatisfied Des Bosses; he wanted to assign the mathematical indivisibles to matter, not to the extended magnitude, in order to prove that matter is non-extended. Des Bosses holds, against Suárez, that the *subject* of the indivisibles “does not arise at the same time” as the continuation and division of the extended magnitude, and that it pre-exists the indivisibles.⁴⁰ By this, he means that the subject of the indivisibles is not extension, but matter, which “pre-exists” the indivisibles. The argument is not altogether clear, but Des Bosses seems to think that, since there are an infinity of virtual indivisibles in any given point, then only matter, which is virtually infinitely divisible, can be their subject. And so, if the non-extended indivisibles inhere in matter as *modes*, then matter is itself non-extended. Therefore, extension must be something superadded to it: an absolute accident. The argument is, to my mind, at least paradoxical, because it relies on the fact that the points, lines, and surfaces, which are supposed to be indivisible, are virtually divisible in an infinity of other points, lines, and surfaces.

Curiously enough, Des Bosses looked for additional support in modern literature. He quoted Descartes’s demonstration of transubstantiation through the permanence of the surface of bodies from the *IVae Responsiones* (AT VII 247 ff.). Descartes, indeed, had held that the surface of the bread is neither a part of the substance of the bread nor a part of its quantity, but that it was the medium between the bread and the surrounding bodies. Since this mode, the surface, could not be assigned to one body or the other, Des Bosses reasoned that it must inhere in matter.

Des Bosses also found support for the view from the Newtonians (*neoterici Angli*). He appeals to John Keill, the mathematician who had accused Leibniz of stealing the calculus. Keill had held, in his lectures on Newtonian mechanics from 1700, that an Aristotelian real distinction between body and *space* could be supported. He argued, much like Des Bosses, from the fact that non-extended points, lines, and surfaces are modes inhering in matter that matter can be taken to be something apart from body—namely, space.⁴¹

two entities can subsist by themselves, at least through God’s absolute power. A modal distinction *ex natura rei* applies to a couple of entities out of which only one can subsist without the other. Quantity can subsist without delimitating itself into points, lines, or surfaces. *Ex natura rei* refers to the fact that both entities have a positive being in things, either as substance, an accident, or mode. For the ontological status of the indivisibles, see DM XL, sec. 5: *Utrum in quantitate continua sint puncta, lineae et superficiae quae sint verae res, inter se et a corpore quanto realiter distinctae*. Suárez, as usual, summarizes the opinions on this issue. One is that the points have no distinct *res* apart from substance (Suárez names the nominalists, Durandus, Ockham, and Gregory of Rimini). The realist opinion is that the points, lines, and surfaces can be distinguished not only among themselves, but also from the bodies to which they belong, or from quantity (Suárez names Saint Thomas “and the members of his school,” Capreolus, Soncinas, Domingo de Soto, Cajetan, but also Duns Scotus, Alexander of Hales, and Walter Burley).

⁴⁰F. 11: *Dicendum itaque est subjecta indivisibilium sive terminantium in divisione et continuatione non ori[r]i nec interire, sed praexistisse in puncto etc. in quo fit divisio v.g. in centro ex quo conficitur, cum divisio sit possibilis in infinitum in quolibet puncto continui, infinita esse indivisibilia materiae*.

⁴¹We need to correct a shortcoming in Michel de Certeau’s otherwise informative editing, who writes: “*Nous n’avons pu contrôler cette référence à Jean Keil*” (“*La Clavis Lycae*,” 587n). Des Bosses refers to John Keill’s (1671–1721) popular book *Introductio ad veram physicam: seu lectiones physicae habitae in*

2.2. *Des Bosses on Hylomorphism and the Radical Union*

Des Bosses raises against himself the same objection he had raised against Leibnizian phenomenalism: if we hold that matter is composed out of non-extended indivisibles, and nothing else, why would extension itself not be resolved into the same non-extended indivisibles? Why do we need extension on top of matter?

His answer is that extension supposes a “union of parts” that matter, by itself, cannot have. The distinction between matter and extension, Des Bosses explains, is that between a *primary* subject of inherence and a *secondary* subject of inherence. A primary subject of inherence is, in traditional Thomism, prime matter that is devoid of all form. A secondary subject of inherence is extension, which inheres in prime matter and serves itself as a subject of inherence for other modes (color, for instance). As a primary subject of inherence, Des Bosses says, (prime) matter is devoid of “all modes and forms, and similarly of all unions and localizations.”⁴² Extension, on the other hand, presupposes a material body, composed out of matter and form. Therefore, extension can have, included in its notion, a “radical union” of parts. This radical union is incompatible with the concept of (prime) matter as a pure subject. He explains in the following passage:

Since extension is an absolute thing, as we have shown, but not a primary being, it presupposes in fact by its nature a material body, or a composite (as it will be shown elsewhere), or a blend [*conflatum*] of matter and form. An absolute, non-primary being can certainly include in its idea or concept the radical union of a part with another part. But this is incompatible with the concept or notion of matter and primary subject.⁴³

A “radical union” of parts is defined as an actual union applied to those parts that cannot coexist otherwise, unless united. This kind of radical union cannot be placed in matter, because matter is infinitely divisible: one can subtract parts of matter, *ad infinitum*, and put them back together or replace them without consequences for the whole.⁴⁴ But an amputated member of an animal, Des Bosses argued, cannot be replaced just as easily. That member will no longer have the same extension it had when it was united with its body. Its new cadaveric form will have to inhere in a new extension.⁴⁵

One can see that this argument depends on the Thomist doctrine that a body has one single substantial form, which sustains its individual quantity. According to

schola naturalis philosophiae academiae Oxoniensis, A.D. 1700. Quibus accedunt Christiani Hugonii theoremata de vi centrifuga & motu circulari demonstrata, published in Oxford in 1701. See, pp. 25–26: *Verum, etiamsi nec superficies, nec lineae, nec puncta sunt ipsa materia, in ea tamen existunt, vel existere possunt, tanquam illius modi, termini, seu accidentia.*

⁴²F. 12: *Discrimen inter materia et quantitatem sive extensionem esse quod materia sit subjectum primum. Subjectum autem primum qua tale concipi debet ut praecisum a quibuscumque modis et formis, adeoque ab unionibus et sitibus.*

⁴³F. 12–13: *Extensionem esse quidem absolutum quid, uti probavimus, sed non ens primum, supponit enim natura prius materiam, sive (ut alibi probandum est) compositum, sive conflatum ex materia et forma substantiali. Potest quidem res absoluta non prima in idea sive conceptu suo involvere unionem radicalem partis ad partem. Repugnat autem id conceptui sive notioni materiae et subjecti primi.*

⁴⁴F. 13: *Scilicet omnis pars assignabilis determinata materiae primae potest separari, tam mediate quam immediate, a quacumque alia determinata parte materiae, et idem dicendum de separatione cujuscumque indivisibilis materiae a quocumque indivisibili alio.*

⁴⁵According to the known Thomist position on accidental forms (see f. 14).

the Thomist view on hylomorphism, a body is made one in virtue of the substantial form it has. Once it loses that form, it loses *all* of its accidents, including quantity. If one would admit partial forms or the divisibility of form, Des Bosses's argument would fail, and he recognized this limit (f. 14). It is a strong interpretation of the principle of the convertibility of unity and being (*ens et unum convertuntur*).⁴⁶

CONCLUSIONS

Leibniz's familiarity with the doctrines of the Aristotelians of his time has been long appreciated by scholars. However, this dimension is mostly overlooked in the commentaries on the correspondence with Des Bosses. The major part of the scholarship devoted to these letters concerns, as is only natural, the development of Leibniz's views on corporeal substance and on the union of monads expressed in the notion of the *vinculum substantiale*. A lot of scholarly energy has been devoted to the question of whether Leibniz had held the *vinculum substantiale* in the first place, or whether the entire proposal is only hypothetical and circumstantial. It is certain that Leibniz's development on corporeal substance from this correspondence is triggered by very precise demands, namely the explanation of transubstantiation. I believe that there is something to be gained in looking at the correspondence as a dialogue between two philosophical minds, rather than as an interview given by Leibniz on his monadology. Leibniz constructed, refined, and sometimes altered his views, for the most part, by confronting competing systems, be they Cartesian, Aristotelian, Spinozist, Lockean, occasionalist, or pretty much any of the philosophical products accessible to him. Given the fact that Leibniz's thought is sustained by this constant input from occasional causes (to use an expression of Vittorio Mathieu's),⁴⁷ the recovery of the role played by scholastic doctrines in the correspondence with Des Bosses is all the more important.

We have a good idea, from Alfred Boehm's important and singular study, of the extent to which the central philosophical notion of the text, that of the *vinculum substantiale*, is tributary to developments in late scholastic views on substantial union.⁴⁸ Boehm worked within a continuity-discontinuity framework, aiming to show the extent to which post-Scotist notions of substantial union were or were not followed by Leibniz. Rather than looking at Leibniz's immediate scholastic background, I focused my discussion on Father Des Bosses himself, as a first-hand guide to how a Thomist-leaning Jesuit could think of the relationship between the Aristotelian metaphysics of substance and Leibniz's monadology.

⁴⁶F. 13–14: *Quia cum ens et unum convertantur, hoc ipso quo quantitas membri abscissi amittit unitatem, quae fundatur in unitate vel indivisibilitate formae, amittit etiam existentiam suam, et forma cadaverica membri abscissi accipit novam quantitatem, juxta sententiam Sancti Tomae asserentis nullum accidens manere in corrupto quod fuit in vivo. At in reliquo corpore animalis adhuc superstitis remaner[e] adhuc eadem quantitas partialis partibus vivis respondens, quia in eodem remanet adhuc eadem forma substantialis.*

⁴⁷Mathieu, *Leibniz e Des Bosses*, 7, on what he calls "dialogicità del pensiero leibniziano."

⁴⁸Boehm, *Le 'vinculum substantiale' chez Leibniz*. Boehm was looking for a "positive genesis" (3) of the vinculum in Leibniz's immediate predecessors, against Blondel's thesis. Jolivet (*La notion de substance. Essai historique et critique sur le développement des doctrines d'Aristote à nos jours*) had already found the notion in Suárez; see also Jolivet, "Suárez et le problème du 'vinculum substantiale.'" Boehm's material concerns mainly anti-Thomist seventeenth century scholastic views on the union in the "substantial whole" (*totum essentiale*) and the "integral whole" (*totum integrale*). However incomplete, it remains the only study of the issue.

Des Bosses's view, as expressed in the *Clavis Lycaeii*, is extremely creative. His defense of Aristotelianism is philosophically interesting on its own, be it only for the improbable mixture of doctrines he manages to put together in a sustained argument. His own "emended peripatetic philosophy" mingled some Leibnizian and even Newtonian elements into an Aristotelian soup, while criticizing respectable Aristotelian figures such as Francisco Suárez. It is hard not to see in Des Bosses's indivisibles an echo of Leibniz's monads—Des Bosses himself uses the word—or in his "radical union" of parts, an echo of the *vinculum*. But Des Bosses had a radically different project, one of restoring the distinction between matter and extension, which would avoid grounding it in the mystery of the Eucharist. The idea that the mathematical indivisibles are constituents of matter, and not modes of quantity, was a sort of a hybrid product, based on both Leibniz's monads and on the late medieval notion of quantity, but in which neither theories were adequately represented. We have at the bottom non-extended primary matter, consisting of non-extended indivisibles or monads; at a second level, corporeal substances, capable of extension in virtue of a *unio radicalis* between their matter and their form.

Of course, Des Bosses's monads have little to do with Leibnizian monads. They are not active and they do not perceive or represent. More importantly, they are not even complete substances. Leibniz and Des Bosses both agree that we need to add a unity through a substantial form that holds together the indivisibles/monads and gives extension to the composed substance. But the agreement stops here. Des Bosses reiterates in his *Clavis Lycaeii* his main objection against Leibniz's monads he had expressed twenty years earlier: if monads are complete substances, they cannot receive a further substantial form that would unify them into a corporeal substance. If the monads have per se unity, they can exist separately from any superadded union, in their non-extended state, and nothing posterior to that can make them extended:

If one can conceive matter as a collection of non-extended and indivisible things, then we already have in matter unities or monads without the help and intervention of a substantial form that would attribute unity to these indivisibles. For those indivisibles alone, by the very fact that they are indivisibles, are obviously one. [f. 14]⁴⁹

Des Bosses's answer consists therefore in denying this unity and substantiality to the monads. The only other alternative for saving the reality of the world would be to admit extended atoms. That was not an option, and we would end up with aggregates anyway.⁵⁰

I take Des Bosses's opposition to the *vinculum* from an Aristotelian point of view to be pertinent. The main philosophical payoff of his rather peculiar demonstrations is that it shows why monads, as complete substances, cannot fit

⁴⁹F. 14: *Si materia concipi potest tanquam collectio inextensorum et indivisibilium, jam in materia habebuntur unitates sive monades absque opere et interventu formae substantialis quae indivisibilibus istis unitatem tribuat. Nam singula illa indivisibilia, hoc ipso quo indivisibilia, erunt una ut patet.*

⁵⁰F. 15: *Sed certum est dari substantia sensibilem et extensam sive dari corpora, uti postulavimus vel supposuimus, ergo indivisibilia illa materiae nequeunt esse prima entia completa, sed collectio illorum indivisibilium solum poterit esse pars substantiae corporeae et extensae. . . . Quod si indivisibilia illa metaphysica essent verae unitates substantiales, jam nulla daretur substantia extensa.*

into an Aristotelian conception of material substance. Leibniz was wrong to believe that he was getting closer to Aristotelianism. More than this: Des Bosses shows that Leibnizian monads, taken as complete substances, irrevocably rule out the corporeal composite substance. If Leibnizian monads are given, then the notion of a composite substance becomes a contradiction. In this sense, it is noteworthy that the way in which Des Bosses frames the problem of corporeal substance vs. monads, namely the opposition between the geometrical demonstration of the infinite divisibility of matter and the composition of body out of simple indivisible substances, is also the subject of Kant's *Monadologia physica* of 1755.⁵¹

In 1735, the *Monadology* had been published for some time, but Leibniz's attempt to reconstruct a theory of corporeal composite substance from the correspondence with Des Bosses was kept under silence in the Society's archives. The path was open for the idealist reading of Leibniz followed by the triumphal march of German idealism. Des Bosses saw Leibnizian idealism up close, and he wanted to resist it. About Wolff's simple substances, he wrote, "I do not see through which reason those that do not admit any other proper substance besides simple, indivisible and non-extended entities can hold that their aggregates are extended" [f. 16].⁵² The alternatives were clear for him: either monads, or corporeal substances. No *vinculum* could fill the gap.

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⁵¹Interestingly enough, Kant also appeals to John Keill. I am grateful to the anonymous reviewer who pointed out this reference to me.

⁵²F. 16: *Nec vero video qua ratione ii qui nullam substantiam proprie dictam agnoscunt praeter entia simplicia, indivisibilia et inextensa, tueri possint aggregata illorum esse extensa. Videri potest Wolfius.*

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