

### 3.3 *Dynamics and the metaphysics of substance*

The world of forces Leibniz came to sketch in the SD and related writings is grounded in the active and passive primitive forces he posits, which he interprets as the form and matter of corporeal substance. But, one might ask, what status do these corporeal substances have in Leibniz's complex metaphysics? The answer to this is, unfortunately, not altogether clear. The careful reader can find at least two different strains in Leibniz's writings.<sup>60</sup>

One view is found very prominently in the 1680s and 1690s when Leibniz was most actively working out his physics: it is the corporeal substances of the dynamical writings that form the metaphysical grounding of Leibniz's system. This view falls naturally out of the aggregate argument, discussed in section 3.1, as developed particularly in the correspondence with Arnauld. The point of the argument is to show that extension is not, by itself, sufficient to constitute body, and that underlying the extension there must be genuine substances. These substances are quite clearly the corporeal substances that constitute the foundations of the dynamics. Leibniz is quite clear that the human being is one, both body and soul. He writes:

Man . . . is an entity endowed with a genuine unity conferred on him by his soul, notwithstanding the fact that the mass of his body is divided into organs, vessels, humors, spirits, and that the parts are undoubtedly full of an infinite number of other corporeal substances endowed with their own entelechies.

(Letter to Arnauld, 9 October 1687, G II 120; see also letter to Arnauld, 28  
November/8 December 1686, G II 75; AG 78)

Here the body is regarded as a collection of corporeal substances, united by a soul, which gives them true unity. Each of the corporeal substances that make up the body of the human being is itself a body (a collection of smaller corporeal substances), united by its own soul. In general, his view seems to be that all genuine substances are to be understood as living creatures of a sort, on analogy with the human being, unities of soul and body, and that the world is filled with an infinity of such genuine substances, nested in one another to infinity. Leibniz writes to Arnauld:

I am very far removed from the belief that animate bodies are only a small part of the others. For I believe rather that everything is full of animate bodies, and to my mind there are incomparably more souls than there are atoms for M. Cordemoy, who makes a finite number of them, whereas I maintain that the number of souls or at least of forms is quite infinite, and that since matter is endlessly divisible, one cannot fix on a part so small that there are no animate bodies within, or at least bodies endowed with a basic entelechy or (if you permit one to use the word "life" so generally) with a vital principle,<sup>34</sup> that is to say corporeal substances, about which it may be said in general of them all that they are living.

(Letter to Arnauld, 9 October 1687, G II 118)

These corporeal substances, conceived on analogy with animals, are, I believe,<sup>2/</sup> the basic constituents of the world for Leibniz. While he does recognize souls and forms here, he is quite unsure whether or not they deserve the status of substances. In a very interesting document from March 1690, comments on some remarks by Michel Angelo Fardella, Leibniz remarks:

The soul, properly and accurately speaking, is not a substance, but a substantial form,<sup>2/</sup> or the primitive form existing in substances, the first act, the first active faculty. ("Notes on Fardella, March 1690," FC 322: AG 105)

And even if the soul or form were a substance, Leibniz is clear that it never actually exists without being attached to a body (see, e.g., G IV 395–96: AG 252–53). Particularly significant are Leibniz's first uses of the term "monad," which enters Leibniz's philosophical vocabulary in the late 1690s. Writing to Johann Bernoulli in September 1698, Leibniz notes:

What I call a complete monad or individual substance is not so much the soul, as it is the animal itself, or something analogous to it, endowed with a soul or form and an organic body.

(Letter to Johann Bernoulli, 20/30 September 1698, GM III 542: AG 468)

And so, Leibniz wrote in that same letter:

You ask me to divide for you a portion of mass into the substances of which it is composed. I respond, there are as many individual substances in it as there are animals or living things or things analogous to them.

(*ibid.*, GM III 542: AG 167)<sup>61</sup>

While the world of physics may be grounded in such substances, tiny animals, not every body is animate,<sup>3/</sup> of course. But, Leibniz argues, the inanimate bodies of physics are made up of such substances. Bodies emerge in this picture looking something like a pile of stones, or, better, a flock of sheep or a pool of wriggling fish,<sup>+</sup> to use comparisons Leibniz often used. In this view, bodies, inanimate bodies at least, are phenomenal insofar as it is we who put the pieces (animate substances) together to form an individual. As Leibniz explains it to Arnauld:

Our mind notices or conceives some true substances which have certain modes; these modes involve relations to other substances, so the mind takes the occasion to join them together in thought and to make one name ac-

count for all these things together. This is useful for reasoning, but we must now allow ourselves to be misled into making substances or true beings of them.  
(Letter to Arnauld, 30 April 1687, G II 101: AG 89)

In this view, it is relatively easy to fit the ontology of the SD and other dynamical writings directly into Leibniz's other metaphysical writings. In this view, the active and passive primitive forces of the dynamics correspond reasonably well to the form and matter of the metaphysical writings.<sup>62</sup> The derivative forces, then, emerge as modes of corporeal substance, and their reality in inanimate bodies is grounded in the corporeal substances that make them up.<sup>63</sup>

But this isn't Leibniz's only metaphysical conception of the world, and it isn't the only way he conceives of the metaphysical foundations of his dynamics. Better known is the metaphysics of the *Monadology*, where Leibniz's individual substances, what he comes to call monads, are conceived not on the model of animals but on the model of Cartesian souls (see letter to De Volder, 1699, G II 194: L 522). While traces of this position can be found in virtually every period of Leibniz's mature writings, it is what seems to dominate after 1704 or 1705. In late writings, such as the *Monadology*, Leibniz still holds that the physical world is made up of organisms, and that these organisms are everywhere in apparently lifeless matter, as in the correspondence with Arnauld (see, e.g., *Monadology*, pars. 63ff., G VI 617–18: AG 221–22). However, he holds that what is ultimately real are the mind-like simple substances, and, in general, he holds that the organisms that populate the world are not themselves substances, in the proper sense of the word. The inanimate bodies physics usually treats have a somewhat complex structure, then, and are, in a sense, doubly phenomenal. First of all, they are made up of an infinity of living things, rudimentary organisms. But these organisms are, in turn, phenomenal, aggregates of genuine substances, monads and are not themselves fully real (see, e.g., letters to De Volder, 30 June 1704 G II 268:AG 178–79, 1704 or 1705, G II 275:AG 181; "Antibarbarus Physicus," G VII 344: AG 319–20).<sup>64</sup>

Where do the forces of the SD fit into this metaphysical picture? One answer emerges out of what Leibniz wrote to De Volder in 1704 or 1705:

I don't really eliminate body, but reduce it to what it is. For I show that corporeal mass, which is thought to have something over and above simple

substances, is not a substance, but a phenomenon resulting from simple substances, which along have unity and absolute reality. I relegate derivative forces to the phenomena, but I think that it is obvious that primitive forces can be nothing but the internal strivings of simple substances, strivings by means of which they pass from perception to perception in accordance with a fixed law of their nature.

(Letter to De Volder, 1704 or 1705, G II 275; AG 181)<sup>65</sup>

Similarly Leibniz wrote to Des Bosses in 1706:

From a multiplicity of monads results secondary matter, along with derivative forces, actions, passions, which are only entities through aggregation,<sup>2</sup> and therefore semi-mental, like the rainbow<sup>2</sup> and other well-founded phenomena.

(Letter to Des Bosses, 11 March 1706, G II 306)<sup>66</sup>

This suggests the following picture. The primitive forces, active and passive, now pertain not to corporeal substances, but to the monads; they are now identified with what Leibniz calls appetition, the activity in things by virtue of which a monad passes from one internal state to another. Derivative forces, on the other hand, are relegated to the phenomena. These forces, those that are the direct cause of motion and thus most of interest to the physicist, pertain now to bodies and bodies alone. While grounded in something that is real—the monads or simple substances—they belong to aggregates of monads alone, and thus are irreducibly phenomenal.<sup>4</sup>

But this may not have been Leibniz's considered opinion. The question of the possibility of a genuine composite substance (like the corporeal substances of the correspondence with Arnauld) is one of the main themes of the correspondence with Des Bosses; in these letters Leibniz is trying to figure what would be required for there to be such things in his world of monads.<sup>67</sup> In an appendix to the letter to Des Bosses from 19 August 1715, Leibniz presented a diagrammatic representation of his views on unity and beings by aggregation (G II 506: L 617). He begins with a distinction between things that are genuine individuals, and beings by aggregation. Now, in this scheme, derivative force (here derivative power) appears twice, once as a modification of a composite substance, and once as a "semiaccident," the modification of a "semisubstance," a being by aggregation,<sup>2</sup> which, Leibniz says, derives "from the modifications of [genuine] substances." But primitive active and passive force (here, primitive active and passive power) appears only once in the diagram, in the

characterization of a composite substance, which, Leibniz says, "consists in primitive active and passive power, that is, it consists in primary matter, i.e. the principle of resistance, and in substantial form, i.e. the principle of impetus."<sup>68</sup> Interestingly enough, it does not appear on the other side of the chart, in the characterization of semisubstances. In this reading, if there are no genuine composite (corporeal) substances in the world, then all derivative force must be phenomenal. But in that situation, there would be no primitive forces at all in the world, it would seem.<sup>69</sup>

In the end, then, it is not clear exactly how the world of the dynamics, primitive and derivative, active and passive forces is supposed to fit into Leibniz's larger metaphysical picture. But then, what uncertainty there is derives from Leibniz's own uncertainties about the details of that metaphysics, as it evolved from the 1680s to the end of his life.