

DIET, EMBODIMENT, AND VIRTUE IN THE MECHANICAL PHILOSOPHY¹

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Abstract: This paper considers the relationship between diet, embodiment, nature and virtue in several 17th-century natural philosophers, all of whom sought to overcome or to radically reform inherited ideas about the self as a hylomorphic compound of form and matter, but who nonetheless were not entirely ready to discard the notion that the self is intimately united with the body. One implication of this intimate union, for them, is that what one does with the body, including what one puts into it, is directly relevant to the supreme end of achieving a virtuous life. I thus consider food --its preparation and its consumption-- as a link between natural and moral philosophy in the early modern period, showing in particular the parallels between the search for the diet that is ‘natural to man’, on the one hand, and the project of establishing rules of virtue on the other. Key to discerning these parallels, I argue, is an understanding of early modern ideas about diet and eating as rooted in the Stoic notion of *oikeiôsis*, which may be translated as ‘assimilation’ or ‘appropriation’, and which, as recent work by Lisa Shapiro has shown, played an important role in early modern ideas about a bodily contribution to the human good. The most general thesis is that dietary questions were far more important in early modern philosophy than has yet been recognized: nearly every prominent natural philosopher was preoccupied with them. A narrower thesis is that this parallelism between natural philosophy and moral philosophy is reflected in the conception of cooking as both a fundamental physiological process (‘coction’) as well as the most basic form of social existence.

Keywords: Natural Diet, Embodiment, Corporeal Substance, Virtue, *oikeiôsis*,

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1. Introduction: *The Raw and the Cooked in a Corpuscular World*

Contrary to the popular belief that the *novatores*, the self-identified mechanical philosophers working in the wake of René Descartes, divided up the human being into a non-bodily soul on the one hand and a merely mechanical body on the other, in fact the majority of them continued to think of the human being as an essentially embodied self. On this model, where a person is conceived neither as an immaterial soul, nor as a mere automaton, but as a corporeal substance, the process of eating and digestion --seldom noticed by philosophers in the past century or so-- is not just a physiological matter, but also a metaphysical one, to the extent that it involves the substantial transformation of food into self. It is in this respect that Walter Charleton sharply described nutrition, in his 1654 *Natural History of Nutrition, Life and Voluntary Motion*, as ‘generation continued’.²

Very often in the history of Western natural philosophy, this process of continual generation has been conceived on the model of cooking. Indeed, as William Newman points out,³ it was even suggested in antiquity that the invention of cooking was itself derived in the first place from experience of what goes on in the body after the consumption of raw food. This central social act, then, the very human activity that many have thought of as bringing human social life itself into existence, and that is at the same time a sort of extracorporeal, preliminary stage of digestion, is crucially connected to the central bodily process whereby the individual corporeal substance is sustained in its existence. The body and society are mirrors of each other in multiple ways, and not least in the fact that the very existence of each is sustained and assured by the ‘coction’ of food.

That social cooking begins the work of what will eventually be continued by the body in digestion gave rise in the history of Western natural philosophy to a cluster of questions

² Charleton (1654), Preface, no page numbers.

³ Newman (2004), p. 15.

as to whether cooked food was the most natural for human consumption, and, if so, which cooked food. On the one hand, the outsourcing of digestion to extracorporeal cooks was, and is, thought to be a hallmark of human social existence. But precisely to this extent many philosophers --going back at least to Diogenes the Cynic, who reportedly attempted to eat a live octopus in order to save himself the trouble of going through the social convention of killing it and cooking it first⁴--, taking social existence as at least in part an impediment to conduct of life in accordance with the dictates of nature, have accordingly thought raw food to be most natural.⁵ The 2nd-century satirist Lucian even reports that Diogenes died as a result of eating raw meat: perhaps the ultimate *reductio ad absurdum*

⁴ Diogenes Laertius (1850), .pp. 150-1.

⁵ Of course, one need not automatically suppose that cooking is unnatural. As Cameron Brown has pointed out (in personal correspondence), the assumption motivating Diogenes's extreme behaviour is that whatever is social is unnatural, artificial, and thus an obstacle to living by nature's dictates. Any human intervention in material nature, on this view, is only ever a corruption of the natural order. In both antiquity and the early modern period, however, this was not the only formulation of the dichotomy between the natural and the artificial. As Newman points out, despite excluding most products of the technical arts (*technai*) from the natural, Aristotle also recognized that not all art is merely imitative: "the arts either, on the basis of Nature, carry things further (*epitelei*) than Nature can, or they imitate (*mimēitai*) Nature" (Aristotle, *Physics* II 8 199a15-17; cited in Newman (2004), p. 17). Certain artisanal procedures, such as broiling and boiling, are also natural processes (*Meteorology*, IV, 381b4-5), and so their products can be understood as natural, albeit 'perfected' – not in the sense of outdoing nature, but more modestly of improving or furthering its works - through human ingenuity (Newman (2004), pp. 17-20). There do not seem to be any clear criteria by which to judge a particular artificial process imitative or perfective, but for our purposes Aristotle revealingly says that "the concoction of food in the body is like boiling. . . . [while] certain forms of indigestion are like parboiling." (*Meteorology* IV, 381b7-10). This alternate understanding of the art-nature dichotomy might be taken as support for the claim that cooked food, as the result of perfective art, also fits within a natural diet.

of the Cynic (and to some extent also Stoic and Epicurean) imperative to cut through social artifice and to live as nature dictates.⁶

In this paper I would like to consider the relationship between diet, embodiment, nature and virtue in a handful of authors representative of the new philosophy in the 17th century: authors who sought to overcome or to radically reform inherited ideas about the self as a hylomorphic compound of form and matter, but who nonetheless were not ready to discard the deeply ingrained idea that the self is intimately wrapped up with the body, and that to this extent what one does with the body, including what one puts into it, is directly relevant to the supreme end of achieving a virtuous life. In this connection, I would like to consider food --its preparation and its consumption-- as a link between natural and moral philosophy in the early modern period, indeed perhaps as *the* principle link, showing in particular the parallels between the search for the diet that is ‘natural to man’, on the one hand, and on the other the project of establishing rules of virtue. My most general thesis is that the question of diet was far more important in early modern philosophy than we might expect: nearly every prominent figure was preoccupied with it. This preoccupation offers us a fine illustration of the extent to which early modern mechanical philosophy remains, just like the Hellenistic philosophy with which it is often contrasted, a eudaimonistic project: that is to say that it is fundamentally about ‘the art of living’, and only secondarily, or instrumentally, about finding the true theory of the world. A narrower thesis is that this parallelism between natural philosophy and moral philosophy is reflected in the conception of cooking as both a fundamental physiological process (‘coction’) as well as the most basic form of social existence. The raw and the cooked, as Claude Lévi-Strauss famously suggested, are not just culinary categories: they are also normative ones, and in a eudaimonistic natural philosophy, this means that they are also, in turn, natural-scientific categories: what is good to eat is also what is natural to eat, and the new mechanical philosophy can take us a long way towards learning what that is.

⁶ Lucian (1968), p. 193; see also Krueger (1996), p. 232.

2. *Cooking and Coction*

Among anthropologists it is by now a commonplace that cooking serves to mediate between the natural and the social spheres, effectively transforming a purely natural substance, animal flesh, into a social good. No anthropologist has done more to reveal the significance of this transformation than Lévi-Strauss, who goes so far as to maintain that “cooking establishes the difference between animals and people... Not only does cooking mark the transition from nature to culture, but through it and by means of it, the human state can be defined with all its attributes.”⁷ For him, “the conjunction of a member of the social group with nature must be mediated through the intervention of cooking fire, whose normal function is to mediate the conjunction of the raw product and the human consumer, and whose operation thus has the effect of making sure that a natural creature is at one and the same time *cooked and socialized*.”⁸ Cooking makes the external natural stuff suitable for assimilation to the human body; the cooking transforms it from natural into social; while the eating transforms it from social into corporeal-substantial.

What anthropologists have been less inclined to notice is the consistency with which the process of eating and digestion has been conceptualized in the Western natural-philosophical tradition after the model of cooking, and vice versa, even to the extent that observation of the process of digestion has sometimes been thought of as the original source of knowledge of the culinary art. Thus in a curious letter Seneca tells us of a doctrine of the Stoic thinker Posidonius, according to which the baking of bread was first discovered by a philosopher’s imitation of nature itself, more precisely, of the operation of nature within the philosopher’s own body:

⁷ Lévi-Strauss (1969), p. 164.

⁸ *Ibid.*, p. 336.

Grain is crushed in the mouth between hard teeth meeting together; whatever escapes is brought back by the tongue to the teeth again; then it is mixed together by saliva to enable it more easily to pass through the mucous passage of the throat. When it comes into the stomach it undergoes coction by the even heat in it; then at last it is assimilated to the body. Taking this as a model, someone put one rough stone on another to copy teeth, which work by one stationary set waiting for the movement of the other set; then the grain is crushed by the grinding of the two, and is returned again and again until it is reduced to a fine powder by the constant grinding. Then he sprinkled water on the flour, and working it thoroughly by continual kneading fashioned a loaf, which in the first place was cooked in a glowing hot earthenware pot by ashes, and subsequently by the gradual discovery of ovens and other appliances whose heat was more subject to control.⁹

We need not suppose that anyone ever truly believed this account (Seneca himself certainly did not) in order to understand that the comparison has an obvious appeal. This appeal comes in part from the fact that cooking, again, *really is* a form of pre-digestion. As such, it really does transfer out of the body a process that in all other animals takes place within the body, and to this extent turns over to the social sphere a process that would otherwise be entirely physiological or intracorporeal.

The idea that cooking is a direct outgrowth of digestion is a rare one, but the parallel idea, of digestion as a form of cooking or burning, is widespread, and particularly in the 17th century. Thus the French materialist and neo-Epicurean philosopher Pierre Gassendi believes that sensation arises when the soul is ‘kindled’ in the body as fire is kindled in a log. “Food such as bread or herbs,” he writes,

is no more distant from living and sensing flesh than a log is from a light-giving and burning flame... Just as... particles can be disentangled from a log, which

⁹ Cited in Kidd (1988), p. 966. See also Newman (2004), p. 15.

particles will have a new power of lighting and heating once they move and arrange and dispose themselves in a new way, so spirituous particles can be obtained from dissociated food, which particles will possess an *energeia* of sensing once they are divided in a certain manner and disposed in a new way. (Gassendi, 1658 Vol. 2, 345a)¹⁰

For Leibniz, similarly, nutrition is the process that underlies the machine's pyrotechnical functioning, so that the animal body is maintained in its life by the conversion of fuel, which is to say food, into a vital heat analogous to fire. Thus he asserts in his *Corpus hominis* of the early 1680s that "the first mover in this machine is something analogous to a flame or to the Sun or a fixed star, from which there arises an ebullition which feeds itself." (Leibniz, LH III 1, 2, § 4) He suggests that the source of the heat may be a certain 'pyropus', or a sort of 'artificial fire' which "shines like amber."¹¹ The clearest antecedent for Leibniz's view that there is a bodily heat analogous to the stars is Jean Fernel, who in his *Physiologia* of 1567 had argued that "all living things live by means of the heat enclosed within them," and further that "[i]f any basis is needed for advocating this, let it be the excellence of the Sun alone that is scrutinized: it acts as leader and ruler and regulator of the world, sheds its light over all living things, warms them equally by the temperament of its heat."¹² Leibniz, like Descartes before him, would hope to transpose Fernel's theory into a distinctly mechanistic framework, arguing not that the animal body derives its vitality from a celestial source, as was often held in the medieval tradition of natural philosophy, but that it is itself literally a machine that harnesses the very same powers that make the celestial bodies hot and bright. For Leibniz, something similar to celestial burning happens when the chyle excocted from nutriment mixes with the blood and begins to 'ferment':

¹⁰ Cited in LoLordo (2006), pp. 205-6.

¹¹ Leibniz (1768), Vol. 2, p. 165.

¹² Fernel (2003), Bk, 4 ["De spiritibus et innato caldo"], Ch. 1 ["Calorem quendam in nobis cunctisque viventibus inesse, eumque divinium"], pp. 256-58.

[M]any think that it is the hot in the body that is fed by the humid; some appeal to the little flame in the heart, others to the fire without light,¹³ a certain I-know-not-what analogous to the elements of the stars...; some say it is a certain fermentation, some that it is innumerable little explosions comparable to gunpowder: we think that in all of these a moderate and enduring boiling obtains, which is fed by a circulating matter that grows more and more rarefied and is also restored little by little... We will thus rightly assert that an animal is not only a Hydraulico-Pneumatic machine, but also in a certain respect a Pyrotechnical one.¹⁴

It is pyrotechnics, in short, that converts external matter into corporeal substance. This conversion, in turn, has important similarities to the initial process by which the corporeal substance is generated. Among other similarities, this process, too, is often conceived as either derived from or analogous to the kindling of heat in celestial bodies. From a medieval theory of celestial influx that would account for the initial kindling of new creatures and their subsequent growth, many 17th-century natural philosophers came to hold instead that this kindling comes from within, as a sort of fermentative process understood along chemical lines. Walter Charleton, as already mentioned, explicitly identifies nutrition and generation as two aspects of one and the same process, and sees both of these as arising from internal coction. What is it to nourish, he asks, “but to substitute such, and so much of matter, as is, by reason of exhaustion, wanting to the solid parts of the body, namely flesh, nerves, veins, arteries, &c.?... Nutrition is nothing else but Generation continued.”¹⁵ Both of these complementary processes are governed by what Charleton calls a ‘Plastic Spirit’, which works

within us through the whole course of our life, from our very first formation to our death; doth in the same manner perpetually regenerate us, out of a liquor

¹³ See Descartes (1966), Vol. 6, pp. 7-8.

¹⁴ See Smith (2011), Appendix 3.

¹⁵ Charleton (1659), pp. 2-3.

analogous to the white of an Egg, by transmuting the same into the substance of the solid parts of our body. For, as I said before, Nutrition is necessary to all Animals, not only in respect of the Augmentation of their parts, while they are little Embryons; but also in respect of their Conservation after during life: because their bodies being in a natural consumption or exhaustion, would inevitably be soon resolv'd into their first elements, unless the providence of Nature had ordain'd a continual renovation or reparation of the parts, by substitution and assimilation of fresh matter, in the room of those particles dispers'd and consum'd. ... The Depredator... or Efficient cause of the perpetual consumption of our bodies, seems to be, what all Philosophers unanimously hold it to be, the Vital Heat of the blood, therein first kindled by the Plastic Spirit, continually renew'd by the Vital Spirit, and by the arteries diffus'd to all parts of the body, that they may thereby be warm'd, cherish'd, and enliven'd.¹⁶

Thus, for Charleton as for Leibniz, what sets the animal body off from an aggregate such as a rock is precisely the lack of stability of its corporeal parts: it is constantly burning from within, and needs for the burnt or exhausted matter to be perpetually replaced. The fact that it is able to replace its 'depredated' parts, and that fresh matter is able to come in and take on the form of the matter that has been burnt up, already shows that the animal body is something of quite a different nature than an aggregate, and also shows that there can be no clear distinction between the initial generation of an animal and its subsequent manner of existence: for an animal to continue to live just is for it to be continually regenerated. In spite of this identification, however, there is one important respect in which nutrition differs from generation: while generation is generally conceived as happening *ex nihilo*, nutrition involves the transformation of one sort of thing into something else: of food matter into corporeal substance.

It is important at this point to emphasize the key technical difference between 'matter' and 'body' (along with its associated adjectives, notably 'corporeal'): the flesh of a dead

¹⁶ Ibid.

animal is ‘matter’ to the extent that it no longer constitutes an integrated part of a substantial being. If left uneaten, it will quickly rot. Once eaten and digested, it is literally *incorporated*, which is to say transformed from mere corrupting matter lacking any substantial unity, into the body of a unified, organic being. This transformation, as has been noted, involves philosophical problems of its own. For one thing, it requires a metamorphosis that, if reflected upon, might easily seem at least as problematic as the transmigration of the soul into the body of a pig or a tiger after death, or the sort of transformation within the course of a single life that is described in Ovid’s *Metamorphoses*. The possibility of such change is firmly rejected early on in the Western tradition of natural philosophy, largely for theological reasons, yet nutrition effectively shows us that we cannot get rid of such change altogether: creatures are *constantly* being turned into creatures of another sort. As Leibniz observes in his 1704 *De causis februm*, for example, digestion --at least of vegetable food matter-- involves the transformation of plant into animal: “[N]othing moreover is done in the stomach *per se* than to transfer vegetable masses into another clearly separate kingdom and genus.. And I hold even that the chyle in the stomach and in the thin intestines undergoes the animal transmutation.”¹⁷ This transmutation is, at the same time, assimilation: the conversion of non-self-stuff, so to speak, into self-stuff. One important question that comes up in this connection is whether there are rules that govern this transformation: whether nature prescribes the paths by which one sort of stuff may be assimilated to another. And here, as we will see, early modern natural philosophers confront a number of interconnected questions that have to do not just with natural philosophy, but also with moral philosophy, and with the intersection between the two.

3. Oikeiôsis: *Self-Making and the Bodily Contribution to the Human Good*

We have already seen that in a corporeal-substance metaphysics eating and digestion are fundamentally a process of appropriation or assimilation. Recent work by Lisa Shapiro has shown that this notion was at the crossing of a number of important issues in early

¹⁷ Leibniz (1966), Vol. 3, pp. 111f. [3, 5,]

modern philosophy. Shapiro has emphasized the survival of something close to the Stoic notion of *oikeiôsis* in the 17th century, a term that may best be translated as ‘assimilation’, ‘appropriation’, or ‘process of constitution’. According to Shapiro, when we consider the idea of embodiment in certain 17th-century figures under the aspect of *oikeiôsis*, we see that, far from holding to a strictly dualistic view on which the mind or soul is the locus of the moral being of an individual, while the body in turn is a mere machine with no ends of its own, in fact many mechanical philosophers were committed to some sort of ‘bodily contribution to the human good’. In this section, I will argue that no interest of early modern natural philosophers better reveals the early modern survival of the Stoic notion of *oikeiôsis*, as Shapiro has characterized it, than their endeavor to account for the process of eating and digestion, and to learn what sort of things ought to be eaten, and in what state, by human beings.

Despite the still common caricature of Descartes as a thoroughgoing dualist, most scholars have been aware for some time now that the picture is in fact not so simple: this leading figure of modern philosophy believed that in myriad ways the self is thoroughly mixed up with the body. Descartes writes in the *Discours de la méthode*, for example:

The mind depends so much on the temperament and the disposition of the organs of the body that, if it is possible to find some way of making men more knowledgeable and able than they have been up until now, I believe that it is in medicine that they should be looking for it.¹⁸

He also believes that bodily health is necessary for exercise of rationality, which is in turn necessary, along with virtue, for happiness:

when I spoke of a true happiness which depends entirely on our free will and which all men can acquire without any assistance from elsewhere, you note quite

¹⁸ Descartes (1966), Vol. 6, p. 62. For an excellent treatment of Descartes’ views on, and contribution to, medicine, see Aucante (2004).

rightly that there are illnesses which, taking away the power of reasoning, also take away that of enjoying the satisfaction of a rational mind. This shows me that what I have said generally about all men should only be extended to those who have free use of their reason and with that know the path necessary to take to reach this true happiness.¹⁹

Recall now that *oikeiôsis*, on Shapiro's account, is a sort of process through which individuals make something their own. Shapiro sees this, plausibly, as very close to the later Latin notion of 'constitution', noting that "there seems to be agreement among the Stoics that the first thing that is *oikeion* is our own body and its constitution."²⁰ She cites Seneca, who observes that

[t]here is a constitution for every stage of life, one for a baby, and another for a boy, another for a teenager, another for the old man. Everyone is attached [*conciliatur*] to the constitution he is in. A baby has no teeth—it is attached to this constitution, which is its own [*huic constitutioni suae conciliatur*]. Teeth emerge—it is attached to this constitution.²¹

Here, the key term is 'attached': in order for something to be *oikeion*, as Shapiro explains, it must be an object of personal concern. As Tad Brennan writes, similarly, of the Stoic version of this notion, "when you think of something as *oikeion*, you think of its

¹⁹ Ibid., Vol. 4, pp. 281-2.

²⁰ Shapiro (2010). It should be emphasized that there is no textual evidence for a lexical link between the Greek *oikeiôsis* and the Latin *constitutio*. What is clear however, as Shapiro has persuasively shown, is that in early Roman authors such as Cicero and continuing into the 17th century, *constitutio* plays a similar conceptual role to that played by the Greek term in the earlier Stoic authors. Here we will leave it to the specialists in ancient philosophy to determine whether the similarity is one of causal influence or merely of coincidental overlap.

²¹ Seneca (2007), p. 87. [Letter 121, §15]

welfare as giving you reasons to act.”²² Cicero as well will insist on a role for the body in the attainment of the human good, and thus on the body as an object of personal concern. In his 1st-century BCE text *On Moral Ends*, the Roman philosopher connects the constitution of a creature to the initial arrangement of its parts, and insists that the preservation of this arrangement is just as much a part of the human good as is the good of the mind. To neglect this part of the human good is for human nature ‘to abandon itself’, by “placing the highest good not in the whole but in a part of itself.”²³ In fact (and here we see an anticipation of Charleton’s identification of nutrition and generation), if the human constitution could speak, Cicero maintains, it would declare that “its first incipient burgeonings of desire were directed at preserving itself in the natural condition in which it had been born.”²⁴

In the 17th century, ‘constitutio’ is frequently used by Leibniz and others to describe the condition of a human body. It often functions as a near-synonym of ‘health’, which is to say the *proper* or *fitting* condition of the body, the one that permits it to thrive and to pursue all of its natural ends. Thus, for example, in the *Directiones ad rem medicam pertinentes* of 1671 Leibniz writes: “I believe that from the saliva much can be concluded as to a man’s constitution, as also from the urine;”²⁵ “[W]ith urine, one can let it form into crystals, mix certain solvents or reactive agents into it, etc., from which colors will appear that will enable one to judge as to a man’s constitution;”²⁶ “For some men have naturally warm hands, some naturally cold, more or less according to their constitutions;”²⁷ and so on. Significantly, in another text of the same year Leibniz explicitly describes a sick body as a clock [*Uhrwerck*] having its own ‘constitution’.

²² Brennan (2005), p. 158.

²³ Cicero (2001), p. 101. [Bk. 4, 32]

²⁴ *Ibid.*, p. 103. [Bk. 4, 41]

²⁵ See ‘Directions Pertaining to the Institution of Medicine’, in Smith (2011), Appendix 1, §4.

²⁶ *Ibid.*

²⁷ *Ibid.*, §6.

Writing about the possibility of healing patients by influencing their imaginations, he complains that “we are still lacking the medical principles that would enable us to see the internal constitution of such a malfunctioning clock [as the sick person’s body], and thus of its imaginings, and sicknesses are known to us for the most part more through their effect than through causal definition.”²⁸ This passage shows that even in ostensibly fully mechanized models of the body, which take the body as an elaborate sort of machinery explicable by the very same principles as a *horologium*, it still makes sense to speak of the bodily constitution and its proper functioning.

Oikeiôsis is, literally, ‘home-making’ in the sense that it turns outside matter into part of the animal’s bodily *oikos* or home. Another important place where the notion of the body as home turns up in early modern natural philosophy is in the idea of *oeconomia animalis* or animal economy.²⁹ This might be thought of as that particular subdomain of natural philosophy that deals with animal bodies and their motions, as also the study of the relation between organs and functions. Thus it comprises anatomy and physiology, but particularly with an eye to the way the elements of these disciplines are coordinated in a living system. It is anatomy, physiology, and ethology at once. As Leibniz explains, for example, it pertains to the constitution of a squirrel to dance or jump, so a squirrel is, essentially, a dancing or jumping machine [*machina saltatrix*]. The need to see this trademark activity in order to grasp the true nature of the species is one reason why

²⁸ Leibniz (1923--), Vol.4, pp. 543-52.

²⁹ The term occurs in the title of Benjamin van Broekhuizen’s *Oeconomia corporis animalis sive cogitationes succinctae, de mente, corpore, et utriusque conjunctione* [*The Economy of the Animal Body, or, Succinct Thoughts on the Mind, the Body and the Conjunction of Both*] of 1672. Another important work in this genre is by Walter Charleton, who published his *Oeconomia animalis novis in medicina hypothesisibus superstructa et mechanice explicata* [*A New Animal Economy, built upon Hypotheses in Medicine and Explained Mechanically*] in 1659. Usage of the term explodes in frequency in the second half of the 17th century, evidently in consequence of Charleton’s bold book title.

ethology must be included along with anatomy and physiology in any adequate science of animal economy. In a letter to A. C. Gackenholtz of 1701, Leibniz makes this connection very clear. Plants and animals, he writes,

and, in a word, organic bodies produced by nature, are machines able to perform certain offices, which they do in part through their individual nutrition, in part through the propagation of their species, and finally also through their very perfection, that which each one brings about through its special office.³⁰

In general, then, we may say that animal economy holds that there are different ‘house rules’, so to speak, for different kinds of animal body. Different bodies need to do different things depending on what sort of bodies they are, and what they do is essentially connected to whether they come to be properly constituted. As a curious example of this connection between constitution and activity, in the *Journal des Sçavans* of July 5, 1677, Leibniz recounts the story of a goat with deformed horns, an ‘extraordinary coiffure’, as he calls it. He explains that in fact this deformation is only a consequence of the restriction of the goat's movement in its early life:

The physical cause of this excrescence could be attributed to the fact that the aqueous humor of this animal could not be dissipated as soon as it was attached, as it ordinarily is by the heat of this sort of animal that is accumulated in their bounding, leaping, and running, this great humidity mixed with the juice, the volatile salt that forms the horns, attracted the matter downward by its heaviness, and made it soft, and of a colder temperament.³¹

In short, morphology cannot be separated from ethology: an animal has the constitution it has *because* it has the principle of activity that it has. To be an animal of a certain kind,

³⁰ Leibniz (1768), Vol. 2, p. 171.

³¹ Leibniz (1768), Vol. 2, pp. 175-176.

with a certain constitution, just is to have a certain principle of activity which in normal ecological circumstances will give rise to a normal representative of the species.

It will not be surprising to find, now, if *oikeiôsis* involves the transformation of external matter into the ‘home’ of the body, and *oeconomia* lays out, so to speak, the ‘house rules’ by which a given kind of animal will direct its body towards the realization of its own good, that the different house rules for different kinds of creature extend to the rules of diet, and that proper development towards the proper end involves not just nourishment, but nourishment by species-appropriate foods. What these are, and how we can know what these are, was a question that had implications for natural philosophy and moral philosophy alike. Perhaps nowhere is this clearer than in the early modern debate as to whether or not human beings are or are not naturally meat-eaters.

4. Raw Meat and Cooked Bones: Defining the Human-Animal Boundary

We are all familiar with the moral puzzle raised by the figure of the cannibal in Renaissance thinkers, perhaps most notably in Michel de Montaigne’s 1580 essay ‘Des cannibales’. This figure emboldened some, including Montaigne himself, to suppose that our dietary prohibitions, even those against eating members of our own species, are merely contingent, rather than being reflections of an eternal moral order. Some, such as Robert Boyle, would argue in the century after Montaigne that one does not even need to go as far as anthropophagy in order to marvel at the diversity of dietary customs, and indeed that some of the most incredible culinary inclinations come not from the distant Indies, but from England itself:

Among the Savagest Barbarians we count the Cannabals, and as for those among them that kill men to eat them, their inhumane cruelty cannot be too much detested; but to count them so barbarous merely upon the score of feeding on man’s flesh and bloud, is to forget that woman’s milk, by which we feed our sucking Children, is, according to the received Opinion, but blanched Bloud... [O]ur Travellers mention the practice of the Soldanians at the Cape of Good hope,

who not onely eat raw meat, but, if they be hungry, eat the guts and all of their Cattle, with the Dung in them... [W]e devour Oysters whole, guts, excrements, and all; nay, when not for Physick, but only for Delicacies, and our Courtiers and Ladies are themselves wont to make sawce for the bodies of Lobsters of that green stuff, which is indeed their Dung.³²

Why invoke the terrifying figure of the cannibal, in other words, when our own carnivorousness is already horrible enough? It appeared to some, including Boyle and, as we will see, Gassendi, that cannibalism was but a limit case of something much more widespread, and impossible to eliminate altogether. But cannibalism was also the form of eating that involved the least transformation through assimilation, since the food matter that was being taken in was *already* perfectly similar to the body of the eater. For this reason, some maintained that human flesh could have no nutritional value when consumed by humans. As Catalin Avramescu observes, “in the vision of the theologians, the intention of Providence is not that each creature should eat whatever food it can get hold of, no matter what its nature, because not everything can serve as nourishment. A universal lack of appetite for human flesh is therefore a characteristic of the providential order.”³³ On such a conception, it stands to reason that the more work of assimilation that must be done, the greater the nutritive value of a given food. Thus Gassendi, for his part, sees cannibalism as a limit case of carnivorousness, and sees them both as less wholesome than eating plants precisely to the extent that these acts are based on the addition of same to same, or like to like, while nutrition properly understood involves a *transformation*. Walter Charleton will make this very point in his 1654 *Physiologia Epicuro-Gassendo-Charltoniana*:

Nor are they in the right who thinke, that the parts of the body being diverse, those of the Aliment ought also to be equally diverse. As if Nutrition were

³² Cited in Avramescu (2009), pp. 173-74.

³³ *Ibid.*, p.132.

nothing else but a selection and attraction of fit aliment and that there were not required in every part a concoction, assimilation, apposition, and transmutation.³⁴

Indeed, no one in the 17th century addressed the question of the proper diet for humanity with more interest than Charleton's doctrinal predecessor, the neo-Epicurean Gassendi. In his *Syntagma philosophicum*, published posthumously in 1658, the French materialist argues at length that human beings are by nature herbivorous. He begins with anatomical considerations:

Thus the rather more special difficulty concerning the aliment of man is touched upon; who should appear to have been made, and disposed [*comparatusque*] by nature to enjoy the gifts of the earth, that is, plants and fruits, but turns away from the slaughter of animals and the use of their flesh. Certainly nature's intention as to what is permissible to eat is not hard to discern from the conformation of the teeth alone. Accordingly when Nature formed us among earthly, motile, animate beings, she did not give us such teeth as those have that by their nature should feed on meat --as lions, wolves, and others that are for that reason called carnivores--, but such as those have that feed on plants or various sorts of fruits--as do horses, sheep, and others that are not considered carnivores.³⁵

He goes on to spell out several additional arguments as to why human beings should abstain from meat. For one thing, there are, he thinks, the spontaneous preferences of children: "we see all children prefer apples to partridges, and are one and all lovers not of meats, but of fruits; certainly [this is] because nature is in them as yet in a certain manner pure, and unaltered, ... until such a time as the daily use of meat will distort nature itself by means of a steady tempering."³⁶ There is also the fact, Gassendi notes, that in order to consume animal flesh human beings need to have their own natural 'arms' supplemented

³⁴ Charleton (1654), p. 9.

³⁵ Gassendi (1658), Vol. 2, pp. 301-02. [*Physicae* Sectio 3. Bk 5, Ch. 1]

³⁶ *Ibid.*

by tools “such as knives, which living beings feeding on meats otherwise do not require.”³⁷

There is also, significantly, the fact that the consumption of animal flesh requires cooking: “as concerns meats we turn away from uncooked ones; it is necessary to cook them in various ways, in order that they should be made more agreeable, which preparation is not required by other living beings that feed on meat. Evidently for these other beings Nature has also made a provision for agreeableness.”³⁸ If nature had wanted us to eat meat, in short, she would have made it agreeable to us in the same way it is agreeable to lions and wolves, without the intervention of the denaturing process of cooking. Cooking is, in short, unnatural, and anything that must be cooked in order to be eaten cannot have been intended by nature to be a part of our diet.

Gassendi moves next to an argument against an evidently common conception of the nature of digestion, according to which food that is eaten is added directly to the body without transformation, “as one sticks plaster to plaster.”³⁹ He holds this to be a naive view, and believes instead that, although animal flesh is in some sense more like the flesh of the body it is to nourish, nonetheless it can only be “dissolved and distributed throughout the parts of our bodies with much more difficulty,” since “the meat of animals is produced from and stored in the fattier part of them.”⁴⁰ Gassendi proceeds to offer a very clever argument against the naive view that the virtues we associate with animals can be derived from eating them, since after all these animals generally derive these virtues themselves directly from their own herbivorous diets: “[I]t is not to be feared that not enough men can be convinced to quit these foods, as the strength of bulls, the agility of deer, and the similar gifts of other animals do not derive from other foods [than

³⁷ Ibid.

³⁸ Ibid.

³⁹ Ibid.

⁴⁰ Ibid.

plants].”⁴¹ Nutrition is, again, not just a matter of the addition of like to like, but is instead fundamentally a transformation akin to generation itself. As such, there can be no principle of likeness that would govern what should be eaten by what: in fact, what is most natural for consumption by herbivores is what is least like them.

Several decades later, John Wallis and Edward Tyson would still be debating the points raised by Gassendi concerning the virtues of vegetarianism. Tyson, the author of the monumental 1699 study of chimpanzee anatomy, *Orang-Outang, sive Homo sylvestris*, writes to Wallis two years later on January 16, 1701, that Gassendi’s case is weakened by the empirical fact that there are no known vegetarian societies:

[H]ad Man been design’d by Nature not to have been a Carnivorous Animal, no doubt there would have been observed, in some part of the World, Men which did not at all feed upon Flesh. But since no History (as I know of) furnishes us with such an instance, I cannot but think what hath been done universally by the whole Species, must be Natural to them.⁴²

He next suggests that the most famous case of vegetarianism in history, that of the Pythagorean cult in Greek antiquity, was based not on a spontaneous or natural inclination, but only on false and artificially contrived beliefs: “What the Pythagoreans did, in Abstaining from Flesh, was upon the notion of a *metempsychosis*, or Transmigration of Souls, a mistake in their Philosophy, and not a Law of Nature.”⁴³ In general, in the early modern period cultic interdictions rooted in the Greek or Hebrew tradition were seen as the only possible basis for vegetarianism,⁴⁴ and those who tended

⁴¹ Ibid.

⁴² Tyson (1701), p. 775.

⁴³ Ibid.

⁴⁴ It is certainly not clear that ancient Greek vegetarianism itself was grounded in a theory of metempsychosis. Porphyry, in *On Abstinence from Animal Food*, echoes a familiar line that meat should be avoided simply because to consume it is a mark of intemperance.

to deem these irrational also had few kind words for those who give up meat. Thus Spinoza famously declares in the *Ethics* that “the requirement to refrain from slaughtering beasts is founded on groundless superstition and womanish compassion rather than on sound reason.”⁴⁵

It is against corporeal nature, and its consumption leads also to a disruption of social harmony. In the Golden Age, before agriculture, it was unknown: “[T]he ancients, being generated with an alliance to the Gods, were naturally most excellent, and led the best life; so that, when compared to us of the present day, who consist of an adulterated and most vile matter, they were thought to be a golden race; and they slew no animal whatever... This very thing, likewise, was the cause of their leading a life of leisure, free from labours and care; and if it is proper to assent to the decision of the most skilful and elegant of physicians, it is also the cause of their being liberated from disease. For there is not any precept of physicians which more contributes to health, than that which exhorts us not to make an abundance of excrement, from which those pristine Greeks always preserved their bodies pure. For they neither assumed such food as was stronger than the nature of the body could bear, but such as could be vanquished by corporeal nature, nor more than was moderate, on account of the facility of procuring it... Moreover, there were neither any wars among them, nor seditions with each other. For no reward of contention worth mentioning was proposed as an incentive, for the sake of which some one might be induced to engage in such dissensions” (Porphyry, 1832, pp. 132-3). The association between meat and excrement was a commonplace of Greek medicine: consider also Galen on the diet of athletes: “Always gorging themselves on flesh and blood, they keep their brains soaked in so much filth that they are unable to think accurately and are as mindless as dumb animals” (Miller, 2004, p. 174).

⁴⁵ Spinoza (2002), p. 340. The association of vegetarianism with Pythagoras was so great in fact that early modern confrontations with Hindu vegetarianism tended to assimilate it to the Greek practice. Thus the French Gassendian and travel author François Bernier writes in his 1671 *Histoire de la dernière Révolution des états du Grand Mogol* that all of the Indian ‘gentiles’, to cite an English translation of the period, “agree in one Doctrine, which is that of Pythagoras concerning the Metempsychosis of Transmigration of Souls,

Tyson acknowledges to his correspondent that, as “Gassendus remarks in the same Epistle I have so often quoted..., Custome may make that seem Natural to us, which Nature never intended.” The result in such cases is that the animal, much like Leibniz’s goat, becomes habituated to a circumstance that is not in keeping with its true nature. Tyson cites Gassendi’s example of “a Lamb that was bred on Ship-board, which refused the green Pasture of the Fields, for the Diet it was formerly used to,” and he adds his own example of a horse he has seen in London, that, “with a great deal of pleasure, would eat Oysters, scranching them, shell and all, between his Teeth, and swallowing them. And this he took to by accident, being left at a Tavern door, where stood a Tub of Oysters.”⁴⁶ The English anatomist agrees with Gassendi that what any individual or group does is not necessarily representative of what is natural to a species, since custom may temper us to unnatural things. Yet the empirical fact that *no* human group has been known to reject meat entirely strongly suggests that meat eating is not just habituation, akin to the oyster-eating of a curious horse.

and in this, that they must not kill or eat of any Animal” (Bernier (1671) Vol. 3 pp. 145-46). Bernier is willing to at least consider some other possible reasons for the prohibition in India: “Possibly their ancient Legislators had seen those Shepherds of Egypt, crossing the Nile, by holding with their left-hand the Tail of an Oxe, and in their right-and a stick to guide him with; or rather they have imprinted in them this respect for Cows, because they draw from them Milk and Butter, which is a great part of their subsistence... It may be also, that these Law-givers considered, that Cows and Ox-flesh in the Indies is not very savoury, nor wholesome, unless it be for a little time in Winter, during the cooler season: Or lastly, that they would take the People off from mutual cruelty, (to which they were too much inclined) by obliging them, as by a maxime of Religion, to exercise humanity to the very Beasts, and by making them believe, that killing or eating an Animal, it might happen that they did kill or eat one of their Grand-sires; which would be an horrible crime” (Bernier (1671), Vol. 3 pp. 146-48).

⁴⁶ Tyson (1701), pp. 777-78.

Wallis will reply to Tyson later in the same month that he is very much in agreement with the reasoning of the anatomist, according to which an apparently universal acceptance of carnivorism “is a strong Presumption (as you well observe) that to feed on Flesh (duly prepared) is not wholly Unnatural for Mankind.”⁴⁷ Wallis is particularly interested however in the question of the naturalness of *raw* meat: “I believe you think (as I do),” he writes,

that Raw Flesh is not a Natural Food for our Bodies. I do not know that any Nation have (of choice) used to feed on Raw Flesh; unless in cases of Extremity, or when they have not the Convenience of Preparing it by previous Coction, or somewhat equivalent. For I put a great difference between Raw Flesh (which is the common Food of what we call Carnivorous Animals,) and Flesh duly prepared for our Food. If any there be that (of choice) feed on Raw Flesh, I look upon it as a Case Anomalous; like that of the Lamb mentioned by Gassendus; and the Horse (you mention) that Eats Oysters.⁴⁸

Wallis goes on to add his own story of “the Rat eating Bacon, for want of other Food,” as well as “the Swine sometimes eating Poultry.”⁴⁹ He notes that the latter is an “effect of an Appetite Depraved by Custome,” which arises only in the context of the pig’s domestication. Pigs are given the by-products or residue of human consumption, and because “much of the Hog-wash we give to Swine, ariseth from the Coction of Flesh for our own use,” this “doth inure the Swine (a Voracious Animal) to the Taste of Flesh, and makes it familiar to them.”⁵⁰ Yet in the natural order of things it is only human beings who eat cooked food, and flesh, insofar as it is eaten, must be cooked. No non-human animals should eat cooked food, and for this reason among others domestication places them in a highly unnatural predicament. This is already evident with pigs, and even

⁴⁷ Wallis (1701), p. 784.

⁴⁸ Ibid.

⁴⁹ Ibid.

⁵⁰ Ibid.

moreso, as a curious 1680 text of Leibniz shows, with those exceptional animals occupying the boundary between the human-social and the animal-natural: dogs.

This text, the satirical *Requete des chiens*, conceived as an official complaint from three canine residents at the court of Hannover --Lelaps, Mopse, and Amarille-- protests against the introduction into the Hannoverian kitchens of the pressure cooker newly invented by Denys Papin. This device, it had been reported, would be able to reduce bones to a state of softness in which they could now be eaten by human beings: men had found a way to 'humanize', in Lévi-Strauss's sense, what previously belonged to animals. Bones had previously been a residual product of the humanization of meat, and in this respect, before the pressure cooker, they had proved resistant to humanization. To the extent that it was a residual unhumanized product of the humanization of animal flesh, it was the perfect 'payment' to dogs for their association with human beings: dogs who are fully animal and yet, unlike other animals, are also part of human society.

The "Request of the Dogs" is a satire, obviously. But beyond the simple fact of its genre, what might we hope to learn from it? Notwithstanding the text's whimsical spirit, Leibniz willy-nilly says some profound things about the nature of dogs, and of dog-human relations, and of the role of cooking and food sharing in the social body. His three dogs begin by invoking "the great Diogenes, called the Cynic or the 'canine' in view of the affection that he gave us," who "had the custom of declaring loudly that there was sometimes a greater difference from one dog to another, than there is between certain men and certain beasts."⁵¹ They note that the diversity between dogs "makes them seem almost of different species."⁵² Leibniz will echo this observation in the 1704 *New Essays concerning Human Understanding*, where he claims that the 'races' of great cats, such as tigers and lynxes, are no more different the one from the other than are the breeds of dog. It is unlikely that Leibniz is aware that it is human-imposed pressure that has resulted in the diversification of breeds. But whatever the cause, there is a clearly observable fact

⁵¹ Leibniz (1923--), Vol. 1, Band 3, No. 67.

⁵² Ibid.

that dogs are morphologically and behaviorally diversified in a way that most other species are not. Leibniz describes this diversity in terms of the ‘nations’ of dogs.

The three dogs, each from its own nation, complain about the introduction of Papin’s machine at the royal court in Hannover. They announce that they

have learned from our correspondents that a certain *quidam* claims to be able to make bones soft and suitable for being eaten by men, without thereby spoling the flesh at all, and that said *quidam* wishes to send his cooking pots and his entire apparatus to the Court of Hannover so that they may be tried out there. To which we have deemed it necessary to voice our opposition in a timely fashion.⁵³

The dogs worry that this will “disturb the good understanding that has existed for all time between dogs and men,” and they argue that the agreement concerning the distribution of meat and bones is one that has existed “since the Flood, that is to say since men began to eat the flesh of animals.”⁵⁴ They describe their coexistence with human beings as the product of a delicate, cross-species social contract, based upon the proper distribution of meat:

[A]lthough we have relinquished the marrow to men for love of peace, this was only in order to better preserve for ourselves our right to the bones themselves, which was moreover only strengthened by this arrangement. Good God, how far does the covetousness of men reach, who sometimes do not content themselves with eating all that they have, but also have no shame in devouring our portion.⁵⁵

The dogs go on to briefly describe what human life might be like without dogs. If they were to go on strike and stop guarding men’s sheep, the dogs threaten, the unprotected

⁵³ Ibid.

⁵⁴ Ibid.

⁵⁵ Ibid.

flock would quickly be taken by the wolves (at once the closest ancestors and the fiercest enemies of the dogs). “In denying us the bones,” the dogs protest, “you will lose them along with the meat.”⁵⁶ If moreover the little lapdogs were to abandon their mistresses, they would then be “left to the lovers who pursue them,” with no one to “bark at whatsoever they might undertake.”⁵⁷

Cooking, in sum, mediates between the natural and the human, but if it is taken too far, if too much is cooked, then it can also destroy the transhuman social bond between humans and dogs, which themselves play a mediating role between the social and the natural. These implications of this very curious text reveal the extent to which cooking was perceived, as it still is, as the preserving force of the body social, and that what it involves at bottom is the transformation of natural matter-stuff into the stuff both of human bodies and of the social body. Dogs participate only at the margins, consuming the residual products of cooking, just as they inhabit the margins of human society in many other respects. But the preservation of these margins is necessary: society is based on a delicate order maintained by the proper cooking and distribution of food and its residual products. If this balance is disturbed, true nature (wolves, sexual passion, etc.) rushes in with all its untamed force. One moral of this story is, to put things starkly, that not everything can be cooked down, not everything in nature can be transformed into a cultural good, that there is a limit to the denaturing power of the pressure cooker, or any other sort of human art. Society then must exist in balance with nature, respecting its indomitability, picking out the right things for incorporation into the social body: following, in other words, a proper diet.

5. Descartes and Leibniz: Sharing Recipes, Promoting Virtue

In the view of many early modern philosophers, virtue is necessary for happiness, yet is something distinct from happiness. Happiness, in turn, requires health, which pertains to

⁵⁶ Ibid.

⁵⁷ Ibid.

the body in a way analogous to virtue's pertaining to the soul. One philosopher who held this view was Descartes, and it is no doubt in part for this reason that throughout his life he collected countless remedies, both of his own invention, as well as from acquaintances and books.

One of the clearest concerns that he has throughout these remedies is the mutability of the value of a given food or drug to bodily health-- surely the most significant instance of this concern is in the *Meditations*, where Descartes famously notes that the man suffering from dropsy will crave liquid, which ordinarily is beneficial, even if in this condition it can only harm. The same is true of foods, such as milk, wine, and water, that have themselves been altered with respect to temperature, and then ingested into healthy bodies: "Coagulated milk in the intestines," he writes, "and wine and water drunk when they are too hot, are counted among the poisons. From which it is clear that the most common foods are easily transformed into a noxious force."⁵⁸

There is one class of foods that always acts the same, however, even if the advisability of consuming foods from this class differs according to circumstances: purgatives, namely, are "aliments that corrupt quickly in the stomach, such as foods that are more delicate than ordinary: fresh fruits, and so on." These aliments, Descartes explains, "certainly make the feces softer, but they do not however purge the rest of the body; these aliments can also do the work of astringents, but only by accident." Astringents, for their part, "act by means of coction. In fact, the less serous humor there is in the stomach, the more the heat is increased. Whence it arises that certain astringents, taken after a meal, relax the stomach by accident, since they speed up coction, such as cydoniacum [also called 'quiddey', an astringent made from red currants]..."⁵⁹ Descartes describes in a note evidently written down in July, 1628, 'a particularly difficult evacuation of the lower intestine after a number of meals was brought about in this way':

⁵⁸ Descartes (1966), Vol. 11, pp. 641-2.

⁵⁹ Ibid., pp. 642-3.

Equal parts bull's gall, unsalted butter, black hellebore, extract of diacolocynthide, diagridion, and saffron, reduced into a single mass and heated over a flame until they have attained the consistency of honey, inserted into Italian terracotta vessels and applied to the navel. And this cataplasm is then fastened so that it does not fall; and two cataplasms of clay, filled with these potions, are applied the one after the other, one per day. The first days nothing was felt by the patient, other than agitations and murmurs; the third day, the desired evacuation arrived with great pain, but the normal excretion did not follow the very hard excrements until the abdomen of a freshly slaughtered calf, covered in aged oil sifted after cooking and heated up, was applied to the patient's stomach, and until the anus was probed by fingers covered with bile and butter.⁶⁰

The only reason we have this text is because G. W. Leibniz transcribed it nearly 50 years later, when Descartes' literary executor, Claude Clerselier, gave the German philosopher one day, February 24, 1676, to look through Descartes' manuscripts and to transcribe whatever interested him. Ponder that fact for a moment: Leibniz had a single day to copy out whatever he could find of interest in the *Nachlass* of the greatest philosopher of his era, and this remedy against constipation made the list. Clearly he was operating with a different understanding of the scope of the discipline than we are.

Why did Leibniz consider this remedy important? As we have already suggested, health was closely connected to virtue for many early modern philosophers, and Leibniz was no exception. Thus we find a remarkable comparison of true happiness of the soul with health in Leibniz's *Directiones* of 1671:

Let us here now admire the Wisdom and Fore-sight of the Great Creator and Author of Nature, That in regard all our Actions and Operations are of themselves painful and troublesome, and these also, as Aristotle terms them, being Natural, as Seeing, Hearing, &c. He hath caused them all to be sweetened with Pleasure; and

⁶⁰ Ibid., p. 644.

the more necessary these Operations are for the preservation of our Species, the greater Pleasure Nature hath allotted them; otherwise all Creatures would neglect or forget not only the act of Generation, but even Eating and Drinking itself, if there were not certain natural Instigations that stir and move us, and by causing some kind of Pain and Uneasiness, doth promote and encourage, which is a manifest Proof, that these sorts of Pleasures, are not of themselves Evil, tho' Men abuse them afterwards by Intemperance, contrary to other Animals.⁶¹

More so than the majority of his peers in natural philosophy, Leibniz was deeply interested in the project of compiling medical statistics that would enable researchers to base their diagnoses and their treatments on a comprehensive knowledge of the outcomes of past cases. In this connection, “different diets should be tried with different people. For example, one man should be given primarily dairy products; another should be permitted to drink only warm beverages; another should be permitted to eat only what is lifeless; and so on. Some should have everything together.”⁶²

Leibniz repeatedly emphasizes the importance of religious orders as models, not least because they take care of the souls of their members in the way that a transformed institution of medicine would take care of the bodies of citizens, but indeed because the dietary practices within monasteries yield something of interest to our knowledge of bodies: “One should pay attention to the conditions of members of religious orders, who usually have a common way of living with respect to diet and other things, and one should determine the consequences of this.”⁶³ Further on Leibniz will again mention monastic practices in a complimentary tone, in view, this time, of the regularity of their practices, and thus of the reliability of conclusions drawn as to the connection between their diet and their health: “the best notes could be made,” he writes “by those who are always used to living their life in the same way, such as farmers or members of religious

⁶¹ Smith (2011), Appendix 1, §90.

⁶² Ibid., §19.

⁶³ Ibid.

orders.”⁶⁴ Leibniz also takes up an old question from Gassendi, asking whether it makes a difference not only what creatures humans eat, but also what creatures those creatures in turn have eaten: “It should be tested whether there is a benefit to a man who eats animals that have, up to a certain amount, been fattened with hay, or other animals, etc.”⁶⁵ Tests should also be made, Leibniz writes, “to determine what would happen if a man were continually nourished with water, or with water and bread, etc., and what would be the uses of a consistently simple and regular diet.”⁶⁶

Since I consider that taste is the best instrument for determining the nature of things, all means must be sought, by which men could arrive at a sense of taste that is subtle to the highest degree. Now it is known that men who only drink water are so subtle in their sense of taste that they can distinguish one water from another by its taste, which others cannot do. Therefore certain men should be fed with almost tasteless food, such as water and bread, or with meals prepared in the Tartar style.⁶⁷

By this final recommendation, Leibniz of course has in mind raw food (the ‘Tartars’ or Tatars, a nomadic Turkic people of the Eurasian steppe, were held to be so coarse and animal-like as to eat their food raw). All such tests, Leibniz believes, will help “to determine whether something can be concluded about the constitution of the body.”⁶⁸ Once this is concluded, “a certain number of the best foods should be established, and a certain form of the ways of living, according to each man’s temperament.... Foods and diet should also be prescribed that are useful to all temperaments.”⁶⁹

⁶⁴ Ibid., §31.

⁶⁵ Ibid., §19.

⁶⁶ Ibid., §32.

⁶⁷ Ibid., §60.

⁶⁸ Ibid., §31.

⁶⁹ Ibid., §49.

In the end Leibniz believes that this empirically established set of rules as to what should be eaten by whom will lead to a state-controlled institution that regulates the citizen's diets by assigning a 'medical father confessor' to each individual who will serve as an advisor and mentor in matters of diet:

The rules or satisfactions of the medical father confessor should consist not so much in prescriptions as in rules of diet, just as those of the spiritual father confessor consist more in certain useful deeds that are prescribed, than, for example, in the praying of a certain number of Ave Marias or Our Fathers.⁷⁰

What Leibniz envisions is nothing short of a state-run program of nutrition science that would complement and be equal to the institution of religion. Physicians would be concerned with remedies and surgery as a last resort, while their principle preoccupation would be dietetics, in just the same way that a priest's proper role is the building up of the moral character of the laypeople through instruction in right action.

This plan would parallel many other massive public projects sketched by Leibniz over the course of his career, some of which would be realized during or shortly after his lifetime (such as the scientific academies of Berlin and St. Petersburg), some of which would have to wait a bit longer (such as the rapid-transit system between Hannover and Amsterdam). It is the first such plan Leibniz proposes. His vision of the reform of medicine effectively grounds medicine in dietetics, and elevates this revolutionized institution to the status of a religion for the body.

6. Conclusion

This is bold indeed, but what does it tell us about the place of diet in the philosophy of Leibniz, as a representative *par excellence* of the *novatores*? For one thing, we see the enduring importance not just of physical bodies in the natural world for post-Cartesian

⁷⁰ Ibid., §54.

mechanical philosophers, but also of the embodiment of selves. We see, moreover, an intense preoccupation with the special circumstances of this sort of embodiment, which so distinguish living beings from the rocks and billiard balls often taken as paradigmatic examples of bodies for 17th-century natural philosophy: the embodiment of living beings, namely, is one that is dependent on a delicate balance between the living body and its environment, one that can only be sustained by a constant exchange with the world beyond the body's boundaries. This balance is maintained by eating (and excreting, which will have to remain the subject of another paper), a thermomechanical process frequently conceptualized on the model of the technological practice of cooking, and which at the metaphysical level may be described as a variety of *oikeiôsis* or appropriation geared toward self-preservation. The survival of a preoccupation with the Stoic conception of a bodily contribution to the human good, combined with an intense scientific interest in the mechanics of nutrition, effectively placed diet at the center of mechanical philosophers' efforts to make sense of human beings, and to some extent also animal beings, as embodied selves.

Another important respect in which echoes of Hellenistic philosophy may be heard in early modern debates about diet is in the effort to distinguish between what is natural for man, as concerns diet, and what is a depravity inculcated by custom. Leibniz's 1671 proposal may in the end be seen as a call to settle this matter once and for all by rigorous empirical means. Other authors drew on all sorts of available evidence to make their case as to the natural diet for men, including anatomical, scriptural, ethnographical, and other data. The fact that nutrition was conceived on the model of cooking could not but intensify concerns about the 'natural diet', for the parallelism between an extracorporeal, technological, and social process on the one hand, and an internal, physiological, and natural process on the other, showed that in a sense much human eating is unavoidably unnatural, unless one makes the extreme move of eating only raw foods (which would presumably require giving up meat). It is not at all hard to discern, anyway, that debates about the natural diet had, as they continue to have, a pronounced normative component. The raw and the cooked were, and remain, much more than culinary categories, and

nature, as for the Stoics and as for many still today, was called in as much to support some particular vision of the human good as to advance our knowledge of reality.

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