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The First Scientific Defense of a Vegetarian Diet

Ken Albala

Throughout history vegetarian diets, variously defined, have been adopted as a matter of economic necessity or as a form of abstinence, to strengthen the soul by denying the body's physical demands. In the Western tradition there have been many who avoided flesh out of ethical concern for the welfare of animals and this remains a strong impetus in contemporary culture. Yet today, we are fully aware scientifically that it is perfectly possible to enjoy health on a purely vegetarian diet. This knowledge stems largely from early research into the nature of proteins, and awareness, after Justus von Leibig's research in the nineteenth century, that plants contain muscle-building compounds, if not a complete package of amino acids. Nonetheless, we have no problem conceiving of a healthy vegetarian body. To ancient, medieval and early-modern scientists and the lay public who understood their theories, this idea would have been impossible, primarily because meat, it was believed, is the most nutritious substance, the only food that is wholly converted into human flesh.

The purpose of this paper is to chart the emergence of physiological theories that first made a vegetarian diet 'good to think' rather than an intentional and normally religiously motivated form of self-mortification. Contrary to expectations, the defense of the vegetable diet originates not with modern physiological science, but the mechanist theories of the late seventeenth century, and in particular the use made of them by a University of Paris physician, Philippe Hecquet, in his *Traité des dispenses du Carême* of 1709.

The setting that prompted the composition of this treatise is deeply concerned with religious practice nonetheless, and in particular the state of Lenten 'fasts,' which as they were defined by the Catholic Church at the time demanded abstention from meat and meat products during the forty day period preceding Easter. However, 'dispensations' for various ingredients were fairly easy to obtain, normally with the payment of a fee, according to which logic greater benefit would accrue to the church through the charitable uses of this money than if the faithful were held to a strict enforcement of Lenten restrictions. In particular, dispensations were purchased since the late fifteenth century in the pontificate of Alexander VI for butter and dairy products and one could also in practice be relieved from the obligation to abstain from eggs. By the eighteenth century such dispensations were granted *en masse* by a local priest in a yearly ceremony, but technically each parishioner was required to explain precisely why he or she felt it necessary to consume these products and sometimes even meat itself. The most common excuse, according to Hecquet, was medical. By reason of age, infirmity, or the physical demands of particular strenuous professions, people were allowed to dispense

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with Lenten prohibitions. The more solicitous clerics would even demand a doctor's note explaining the condition.

In the minds of most people, supported by their physicians, both at some level appealing to standard humoral physiology, a vegetable diet was palpably dangerous and left the body susceptible to numerous maladies. According to Galenic theory, although significantly altered since classical antiquity, most fruits and vegetables, as well as fish (also allowed during Lent) are cold and moist foods that generate phlegmatic humors in the body. Thus they surfeit the constitution with cold and moist elements that naturally exacerbate the tendency to catch catarrh, rheums, and various ailments that today we would categorize as colds, coughs, and flu. This was a very real fear, and to the extent that individuals recognize the motions of their own bodies in terms that are dictated by their culture and its reigning medical orthodoxy, not at all unfounded. That is, as much as the body is socially constructed through history, people did indeed get sick in the winter and they accepted the cause as ambient cold and damp as well as a diet of cold and moist foods. It was these very foods, moreover, that were the foundation of the Lenten diet, in late winter normally before warmer weather and 'hotter' spring comestibles became available. There is therefore an inherent contradiction between Christian foodways and popularly understood humoral physiology. One commands you to eat vegetables and fish during Lent, the other insists that these are the worst possible foods for maintaining health in cold seasons. The only possible solution for health-concerned individuals was to purchase a dispensation. By the eighteenth century, this appears to have become routine.

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Hecquet published his treatise in defense of Lent and a vegetable diet partly motivated by his own austere lifestyle and Jansenism, but equally by his position as rector of the medical faculty at one of the leading universities in Europe. There had been informal books defending abstinence, most notably the celebrated confession of Luigi Cornaro, who after serious illness limited his diet largely to vegetables and lived to a ripe old age. His work was further popularized in the dietary treatise of the Belgian Leonard Lessius, a Jesuit, though the call to abstinence in both these works could not be consistently defended from a medical perspective, or at least neither could persuasively recommend a vegetable diet *per se*. It was not until the gradual abandonment of humoral physiology that such a position was even tenable.

In the latter half of the sixteenth century and into the seventeenth century a serious challenge to Galenic medical orthodoxy was presented by the so-called iatro-chemical school following the work of Paracelsus and van Helmont, which reconceived of digestion as a process of fermentation rather than 'coction' as it had been imagined, the latter a type of cooking of food in the stomach by heat. Despite the fact that the chemical theories were gradually combined with standard humoral physiology, there was still no logical way to defend a vegetable diet since 'watery' foods were still seen as diluting the stomach acid, thus hampering the process of digestion and leading ultimately to a whole new variety of ailments stemming from the accumulation of tartar, the result

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of improperly processed food. Not until the emergence of a new digestive theory, or arguably a revival of the very ancient theory of Erasistratus, was the entire question of vegetarianism reopened. According to this school, the iatro-mechanical physiologists largely inspired by the work of Boerhaave, digestion is a physical grinding and mashing of food or, as they called it, 'trituration.' This can only be accomplished properly when the body's solid and liquid elements are in proper proportion, giving tensile strength to the fibers of the stomach as it processes food into a smooth creamy paste or chyle, which is ultimately converted into what they believed was the nutritive substance of the body: lymph. The stomach is thus a muscle, much like the heart, grinding food in the rhythm of systole and diastole, and completing the process of breaking down aliments begun by the teeth.

Thus watery foods do not in any way hamper the digestion, but lubricate the process, and are a necessary component of the final 'milky' chyle, or broken-down food, that nourishes the body. To paraphrase Claude Lévi-Strauss's famous dictum that before being good to eat, food must first be good to think, then vegetables for the first time became good to think according to scientific authority. For the first time, a scientist asserted that one could live in health eating only vegetables. But it is also clear that Hecquet was trying to convince a populace both lay and professional of his idea, since most peoples' conception of what was going on in their bodies was still largely humoral, though peppered with some chemistry. The details of his discussion reveal a thoroughly well-thought-out program, the first in fact to defend vegetarianism with scientific backing.

Hecquet opens his treatise by questioning the disjunction between the popular expression of physical conditions and the advances that had been made in medical theory, which had largely abandoned humoral therapeutics. Arguably such terms as a 'cold stomach' and a 'hot liver' are still encountered today as people express what they believe to be happening in their own body, which only attests to the remarkable explanatory power of the humoral system. Hecquet was trying to convince the general public that their anxieties were unfounded, and based on an entirely erroneous conception of physiology:

On a severement proscrit les noms de chaud, de froid, de pituiteux, de bilieux dans la cure des maladies: on ne croit plus ces termes de bel usage, & ils ne sont plus que méprisables restes d'une physique surannée. Cependant que des alimens passent pour pituiteux, pour froid, pour bilieux, qu'on s'accuse d'un estomac refroidy, d'un foye chaud, d'un temperament pituitieux, c'en sera assez pour solliciter une dispense, & peut-estre pour l'obtenir.¹

Hecquet squarely places the blame for this misunderstanding on physicians, who should know better, and who should be careful to correct popular errors in physiology. Namely, foods neither have the power to chill or heat the body, nor are human constitutions inherently prone to humorally-derived maladies. The implication is that

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physicians would be cutting into their revenues if they refused to indulge their patients' symptoms, thereby accepting fees for prescribing dispensations. What patient cares to be told his stomach is not in fact cold, and that fruits and vegetables will do him no harm? Such a patient seeks his doctor's note elsewhere. Thus patients and physicians were complicit in perpetuating an outmoded conception of the body, and as Hecquet insists, his goal is to disabuse the public of their ideas, and in a word, get them to eat their vegetables.

Nor were patients entirely disingenuous in seeking these dispensations in the first place. It is easy to imagine that many people, merely from dislike of a fish and vegetable diet, and perhaps with less than devout piety, purchased dispensations merely so they could indulge in their favorite foods, and concocted elaborate medical excuses for their need to eat meat. But if we take Hecquet's own perception of the situation, people really did fear the Lenten diet. That is, they had so internalized a humoral conception of the body, being deeply ingrained in this culture, that they did indeed suffer psychosomatic symptoms after being relegated to vegetables. Hecquet points out:

Il est tres-peu de personnes que l'approche du Carême n'allarme, tous craignant alors pour leur santé & pour leur vie, comme si le jeusne & l'abstinence devoient abbréger leurs jours, ou avancer leur mort.²

32 It is here that Hecquet launches his campaign to convince people that everything they know is wrong, and in fact this book might also be considered the first popular full-frontal assault of a dietary system that had reigned for nearly two millennia. First, there was the popular misconception that children should be chubby. Clearly this prejudice stemmed from a fear of losing children in a dangerous world where infant mortality rates were still alarmingly high. But the effect of overfeeding children, Hecquet insists, lasts through life and forms habits difficult to dislodge. Through adulthood those who can afford it continue to overconsume. Furthermore, *l'embonpoint* is not a necessary condition of sound health. A frugal regimen is far more conducive to smooth functioning of the digestive system; eating less ultimately leads to better nutrition because food is more thoroughly processed and absorbed more efficiently.

This idea stems not from an ascetic frame of mind, but from a new physiological model. If the stomach is overloaded it fails to perfectly grind the mass of food into a uniform paste. The stomach works much like a mill grinding flour – when too much is added at once, the grains come out uneven. Only with a small mass can this smooth consistency be attained and only then can the body absorb the nutrients contained in the chyle.³ Thus, eating less is more nourishing. Equally significant, those foods that are easiest to break down are more nourishing, which immediately suggests that meat with its tough fibers is not the ideal aliment. To judge the best foods, Hecquet suggests seeking those that are most easily ground down by the teeth, because the action of the stomach is much the same.

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De là sans doute on apperçoit déjà quelle sorte d'alimens est préférable à l'homme: ce ne seront pas les chairs des animaux, mais d'autres matieres qui auront plus de disposition à estre broyées & pétries pour mieux passer dans cette liqueur laiteuse qui doit faire le sang.⁴

It is in fact in this so-called 'milky liquor' that Hecquet discovers the ideal foods. Those foods that are most easily mashed into a smooth creamy consistency furnish the best material in the lymph to replenish the blood. It is then the tiniest particles of nutritive matter, reduced through a million triturations, or grindings, that pass through the pores in transpiration, another key feature of the mechanist physiology. If the body is nothing more than a machine, the proper consistency of food in every stage of digestion is crucial to its efficient processing and absorption, and finally transpiration, the final stage of the animal-economy. This theoretical construct leads Hecquet to a complete and utter reversal of standard nutritive theory. It is not those foods which are most similar to our own substance, meat as an analogue to flesh and wine to blood, which nourish most, but foods that break down easily, and which have a certain inherent sweetness or even lack of flavor. Once again, it was these latter foods stigmatized by humoral medicine as watery and phlegmatic that were most feared in previous centuries – watery vegetables in particular. Hecquet insists that these are the most nutritious foods; fruits and vegetables, roots and farinaceous starches are most easily converted to this milky fluid in the body, and are most appropriate for maintaining health.⁵

A humoralist would never have doubted that bread should be the foundation of a healthy diet, though the idea of *similia similibus nutruntur* could never quite accommodate bread logically into its schema; only meat is manifestly similar to and therefore converted into flesh. For the mechanist, however, starches provide the perfect material to furnish smooth chyle and lymph, as well as bland vegetables and mild fish – precisely what was ordered for Lent. These foods also constitute the primary diet of robust peoples around the world, solid empirical evidence that one need not eat meat.⁶

In practical terms, the diet proposed by Hecquet is diametrically opposed to what his readers, educated elites, would have been most familiar with. It is, strangely enough, essentially a peasant diet, and in a culture that invested such strongly negative associations with common, simply prepared food, it is nothing short of revolutionary. It is also, in many ways, similar to the diet proposed by Jean-Jacques Rousseau later in the century in his *Emile*, a simple and 'natural' diet based on vegetables. It cannot be by accident that the first specific food Hecquet discusses was the most universally reviled of lowly peasant foods: the fava bean.

Car pour commencer par les légumes les plus vulgaires, il n'en est point qui ne soient tout-à-la-fois tres sains & nourissans. Les Fèves, par exemples, décriées aujourd'huy jusqu'à n'estre plus le rebut du beau monde, & la pâture de misérables, furent autrefois en honneur.⁷

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Among the ancients, that is, beans were an esteemed food. It is only in modern times and precisely because of the connection with poverty that most people avoid them. If they cause gas and feel heavy on the stomach, it is only because they are eaten too highly seasoned, which leads to an accidental fermentation of the stomach contents and distressful flatulence. On their own, however, and when properly prepared, they are easily broken down and easily converted into nutritive matter. Moreover, counter to all previous medical advice, as well as culinary fashion, he advises that dried beans are much more healthy than fresh.⁸ The fermentation to which Hecquet refers is not the chemical digestion as conceived by a rival school of physiologists, but precisely the source of problems one associates with stomach grumbling (*borborigmes*), belching and intestinal gas. With this in mind, dried beans cause the least disruption because there is little volatile matter in them, unlike spicy seasonings and wine which tend to inflame the insides. Beans are basically bland, and therefore apt for human nutrition.

Hecquet also recognizes a similar prejudice toward cabbage, and frankly acknowledges that the only reason people avoid cabbage is because the poor eat it. To be acceptable on finer tables, among foods that denote status and distinction, it must be disguised, which is itself the root of all digestive problems people might have with cabbage:

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...les pauvres s'en servent, c'en est assez pour rendre méprisable au reste du monde, qui n'en fait cas qu'après que la perniceuse industry d'un cuisiner, d'autant plus dangereux qu'il sera plus habile, en aura sû déguiser le goût, & en dérober même jusqu'aux apparences.⁹

Among the other lowly plant-based foods Hecquet promotes are oats; the accusations against them are poorly founded, for whole nations subsist on them. Root vegetables are also elevated, in particular salsify, turnips, beets, and even the topinambur or jerusalem artichoke from North America. Rice too is eminently useful, and among those foods most easily converted into a smooth paste and a pure lymphatic fluid. We need not be reminded that most Asians live on rice. It is interesting that like vegetarian and health diets of later generations, Hecquet promotes ingredients from foreign cultures, not as a threat to native foodways or as an exotic diversion, but as a purer and more natural form of nourishment, less corrupted by excessive refinement. Again, the similarity to Rousseau and nineteenth-century health reformers is striking, as is his promotion of green salads, unencumbered by *recherché* dressings but rather simple as it comes 'from the hands of nature.'¹¹

It is impossible to determine the precise effect Hecquet's theories had upon the public. His book was immediately attacked by his Paris colleague Nicholas Andry, one of the iatro-chemists. This controversy is beyond the subject of this article, but it is certain that no other physician before Hecquet had dared to propose a vegetarian diet using scientific arguments of the time. After him, it became possible to think of a healthy vegetarian body.

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Notes

1. Philippe Hecquet, *Traité des dispenses du Carême*. (Paris: François Fournier, 1709), fol. aii. 'We have severely proscribed the words hot, cold, phlegmatic and bilious in the cure of sickness; these are no longer considered terms of proper usage, and they are only disdained remnants of an outdated physiology. Meanwhile foods are still described as phlegmatic, cold, bilious, so that one mentions a chilled stomach, a hot liver, a phlegmatic complexion – this will be enough to request a dispensation, and perhaps to obtain it.'
2. *Ibid.*, p. 1. 'There are very few persons who approach Lent without alarm, everyone still fears for his health and for life, as if fasting and abstinence could cut short their days, or advance their death.'
3. *Ibid.*, p. 10.
4. *Ibid.*, p. 16. 'Without doubt we perceive already that some kinds of foods are preferable to humans: these are not the flesh of animals, but of other materials that will be more easily disposed to be crushed and ground so they can more easily be transformed into this milky liquor which must be made into blood.'
5. *Ibid.*, p. 25.
6. *Ibid.*, p. 28–32.
7. *Ibid.*, pp. 55. 'To begin with the most vulgar legumes, it is not only that they are at all times very healthy and nourishing. Fava beans, for example, reviled today to the point of being considered rubbish among the elite, and the food for the poor, were once honored.'
8. *Ibid.*, p. 57.
9. *Ibid.*, p. 98. '...the poor serve it, which is enough to make it loathed among the rest of the world, who only use it after the pernicious industry of a chef, all the more dangerous the more skilled, in knowing how to disguise flavor, and to dissemble to mere appearances.'
10. Rousseau, *Emile*, Translated by Allan Bloom (New York: Basic Books, 1979), p. 87.

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