

est, igitur aliquid esse creatum oportebit uti contendis; sin ipse Deus est, cum in Deo utpote simplicissimo ente nulla omnino varietas sit, sed in eo omnia ubique uniformia et identificata (nisi cum Vorstio modos et accidentia in Deum inducere voluerit) quomodo varietatis in materia *causa formalis* sive varietas ipsa formaliter esse poterit? Ut taceam eam denominationem fore prorsus extrinsecam materiae nisi Deum esse materiae formam statuam.

Sed nec solide probat corpoream substantiam in extensione consistere. Argumenta etiam contra hanc suam sententiam militantia, quae solvere nititur, lustravi obiter. Miror Tua esse praeterita, caeteris, ut mihi quidem videtur longe potiora et nulle ratione diluenda.

Ut tamen fatear quod res est, illud interim ex hujus libro percipio commodi quod in sententia passim apud nos recepta confirmem nempe: extensionem accidens esse reale non modale tantum; accidens quidem quia ens primum sive substantiam jam constitutam supponit, nec illud constituit uti materia et Entelechia constituunt; reale vero, non modale, quia sicuti nihil quod activum de se non sit modificatione sola, activum fieri non potest. Ita concipere non possum quomodo id quod de se extensum non est (uti de se extensae non sunt materia et formae) a modo solo habere possit ut fiat extensum. Hoc unum accidens reale ac materiae coevum si mihi concesseris, reliqua ad modos relegare non verebor. Vale Vir summe, meusque conatus ne aspernare. Dabam Paderbornae 28 Januarii 1712.

Illustrissime Dominationi Tuae

Ex asse devotus cliens

Bartholomaeus Des Bosses SJ

P.S. Ante dies aliquot ab Orbano litteras accepi sat vetustas, quibus dicebat se pridie ad Te scripsisse. Si quid ipsi Tibi notandum occurret circa Theodicaeam ut significes expecto.

### Leibniz to Des Bosses

Reverendissime Pater Fautor Honoratissime

Mire satisfacit Tua versio, et originale textum passim vincit. Paucissima quaedam notavi, qualia et in meis soleo, ubi relego. Et cum tam fideliter tam eleganter exprimas, atque etiam interdum illustres sensa; non

God himself, then it will be necessary that something was created just as you insist; but if it is God himself, since there is no variety at all in God, inasmuch as he is a maximally simple being, and in him everything everywhere is uniform and identical (unless, with Vorstius, one wishes to introduce modes and accidents in God),<sup>17</sup> how will it be possible for there to be a *formal cause* of variety in matter, or variety itself formally? To say no more, he establishes that this denomination will be absolutely extrinsic to matter, unless God is the form of matter.

Moreover, he does not prove convincingly that corporeal substance consists in extension. In the meantime I have also reviewed the opposing arguments—which he tries to overturn—against this view of his. I am amazed that your old arguments are, as indeed it seems to me, far stronger than the others and should not be weakened in any respect.

Still, that I may acknowledge what is the case, I nonetheless find something profitable in this book, in that 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. Farewell, distinguished Sir, and please do not spurn my efforts. From Paderborn, 28 January 1712.

Your Excellency's wholly devoted servant,  
Bartholomew Des Bosses, S.J.

P.S. A few days back I received a somewhat belated letter from Orban in which he said that he had written to you the previous day. If anything occurs to you to be noted concerning the *Theodicy*, I expect that you will let me know.

#### 48. Leibniz to Des Bosses<sup>1</sup>

[Hanover, 15 February 1712]

Most Reverend Father, Most Honored Supporter,

Your translation succeeds marvelously and in places surpasses the original text. I have marked only a few passages, as is my custom when I reread even my own writings. Since you express the thoughts so faithfully

est cur crebro per particulas subnata mittas; suffeceritque aliquando justam partem ubi vacaverit venire. Unum addidero, interdum fugientiores videri literarum characteres, quod ideo dico, ne fortasse nova sit descriptione opus: neque enim descriptiones illae ab hominibus mercenariis sine mendis fieri solent, quae interdum fugiunt revidentem. Et vero pleraque omnia hactenus ita scripta sunt ut novo exemplari non videatur opus.

Quae Dn. Hartsoekero nostro responderim in adjecta Epistola vides. Probat ille et non probat meum rationis sufficientis principium; probat generatim, non probat exertim; diceret aliquis de schola, probare in sig-nato non in exercito actu. Dicerem (si mavis) probare magis quam adhibere. Itaque non potui quin ei paulo clarius et per exempla similia ostenderem, quantum ab eo, id est a recta ratione decedat. Perplacet quod contra meum principium Transitus non saltantis id ipsum allegat, quo pulchre atomi impugnantur. Et praeclare praevidisti, experientiam quam affert, veram non esse. Omnia corpora dura nobis nota Elastica sunt, adeoque cedunt et vim incurrentis per gradus paulatim infringunt; etsi hoc non semper satis sensibile sit, cum scilicet valde dura sunt corpora, et magna se promptitudine restituunt. Sed si dantur atomi, transitus fit in instanti contra ordinem rerum. Argumentum quidem hoc olim adhibitum contra Atomos non fuit, sed tamen non spernendae est efficaciae apud intelligentes.

De primo suo Elemento, seu materia summe fluida, ita interdum loquitur, ac si corpus non esset, sed hoc fortasse in logomachiam abibit. Nam movetur, et impellit, impelliturque, et extensionem habet et partes etiam aliae ab aliis discedunt. Sed quamdiu in hoc suo fluido nihil agnoscit, nisi extensionem, figuram et harum variationem in motu, non poterit inde educere perceptionem. Ait quidem nos non posse scire quarum rerum tale fluidum sit capax, sed quamdiu in eo nihil aliud quam dicta collocamus, optime perspicimus quorum capax sit. Nec modificatio perfectiones addere potest, cum harum tantum limites variare possit. Quod si in illo fluido collocat aliquod attributum altius, ad nostra vel eis vicina redibit. Sed ipse discrimen rei substantialis et modificationum, aliaque non imaginatione, sed intelligentia comprehendenda, non satis inspexisse videtur aut curare.

and elegantly, and even clarify them sometimes, there is no reason for you to send your work frequently in small bits; it will suffice if now and then a completed part comes, whenever there is time. Let me add one thing: sometimes the handwriting seems rather rushed. I mention this, so that perhaps there may be no need for a new transcription, for copies made by paid workers are usually not without errors, which sometimes escape proofreading. And, in fact, so far nearly everything has been written in such a way that there seems no need for a fair copy.

You will see from the enclosed letter what I have said in response to our Mr. Hartsoeker. He approves, and does not approve, of my principle of sufficient reason; he approves of it in principle but not in practice. Someone from the schools might say that he approves of it potentially but not actually. I should say, rather, that he approves of it more than he makes use of it. Thus, I could not stop myself showing a little more clearly and by means of similar examples how far he departs from it, that is, how far he departs from right reason. It is very pleasing that he adduces against my principle that change does not occur through a leap the very point by which atoms are elegantly refuted. And you have foreseen very clearly that the experiment he reports is not true. All hard bodies known to us are elastic, and thus they give way and weaken an opposing force gradually and through degrees, although this is not always sufficiently apparent, since admittedly there are very hard bodies that restore themselves extremely quickly. Yet, if there were atoms, change would occur in an instant, contrary to the order of things. This argument, to be sure, has not been used often against atoms, but that which is influential among the learned should not be dismissed.

Hartsoeker sometimes speaks about his primary element, that is, a perfectly fluid matter, as though it were not a body; but this will perhaps be reduced to a dispute about words. For it moves, it impels and is impelled, and it has extension, and even parts that can be separated from each other. But as long as he recognizes nothing in this fluid of his except extension, figure, and their variation in motion, he cannot derive perception from this source. He says, to be sure, that we cannot know what the capacities of this fluid are, but so long as we endow it with only the aforementioned properties, we perceive perfectly clearly what its capacities are. A modification cannot add perfections, since it can only vary their limits. But if this fluid is endowed with some more basic attribute, it will reduce to our account or something similar to it. Yet, it seems that he has not sufficiently considered, or paid attention to, the difference between a substantial thing and modifications, and other things that must be understood by the intellect rather than by the imagination.

Amicus qui in Actis Lipsiensibus Muysii librum recensuit, ostendit etiam, eum plane intactam reliquere vim argumenti mei pro necessitate Entelechiae materiam diversificantis, et nonnulla affert tuis plane consentientia.

His et similibus facile convinci posset Dn. Hartsoekerus, nisi invictus esset. Si spiritus nihil aliud sunt quam collectio quaedam, et ut sic dicam gutta fluidi, non magis apparet quomodo perceptionem producant, quam si eos cum Epicuro ex atomis globularibus composuisset, nec unquam reddet rationem diversitatis. Sed postquam semel sibi persuasit duo esse primaria materiam perfecte duram, et perfecte fluidam, quae scilicet imaginationi blandiuntur; pulchrum putavit ex uno ducere spiritus, ex altero corpora; quomodo inde ducantur spiritus, non sollicitus. Ita scilicet solent, qui hypotheses suas amant. Non potui non hunc parentis amorem in foetum, in novissima Epistola ei nonnihil objicere, et quia liticulae taedio captus videtur, finem ei simul imponere: interea nihil obstat opinor quin Epistolae novissimae, et Hartsoekeriana et mea, R. P. Tournemino communicari possint.

Dissertationem Tuam de substantia corporea legam lubentissime. Si substantia corporea aliquid reale est praeter monades, uti linea aliquid esse statuitur praeter puncta; dicendum erit, substantiam corpoream consistere in unione quadam aut potius uniente reali a Deo superaddito monadibus, et ex unione quidem potentiae passivae monadum, oriri materiam primam, nempe extensionis et antitypiae, seu diffusionis et resistentiae exigentiam; ex unione autem entelechiarum monadicarum, oriri formam substantialem, sed quae ita nasci et extingui possit, et cessante illa unione extinguetur, nisi a Deo miraculose conservetur. Talis autem forma tunc non erit anima, quae est substantia simplex et indivisibilis. Et forma ista, proinde ac materia est in fluxu perpetuo, cum nullum punctum revera in materia assignari possit, quod ultra momentum eundem locum servet, et quod non a quantumvis vicinis recedat. Sed anima in suis mutationibus eadem persistit, manente eodem subjecto, quod secus est in corporea substantia. Itaque alterutrum dicendum est: vel corpora mera esse phaenomena, atque ita extensio quoque non nisi phaenomenon erit, solaeque erunt monades reales, unio autem animae percipientis operatione in phaeno-

The friend who reviewed Muys's book in the *Acta eruditorum* also shows that Muys leaves fully intact the force of my argument for the necessity of entelechies that differentiate matter, and he offers some other considerations that are in complete agreement with your views.

Mr. Hartsoeker could be convinced easily by these and similar things if he were not so stubborn. If spirits are nothing more than a kind of collection or, so to speak, drops of fluid, it is no more apparent how they produce perception than if, like Epicurus, he composed them from spherical atoms; nor does he ever give a reason for their diversity. But as soon as he persuaded himself that there are two primary elements, perfectly hard matter and perfectly fluid matter, which certainly appeals to the imagination, he found it beautiful that spirits should be derived from one and bodies from the other. He is not concerned with how spirits are derived from this source, which indeed is characteristic of those who love their hypotheses. I could not stop myself from making some objection to this parental love of offspring in my latest letter to him and, since he seems captivated by the tediousness of a trivial dispute, at the same time putting an end to the matter. Nevertheless, as far as I am concerned, there is no reason why these latest letters, mine and Hartsoeker's, cannot be communicated to Father Tournemine.

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<sup>2</sup> primary matter, which is to say, that which is required for extension and antitypy, or for diffusion and resistance. From the union of monadic entelechies, on the other hand, there arises substantial form; but that which can be generated in this way, can also be destroyed and will be destroyed with the cessation of the union, unless it is miraculously preserved by God. However, such a form then will not be a soul, which is a simple and indivisible substance. And this form, just like matter, is in perpetual flux, since in fact no point can be designated in matter that preserves the same place for more than a moment and does not move away from neighboring points, however close. But a soul in its changes persists as the same thing, with the same subject remaining, which is not the case in a corporeal substance. 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 phenome-

meno supplebitur; vel si fides nos ad corporeas substantias adigit, substantiam illam consistere in illa realitate unionali, quae *absolutum aliquid* (adeoque substantiale) etsi fluxum, uniendis addat. Et in hujus mutatione collocanda esset transsubstantiatio vestra, monades enim revera non sunt hujus additi ingredientia, sed requisita; etsi non absoluta metaphysicaque necessitate, sed sola exigentia ad id requirantur. Itaque mutata licet substantia corporis, monades salvae esse poterunt, fundataque in iis phaenomena sensibilia. Accidens non modale videtur aliquid difficile explicatu nec de extensione id capio. Illud dici potest etsi monades non sint accidentia, accidere tamen substantiae unionali, ut eas habeat (physica necessitate) uti corpori accidit, ut a corpore tangatur, cum corpus tamen accidens non sit. Extensio corporis nihil aliud esse videtur, quam materiae continuatio per partes extra partes, seu diffusio. Ubi autem supernaturaliter cessabit tò *extra partes*, cessabit etiam extensio quae ipsi corpori accidit; solaque supererit extensio phaenomena in monadibus fundata, cum caeteris quae inde resultant, et quae sola existerent, si non daretur substantia unionalis. Si abesset illud monadum substantiale vinculum, corpora omnia cum omnibus suis qualitatibus nihil aliud forent quam phaenomena bene fundata, ut iris aut imago in speculo, verbo, somnia continuata perfecte congruentia sibi ipsis; et in hoc uno consisteret horum phaenomenorum realitas. Monades enim esse partes corporum, tangere sese, componere corpora, non magis dici debet, quam hoc de punctis et animabus dicere licet. Et Monas, ut anima, est velut mundus quidam proprius, nullum commercium dependentiae habens nisi cum Deo. Corpus ergo si substantia est, est realisatio phaenomenorum ultra congruentiam procedens.

Quodsi omnino nolis Accidentia haec Eucharistica esse mera phaenomena, poterit dici, esse fundata in Accidentali aliquo primario, nempe non quidem in Extensione, quae manere non potest, sed in punctis hujus Extensionis ad Monades respondentibus, sublata unione continuum ex punctis constituyente; atque adeo sublatis Lineis et Figuris continuis; qualitatibus autem et caeteris realibus accidentibus manentibus; ope remanentium punctorum accidentalium, demta continuitate, quae a realitate unionali, seu vinculo substantiali pendeat. Et cessante ejus diffusionem per partes extra partes cessabat. Itaque puncta accidentalia possunt considerari, ut primum accidens, quod sit caeterorum Basis, et quodammodo non modale, quod de Extensione seu diffusionem materiae continua dici nequit.

non; 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. And your transubstantiation must be located in the change of this, for monads are not really ingredients of this added thing, but requisites, although they are required for it not by an absolute and metaphysical necessity, but only by exigency.<sup>3</sup> Consequently, although the substance of the body is changed, the monads can be saved, along with the sensible phenomena founded on them. A nonmodal accident seems difficult to explain, and I do not accept this in the case of extension. It can be said that, although monads are not accidents, nevertheless it is an accident of the unifying substance that it has them (by a physical necessity), just as it is an accident of a body that it is struck by a body, when nevertheless a body is not an accident. The extension of body seems to be nothing but the continuation of matter through parts outside of parts, that is, diffusion. Yet, if the “outside of parts” ceases supernaturally, the extension that is an accident of body will cease also. Then there will remain only extension as a phenomenon founded on monads, along with the other things which result from them, and which would alone exist, if there were no unifying substance. If that substantial bond of monads were absent, 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. And a monad, like a soul, is, as it were, a certain world of its own, having no relationship of dependence except with God. Therefore, if a body is a substance, it is the realization of phenomena going beyond their agreement.

But if you do not want these eucharistic accidents to be in any way mere phenomena, it could be said that they are grounded in something that is accidental and primary, not of course in extension, which cannot endure, but in points of this extension corresponding to monads, with the union that makes a continuum from the points removed and, so, with continuous lines and figures removed. But qualities and other real accidents would remain by virtue of the enduring accidental points, though without continuity, which depended upon the unifying reality or substantial bond and which ceased with the cessation of its diffusion through parts outside of parts. Thus, accidental points can be considered primary accidents, which are the basis of the rest, and are in some way nonmodal, which cannot be said of extension or the continuous diffusion of matter.

Imo re magis expensa video jam et ipsam Extensionem salvari, atque adeo Tuam vestra explicandi sententiam admitti posse, si quis phaenomena nolit. Nam ut puncta accidentalia admitti possunt; ita poterit etiam, imo fortasse tunc debebit admitti eorum unio. Ita habemus Extensionem accidentalem absolutam. Sed talis extensio formaliter quidem dicitur diffusionem partium extra partes, id autem quod diffundetur non erit materia seu substantia corporis formaliter sed tantum exigentialiter. Ipsum autem Formale quod diffunditur erit localitas, seu quod facit situm, quod ipsum opus erit concipere tanquam aliquid absolutum. Itaque jam credo non pugnabimus, modo monades mutationi illi substantiae corporis supernaturali non involvas; praeter ullam necessitatem, cum eam ut dixi non ingrediuntur. Uti etiam secundum vos ipsos Anima Christi in Transsubstantiatione non mutatur, nec succedit in substantiae panis locum. Idem dixerim de caeteris Sanctissimi corporis monadibus. Interim ut verum dicam mallem Accidentia Eucharistica explicari per phaenomena; ita non erit opus accidentibus non modalibus, quae parum capio.

Subtiliora paulo sunt quaedam, quae de Deo optima eligente Ruizius et Martinus Perezius vester habent, et indigerent interpretatione: in summa tamen a meis non valde abhorrere videntur. Itaque multas pro communicatione gratias ago.

Ago etiam plurimas pro Meldensis Episcopi instructione pastoralis, quam percurri, et subtilem profundamque deprehendo. Illud vereor, ne plurima, quae in Jansenio reprehenduntur, sint ipsius Augustini, qui ipsemet etiam miram illam interpretationem habet, quod Deus non velit salvare singula generum, sed genera singulorum.

Titulum tentaminum Theodicaeae nisi aliter judicas, servari posse putem; est enim Theodicaea quasi scientiae quoddam genus, doctrina scilicet de justitia (id est sapientia simul et bonitate) Dei.

Quenam est illa tandem definitio Romana causae Sinensis, de qua multum sermonem esse intelligo, et cui se vestri Romae submittere? Si Turnoniana decreta confirmantur sine moderatione, et nisi curia Romana rem artificio aliquo involvit, vereor ne Sinensis missio pessum eat, quod nolim. Nescio an R. P. Turnemino significaveris me Annales molientem

Indeed, after fuller consideration, I see now that extension itself is saved, and thus your way of explaining your view can be admitted, if one objects to phenomena. For just as accidental points can be admitted, so we could also admit their union;<sup>4</sup> indeed perhaps then we shall have to do so. In that case, we shall have an absolute accidental extension, and such an extension formally will indeed be called a diffusion of parts outside of parts, but that which is diffused will be the matter or substance of body not formally but only exigently. The formal element itself that is diffused will be locality, or that which produces situation, which itself will have to be conceived as something absolute. And so now, I believe, we shall not be at odds, provided you do not involve monads in the supernatural change of the substance of a body, for which there is no necessity, since, as I have said, they are not ingredients of it—just as, even according to your church, the soul of Christ is not changed in transubstantiation and does not take the place of the substance of the bread. I should say the same thing about the other monads of the most sacred body. Nevertheless, to tell the truth, I should prefer that the eucharistic accidents be explained through phenomena; in this way, there will be no need for nonmodal accidents, which I do not sufficiently understand.

Some of the views held by Ruiz and Martin Perez of your order concerning God's choice of the best are rather subtle and would require interpretation.<sup>5</sup> Nevertheless, on the whole, they do not seem to differ greatly from my own. For that reason, I am very grateful to you for sharing them with me.<sup>6</sup>

I am also very thankful for the pastoral instruction of the bishop of Meaux,<sup>7</sup> which I briefly scanned, and which I find subtle and profound. I fear that many of the things reproved in Jansen are due to Augustine himself, who even has the remarkable interpretation that God does not will to save individuals of different kinds, but kinds of individuals.<sup>8</sup>

Unless you decide otherwise, I believe *Essays on Theodicy* can be kept as the title; for theodicy is like a certain kind of science, namely the doctrine of the justice (that is, of the wisdom together with the goodness) of God.

What is the decision from Rome, finally, regarding the Chinese affair, about which I understand there to have been much discussion, and to which your members in Rome have submitted themselves? If Tournon's decrees are confirmed without being moderated, and if the Roman curia does not veil the matter with some cunning, I fear the Chinese mission may be lost, which I do not want. I do not know whether you have indicated to Father Tournemine that, in the composition of the *Annals*, I have

inde ab initio regni Caroli M. jam Carolingos ultra, usque ad Saxones Reges vel Imperatores pervenisse: qua occasione etiam papissam discutiendi necessitas fuit. Quodsi R. P. Daniel in suis quos sub manibus habet Francorum Annalibus, huc usque etiam processit; in multis credo convenimus, et si qua superessent dubia, possemus conferre. Chronologiam sic satis constituisse mihi videor. Quod superest vale et fave. Dabam Hanoverae 15 Febr. 1712.

deditissimus

Godefridus Guilielmus Leibnitiuſ

P.S. Venit aliquando in mentem optare, ut virorum vestrae Societatis in rebus Mathematicis versatorum ope observationes Variationis Magneticae per orbem, continuato annorum studio collataque opera instituerentur, quia res summi est momenti ad Geographiam et Navigationes; et a nullis aliis commodius fieri posset. Post Gilbertum Anglum qui primus hujus doctrinae fundamenta posuit, nemo melius de Magneticis observationibus meritus est, quam vestri quorum etiam justa opera extant; Cabaeus, Kircherus, Leotaudus alii. Quodsi vestri per orbem inde a Kircheri temporibus quotannis, ubicunque Mathematicum periti agunt, sive fixis sedibus, sive in itineribus, observassent quanam sit tam Declinatio Horizontalis, quam inclinatio verticalis Magnetica, et observationes in literas retulissent; haberemus hodie Thesaurum observationum ex quibus fortasse jam tum conjici ac praedici posset, saltem in aliquot annos, quae in plurimis locis debeat esse variatio. Unde observata variatione in medio mari, conjunctaque cum poli elevatione haberi locus posset; et tandem erui limites, periodi, leges variationis, et fortasse etiam ratio tanti arcani. Nihil autem prohibet quod hactenus neglectum est, adhuc curari et saltem consuli posteritati, uti arbores venturis plantamus; saltemque prohibere ne aliquis post multos annos de praesente neglectu queri jure possit, ut nos nunc de praeterito querimur. Itaque propemodum audeo a Te petere, ut rem ad R<sup>mum</sup>. Patrem Ptolemaeum (cum multa a me salute) deferas, ejusque consilium expetas.

[Supplementary Study]

Si corpora sunt phaenomena, et ex nostris apparentiis aestimantur, non erunt realia; quia aliter aliis appareant. Itaque realitas corporum, spatii,

reached from the beginning of the reign of Charlemagne, past the Carolingians, to the Saxon kings or emperors—at which point it was also necessary to destroy the myth of the popess.<sup>9</sup> But if the Reverend Father Daniel has also advanced to this point in the annals of the French on which he is working, then I believe we shall agree on many things, and if any doubts remain, we could confer on them.<sup>10</sup> It seems to me that in this way we shall have sufficiently established the chronology. For the rest, farewell and think kindly of me. From Hanover, 15 February 1712.

Most faithfully,

Gottfried Wilhelm Leibniz

P.S. It occurred to me once to wish that, with the help of members of your society who were trained in mathematics, observations of the magnetic variations around the Earth might be organized. These variations would be monitored continuously over the years and collected in books, because the matter is of the greatest importance for geography and navigation, and it could not be done more easily by others. After the Englishman Gilbert, who first laid down the foundations of magnetic theory, no one has contributed more to magnetic observations than your members, Cabeil, Kircher, Léotaud, and others, from whom solid works have also appeared.<sup>11</sup> And if your members, at the annual intervals recommended by Kircher, had made observations around the Earth wherever those trained in mathematics are living (whether in fixed locations or on voyages) of both the magnetic horizontal declination and the vertical inclination, and had related the observations in letters, we would today have a repository of observations, from which it could perhaps then already be conjectured and predicted, at least for several years, what the variations should be in many places. From this, when the observed variation in the middle of the ocean was added, together with the elevation of the pole, the position could be known; and finally, we could uncover the limits, periods, and laws of the variation, and perhaps even the explanation of so great a mystery. But nothing prevents what has been neglected thus far from being a concern, or at least an object of reflection, for posterity; just as we plant trees for future generations, or at least take precautions lest anyone many years henceforth could with justice complain about the neglect of the present as we now do about that of the past. For this reason, I almost dare to ask you to bring the matter up with the Most Reverend Father Tolomei (along with a warm greeting from me) and to request his advice.

[Supplementary Study]<sup>12</sup>

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

motus, temporis, videtur consistere in eo ut sint phaenomena Dei, seu objectum scientiae visionis. Et inter corporum apparitionem erga nos et apparitionem erga Deum discrimen est, quodammodo quod inter scenographiam et ichnographiam. Sunt enim scenographiae diversae pro spectatoris situ, ichnographia seu geometrica repraesentatio unica est; nempe Deus exacte res videt quales sunt secundum Geometricam veritatem; quamquam idem etiam scit quomodo quaeque res cuique alteri appareat, et ita omnes alias apparentias in se continet eminenter.

Porro Deus non tantum singulas monades et cujuscunque Monadis modificationes spectat, sed etiam videt earum relationes, et in hoc consistit relationum ac veritatum realitas. Ex his una ex primariis est duratio, seu ordo successorum, et situs seu ordo coexistendi, et commercium, seu actio mutua, dum nempe concipitur Monadum dependentia invicem idealis; situs autem immediatus est praesentia. Ultra praesentiam et commercium accedit connexio, quando invicem moventur. Per quae res nobis unum facere videntur, et revera veritates de toto pronuntiari possunt, quae etiam apud Deum valent. Sed praeter has relationes reales, concipi una potest perfectior per quam ex pluribus substantiis oritur una nova. Et hoc non erit simplex resultatum, seu non constabit ex solis relationibus veris sive realibus, sed praeterea addet aliquam novam substantialitatem seu vinculum substantiale, nec solius divini intellectus, sed etiam voluntatis effectus erit. Hoc additum monadibus non fit quovis modo, alioqui etiam dissita quaevis in novam substantiam unirentur, nec aliquid oriretur determinati in corporibus contiguus; sed sufficit eas unire monades, quae sunt sub dominatu unius seu quae faciunt unum corpus organicum, seu unam Machinam naturae. Et in hoc consistit vinculum metaphysicum animae et corporis, quae constituunt unum suppositum et huic analogia est unio naturarum in Christo. Et haec sunt quae faciunt unum per se, seu unum suppositum.

Res sunt aut concreta aut abstracta. Concreta sunt substantiae aut substantiata. Omnis substantia vivit. Substantiae sunt simplices aut compositae. Substantiae simplices seu Monades sunt intelligentes vel irracionales. Intelligentes dicuntur Spiritus et sunt vel increatus vel creatus. Creatus est vel Angelicus vel humanus, qui et Anima appellatur. Rursus Monades in-

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.<sup>13</sup> 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 thing appears to every other, and thus he contains in himself eminently all the other appearances.

Moreover, God not only considers single monads and the modifications of any monad whatsoever, but he also sees their relations, and the reality of relations and truths consists in this.<sup>14</sup> Foremost among these relations are duration (or the order of successive things), situation (or the order of co-existing),<sup>15</sup> and intercourse (or reciprocal action), admittedly provided that the ideal dependence of monads on one another is conceived; but immediate situation is presence. In addition to presence and intercourse, connection is added when they are moved with respect to one another. Through these [relations], things seem to us to form a unity, and truths in fact can be expressed concerning the whole that are also valid according to God. But over and above these real relations, a more perfect relation can be conceived through which a single new substance arises from many substances. And this will not be a simple result, that is, it will not consist in true or real relations alone; but, moreover, it will add some new substantiality, or substantial bond, and this will be an effect not only of the divine intellect but also of the divine will. This addition to monads does not occur in just any way; otherwise any scattered things at all would be united in a new substance, and nothing determinate would arise in contiguous bodies. But it suffices that it unites those monads that are under the domination of one monad, that is, that make one organic body or one machine of nature. And in this consists the metaphysical bond of soul and body, which constitute one complete substance, and an analogy to this is the union of natures in Christ. And these are the things that make a per se unity or one complete substance.

Things are either concrete or abstract.<sup>16</sup> Concrete things are either substances or substantiated. All substances are living. Substances are either simple or composite. Simple substances or monads are either intelligent or nonrational. Intelligent monads are called spirits and are either uncreated or created. A created spirit is either angelic or human, which is also called a soul. Again, monads can be understood to be either separated, like God

telligi possunt separatae, ut Deus, et quorundam ex sententia Angelus; vel accorporatae, seu Animae, et sunt nobis notae Anima rationalis et irrationalis. Monades irrationales sunt vel sentientes vel tantum vegetantes. Substantiae compositae sunt quae unum per se constituunt ex anima et corpore organico quod est Machina naturae ex Monadibus resultans. Substantiata sunt aggregata sive naturalia sive artificialia, connexa vel inconnexa. Plures substantiae possunt constituere unum suppositum, imo et plura substantiata, corporis aut substantiae cum substantiatis, v.g. animae cum organis corporis. Res abstractae sunt absolutae aut respectivae, absolutae essentiales aut adjectitiae. Essentiales sunt primitivae ut vis activa et passiva; vel derivativae seu affectiones quae prioribus non nisi relationes addunt. Adjectitiae sunt per se seu naturales (quod res exigit et habet nisi impediatur) vel quae tribuuntur per accidens. Et tales sunt modificationes, nempe qualitates et actiones. Respectivae sunt relationes. Sunt quaedam entia composita ex abstractis praecedentibus, velut ex essentialibus, naturalibus, modificationibus, relationibus, ita erunt accidentia aggregata.

Termini latius patent quam res, nam eidem rei plures termini tribuuntur, veluti Homo est doctus, prudens, ridens.

Cur homo magis substantia quam doctus; aut cur animal magis substantia quam rationale. Nempe rem involvit, ut si dicam Animal id est res animalis, Rational id est res rationalis. Sed haec non omnibus tribui solent, nec ex omnibus facimus vocabula substantiva, etsi possemus pro Albus facere albion id est res alba. Sed an Albion in praedicamento substantiae? Non putem, neque enim omnia quae subjecto albo tribui possunt sunt modificationes albedinis, sed quae homini sunt modificationes humanitatis. NB.

### Des Bosses to Leibniz

Illustrissime vir Patrone Colendissime

Nunc demum respondeo litteris Tuis mense Febuario ad me datis, quae tanto gratiores fuere quanto prolixiores. Incipio a quaestione de corporibus, quam in Tuis maxima cum satisfactione perlegi, nec minore cum attentione meditatus sum. Ais alterutrum dicendum; vel corpora mera esse

a translation. For this reason I judged that a freedom was given to me as author, which another might not have assumed for himself to the same degree, of changing a sentence and the meaning itself here and there, so that the Latin would be brought nearer to the idea of the original.

Mr. Cornelius van den Driesch of Cologne has been here with me; he is a former member of your order, who esteems you most highly. He has sent me his poems, many of which are not to be disparaged.<sup>2</sup>

How is the Reverend Father Orban? I hope he is alive and enjoying the summer. What did Hartsoeker say in response? I wish that the most eminent Tolomei might find enough leisure in the office of cardinal that he could complete the work of the cardinal whose undertaking he has assumed for himself, I mean Bellarmine.<sup>3</sup>

What of the Chinese? Could they have sent any new decrees to Rome? I truly confess that I am amazed by plans in the Roman curia more than I understand them.

I scarcely know whether my latest response concerning the unification of monads<sup>4</sup> will have pleased you. I fear that the things I have written you at different times on the subject may not agree well enough with one another, since I certainly have not treated this argument concerning the raising of phenomena to reality, that is, composite substances, except on the occasion of your letters.

I received from an unknown person a copy of the French edition of my *Theodicy*. I owe a great deal to Tournemine, for it was as a consequence of his praise that my little book became better known in France. There are some outstanding men there among whom my system is quite highly regarded. I wish you had time to reduce my entire metaphysics for me to the form of a textbook; I treated the *Theodicy* methodically in this way in a short Latin tract at the end, since at that point it became permissible finally to lay out the entire form of the argument to be examined in a table.<sup>5</sup>

For the rest, farewell and think kindly of me. From Hanover, 30 June 1715.

Most faithfully,  
Gottfried Wilhelm Leibniz

### 68. Des Bosses to Leibniz<sup>1</sup>

[Cologne, 20 July 1715]

Most Distinguished Sir, Most Esteemed Patron,

I received late and am sending even later the response of the excellent Hartsoeker; "second thoughts are, I suppose, wiser."<sup>2</sup>

Ut aliquid ad postrema Tua reponam: Tecum sentio si quod in corpore vinculum reale a monadibus plusquam modaliter distinctum detur aut possibile sit, oportere ut detur aut possibilis sit unitorum in ipsum influxus, alioquin, ut ais, non erit cur vinculum eorum dici possit. Sentio pariter opus non esse ut vinculum illud ponatur nisi in corporibus quae habent monada dominantem seu quae sunt unum per se, ut organica, cui monadi seu toti semper adhaereat vinculum. Monades ergo influent in illud realizans, ipsum tamen in illarum legibus nihil mutabit, cum quidquid modificationum habet, ab illis habeat quasi Echo, ut tute ipse explicas.

Verum ex his ipsis colligere posse videor quod vinculum illud quantumvis reale non possit esse substantiale. Substantiale enim (saltem quod modale non est) statuis esse virtutem sive principium actionis quod non videtur convenire reali illi vinculo, cuius modificationes se habent instar Echus. Porro si semel detur vinculum illud non esse substantiale, confecta res est, et plana ad explicandam μετουσίωσιν via sternitur. Nec video cur possibile non sit reale aliquod, quod substantiale non sit. Si autem possibile est, a Deo utique in rerum productione neglectum non est, ne vacuum formarum, ut vocant, admittamus.

Ad alterius argumenti mei solutionem, mihi non improvisam, duo regero.

Ac primo quidem, etiam praescindendo a Dei existentia sapientiaque videmur iudicare posse plusquam probabiliter, quod creaturae aliae a nobis existunt.<sup>DB1</sup> Memini me olim communicasse tecum aliquas propositiones nostris in scholis prohibitas a Michaelae Angelo Tamburino qui hodie Societati nostrae praeest. Earum aliquas ad rem praesentem facientes juvat hic subijcere.

1<sup>a</sup> Mens humana de omnibus dubitare potest ac debet, praeterquam quod cogitet.

2<sup>a</sup> Reliqua non prius nobis certa et explorata esse possunt, quam clare innotuerit Deum existere, summeque bonum esse, non fallacem qui mentem nostram inducere in errorem velit.

3<sup>a</sup> Ante certam notitiam divinae existentiae dubitare semper quisque posset ac deberet, an non talis naturae conditus fuerit ut in omni iudicio

DB1. IN MARGIN: An enim Atheum negabis habere scientiam existentiae sui corporis?

To bring up something in your last letter,<sup>3</sup> I agree with you: if any real bond in a body is, or may possibly be, more than modally distinct from the monads, then it will have to be the case that there is, or may possibly be, an influence of the unities on it; otherwise, as you say, there will be no reason for it to be called their bond. Likewise, I think that it is not necessary that this bond be posited except in bodies that have a dominant monad, or that are per se unities, like organic bodies, in which the bond always adheres to this monad or to the whole. Therefore, the monads will have an influence on that realizing thing, but it itself will change nothing in their laws, since whatever modifications it has, it has from them as an echo, as you yourself explain.

But I seem able to conclude from these arguments that this bond, however real, could not be substantial. For you state that what is substantial (or at least what is not modal) is a power or a principle of action, which does not seem to apply to this real bond, whose modifications are regarded as an echo. Furthermore, if it is once conceded that this bond is not substantial, the issue is settled, and a clear way of explaining transubstantiation is opened. Nor do I see why it is not possible for something to be real that is not substantial. But if it is possible, it certainly was not something that God overlooked in the production of things; otherwise we would have to admit what is called a vacuum of forms.<sup>4</sup>

As for the response to my other argument, which was not unforeseen, I have two rejoinders.

First, even when we abstract from God's existence and wisdom, we seem to be able to judge it more than probable that created things other than us exist.<sup>DB1</sup> I remember having sent to you a while back some propositions prohibited in our schools by Michelangelo Tamburini, who presides over our society today.<sup>5</sup> It is helpful to set down here some of those that deal with the issue at hand.

1. The human mind can and should doubt everything except that it thinks.

2. Nothing else can be certain and settled for us before it has become known clearly that God exists and is supremely good, not a deceiver who wishes to lead our mind into error.

3. Prior to the certain knowledge of divine existence, each person can and should always doubt whether he has not been created with such a na-

DB1. IN MARGIN: For will you deny that an atheist has knowledge of the existence of his own body?

suo fallatur, etiam in iis quae certissima et evidentissima ipsi apparent.

5<sup>a</sup> Non nisi per fidem divinam certo cognoscere quisquam potest quod aliqua extent corpora, ne suum quidem.

2<sup>dum</sup> pertinet ad sapientiam divinam de qua aliquid in argumento meo obiter innuebam, quod non observasti, intactum certe reliquisti. Hoc ut explicem quaero an sit possibile nec ne systema quodpiam praesenti mundo quoad omnia phaenomena simile, in quo substantiae agant in se mutuo? Si negas, ostende implicantiam; si ais, jam sic argumentor: Convenientius divinae sapientiae fuisse videtur, hujusmodi systema eligi prae altero ex meris monadibus in se invicem non influentibus composito. Ergo Deus revera illum, non hunc condidit. Consequentia tenet in principiis Tuis: antecedens vero sic suadeo: In systemate Harmoniae praestitutae tota divinae sapientiae Architectonicae ratio (saltem si in naturalibus haereamus) consistit in delectu materiae operis; in systemate autem communi versatur etiam circa operis formam ac compositionem a delectu ipso materiae distinctum, ita ut dici possit: *Materiam superabat opus*. Atqui hoc postremum praestantius et infinita sapientia dignius videtur. Quod ut exemplis illustrem: Quaero rursus: Uter Architectus majorem in arte sua sapientiae laudem merebitur; an is cujus ars tota staret in eo quod lapides non modo quadros dumtaxat deligeret, sed etiam ita sibi mutuo ex natura sua attemperatos, ut eo ipso quo locum in unum comportantur sine ulteriori architecti aut fabri industria magnificentissimum ex iis palatium exurgeret, uti ad Amphionis lyram Thebanos muros extitisse narrant poetae; an potius ille qui ex saxis natura quidem sua rudibus, nec ita harmonice sibi respondentibus sed ab artifice aptatis, et loco ac tempori attemperatis aequè pulchrum palatium construeret? Aliud exemplum: uter poeta cedro dignior? an qui poema conflaret e meris V.G. dactylis ita constitutis, ut hoc ipso quo in cartam conjicerentur simul, pulcherrimum melos exhiberent; an potius ille qui Homeri aut Maronis instar materiam rudem adhuc et indigestam industria sua in formam redigeret elegantia et proportione non impari priori?

Unum addo pro auctario: Monades illae, quae ex propria penu et sine physico unius in aliam influxu habent omnes modificationes suas, gratis poni videntur perinde ac gratis poneretur aliqua qualitas scholastica cujus

ture that he is deceived in all his judgments, even in those that appear most certain and most evident to him.

5. Only through divine faith can anyone know with certainty that any bodies exist, even his own.

The second rejoinder pertains to divine wisdom, about which I suggested something in passing in my argument that you did not see and clearly left untouched. In order to explain this, I ask whether or not it is possible for there to be a system similar to the present world as far as all the phenomena are concerned in which substances act mutually on each other. If you deny this, show how it follows; if you say that it is possible, then I draw the following conclusion: it seems that it was more fitting to divine wisdom that a system of this kind be chosen over another composed out of mere monads that do not have any influence on one another. Therefore, God in fact created that world, not this one. The consequence holds by your principles. I argue for the antecedent as follows: in the system of preestablished harmony the entire basis of the architectonic of divine wisdom (at least if we stick to natural things) consists in the choice of the matter of the work; but in the common system it concerns also the form and composition of the work, distinct from the choice itself of the matter, so that it could be said, "The workmanship surpassed the matter."<sup>6</sup> And the latter seems more excellent and more worthy of infinite wisdom. Now, so that I may illustrate this with examples, I ask again: Which architect will deserve greater praise for the wisdom in his art, he whose complete art consisted in this, that he simply picked out the stones that were not only already square but also so naturally fitted to one another that by the very fact that they were gathered in one place, without a further architect or the industry of a worker, the most magnificent palace arose from them, as the poets tell of the Theban walls rising by the lyre of Amphion;<sup>7</sup> or rather he who, from large stones, naturally rough and not proportioned to each other, but adapted by artifice and coordinated in time and place, built an equally beautiful palace? Another example: Which poet is more worthy of immortality, he who composed a poem, for example, from pure dactyls so arranged that, from the very fact they were placed on paper at the same time they produced very beautiful sounds; or rather he who, like Homer or Virgil, by his industry reduced the previously rough and confused matter to a form with an elegance and proportion not inferior to the previous case?

I add one ancillary point. It seems gratuitous to posit these monads, which have all their perceptions from their own stores and without a physical influence of one on another, just as it would be gratuitous to posit

natura esset produci et producere omnes effectus V.G. caloris independenter a mechanismo, et concursu reliquorum corporum ambientium etc. cujusmodi qualitatis philosophi recentiores exhibere solent. Sed de his hactenus.

Aveo intelligere quid sperandum sit de editione Operis Tui Historici et an auctarium illius futura sit dissertatio de Joanna Papissa?

Scribit ad me Turnaminus noster, neminem hactenus extitisse in Gallia qui adversus Theodicaeam aliquid proferret.

Jussus sum a majoribus in latinam linguam convertere librum non adeo magnum cui titulus: Lettres d'un Abbé à un Eveque où l'on demontre l'équité de la constitution *Unigenitus* etc., et qui peuvent servir de reponse aux libelles qui ont paru contre cette constitution. Autor illius fertur esse Pater *Alemannus* noster. Versio jam confecta nundinis proximis Francofurtensibus lucem videbit.

Elaboratur Parisiis liber magni momenti in refutationem Hexaplorum Quesnelli, constans duobus tomis in 4°.

Item colliguntur in unum mandata pastoralia omnium Episcoporum Galliae hactenus edita circa propositiones Quesnellianas. Vale vir Illustrissime. Dabam Coloniae 20 Julii 1715.

Illustrissimae Dominationi tuae  
Devotissimus  
Bartholomaeus Des Bosses

### Leibniz to Des Bosses

R<sup>me</sup> Pater Fautor Honoratissime

Acutae sunt instantiae Tuae, atque ideo cum voluptate ad eas respondeo, nam et me docent et rem illustrent. Incipiam a parte posteriore. Maxima verisimilitudine judicamus nos non solos existere, non tantum ex principio Divinae Sapientiae, sed etiam ex principio illo communi quod passim inculco, quod nihil fit sine ratione, nec ratio apparet, cur tot possibilibus aliis nos soli praeferamur. Alia autem quaestio est an corpora sint substantiae. Licet enim corpora substantiae non essent tamen omnes homines proni erunt ad judicandum corpora esse substantias, ut omnes proni sunt ad judicandum tellurem quiescere, etsi revera moveatur.

some Scholastic quality whose nature it would be to be produced and to produce all the effects, for example, of heat, independently of mechanism and the collision of the rest of the surrounding bodies, etc. This is the kind of quality that modern philosophers usually hiss at. But enough of these things.

I am eager to know what we can hope for in connection with the publication of your historical work and whether anything further is going to happen with the dissertation on the popess Joan.<sup>8</sup>

Our Tournemine wrote to me that so far no one has appeared in France who is publishing anything against the *Theodicy*.

I have been asked by many people to translate into Latin a book that is not very long, entitled *Letters from an Abbot to a Bishop, in which the fairness of the bull Unigenitus is shown and which can serve as a response to the libels that have appeared against this bull*.<sup>9</sup> The author of this book is reported to be our Father Alemanni. The translation, which is now finished, will appear at the next Frankfurt book fair.

In Paris a book of great importance is being prepared as a refutation of the *Hexaples* of Quesnel; it consists of two volumes in quarto.<sup>10</sup>

In addition, the pastoral letters that have been published so far by all the French bishops concerning the propositions of Quesnel are being collected into one book.<sup>11</sup> Farewell, most distinguished Sir. From Cologne, 20 July 1715.

Your Excellency's most devoted  
Bartholomew Des Bosses

### 69. Leibniz to Des Bosses<sup>1</sup>

[Hanover, 19 August 1715]

Most Reverend Father, Most Honored Supporter,

Your criticisms are shrewd, and so I respond to them with pleasure, for they both teach me and illuminate the matter. I shall begin with the latter part [of your reply]. We judge with the greatest probability that we do not exist alone, not only from the principle of divine wisdom, but also from that common principle upon which I generally insist: that nothing happens without a reason; and there does not appear to be a reason why we alone should be preferred over so many other possible beings. But it is another question whether bodies are substances.<sup>2</sup> For even if bodies were not substances, nonetheless all men will be inclined to judge that bodies are substances, just as they are all inclined to judge that the Earth is at rest, even though it is really in motion.

Propositiones a praeposito generali Tamburino prohibitas mihi a TE communicari non memini, hae quas nunc communicas, videntur Cartesio oppositae, et mihi satis probantur, quintam ponis, quartam omisisti. Omnes nancisci gratum erit. Honoratus Fabrius in Epistola quadam edita recensuit prohibitas tunc cum ipse floreret.

Non credo systema esse possibile, in quo Monades in se invicem agant, quia non videtur possibilis explicandi modus. Addo et superfluum esse influxum, cur enim det monas monadi quod jam habet? Nempe haec ipsa natura substantiae est ut praesens sit gravidum futuro; et ut ex uno intelligi possint omnia, saltem ni Deus miraculo intercedat.

Ad similitudinem Tuam fateor majori arte agere architectum qui lapides recte componat, quam qui lapides tam doctos aliunde nactus sit, ut ipsi tantum comportati semet in ordinem redigant. Sed vicissim credo fatebere, infinities artificiosiore fore architectum, qui lapides tam doctos fabricare possit.

Addis pro auctario: monades quae ex propria penu habeant modificationes poni gratis, ut gratis ponitur calor agens sine mechanismo. Hoc non auctarium est, sed primum. Si ita sentis nobis ad initia redeundum est, quasi nihil scripsissem. Caeterum monades omnia ex penu sua ducunt, non ut calor scholasticus, ἀπρήτως suos effectus producit, sed mechanismo quodam eminente, ut sic dicam, qui fundamentum est et concentratio mechanismi corporei, ita ut modus quo unum ex aliquo sequitur explicari possit.

Haec merito praemisi, nam si nullae sunt monades, quales concipio, frustra de earum vinculo deliberamus. Nunc ad quaestionem venio, utrum hoc vinculum, si datur, sit aliquid substantiale. Ita mihi visum est, et alioqui inutile iudico, quomodo enim alias substantiam compositam faciet, cujus gratia unice introducit? Sed objicis *primo* non esse principium actionis, cum sit instar Echus. Respondeo etiam corpus Echo reddens est principium actionis. Hoc vinculum erit principium actionum substantiae compositae; et qui eam admittit (ut facit ni fallor omnis schola) etiam hoc vinculum admittet. Nonne schola hactenus principia substantialia compositi unum per se constituentis agnovit per quae partes uniantur? Cur ergo nobis negaret?

I do not recall your having sent me the propositions prohibited by Superior General Tamburini; the ones that you send now seem opposed to Descartes, and I approve of them well enough. You quoted the fifth proposition, but omitted the fourth. I should be grateful to receive them all. Honoré Fabri, in some published letters, reviewed the prohibitions in effect when he was active.<sup>3</sup>

I do not believe that a system is possible in which monads act mutually on each other, since there seems to be no possible way to explain this. I add that the influence is also superfluous, for why should a monad give to a monad what it already has? Certainly, it is in the very nature of substance that the present is pregnant with the future, and that everything can be understood from one thing, at least unless God intervenes with a miracle.

In response to your analogy, I admit that an architect who arranges stones correctly acts with greater art than one who stumbles upon stones that were so well cut by another that, when merely collected, they impose an order on themselves. But, on the other hand, I believe you will admit that the architect who could make stones that were so well cut is infinitely more skillful.

You add as an ancillary point: monads that have their modifications from their own stores are posited gratuitously, as heat acting without a mechanism is posited gratuitously.<sup>4</sup> This is not an ancillary point, but a primary one. If you think it is ancillary, we will have to go back to the beginning, as if I had written nothing. Besides, monads draw everything from their own stores, not as the Scholastic heat mysteriously produces its effects, but by a certain eminent mechanism, so to speak, which is the foundation and a concentration of corporeal mechanism, in such a way that it can be explained how one thing follows from another.

I presupposed this with good reason; for if there are no monads such as I conceive, we shall deliberate in vain about their bond. Now I come to the question whether this bond, if it exists, is something substantial. It seems so to me; otherwise I judge it to be useless; for how else will it make a composite substance, the one reason for which it is introduced? But you object, first, that it is not a principle of action, since it is like an echo. I respond that a body returning an echo is still a principle of action. This bond will be the principle of action of the composite substance; and he who admits this composite substance (as all the schools do, unless I am mistaken) will also admit this bond. Have not all the schools until now recognized substantial principles of a composite constituting a per se unity, through which parts are united? Why then deny it to us?

Ais non videre TE, cur non possit aliquid Reale esse, quod *substantiale* non sit. Hic forte de nomine litigamus. Potest *substantiale* dici quicquid modificatio non est, modificatio autem essentialiter connexa est ei cuius est modificatio. Itaque modificatio non potest esse sine subjecto, verbi gratia sessio sine sedente: potest tamen etiam aliter *substantiale* definiri ut sit *fons modificationum*. Hoc posito quaeri potest, an possit res dari, quae neque sit modificatio, neque fons modificationum, qualia accidentia Scholastici concipiunt, quae dicunt esse naturaliter in subjecto, non tamen essentialiter, cum per absolutam Dei potentiam possint esse sine subjecto. Sed nondum video quomodo tale quid explicari possit; si differt a meo vinculo substantiali, quod revera in subjecto est, non tamen ut accidens sed ut forma substantialis apud scholam, seu ut fons modificationum, licet per modum Echus. Itaque nescio an detur accidens praedicamentale realiter distinctum a subjecto, quod non sit accidens praedicabile; et an detur accidens praedicabile quod non sit modificatio; quemadmodum jam dubitavi an detur accidens praedicamentale distinctum a subjecto quod modificatio non sit. Nisi quis velit substantiale compositi accidens tale facere, quia non est fons primitivus, sed Echo. Sed ita nescio an sustinere possimus substantiam compositi, nisi velimus eam resultare ex accidentibus. Quomodo vero tunc possit a vobis explicari μετουσίωσις non video. Malim ergo dici superesse quidem non substantias sed species, eas autem non esse illusorias, ut somnium aut ut gladius ex speculo concavo in nos porrectus aut ut Doctor Faustus comedebat currum foeno plenum, sed vera phaenomena, id est eo sensu ut iris vel parelium est species, imo ut secundum Cartesianos, et secundum veritatem colores sunt species. Et potest dici Entia composita quae non sunt unum per se, seu vinculo substantiali (sive ut Alfenus ICTus in digestis more Stoicorum loquitur) uno spiritu non continentur, esse semientia; aggregata substantiarum simplicium; ut exercitum, domum, lapidem esse semisubstantias; colores, odores, sapes etc. esse semiaccidentia. Haec omnia si solae essent monades, sine vinculis substantialibus, forent mera phaenomena, etsi vera.

Porro hoc ipsum: *monades habere* vel tales habere Monades, est naturale quidem, non tamen essenziale, sed accidentale substantiae compositae. Nam fieri potest ut per absolutam Dei potentiam cesset esse Echo et

You say that you do not see why something cannot be real that is not “substantial.” Here perhaps we are quarreling over words. Whatever is not a modification can be said to be “substantial,” but a modification is essentially connected to that of which it is a modification. Thus, a modification cannot be without a subject, for example, sitting without a sitter. But “substantial” can also be defined in a different way, as “a source of modifications.” With this assumed, it can be asked whether there could be a thing that is neither a modification nor a source of modifications, such as the accidents the Scholastics conceive, which they say are naturally in a subject, but not essentially, since through the absolute power of God they could be without a subject. But I do not yet see how such a thing can be explained, if it differs from my substantial bond, which in fact is in a subject, though not as an accident, but as a substantial form according to the schools, that is, a source of modifications, though in the manner of an echo. And so I do not know whether there is a predicamental accident really distinct from the subject that is not a predicable accident, and whether there is a predicable accident that is not a modification, just as I have already questioned whether there is a predicamental accident distinct from the subject that is not a modification, unless someone claims that such an accident makes a substantial thing of the composite, since it is not a primitive source but an echo.<sup>5</sup> And in the same way I do not know whether we can maintain the substance of a composite, unless we claim that it results from accidents. But, then, I do not see how you can explain transubstantiation. I should therefore prefer to say that no substances remain, only appearances, but that these are not illusory, like a dream, or like a sword pointing at us from a concave mirror, or like Doctor Faustus devouring a whole cart of hay; but rather they are true phenomena, that is, in the sense that a rainbow or parhelion is an appearance, indeed, in the sense that, according to Cartesians, and according to the truth, colors are appearances. And it can be said that composite entities that are not *per se* unities, or that are not held together by a substantial bond or (as the lawyer Alfenus, in the manner of the Stoics, says in his *Digests*)<sup>6</sup> by one spirit, are semi-beings; aggregates of simple substances, like an army, a house, or a heap of stones, are semi-substances; colors, odors, tastes, and so on are semi-accidents. All these things, if there were only monads without substantial bonds, would be mere phenomena, though true.

Furthermore, *to have monads*, or to have such monads, is indeed natural to composite substance; yet it is not essential to it, but accidental. For it could happen that through the absolute power of God the echo ceases to be, and the monads are separated from the composite substance. Thus, if,

Monades ab ipsa separentur. Itaque si secundum Hypotheses vestras, vincula substantialia corporum organicorum seu per se unorum in pani et vino inclusorum, a Deo tollantur, relictis monadibus et phaenomenis; accidentia panis et vini supererunt, sed tanquam phaenomena, non illusionem quadam, sed ita ut fieret ubique si nulla in natura essent vincula substantialia. Nam certe respectu harum monadum panis et vini res se perinde habebit ac si nulla vincula substantialia unquam in illis fuissent. Sed vincula substantialia monadum corporis Christi eum in vincula substantialia monadum corporis nostri influxum habebunt, quem alias in ea habuissent, vincula substantialia monadum panis et vini; et ita substantia corporis et sanguinis Christi a nobis percipietur. Nam vincula substantialia earum monadum erunt sublata, et post cessationem phaenomenorum panis et vini, seu species destructas, restituenda non quidem qualia fuerant, sed qualia prodissent si nulla fuisset facta destructio.

Vereor ne Dn. Hartsoeker aliquid de me suspicetur, quia ei locutus es de amico. Quod sequitur rogo ut Tuo nomine proponas in hunc vel alium si lubet sensum: L'experience que vous m'avez communiquée, Monsieur, est considerable et aisée[;] peutêtre pourroit on la pousser d'avantage, en mettant sur le carton une aiguille comme auparavant sur son pivot, mais non aimantée, et qui ne se soit encore approchée d'aucun aimant; pour voir si l'aimant quand il est dans sa situation naturelle attire plus aisement une telle aiguille, que lorsqu'il est dans une situation opposée. Car alors il ne s'agit que de la seule attraction de l'eguille, sans que sa direction y entre, puisqu'elle n'en a pas encore.

Annales mei procedunt non lento gradu. *Flores sparsi in tumulum Papissae* separatim edi possunt.

Praeclara Tua Theodicaeae versio in itinere versatur, jam enim Hildesiam misi, ut oblata occasione certa ad vos deferatur. Quod superest vale et fave. Dabam Hanoverae 19 Augusti 1715.

Deditissimus

G. G. Leibniti

according to your hypotheses, the substantial bonds of organic bodies, that is, of the per se unities included in the bread and wine, are removed by God, while the monads and phenomena remain, the accidents of the bread and wine will remain, but only as phenomena,<sup>7</sup> not by some illusion, but just as would occur everywhere if there were no substantial bonds in nature. For certainly with respect to these monads of the bread and wine everything will be just as if no substantial bonds had ever been among them. But the substantial bonds of the monads of the body of Christ will have that influence on the substantial bonds of the monads of our body which the substantial bonds of the monads of the bread and wine would otherwise have had on them; and thus the substance of the body and blood of Christ will be perceived by us. For the substantial bonds of the latter monads will have been removed, and after the cessation of the phenomena of the bread and wine, or the destruction of the appearances, they would not have to be restored as they had been but such as they would have appeared if there had been no destruction.

I am afraid that Mr. Hartsoeker suspects something about me, since you spoke to him of a friend. For this reason, I ask that you respond in your own name in this or another way that pleases you: "The experiment that you communicated to me, Sir, is important and simple; perhaps one could push it further by placing on the box a needle on its pivot as before, but a needle that is not magnetized and has not yet approached any magnet, to see whether the magnet attracts such a needle more easily when it is in its natural position than when it is in the opposite position. For then it concerns only the attraction of the needle alone without consideration of its direction, since it does not have one anymore."<sup>8</sup>

My *Annals* are progressing fairly well.<sup>9</sup> *Flowers Scattered on the Grave of the Popess* can be published separately.

Your excellent translation of the *Theodicy* is on the way; I have already sent it to Hildesheim so that it may be given to you on a convenient occasion. For the rest, farewell and think kindly of me. From Hanover, 19 August 1715.

Most faithfully,  
G. W. Leibniz

Creatura permanens absoluta, quaeque adeo neque est Actio-passio, neque relatio est

Unum per se seu *Ens plenum*

Substantia

Simplex,  
*Monas* ut  
Mentes,  
Animae,  
quae nulli  
aliorum  
creaturarum  
influxui  
obnoxiae  
sunt

Consistit in  
*potentia activa* et  
*passiva primitiva* seu  
consistit in materia  
prima, id est principio  
resistentiae, et forma  
substantialis, id est  
principio impetus. Nam  
sciendum est corporibus  
revera vim novam non  
tantum ab aliis  
determinari seu  
modificari: Et cum  
corpus incurrit in aliud,

accidens vel *modificatio*

Monadis  
quae oritur  
ex propria  
penu ejus et  
consistit  
unice in  
perceptione  
et appetitu

corpora concurrunt  
secundum leges  
motus; adeoque  
in viribus et  
resistentiis secundum  
magnitudines et  
figuras temperatis

Unum per aggregationem seu *Semientiens*, phaenomenon

*Semisubstantia* collecta ex  
substantiis, ut chorus

Angelorum, exercitus hominum,  
grex animalium, piscina, domus,  
lapis, cadaver, quae sunt  
*cometione*

*desituta* ut  
grex strues  
piscina  
domus

utraque  
*naturalia*  
arenae  
cumulus,  
mare, lapis  
truncus arboris

Semiaccidens seu *species*  
colligitur ex modificationibus  
substantiarum, et est

secundarium seu *physicum*  
(cujus ratio ex mechanismo-  
oculto pendet) velut  
accidens sensibile, color,  
odor, sapor, item sympathia,  
antipathia. Talis qualitas  
rursus est

passiva seu  
*resistentia*  
per  
magnitudinem  
et figuram  
verbo texturam  
determinata

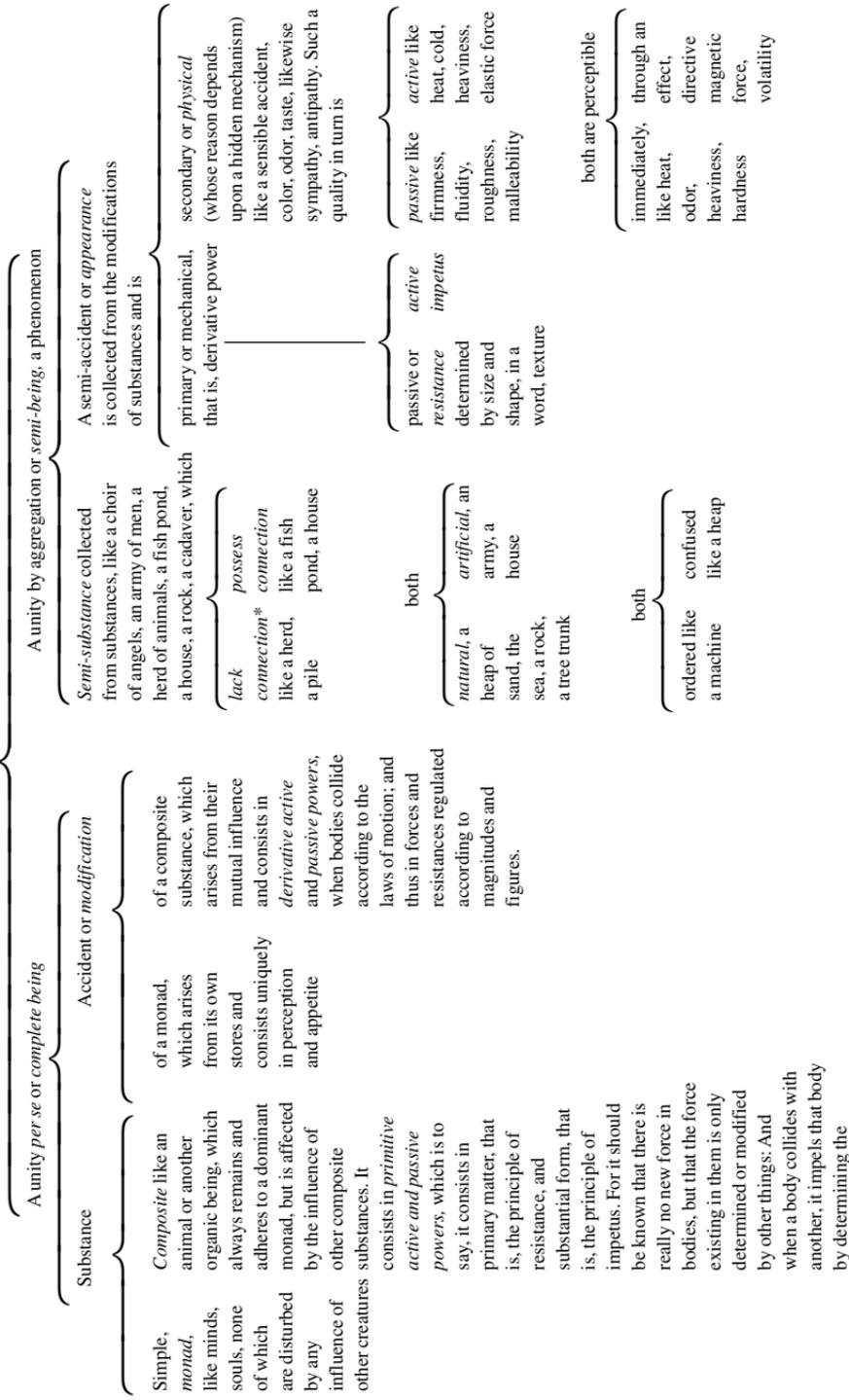
*passiva*, ut  
firmitas,  
liquiditas,  
asperitas,  
malleabilitas

*activas* ut  
calor, frigus,  
gravitas, vis  
elastica

Utraque perceptibilis  
immediate, per effectum  
ut calor, vis  
odor, magnetica  
gravitas, directrix,  
durities volatilitas

impellit ipsum  
determinando vim  
Elasticam inexistentem  
a motu intestino ortam,  
quemadmodum visibile  
est si duae vesicae inflatae  
aequales, aequali celeritate  
concurrunt, ubi per  
concursum rediguntur ad  
quietem, et deinde per  
insitam vim elasticam  
resumunt motum. Idem fit  
in omnibus concursibus,  
neque enim natura unquam  
agit per saltum, seu nullum  
corpore momento transit a  
quiete ad motum, vel a motu  
majore ad minorem aut  
contra; sed transit per  
intermedia, et hoc fit ope vis  
elasticae, seu motus insiti a  
fluido permeante.

An absolute, enduring creature, which therefore is neither an action-passion nor a relation is



inherent elastic force that arises from internal motion, as can be seen if two inflated balls of the same size, colliding with equal speed, are brought to rest by a collision and then resume moving by their inherent elastic force. The same thing happens in every collision, for nature never acts through a leap, that is, no body passes in an instant from rest to motion, or from greater to lesser motion or vice versa; rather, it passes through intermediate steps, and this is why there needs to be elastic force, or internal motion from a permeating fluid.

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Note: This table was added by Leibniz to both the draft of the letter and the sent version.

\* In the draft, Leibniz wrote "lack (possess) cohesion [*cohesionem*]."

when monads are removed than that numbers remain when things are removed.

I do not see how it can be conceived that the thing realizing phenomena is something apart from substance. For that realizing thing must bring it about that composite substance contains something substantial besides monads; otherwise there will be no composite substance; that is, composites will be mere phenomena. And in this I think that I am absolutely of the same opinion as the Scholastics; and, in fact, I think that their primary matter and substantial form, namely the primitive active and passive powers of the composite, and the complete thing resulting from these, are really that substantial bond that I am urging.

When I said that the substantial bond is the principle of action of the composite, you objected, first, that composite substance is located in the substantially modified monads. But I do not admit this, and what is it for monads to be modified substantially? I myself think that nothing is modified substantially. And, in fact, since the true mark of substance is action, unless composite substance itself acts, insofar as it is a composite, it will not be a composite substance, but a mere phenomenon, having nothing besides monads and modifications of the individual monads, with no real connection between them, either physical (which I excluded long ago) or metaphysical, which arises through a union. You objected, second, that the substantial bond is the principle of resistance. So it is, namely the principle of resistance of the composite, for it itself is, so to speak, the passive power of the composite. But you will say, then, that extension will be the principle of resistance. However, I deny that this follows, for extension differs very greatly from passive power, since it expresses nothing but the situation of that which already has passive power. Thus, I can say candidly that there seems to be nothing in these objections that can be asserted. And, against them, I do not see how a new substance may arise formally except through some new substantial attribute. Therefore, 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.

### 71. Leibniz to Des Bosses<sup>1</sup>

[Hanover, 29 May 1716]

Most Reverend Father, Most Honored Supporter,

Just as it sometimes happens in geometry that from the very fact that something is supposed to be different, it follows that it is not different

tiocinandi apud Euclidem aliquando reperto, Cardanus, Clavius alii que egere: Ita si quis fingat mundum creatum fuisse citius, reperiet non esse factum citius; quia tempus absolutum non datur, sed nihil aliud est quam ordo successio. Eodem modo si quis fingat Totum universum loco moveri servatis omnium rerum inter se distantis, nihil actum erit; quia spatium absolutum aliquid imaginarium est, et nihil ei reale inest, quam distantia corporum; verbo, sunt ordines, non res. Tales suppositiones oriuntur ex falsis ideis. Itaque nisi aeternus sit mundus, quocumque tempore coepisse dicatur perinde est. Et nisi hoc statuamus, in absurdum incidemus, nec poterimus satisfacere arguentibus pro aeternitate mundi. Sequeretur enim Deum aliquid praeter rationem fecisse, neque enim possibile est rationem dari, hujus potius quam alterius temporis initialis; cum discrimen ullum assignari non possit. Sed ex hoc ipso quod discrimen assignari non potest, iudico etiam nullam esse diversitatem. Potuit ergo citius oriri mundus, sed tunc statuendus erit aeternus.

Materiam naturaliter exigere extensionem, est partes ejus naturaliter exigere inter se ordinem coexistendi. An hoc negabis?

Eo ipso dum puncta ita sita ponuntur ut nulla duo sint inter quae non detur medium, datur extensio continua.

In Tuo arbitrio est vinculum realizans composita, appellare modum substantialem. Sed tunc modum usurpas alio sensu, quam solemus. Vera enim substantiae compositae basis erit. Sed iste modus est res durabilis, non modificatio quae nascitur et perit. Non tamen est modus monadum, quia sive ponas eum sive tollas, nihil in monadibus mutatur.

Non dico inter materiam et formam dari, medium vinculum, sed ipsam compositi formam substantialem, et materiam primam sensu scholastico sumtam, id est potentiam primitivam activam et passivam, isti vinculo, tanquam Essentiae compositi inesse. 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.

Si realizans phaenomena praesupponeret aliquid praeter monades, jam compositum esset realizatum contra hypothesin. Quicquid existit praeter Monades et Monadum modificationes Realizantis phaenomena consecrarium est.

Etiam verae substantiae compositae non gignuntur nisi ad sensum,

(Cardano, Clavius,<sup>2</sup> and others rejected this kind of reasoning, which is found in places in Euclid), so if someone supposes that the world had been created earlier, he will discover that it was not made earlier, because time is not absolute but only the order of successions. In the same way, if someone supposes that the entire universe were moved in place, with the distances between all things preserved, nothing will be done, because absolute space is something imaginary, and there is nothing real in it except the distances of bodies. In a word, space and time are orders, not things. Such suppositions arise from false ideas. Thus, unless the world is eternal, it may be said equally to have begun at any time; and unless we accept this, we will fall into absurdity, and we will not be able to answer those who argue for the eternity of the world. For it would follow that God had done something contrary to reason, since it is not possible to give a reason for one initial time rather than another, because no distinction can be assigned. But from the very fact that no distinction can be assigned, I also judge that there is no difference. Therefore, if the world could have originated earlier, then we will have to conclude that it is eternal.<sup>3</sup>

For matter naturally to require extension is for its parts naturally to require an order of coexistence among themselves. Or will you deny this?

When points are situated in such a way that there are no two between which there is not an intermediate point, then, by that fact, there is continuous extension.

In your judgment, we should call the bond realizing a composite a substantial mode. But then you are employing “mode” in a sense other than that to which we are accustomed. For, in fact, it will be the foundation of a composite substance. But such a mode is an enduring thing, not a modification that arises and perishes. Yet it is not a mode of monads, since whether you posit it or take it away, nothing is changed in the monads.

I do not say that there is a mediating bond between form and matter but, rather, that the substantial form itself of the composite and primary matter taken in the Scholastic sense, that is, primitive active and passive power, belongs to that bond, as the essence of the composite. However, this substantial bond is naturally, and not essentially, a bond. For it requires monads but does not involve them essentially, since it can exist without monads and monads without it.

If the thing realizing the phenomena presupposed something besides monads, a composite would already be realized, contrary to the hypothesis. Whatever exists besides monads and the modifications of monads is a consequence of the the thing realizing the phenomena.

Even true composite substances are not produced, except in relation to

nam, ut saepe dixi, non tantum anima sed et animal manet. Non oriuntur vel occidunt nisi modificationes et (ex substantiatis) aggregata; id est accidentia vel entia per accidens.

A ratione rerum (etiam sine respectu ad sapientiam Divinam) iudicamus nos non solos existere, quia nulla apparet privilegii pro uno ratio. Nec ipse aliter ratione convincere poteris aliquem, qui contenderet se solum existere, alios a se tantum somniari. Sed ratio datur privilegii existentium prae non existentibus, seu cur non omnia possibilis existant. Caeterum etsi nullae existerent creaturae praeter percipientem, ordo perceptus ostenderet sapientiam Divinam. Itaque nullus hic circulus, quamquam etiam sapientia DEI a priori, non ex solo phaenomenorum ordine habeatur. Ex eo enim quod contingentia reperiuntur, reperitur Ens necessarium, id intelligens, ut in Theodicaea ostendi. Si corpora mera essent phaenomena, non ideo fallerentur sensus. Neque enim sensus pronuntiant aliquid de rebus Metaphysicis. Sensuum veracitas in eo consistit, ut phaenomena consentiant inter se, neque decipiamur eventibus, si rationes experimentis inaedificatas probe sequamur.

Substantia agit quantum potest, nisi impediatur, impeditur autem etiam substantia simplex, sed naturaliter non nisi intus a se ipsa. Et cum dicitur monas ab alia impedi, hoc intelligendum est de alterius repraesentatione in ipsa. Autor rerum eas sibi invicem accommodavit, altera pati dicitur, dum ejus consideratio alterius considerationi cedit.

Aggregatum resolvitur in partes, non substantia composita; quae partes componentes exigit tantum, vero non ex iis essentialiter constituitur, alioqui foret aggregatum. Agit mechanice, quia in se habet vires primitivas seu essentielles, et derivativas seu accidentales.

Est Echo monadum, ex sua constitutione, qua semel posita exigit monades, sed non ab iis pendet. Etiam anima est Echo externorum, et tamen ab externis est independens.

Quia nec monades, nec substantiae compositae partiales de substantiae compositae totalis essentia sunt; ideo salvis monadibus vel aliis ingredientibus substantia composita tolli potest, et vice versa.

the senses; for, as I have often said, it is not only the soul that endures but the animal as well. Nothing arises or perishes except modifications and aggregates (of substantiated things), that is, accidents or accidental beings.

We judge from the reason of things (even without considering divine wisdom) that we do not exist alone, for it is evident that there is no reason to privilege one thing. You will not be able to convince someone otherwise through reason who contends that he alone exists and that other things are just being dreamed by him. But there is a reason for the privilege of existing things over nonexisting things, or a reason why not all possible things exist. Moreover, even if no creatures were to exist besides a perceiving one, the order of what was perceived would display divine wisdom. And so, even though the wisdom of God is also known a priori, and not only from the order of the phenomena, there is no circle here. For from the fact that contingent things are discovered, a necessary being is discovered, and one that is intelligent, as I have shown in the *Theodicy*.<sup>4</sup> If bodies were mere phenomena, they would not deceive the senses on account of that. For the senses do not make known anything about metaphysical matters. The veracity of the senses consists in the fact that the phenomena agree among themselves, and we shall not be deceived by events, if we follow reasons properly built on experiences.

Substance acts so far as it can, unless it is impeded; but even a simple substance is impeded, though it is naturally impeded only from within by itself. And when it is said that a monad is impeded by another, this must be understood of the representation of the other in it. The author of things has accommodated them to one another: the one is said to be acted on when consideration of it gives way to the consideration of the other.<sup>5</sup>

An aggregate is resolved into parts; a composite substance is not. The latter merely requires component parts; it is not essentially constituted from them; otherwise it would be an aggregate. It acts mechanically, because it has in it primitive or essential forces and derivative or accidental ones.

It is an echo of monads, according to its constitution, with the result that once posited it requires monads, but it does not depend on them. The soul likewise is an echo of external things, and nevertheless it is independent of external things.

Because neither monads nor partial composite substances belong to the essence of the composite substance as a whole, it follows that the composite substance can be destroyed, while the monads or other ingredients are preserved, and vice versa.

Si corpora mera essent phaenomena, existerent tamen ut phaenomena velut iris.

Ais corpora posse esse aliud quam phaenomena, etsi non sint substantiae. Ego puto nisi dentur substantiae corporeae, corpora in phaenomena abire. Et ipsa aggregata nihil aliud sunt quam phaenomena cum praeter monades ingredientes, caetera per solam perceptionem addantur eo ipso dum simul percipiuntur. Praeterea si solae monades essent substantiae, alterutrum necessarium esset aut corpora esse mera phaenomena, aut continuum oriri ex punctis, quod absurdum esse constat. Continuitas realis non nisi a vinculo substantiali oriri potest. Si nihil existeret substantiale praeter monades, seu si composita essent mera phaenomena, extensio ipsa nil foret nisi phaenomenon resultans ex apparentiis simultaneis coordinatis, et eo ipso omnes controversiae de compositione continui cessarent. Quod vero additur monadibus ut phaenomena realisentur, non est modificatio monadum, quia nihil in earum perceptionibus mutat. Ordines enim seu relationes quae duas monades jungunt, non sunt in alterutra monade, sed in utraque aequae simul, id est revera in neutra seu in sola mente hanc relationem cogitante; nisi addas vinculum reale, seu substantiale aliquid, quod sit subjectum communium seu conjungentium praedicatorum et modificationum. Neque enim puto a TE statui accidens quod simul insit duobus subjectis, et unum, ut sic dicam, pedem in uno, alterum in altero habeat.

Quantitas continua non addit impenetrabilitatem, (nam ea etiam loco tribuitur) sed materia. Et vos ipsi statuitis impenetrabilitatem exigi tantum a materia, non esse de ejus essentia.

Substantia composita non consistit formaliter in monadibus et earum subordinatione, ita enim merum foret aggregatum seu ens per accidens; sed consistit in vi activa et passiva primitiva, ex quibus oriuntur qualitates et actiones passionesque compositi, quae sensibus deprehenduntur, si plus quam phaenomena esse ponantur.

Dicis *modificari substantialiter* esse monades habere modum, qui eas faciat naturale principium operationum. Sed quid quaeso ille Modus, est ne qualitas, est ne actio? Mutatne Monadum perceptiones? Nihil tale dici debet; revera substantia est, non monadum modus; etsi naturaliter ei Monades respondeant. Monades non sunt principium operationum ad extra. Nescio quid te adigat, ut substantialitatem compositi facias monadum

If bodies were mere phenomena, they would nevertheless exist as phenomena, like the rainbow.

You say that bodies can be something other than phenomena, even if they are not substances. I think that unless there are corporeal substances, bodies collapse into phenomena. And aggregates themselves are nothing but phenomena, since besides the ingredient monads, everything else is added through perception alone, by virtue of the fact that they are perceived at the same time. Moreover, if monads alone were substances, one of two things would be necessary: either bodies would be mere phenomena or a continuum would arise from points, which we agree is absurd. Real continuity can arise only from a substantial bond. If nothing substantial existed besides monads, that is, if composites were mere phenomena, then extension itself would be nothing but a phenomenon resulting from coordinated simultaneous appearances, and by that fact all the controversies concerning the composition of the continuum would cease. What is added to monads in order that the phenomena may be realized is not a modification of monads, since it changes nothing in their perceptions. For the orderings or relations that join two monads are not in one monad or the other, but in both equally at the same time; that is, really in neither, or only in the mind thinking this relation,<sup>6</sup> unless you add a real bond, or something substantial, which is the subject of the common predicates and modifications, that is, those joining them together. For I do not think you would support an accident that is simultaneously in two subjects and has, so to speak, one foot in one and the other in the other.

Continuous quantity does not add impenetrability (for the former is ascribed to place as well); rather, matter does. And you yourselves hold that impenetrability is only required by matter and does not belong to its essence.

Composite substance does not consist formally in monads and their subordination, for then it would be a mere aggregate, that is, an accidental being; rather, it consists in primitive active and passive force, from which arise the qualities and the actions and passions of the composite, which are perceived by the senses, if they are assumed to be more than phenomena.

You say that to be *modified substantially* is for monads to have a mode, which makes them a natural principle of operations. But what, I ask, is that mode? Is it a quality? Is it an action? Does it change the perceptions of the monads? Nothing of the sort should be said. What is truly a substance is not a mode of monads, even if monads may naturally correspond to it. Monads are not a principle of operations with respect to what is external. I do not know what compels you to make the substantiality of a composite a

modum, id est revera accidens. Non est opus ut statuamus substantias oriri interireque, imo si statuimus evertemus substantiae naturam, recidemusque in aggregata seu Entia per accidens. Quod vulgo substantias dicunt, revera non sunt nisi substantiata. Philosophi Peripatetici, dum generationem et corruptionem veram substantiarum crediderunt, in difficultates inexplicabiles inciderunt circa originem formarum, aliaque, quae omnia meo explicandi modo cessant.

Ita est, ut ais, ubi substantia illa absoluta realizans phaenomena ponitur, statim habetur substantia compositi, sed a DEO regulariter agente non ponitur, nisi dentur ingredientia; nempe monades, aut aliae substantiae compositae partialesque. Interim haec ingredientia formaliter non insunt; exiguntur, non necessario requiruntur. Itaque miraculo abesse possunt, id est ista ingredientia non sunt formaliter constitutiva. Sunt constitutiva in aggregatis, non in veris substantiis. Dices cum substantia composita adest, monades vero vel ingredientia non adsunt, nemo dicet adesse compositum. Respondeo nemo dicet, nisi edoctus sit, esse miraculum; sic nemo dicet Corpus Christi adesse in Eucharistia, nisi edoctus hoc miraculo fieri.

Ignosce quod saltatim scribo, et ideo fortasse non semper satisfacio; nam ad anteriora scripta recurrere non possum. Inde interdum quaedam species contradictionis fortasse orietur. Re tamen excussa erit magis in modo enuntiandi quam rebus. Nescio, an, ubi et quomodo dixerim modificationem rei non extensae facere rem extensam.

Omnis perfectio meo iudicio ad lineam sapientiae pertinet. Porro linea sapientiae eo tendit, ut perfectio maxima introducatur, quam res capit. Itaque si quae perfectiones sunt aliis compatibles, non omittentur. Et talis est perfectio harmoniae praestabilitae, quae etiam altioribus rationibus nititur. Caeterum ipsa cujusque Monadis ἀντάρκεια facit ut in se invicem non agant, cum unaquaeque sufficiat omnibus quae in ipsa contingunt; quicquid in ipsis addes inane est.

Quaeris tandem per quod mea substantia composita differat, ab Entelechia, dico ab ea non differre, nisi ut totum a parte, seu Entelechiam primam compositi, esse partem constitutivam substantiae compositae, nempe vim Activam primitivam. Sed differt a Monade, quia est realizans phaenomena; Monades vero existere possunt, etsi corpora non essent nisi

mode of monads, that is, truly an accident. There is no need for us to hold that substances arise and perish; indeed, if we accept this, we shall overturn the nature of substance and fall back on aggregates or accidental beings. What are commonly called “substances” are in fact nothing but substantiated things. So long as Peripatetic philosophers believed in the true generation and corruption of substances, they fell into inexplicable difficulties concerning the origin of forms and other things, all of which vanish with my way of explaining them.

Thus, as you say, when the complete substance realizing the phenomena is posited, the substance of the composite is had immediately; but it is not posited by God, acting in a regular manner, unless the ingredients exist, namely, monads or other partial composite substances. Yet these ingredients are not formally in the substance; they are required, but they are not demanded by necessity. And so they can be absent as the result of a miracle, which is to say that these ingredients are not formally constituents. They are constituents in aggregates, not in true substances. You say that when a composite substance is present<sup>7</sup> but the monads or ingredients are not present, no one will say that the composite is present. I respond: no one will say this unless he has been instructed that it is a miracle; in the same way, no one will say that the body of Christ is present in the eucharist unless he has been instructed that this happens miraculously.

Forgive me that I write intermittently, and for that reason perhaps do not always satisfy, for I cannot return to earlier writings. As a result, some appearance of contradiction perhaps may arise from time to time. Yet, when the matter is examined, it will be more in the mode of expression than in the account. I do not know whether, where, or how I might have said that the modification of a nonextended thing produces an extended thing.

In my opinion, every perfection pertains to the way of wisdom. Moreover, the way of wisdom tends toward the introduction of the greatest perfection of which a thing is capable. Thus, if some perfections are compatible with others, they will not be omitted. And such is the perfection of preestablished harmony, which also is supported by deeper reasons. In addition, the very self-sufficiency of monads entails that they do not act on one another, since each is sufficient for everything that happens in it; whatever you may add to them is in vain.

You ask, finally, how my composite substance differs from an entelechy. I answer that it does not differ from it except as a whole differs from a part, or that the primary entelechy of the composite is a constitutive part of the composite substance, namely, the primitive active force. But it differs from a monad, since it is that which realizes the phenomena,

Phaenomena. Caeterum Entelechia compositae substantiae semper Monadem suam dominantem naturaliter comitatur. Et ita si Monas sumatur cum Entelechia continebit formam substantialem animalis.

Nil prohibet quin Echo possit esse fundamentum aliorum, praesertim si sit Echo originaria.

Si monades rigore loquendo substantiis compositis accidunt, etsi sint naturaliter iis connexae; velle ut hae tollantur, est scrupulositatem Graecorum quorundam renovare, qui etiam accidentia panis et vini sublata esse contendunt. Denique non sunt augenda miracula praeter necessitatem. Revera Monades pertinent ad quantitatem quam superesse Scholastici ipsi volunt. Non est parvum, id omne adesse unius substantiae, abesse alterius, quod phaenomena realizet. Breviter: ex his duabus positionibus, dari substantiam compositam phaenomenis realitatem tribuentem, et substantiam naturaliter nec oriri nec occidere, mea cuncta hic consequuntur quamquam revera ex sola prima positione, seu ex solo postulato quod phaenomena habeant realitatem extra percipiens, videatur tunc demonstrari posse philosophia peripatetica emendata. Nam quod substantia non oriatur nec occidat, vel ex eo confici potest quia alias incidemus in perplexitates. Ex his porro oritur discrimen formale inter substantiam compositam et monadem, rursusque inter substantiam compositam et aggregatum; atque etiam independentia substantiae compositae ab ingredientibus a quibus composita dicitur, etsi ex iis non sit aggregata. Atque hinc etiam substantiam ac ipsam compositam (verb. gr. hominis, animalis) eandem numero manere dicimus, non tantum apparenter sed et vere etsi ingredientia perpetuo mutantur, et sint in continuo fluxu. Et cum sic ingredientia ipsa ponamus a substantia per naturam separari paulatim et particulatim; quidni admittas per miraculum separationem fieri ut sic ut loquar totatim et simul sublata omni substantia composita seu phaenomena realizante quae est in re terrena, substituto realizante phaenomena in re coelesti. Itaque non puto me a doctrina scholarum circa substantias corporeas abire nisi in hoc uno quod verae substantiae sive simplicis sive compositae generationem et corruptionem tollo, quia nec necessarias, nec explicabiles esse reperio; atque ita philosophiam istam innumeris difficultatibus libero. Sed ita substantiam

whereas monads can exist even if bodies should be only phenomena. Nevertheless, the entelechy of a composite substance always naturally accompanies its dominant monad. And so, if the monad is taken together with the entelechy, it will contain the substantial form of the animal.

Nothing prevents an echo from being able to be the foundation of other things, especially if it is an ordinary echo.

If monads, strictly speaking, are accidental to composite substances, even if they are naturally connected to them, then to maintain that they are destroyed is to resurrect the excesses of certain Greeks who argue that even the accidents of the bread and the wine are destroyed.<sup>8</sup> Certainly, miracles should not be multiplied beyond necessity. In fact, monads pertain to quantity that the Scholastics themselves want to remain. It is no small thing for all of one substance to be present and for all of the other, which realizes the phenomena, to be absent. In short: from these two propositions—that composite substance exists and imparts reality to the phenomena, and that substance neither arises nor perishes naturally—there follows all that I want to say here, although in fact it seems that an emended Peripatetic philosophy can be demonstrated from the first proposition alone, that is, from the single premise that the phenomena have reality outside of a perceiver. For the fact that substance neither arises nor perishes certainly can be derived from this, since otherwise we shall fall into perplexities. Moreover, from this there arises the formal distinction between a composite substance and a monad, and again between a composite substance and an aggregate, and also the independence of a composite substance from the ingredients from which it is said to be composed, although it is not aggregated from these. And for this reason also we say that the substance and the composite itself (for example, that of a man or an animal) remain numerically the same, not only in appearance but in fact, although the ingredients are forever changing and are in constant flux. And since in this way we assume that the ingredients themselves are separated gradually, one by one, from the substance by natural means, why do you not allow separation to occur totally (so to speak) and all at once through a miracle, with every composite substance, that is, the realizer of the phenomena in the terrestrial thing destroyed, and with the realizer of the phenomena in the celestial thing substituted for them? Accordingly, I do not believe I depart from the Scholastic doctrine of corporeal substances except in this one thing, that I do away with the generation and corruption of true substances, whether simple or composite, since I find it to be neither necessary nor explicable; and thus I free that philosophy from innumerable difficulties. But in this way I restrict composite or corporeal sub-

corpoream seu compositam restringo ad sola viventia, seu ad solas machinas naturae organicas. Caetera mihi sunt mera aggregata substantiarum quae appello substantiata; aggregatum vero non constituit nisi unum per accidens.

Ad ea quae de punctis Zenoniis dixisti addo, ea non esse nisi terminos, itaque nihil componere posse: sed et Monades solae continuum non component, cum per se careant omni nexu quaelibet monas est tanquam Mundus separatus. At in materia prima (nam secunda aggregatum est) seu in passivo substantiae compositae involvitur continuitatis fundamentum, unde verum oritur continuum ex substantiis compositis juxta se positis, nisi a Deo supernaturaliter tollatur extensio, ordine inter coexistentia illa quae se penetrare censentur sublato. Et hoc sensu fortasse dixi extensionem esse modificationem materiae primae seu formaliter non-extensi. Sed hoc genus Modalitatis medium est inter attributa essentialia et accidentia, consistit enim in attributo naturali perpetuo, quod non nisi supernaturaliter mutari potest.

Credebam ego et pro certo Tibi scripseram Lamindum Pritanium esse Bernardum Trevisanum Nobilem Venetum. Sed hoc nuper in dubium vocavit Diurnalista Batavus, qui Antonium Muratorium Comachensibus pro Mutinae Duce scriptis notum auctorem facit.

Quod hominem in conversione glaciei quae frangitur comparavi, accipiendum est pro natura cujusque subjecti. Resistentia quae in homine per gratiam separatur est vitalis, cum consistat in praesudiciis intellectus et passionibus voluntatis.

Rogo ut data occasione salutandi Domini de Cochenheim, et rerum Sinensium et Japonensium, atque etiam R. P. Fonsecae mihi conciliandi memor esse velis. Circa libros ob absentiam Aulae nunc mandata tardius habentur, praesertim cum Regem primariosque Ministros speremus.

Cogitavi aliquando quid ei ex vestris dicendum foret, qui omnem substantiam compositam seu omne realisans phaenomena tanquam superfluum tollere vellet. Hoc posito substantia corporis ipsi consisteret in phaenomenis constitutivis, ut accidentia consisterent in phaenomenis resultantibus, quemadmodum natura albi consistit in bullis instar spumae vel simili aliqua contextura, cujus perceptio est in nobis inobservata; acci-

stance to living things alone, that is, to organic machines of nature. The rest are for me mere aggregates of substances, which I call substantiated things; but an aggregate constitutes only an accidental unity.

To the things you have said concerning Zeno's points, I add that they are only boundaries, and so can compose nothing. But monads alone also do not compose a continuum, since in themselves they lack all connection; each monad is like a separate world. Rather, the foundation of continuity is contained in the primary matter (for secondary matter is an aggregate), or in the passive [power] of a composite substance, from which it follows that a true continuum arises from composite substances placed next to each other, unless God removes the extension supernaturally by removing the order among those coexistents that are thought to penetrate each other. And in this sense I have perhaps said that extension is a modification of primary matter, or of that which is formally nonextended. But this kind of modality is intermediate between essential attributes and accidents, for it consists in an enduring natural attribute, which can be changed only supernaturally.

I believed, and had written to you with certainty, that Lamindus Pritanius was Bernard of Trevisi, the Venetian noble. Recently, however, this was called into doubt by a Dutch writer, who identifies the author as Antonio Muratori, known for writings on Commachio composed on behalf of the duke of Modena.<sup>9</sup>

When I compared a human being in a state of conversion to ice that breaks, this should be understood in accordance with the nature of each subject. The resistance overcome in a human being through grace is a part of life, since it consists in prejudices of the intellect and passions of the will.<sup>10</sup>

I ask that you try to remember to convey my best wishes when the occasion arises to Mr. von Cochenheim, to keep me abreast of Chinese and Japanese affairs, and to obtain for me the works of the Reverend Father Fonseca.<sup>11</sup> Concerning books, because of the absence of the court, orders are now considered more slowly, especially since we are expecting the king and the first ministers.

I have sometimes thought about what would have to be said by one of your order who wanted to do away with all composite substance, or everything realizing the phenomena, as though superfluous. With this assumed, the substance of body itself would consist in constitutive phenomena, while accidents would consist in resulting phenomena, just as the nature of a white thing consists in bubbles, like foam or similarly textured things, whose perception is unobserved in us. But the accident of white would

dens vero albi consisteret in perceptione illa observata, per quam album agnoscimus. Itaque si Deus vellet pro albo substituere nigrum servatis accidentibus albi, efficeret ut *omnes percipientes* (in omnium percipientium consensu consistit phaenomeni veritas) retinerent perceptionem albi observatam et ejus effectus, seu perceptionem resultantis ex constitutivo; sed perceptionem inobservatam haberent non spumarum seu monticulorum , id est texturae album facientis, sed vallium , seu texturae facientis nigrum. Itaque omnes perceptiones observabiles panis manerent, sed pro phaenomenis constitutivis (quae etiam a nobis percipiuntur sed inobservabiliter) phaenomenorum constitutivorum seu inobservabilium carnis perceptio universalis substitueretur. Vale, ita precatur.

Deditissimus

Godefridus Guilielmus Leibnitius

P.S. Ignosce quae perturbatissimae scriptioni meae. Has literas multo citius mittere constitueram, sed varia intercessere. Quid de Dno van Driesch quem putem favore Tuo non indignum. Hortatus sum ut vestros quemadmodum par est, colat, fribuscula ex animo deleat. Id se facturum spondet.

consist in the observed perception by which we recognize a white thing. Accordingly, if God wanted to substitute a black thing for a white thing with the accidents of the white thing preserved, he would bring it about that *all perceivers* (for the truth of a phenomenon consists in the agreement of all perceivers) would retain the observed perception of the white thing and its effects, that is, the perception of that which results from the constitutive phenomena; but the unobserved perception would not be of foam or snowy mountains , that is, of the texture making a white thing, but of earthworks , or of the texture making a black thing. And so all observable perceptions of the bread would remain, but in place of the constitutive phenomena (which also are perceived by us, though unobservably) there would be substituted a universal perception of the constitutive or unobservable phenomena of the flesh. May you be well.

Most faithfully,

Gottfried Wilhelm Leibniz

P.S. Please ignore how confused my writing is. I had intended to send this letter much earlier, but a variety of things got in the way. What news have you of Mr. van Driesch, whom I judge not undeserving of your support? I encouraged him to pay his respects to your order, as is proper, and to drop his aloofness.<sup>12</sup> He promises that he will do so.