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IN SEARCH OF THE *PRODUIT NET*

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THE SOURCE OF THE NET PRODUCT

INTRODUCTION

The physiocrats, while often praised for being the first modern economists, have also been regarding as the confusing sect who championed the "*produit net*," or net product. With this concept, the physiocrats argued that only the agricultural sector of the economy is productive, yielding and output greater than the sum of its input, while all other occupations are "sterile."

The physiocrats were faced with the problem of finding a source for such a surplus, and , according to traditional interpretations, they found it in the land. The land, or nature, is naturally bountiful and labors alongside people,[1] supplying the free produce (see Weulersse 1910, I. pp. 272-7). This interpretation has led to some problems, however. as Ronald Meek noted in his classic essay "The Interpretation of Physiocracy," the interpretation of the net product as a gift of nature seemingly implies that it is simply an additional *physical* yield of commodities beyond inputs, and not a value surplus, which would depend more on laws of supply and demand.[2] Recently however, Gianni Vaggi, in his *Economics of Francois Quesnay* (1987), has demonstrated persuasively that the physiocrats do indeed provide an analysis of the exchange value of commodities. Accordingly, he argues that they measure wealth not simply by physical volumes of production such as bushels of grain, but by market prices. Consequently, Vaggi feels he has to jettison the role of nature's benevolence in physiocratic economics. But in doing so, he creates additional problems, nature plays an important role without which physiocracy appears foolish and confusing.

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[1] Compare with Adam Smith: "No equal capital puts into motion a greater quantity of production labour than that of the farmer. Not only his labouring servants, but his labouring cattle, are productive labourers. In agriculture too nature labours along with man; and though her labour costs no expense, its produce has its value, as well as that of the most expensive workmen" (*The Wealth of Nations* [1776] 1937, II. v, p. 344).

[2] Said Meek, "While [an explanation of the net product in terms of a gift of nature] might be conceded to provide a plausible explanation of the emergence of a *physical* surplus in agriculture (at any rate in a society like that of eighteenth-century France, where the powers of nature were not yet being used to any great extent in manufacture), it does not provide an adequate explanation of the emergence of a *value*-surplus in agriculture" (Meek 1962, p. 388).

In order to give the physiocrats their full due, we need to avoid imposing modern categories on them. The categories of "physical" and "value" which have created some of the problem were not even categories that they were concerned with. Instead, they are Marxist and Sraffian concepts designed to show that, in order to reproduce itself, an economy needs a price system that will allocate enough of its physical product to reinvestment. For example, if we divide the economy into two commodities, grain and iron, then we might have a physical relationship like the following:

$$280G + 12I = 400G$$
$$120G + 8I = 20I;$$

where G and I are units of grain and iron respectively. This economy reproduces itself exactly: it uses up and produces 400 units of wheat and 20 units of iron in the same period. To relate the two physical units, the economy requires a certain value relationship, namely a relative price of:

$$12I = 400G - 280G = 120G$$

That is, a unit of iron must cost 10 units of grain (see Sraffa 1960, p. 3).

Sraffa supports Marx in arguing that the physiocratic doctrine of the net product is a physical surplus in agriculture, an excess of food produced over the food advanced for production (ibid., p. 93). The concern over whether the net product is a physical or value surplus has continued, and this duality has been imposed on the physiocrats by Meek, Vaggi, and others.

In fact however, the physiocrats, uninterested in this distinction, discuss the net product in both physical and value terms. Instead of distinguishing the net product by a kind of quantitative measure such as physical or value, they distinguished it *qualitatively*: the net product is an output without any input, a "something from nothing." Thus, to return to our model:

$$280G + 12I + \text{Nature} = 400G + \text{Surplus}$$
$$280GP_G + 12\,IP_I + \text{Nature} = 400\,GP_G + \text{Surplus}$$

where P_G and P_I are the price of grain and iron. Nature, unmeasurable either in physical or value terms, yields the surplus, measurable in both terms. Thus, the recent understanding of the

physiocrats' use of prices need not--and should not--conflict with a role for nature.

My goal in this paper is to explore this school of thought, so persuasive to so many bright people and so confounding to others, which led to this qualitative use of nature. A more complete understanding of the economic and intellectual context of eighteenth century France-the economic problems, the approach to science, and the history of economic analysis-will help clarify the role of the net product and help explain why the physiocrats turned to the land for the source of wealth. In particular, I will argue that the physiocrats' approaches to problems are fundamentally Cartesian. In their search for the principles of economic prosperity, they desired to find an "underlying principle" in the "nature of things." Furthermore, I will show that in this search they turned to an existing tradition in French economic writings emphasizing the importance of subsistence to people. This principle was a consideration which dictated that agriculture was the "first" sector of an economy, both in terms of temporal development and priority at any give point of time. Adopting this tradition, they concluded that it is the nature, or essence, of land to be productive, giving drive to the whole economic system.

THE IMPORTANCE OF THE LAND

The physiocrats, going beyond the observation that fertile soil is productive, stress that this quality makes agriculture the unique source of the net product. Mirabeau and Quesnay write, "agriculture is the only profession truly approved of and cherished by nature; it is the only one for which she condescends to work for entire months as a recompense for several days of labor on its part" (*Philosophie rurale* [1763], quoted in Weulersse 1910, p. 275). Adds Dupont de Nemours, the school's apologist, "agriculture is the only human labor with which the Sky cooperates without ceasing and which is a perpetual creation. We strictly owe the net product to the soil, to Providence, to the beneficence of the Creator, to his rain that beats down and that changes it into gold" (*Export et import*, quoted in ibid.).

The *Tableau economique*, the symbol of physiocracy, illustrates this benevolence of nature. Circulation begins in the productive column with the payment of the net product in rent to the

proprietors. As funds circulate to the sterile class, they are spent by the artisans for their subsistence, for raw materials, and for the maintenance and restitution of the advances, but they do not generate anything. At the end of the period, the people have consumed the goods, and the productive class must one again regenerate wealth for the next period:

> Consumption destroys subsistence goods. Thus it is necessary that they should be regenerated. And it is the cultivator's labour which regenerates not only the subsistence goods which he himself has destroyed but also those destroyed by all the other consumers. The artisan's labour, on the other hand, merely procures for him a right to share in the consumption of the subsistence goods which are regenerated through the labour of the cultivator. (*Sur les travaus des artisans* [1766], Meek 1962, p. 227)

This regeneration, or "*renaissance*," of wealth is the gift of nature.

In his reinterpretation of physiocracy, Vaggi does note rightly that Quesnay measures wealth by market price: "AS THE MARKET VALUE IS, SO IS THE REVENUE: *Abundance plus valueless does not equal wealth. Scarcity plus dearness equals poverty. Abundance plus dearness equals opulence*" (*Maximes generales* [1767], Maverick 1946, p. 261), and "needs always exceed[ing] consumable stuffs" (*Du commerce*, quoted in Vaggi 1987, pp. 104-5), there is a permanent excess of demand over supply in the market for primary goods. With the resulting favorable price, farmers can invest their disposable income in agriculture. This investment, says Vaggi, is a far more important source for a surplus than nature. To support this view, Vaggi cites *Hommes* (*"the wealth of the farmers...produces the revenues"*) and the *Maximes generales* ("if the original advances had been sufficient, cultivation would have easily been capable of yielding a *hundred* annual advances").

It is true that Quesnay was interested in agricultural investment. He read about agricultural production at an early age (Hecht, I.N.E.D., 1958, I p. 214), and in his first economic writing, *Fermiers*, was more interested in farming issues than he was in economic theory.

However, for the physiocrats, the fact that investment leads to greater production does not diminish the role played by nature. Quesnay clarifies the exact relationship between the advances employed in cultivating the land and the land itself in his *Dialogue sur les travaux des artisans*,. Here, he says that "the origin, the principle, of all expenditure and all wealth is the fertility of the land, whose provides the advances to the cultivator who renders it fertile in order to make it produce more" (Meek 1962, p. 209). The land is the true source of wealth, capital can only influence the relative fertility of that source, and it too ultimately even depends on land. People can extract this wealth "*through*" the annual advances; with its "means" they "draw out...the gift of the land" (*Questions interessants* [1758], quoted in Weulersse 1910, I p. 274, and the *Tableau economique*, Meek 1962).[3]

Difficulties thus arise when Vaggi argues that their use of prices and investment takes the physiocrats beyond a theory of a gift of nature (cf. pp. 94, 99). Without this inexpungible doctrine, physiocracy becomes an inexplicable-even foolish-system.

First of all, as Vaggi himself has pointed out, his stress on the importance of market forces in the emergence of a surplus implies that the physiocrats used circular reasoning:

> landlords must spend their revenues on purchases of the products of agriculture and the government must encourage their exportation, *because* this is the only sector which yields a surplus to the country. But *only if* there is a large domestic and foreign consumption is there also a high effective demand for the products of French agriculture, thus securing the existence of a surplus over costs in this sector. (p. 118, italics in original)

If the net product is merely a question of receiving revenues above costs and subsistence, then there is no reason why the physiocrats should be concerned that one sector of the economy should receive it and not another.

Moreover, attributing the unique productivity of agriculture only to a certain price system leaves us wondering where exactly the physiocrats got their peculiar view of competition, in

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[3] It is interesting to speculate that the physiocrats may have acquired this language from Cantillon, who says that "the Land is the Source or matter from whence all Wealth is produced. The Labour of man is the form which produces it" and the labour of man extracts" wealth from the land and waters (Essai sur la nature du commerce en general [1755] 1931, p.3). Such statements do seem similar to the physiocratic view, but the timing is not quite right. The physiocrats did not clearly formulate this relationship until the later works cited above, but they studied Cantillon early on and, at least in other respects, show his influence in their early works (Meek 1962, pp. 267-9).

which artisans competed to lower their price and buyers of primary goods competed to raise prices. Some have reluctantly resorted to the position that the notion of a permanent excess demand for primary goods was simply a historic reality of 18th century France (Meek 1962, p. 362; Vaggi 1987, p. 118; see also Meek p.379; Fox-Genovese 1976, pp. 55-6). Unfortunately, this defense is not viable given the vast number of contemporary opponents of physiocracy who did see manufacturing and commerce as productive.

The Abbe Galiani, for example, an Italian and the secretary to the Neapolitan ambassador in Paris, argued in his *Dialogues sur le commerce des bleds* (1770) that industry provided a more stable source of wealth than agriculture, which was subject to the whim of nature:

> Only from manufactures can you expect a prompt and equal circulation of wealth, the extinction of usury and of contracts burdensome to the borrower, and the stability of the total output of the state in the middle of all these changes, and consequently the stability in tax revenues from which the strength of the state is derived.... (Rogers 1971, p. 251).

There were also several French writers who defended the importance of industry and commerce, including Ancarias de Serionne [see Spengler 1942], Montaudouin de la Touche, J.J.L. Graslin, and Francois Veron de Forbonnais. Graslin, a tax collector at the prosperous trading center of Nantes, had personal experience in manufacturing (ibid., p. 95). He argued in his *Essai analytique sur la richesse et sur l'impot* (1767) that wealth should be considered in terms of what people need, and that industry and commerce are as essential as the harvesting of raw materials for satisfying needs:

> Many products of the soil would not contribute wealth without industry: it is no less true that industry, whose task is to fashion these products so that they satisfy human needs, would not be wealth without these products. These two elements of wealth thus depend on each other, not as cause and effect, but by constituting, indivisibly, two elements of the same object. (ibid l., p. 297)
>
> I maintain that commerce transports the wealth of industry, the arts, and the sciences, as well as the wealth of the soil; and I will add that this function of transporting wealth becomes itself a form of wealth when one considers it in relation to need and to scarcity. (ibid., p. 298)

Forbonnais, an assistant to the controller general in Paris, came from an important textile family in Le Mans. As well he too believed that agriculture and industry produce wealth with each other "without industry the fruits of the land will be of no value; if agriculture is neglected, the well springs of commerce dry up" (*Commerce*, [1754], p. 66). Both agriculture and industry are necessary for commerce. Industry, given its equal importance, can yield a profit which potentially provides the means for engaging in new enterprises (ibid, p. 65).[4]

Given the observation that some non-agricultural enterprises were earning large disposable profits, the physiocratic emphasis on agriculture seemed absurd. Though Voltaire, a supporter of their work for free trade (having argued elsewhere that industry and commerce contributed to the wealth of the state) satirized the *impute unique* in his *L'Homme aux quarante ecus*. And Baron Grimm, the preeminent figure of the Parisian literary scene, savaged them as a religion dedicated to agriculture:

> First of all, they use a language which is apocalyptic and pious; they wish to make agriculture a mysterious service and a divine institution, and they would gladly play the role of theologians in this enterprise. The Tuesday meeting of the Marquis de Mirabeau would become the Sorbonne of farming.... My final objection to the Tuesday farmer-economists is that they are enemies of the fine arts. Every man who is not pushing a plow is in their eyes a useless and perhaps even pernicious citizen...." (Correspondence, Oct 1767, quoted in Rogers 1971, p. 238)

But the physiocrats did not, in fact, fail to see that some artisans and merchants were earning a profit above subsistence. They conceded that large industrial and commercial enterprises can accumulate fortunes by gathering together the gains of a large body of workers (*Grains*, Meek 1962, p. 73). Artisans can also yield a net product if they have monopoly power, such as "pictures by great painters, and all the other goods made by artists who are pre-eminent in their professions" and "goods made by those artisans to whom the government grants

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[4] The physiocrats agreed that commerce was necessary, but for them it did not follow that it yielded a surplus.

exclusive privileges." "since there are so few of them... competition between them does not forced them to lower the price of their labour, to the benefit of those who buy their work" (*Sur les travaux des artisans*, ibid., p. 210). Likewise, if subsistence prices are held artificially low, they will yield profit to the extent that those subsistence costs are lower (so long as the opportunity to export holds up the demand for the finished good, thus preventing competition from erasing the profits):

> "[The work involved in making manufactured and industrial commodities] cannot yield any net profit through sale abroad, *except in countries where manufacturing labour is cheap because of the low price of the produce which serves for subsistence of workers....*" ("Second Edition" of the *Tableau*, Meek 1962, p. 123 note, my italics; see also *Maximes generales*, ibid., pp. 244-5)

Thus, the physiocrats were aware that such disposable profits did exist, but they argued that they *shouldn't* , that they would not in the *natural order*. Quesnay, after admitting the effect of cheap labor, goes on to say that this condition

> is very disadvantageous so far as the product of landed property is concerned. Also, such a condition should not be found in states with a free and unobstructed external trade which maintains the sales and prices of raw produce, and which happily does away with the small net product which could be obtained from an external trade in manufactured commodities, the gain of which would be based on the loss which would result from the low prices of the products of landed property.

Any advantage to a nation of a net product in manufacturing is nullified by a greater loss in potential agricultural net product.

Given this realization of what was happening around them, the physiocrats' insistence on the exclusive productivity of agriculture can be attributed neither to the historic reality of 18th century France. To find a better explanation, we shall now turn to an examination of the intellectual context that they operated in.

THE PHILOSOPHICAL CONTEXT

THE GOAL: ECONOMIC PROGRESS

The physiocrats existed within an intellectual tradition that was enamored with the idea of progress. The abbe de Saint-Pierre (1658-1743) had by now extended the belief in a steady accumulation of knowledge into a doctrine of the progress of society. To the French Enlightenment, this progress was part of the natural order of the universe, shaped by laws that would propel people onward. This was no less true of the physiocrats. Said Le Mercier de la Riviere, "the essential order for each particular society is the order of the duties and of the reciprocal rights whose establishment is absolutely necessary for the greatest possible multiplication of production, in order to procure for mankind the greatest possible sum of goodness, and the greatest multiplication possible" (*L'ordre Naturel et Essentiel* 1767, p. 40).[5]

But the physiocrats believed that something was going wrong. Comparing it with Britain and Northern France, they pessimistically saw the rest of their country as impoverished and underdeveloped, with much of its arable land lying fallow, and so poor that, despite tax increases, it could never seem to raise the revenue it needed to pay for its long series of wars. They further believed, mistakenly, that as a result of this under-development the population of France was below its level in 1660, when its decline began.

The physiocrats thus wanted to find out how progress occurs-what exactly the laws were that govern economic development-in order to correct human behavior. They wished to put human behavior back in line with the natural laws, those "essential conditions to which man must conform in order to be assured of all the advantages which the natural order can procure for him" (Dupont, *Physiocratie*, quoted in Burtt 1937, p. 43). The physiocrats of course thought that they found this source of progress in the net product. Yielded by agriculture, it provided for a continual reproduction of wealth.

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[5] For more on the concept of progress, see Everett Burtt's Masters Thesis, *The Preconception of Progress Underlying the Theories of the Physiocrats*,, (1937).

QUESNAY'S BACKGROUND

To understand how they came to this conclusion, we need to examine the physiocrats', and particularly Quesnay's, method of inquiry. Once we see what they were looking for, we will be in a better position to understand why they solved the problem of economic progress the way they did.

Since he wrote in the 1750s and 1760s, we might suppose that Quesnay's philosophy is largely empiricist, based on the English philosophy of Locke and Hume, and his approach to science Newtonian. These philosophies, though well established in England, were only beginning to make themselves known in France, which in some respects appears to have been an intellectual backwater. France had to wait until Voltaire's travels in England, from 1726 to 1729, before meeting Newton. Even then, however, the French government burned his *Lettres philosophiques sur les Anglais* (1733) as a "scandalous work, contrary to religion and morals and to the respect due to the established powers" (Bronowski and Mazlish 1960, pp. 247-8). Though by this time some Frenchmen read the English philosophers, they continued to prefer Descartes, and as late as 1765 *L'Academie francais* had a contest to see who could write the best elegy for the philosopher.[6] Indeed, when the Sorbonne, officially Aristotelian until 1752, adopted a new philosophy, it was not empiricism, but Cartesianism (Neill 1948, p. 70, note).

Quesnay was raised in the intellectual tradition of Descartes. When studying for his career in surgery, he studied philosophy, and, according to his son-in-law Hevin, "the lectures on the works of Descartes and of Father Malebranche, and above all the book of the latter on the *Search After Truth,* were the favorite object of his thoughts" (Hecht 1958, p. 215; see also Kubota 1958). In his *Essai physique sur l'economie animale* in 1747, Quesnay frequently professed to be a disciple of Malebranche and criticized Locke, asking why, after the former had already made such profound insights into the nature of our ideas, Locke had been so vague and obscure (Burtt

[6] The winner was Antoine-Leonard Thomas, a friend of the physiocrats, with his *Eloge de Descartes* in which he tells how Cartesianism had been successfully applied to social thought as well as to philosophy (see Weulersse 1910, II p. 121 and Neill 1949, p. 542).

1937, p. 52).

But by the time of his interest in economics, Quesnay does seem to reveal a movement towards empiricism, particularly in his essay *Evidence* (1756), his first article for the *Encyclopedie*. Pure rationalism, he says, cannot help the mind obtain "evidence," which he defines as "a certitude so clear and manifest in itself, that the mind cannot refuse it" (I.N.E.D. 1958, II p. 397):

> Innate ideas, or the ideas that the soul produces itself without the action of any exterior cause, cannot procure for the soul any *evidence* of the reality of any being, or any cause distinct from the mind itself; because the soul itself would be the subject, the source and the cause of these ideas, and because it couldn't have by such ideas any necessary relationship with any being distinct from itself. These ideas would therefore be in this respect destitute of all *evidence*. (ibid., p. 409)

Instead, "the exercise of our senses is the principle of all certitude, and the foundation of all our knowledge" (ibid., p. 406). Quesnay's epistemology is thus a combination of various traditions which has confused generations of commentators. Some have interpreted him to be wholly Cartesian [see Bourthoumieux 1935, p. 31], others empiricist (see Mourant 1943), but most consider him to have "mixed, but not integrated, elements of Cartesian rationalism, Lockean empiricism, Newtonian science, and deistic optimism" (Neill 1948, p. 153); see also Weulersse 1910, II p. 122 and Fox-Genovese 1976, pp. 77-92).

"RATIONALISM" AND "EMPIRICISM"

Much of this confusion has come from an over-simplification of "Cartesian rationalism." Though famous for his skepticism of the senses, Descartes only expresses this initially, in order to go beyond an instinctive trust of them. But by examining himself, he sees first only that he exists, and then that a Perfect Being exists. Now, with regard to sensation, when he senses an object, he first perceives "clear and distinct" perceptions -- extension, position, substance, duration, and number -- perceptions which are all comprised within mathematics. He says that we understand further perceptions, such as color, sound, smell, taste, and heat, only in a confused and obscure way.[7]

Using reason, however, we can, according to Descartes, carefully consider our perceptions to avoid falling into error.[8] Moreover, in the case of our clear and distinct perceptions, we can never be in error because we have no faculty for doubting them, and if God had created us without such a faculty but created the world such that these perceptions were not always true, he would be a deceiver. But as a perfect being cannot deceive, it follows that these perceptions are correct, and that a world of extension really does exist outside us (cf. the Sixth Meditation).

Truth comes through the senses, even for Descartes, but we will understand their value and use them properly only if we begin with metaphysics. In his own description of his method he says:

> First, I have sought to discover in general the principles and first causes of all that exists, or can exist, in the world, without taking into consideration, for this purpose, anything but God alone who has created the world, and only drawing upon certain elements of truth which inhabit our minds. After this, I took note of the effects which immediately and most commonly follow upon these causes, and so I discovered, as it seems to me, the skies, the heavenly bodies, an earth, and on the earth itself, water, air, fire, minerals, and such other things which, being the commonest and the simplest, are the easiest to understand. When, however, I attempted a more detailed survey, I found such a diversity of objects to consider that I did not think it possible for the human mind to distinguish the kinds or species of bodies that inhabit the earth from an infinite number of others that might have existed, if God had so willed it; nor do I think it possible to turn all this to our use, except by looking for the cause through the effect, and by conducting a large number of special experiments. (Discourse on Method [1637] 1960, p. 86)

7 "For example, the ideas which I have of heat and cold contain so little clarity and distinction that they do not enable me to tell whether cold is merely the absence of heat or vice versa, or whether both of them are real qualities, or neither is. And since there can be no ideas wich are not as it were of things, if it is true that cold is nothing but the absence of heat, the idea which represents it to me as something real and positive deserves to be called false" (*Meditations* [1641] 1986, p. 30).

8 "For I know that in matters regarding the well-being of the body, all my senses report the truth much more frequently than not. Also, I can always make use of more than one sense to investigate the same thing; and in addition, I can use both my memory, which connects present experiences with preceding ones, and my intellect, which has now examined all the causes of error" (ibid., p. 61).

Descartes first establishes principles about the nature of the world using only reason, but then goes on, using sensation, to explore further details. Or, to put it in different terms, he first tries to understand the nature or essence of things and reason to their effects, and then he fills in details inductively.

In England, however, thinkers were turning away from any interest in such first principles. Locke was skeptical of our ability to perform metaphysics, and argued that we can never know the essence of substance, either in general (see *Essay Concerning Human Understanding* [1689] 1975, II. xxii. 2), or of any particular thing, at least not beyond a complex idea of what its name stands for (ibid., III. vi.).

Similarly, Isaac Newton refused to speculate about causal principles or essences, arguing that he "framed[9] no hypothesis," (*Principia* [1686] 1946, p. 547). By this statement he meant "whatever is not deduced from the phenomena..., whether metaphysical or physical, whether of occult qualities or mechanical."

Hypotheses

> have no place in experimental philosophy. In this philosophy particular propositions are inferred from the phenomena, and afterwards rendered general by induction. Thus it was that impenetrability, the mobility, and the impulsive forces of bodies and the laws of motion and gravitation, were discovered. (quoted in Koyre 1965, p. 38)

9 Or "feigned" (see Koyre 1965, pp. 35-6).

According to Newton, in natural philosophy we must avoid resorting to metaphysics for explanations, but must instead always "deduce Causes from Effects" (see *Opticks* [1704] 1931, p. 369).

As a result of this method, Newton seems to be far more careful about making conclusions, holding himself only to what he believes he has proved. Descartes on the other hand often seems to be led astray by his "hypotheses," to use Newton's terminology. In his understanding of circulation, for example, he rejected Harvey's teaching that the heart was a pump and argued instead that it heated the blood as it entered, causing it to expand and then push through the body. This property of heating, he said, is a "kind of fire without light" that God kindles in the heart, "the kind of fire which heats hay, when it has been piled up before it is dry" (*Discourse* 1960, p. 72). Note that the difference between Newton and Descartes is not a question of experimentation versus pure reason, for Descartes claims to have found this essence of the heart through experiments (ibid., p. 75), but a question of whether or not to look for causal essences.

In many ways Nicolas Malebranche lies between these traditions, and was, for example, highly influenced by Newton's physics (see Guerlac 1981, pp. 54-73). But with regard to knowledge he largely follows Descartes, saying that to avoid error, *"we should never give complete consent except to propositions which seem so evidently true that we cannot refuse it of them without feeling an inward pain and the secret reproaches of reason"* (*The Search After Truth* [1675] [1712] 1980, p. 10, italics in original). He adds, however, that Descartes's argument that we know the existence of bodies because of our incorrigible propensity to trust our clear and distinct perceptions does not prove anything with absolute necessity, since it illustrates belief only through a judgment or choice, and not from an "invincible impression" or "evidence." Instead, he argues that we can only know of the existence of bodies with certainty through faith (cf. Sixth Elucidation).

QUESNAY'S METHOD REVISITED

It is this approach that Quesnay seems to take far more than that of Newton. Quesnay does not bother to doubt his senses as rigorously as do Descartes and Malebranche, and that he claims "the exercise of our senses is the principle of all certitude," including evidence of "any cause distinct from the mind itself." Thus, he is not entirely an empiricist. While rejecting complete occasionalism, like Malebranche he says that we can not know about causes and bodies *directly* through our senses, but only through God:

> the essential and active form of man, as a rational animal, in not a dependence on the body and on the soul of which it is composed; because these two substances cannot act, by themselves, on each other. Thus, we must not search either in the body or in the soul, nor in the compound of them, for the constitutive form of moral man, that is to say [the form] of the active principle of his intelligence, of his strength of purpose [*force d'intention*], of his liberty, of his moral determinations, that essentially distinguishes him from beasts. These attributes result from the act of the supreme Being that acts on the mind, that affects it with sensations, that executes the decisive will [*voluntes decisive*], and that lifts man to a degree of intelligence and strength of purpose, on which he can hang his decisions, and in which his liberty consists. (*Evidence*, I.N.E.D. 1958, II p. 419, see also p. 423)

We know that God does this through faith, the other type of certitude besides *evidence* :

> Faith shows us that the supreme wisdom is itself the light *that enlightens all thriving men in this world* ; that man, by his union with *intelligence par essence* , is raised to a higher level of knowledge that distinguishes him from beasts, to the knowledge of good and bad morals, by which he can direct himself with reason and equity in the exercise of his liberty... (ibid., p. 423, emphasis in original)

This state of intelligence is a lamp which "lights the path that we must follow and discovers for us the legitimate and meritorious motives that can worthily regulate our conduct" (ibid.).

While he does say, unlike Descartes, that we learn even the first causes of the natural order *from* the senses, Quesnay retreats to the position that the senses are only useful in the effulgence of reason and God's *intelligence par essence*. Thus he needs reason to be prior to experience in order for it to be there to illuminate it. Consequently, his practical approach is not far from Descartes and Malebranche. For example, when asked what justice is, he replies that *"it is a natural and paramount rule, recognized through the light of reason, which self-evidently determines what belongs to oneself or to another"* (*Le droit naturel* [1765], Meek 1962, pp. 45,

emphasis in original) Thus, Quesnay also finds his first principles not from observation, but from a self-evident intuition.

From these first principles, he further uses reason (deduction) to learn more about the world. The evidence of the physical laws of the universe guides any further thought; it "imperiously compels the adherence of every intellect and all human reason, with a precision that is shown geometrically and arithmetically in detail, and which leaves no margin for error, for imposture, or for illicit pretensions" (*Despotisme de la Chine* [1767], Maverick 1946, p. 279). This is true for the moral laws as well.[10] Dupont placed *Le droit naturel* [1765] first in his synthesis of physiocracy as setting out the school's principles (Neill 1948, p. 165). It was here that Quesnay argues that we can know the derivative principle that obedience to natural laws will bring about the good, not from observation, but from the implicit metaphysical principle that a benevolent God would establish them that way (Meek 1962 p. 50).

Far from being the first positivist economist, as some have claimed, Quesnay uses this kind of Cartesian approach in his economics, which is nothing but the "science of natural justice applied, as it should be, to civilized society" (Dupont, Correspondence, quoted in Neill 1948, p. 166). Accordingly, he analyzes policies in light of his first principles. Positive legislation such as tax laws, he says, should be consistent with "the natural laws constituting the order which is self-evidently the most advantageous possible to men joined together in society." "The more a nation applies itself to this science, the greater will be the sway of the natural order in it, and the more correct will its positive order be" (*Le droit naturel*, Meek 1962, p. 54).

Such a science requires some abstraction, but as long as our abstractions do not do violence to the real world, this will not lead us astray:

> You should bear in mind, my friend, that in nature everything is intertwined, everything runs through circular courses which are interlaced with one another. The fact that these different movements are necessarily interconnected means that things can be understood, differentiated, and examined only through the medium of abstract ideas which do not cause any adjustment or maladjustment in the physical world, and which comprehend nothing in this complicated network except in a speculative and partial matter. Here each relation can be differentiated only through the causes and effects which characterize it; the more we set out to arrive at precise distinctions, the more we are reduced simply to a few causes and a few effects by means of which, without losing sight of the concatenation as a whole, we get a clear picture of the principal parts through their different functions in the general order of nature... It is only through the medium of such abstractions that we can examine and appraise the mutual relations between these different classes of men and work in the social order, and give them the designations which conform most closely to their functions, in order to express ourselves in exact terms in the detailed working-out of economic science. (*Sur les travaux des artisans* [1766], Meek 1962, p. 204)

Abstraction can only capture the truth in a partial manner, but it causes no maladjustment of the real world and, if we do not lose sight of the big picture, allows us to express ourselves in exact terms.

Note that within this context of inquiry, Quesnay continues to look for general causal principles within bodies, the essences by which they influence other bodies. "Everything," he says, "has its immutable essence, and the properties inseparable from its essence" (*Le droit naturel*, Meek 1962, p. 50). For example, "each class of men and work" have special "function" in relation to others, with farmers extracting the revenue, the proprietors distributing it, etc. This concern seems to lead Quesnay to make the kind of errors that we do not find in Newton. For example, in his medical writings on circulation, in which he disproves the theory of Silva that bloodletting changes the relative concentration of blood in various parts of the body, Quesnay surrounds his famous experiments with talk of a relationship between sickness and the relative speed, viscosity, and consistency of blood (see *Traite des effets et de l'usage de la saignee* [1730] 1750).

Now, Quesnay had in fact argued in his "Preface" to the *Memoires de l'Academie royale de chirurgie* (1743), when discussing the limitations of speculative truths, that they can lead to a habit of building "systems," castles in the air without any real basis. "On foundations built by imagination alone," he wrote, "philosophers have complacently erected the entire machine of the universe" (quoted in Fox-Genovese 1976, p. 82). As we have already noted, however, this did

[10] Quesnay defines physical law as "the regular course of all physical events in the natural order which is self-evidently the most advantageous to the human race" and moral law as "the rule of all human action in the moral order conforming to the physical order which is self-evidently the most advantageous to the human race" (*Le droit natural*, Meek 1962, p. 53).

not lead Quesnay to rely on Newtonian methods. Indeed, he at one point even defines this speculation as "those fictions of the imagination, *those ideas which are not drawn from the depths of things*, those principles founded on possibilities and appearances" (ibid., my italics). To avoid error, Quesnay, does not rely on his experiments, but wants to get beyond the appearance of an object to its essence, to its true depth.

This tacking on of Newtonian language to an approach to science that remained in this respect so Cartesian may have been a common practice. The Dutch physician Boerhaave (1668-1738), who had a large impact on early 18th century medical thought and was read by Quesnay, was interested in the methods of Boyle and also Newton, lecturing on him and attempting to emulate his empirical methods. But this did not prevent Boerhaave from turning to essences for a cause of events. "Down to about 1750, a whole tribe of would-be Newtonians obstructed progress with their search for a single cause of disease, of principle, of cure, and it was not until mid-century, when the philosophes were at the height of their influence, and partly as a result of their propaganda, that pluralistic empiricism changed the course of medical research" (Gay 1970, II p. 22; quoted in Fox-Genovese 1976, p. 80). In the same way, Quesnay, despite language to the contrary, continues the legacy of Cartesian science.

THE METHODS OF OTHER PHYSIOCRATS

If Quesnay still uses largely deductive and speculative reasoning despite his desire to avoid "systems," the rest of the physiocrats, younger and less interested in philosophy, are even more clearly Cartesian, at times going to absurd extremes. They claim unreservedly that the principles of economics are self-evident: with only "a little reflection one can see with certitude that the sovereign laws of nature include the essential principles of the economic order... Here, then, is the solid base on which the edifice should be erected" (Dupont, quoted in Neill 1948, p. 165). Le Mercier de la Riviere agreed, saying man had only "to examine himself, to find within him an articulate conception of these laws" (quoted in Martin 1929, p. 231).

As a result, the physiocrats claim they do not need any facts or examples to support their position. Says Le Mercier, "I do not look at any nation or any country in particular. I seek to describe things as they should be essentially without concerning myself with what they are or what they have been in any country whatsoever." He adds:

> Since truth exists by itself and is the same in all places and at all times, we can arrive at it, and at all the practical consequences which result from it, by reasoning and examination alone. Examples which appear to contradict these consequences proving nothing; they only show that men have lost the way and have not arrived at certitude and at a full knowledge of the truth. (quoted in Neill 1948, p. 168)

The *Ephemerides du citoyen*, the physiocratic journal run by Baudeau and later Dupont, even criticized the Italian economist Beccaria for his empiricism:

> Will it be permitted to us to say that the method of study by gathering particular facts is bas in the *moral and political sciences*, although it may be very good, and even the only one, in the other sciences, like *botany, chemistry, general physics* ?...We can possess these [moral and political] sciences in their full extent because their fundamental principles, which are *right, duty, essential justice,* and *reciprocal interest,* are of the kind that become rather self-evident after the least bit of reflection and sometimes in spite of ourselves. (quoted in Rogers 1983, p. 232)

According to these physiocrats, we must find the *evidence* of "fundamental principles," subordinating "facts" to them.

IMPLICATIONS

In their search for a fundamental cause of economic production and growth, the physiocrats were unable to merely say that the laws of supply and demand dictated that farmers would receive a price sufficiently greater than the *prix fondamental* to yield a surplus and that other professions did not. Thus they had to identify such a process in the physical laws of the universe. The nature of everything had to contribute to this result. Thus, for the physiocrats, it must be *the nature of the land to yield a surplus* that led to the exclusive productivity of agriculture. Just as the principle of movement is deep within the nature of the human hear, even though the blood is guided by the laws of hydraulics, the nature of the land is to begin economic circulation, even though the process is guided by the laws of supply and demand.

THE ECONOMIC CONTEXT

The Physiocrats, looking for some kind of pump to make the economy run continuously, were seeking not just at effects, but for a cause "in the depths of things," an essence. In turning to existing economic literature in their search, they had many options to choose from.

Among them, the physiocrats could have looked either to a form of mercantilism or *populationisme*, by which some argued that people, through their labor, were the source of wealth, and that therefore opulence grew with population. The physiocrats rejected both these options, however. They refused to accept the importance that mercantilism, already under attack from other writers, placed on money and the balance of trade. Moreover, they did not want to think of populations as the source of wealth, because they saw an opposite causation: only a large quantity of wealth could support a large number of people.

THE IMPORTANCE OF SUBSISTENCE

The idea was also readily available that *land* was the most important element in an economy, and agriculture the most important profession. This attitude is not surprising given the important place of subsistence in the 18th century French economy. Even in ordinary times, most people had to spend as much as half of their income on the bread ration and in bad times almost all of it (Kaplan 1976, p. xvi). Although the French population grew from about 20 million people to 26 million over the course of the century (Shennan 1983, p. 11), and though severe crises were becoming things of the past, they lived through a steady low-level "subsistence problem" punctuated by a series of subsistence scares (1725, 1740, 1759, and 1766-8).[11]

Consistent with this economic situation, few issues seem to have touched the public consciousness like the concern for subsistence. Bread riots were not uncommon. An especially intense series of uprisings from 1764 to 1775, in which people blamed their distress on merchants (see Kaplan 1976, pp. 187-98), was forceful enough to end two attempts at liberalizing trade (1763/4 and, under Turgot, 1774).

Ensuring an abundance of easily affordable subsistence goods was thus an important political concern in the *ancien regime*, and the government accordingly created an elaborate system of regulations designed to keep grain prices low. Nicolas Delamare, in his *Traite de la police* (1729), had argued that the Roman experience showed that hunger caused depopulation, moral and physical deterioration, and political revolts (ibid., p. 3). Jacques Necker, later to become finance minister, continued this line of argument in the 1770's, as did the Italian Abbe Galiani (see Rogers 1971, pp. 250, 263). To them, grain, an object of "first necessity," was simply too important to leave to the market and required regulations in order to ensure life and to prevent political upheaval.

The most important, and best known, of these regulations was a ban on the export of grain. This law, one of the chief targets of the physiocrats, clearly kept prices below what they

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[11] Many contemporaries considered these events to be "dearths of opinion" only, not reflecting a true absence of grain. To the physiocrats, bad laws cause these "phony dearths;" to the police, "the malice of men" –i.e. of suppliers and merchants –caused them (see Kaplan 1976, pp. 87-8).

might have been had the agricultural sector been allowed access to all potential customers. It must have made prices more variable as well, for in bad years (in which exports would have been low or negative anyway) prices would still be as high as they would have been without the law, but in abundant years prices would be even lower than otherwise.

The police also forbade hoarding, a policy that had a number of enforcement provisions. First, the police required that all dealers in grain had to register themselves, declaring the names of their correspondents, where they made their purchases, the location of their storehouses, the scale of their merchandise, and the place of its destination. "All this knowledge carefully established," Delamare wrote, "it is not difficult to make them obey and to engage them to contribute to the replenishment of abundance" (Kaplan 1976, pp. 66-7). Second, they did not allow *laboureurs* or *fermiers* to deal in any grain except their own, since they could have easily camouflaged a hoard on their farms. Last, they organized public marketplaces in most villages and cities, including Paris, where grain was deposited in an impressive pile in order to reassure the public. Here deals were made in full view, preventing secret schemes and merchants from hoarding their grain (ibid., pp. 67-70). Far from accomplishing what the police had hoped for, however, this policy, inasmuch as it was a kind of tax on transactions, must have increased the actual prices paid by consumer, without benefiting the producers. In addition, like the ban on exports, it too must have added to the variability and unpredictability of market prices, for "hoarding," or at least future trading, has the benefit of smoothing prices out over time. Rather than necessarily being a malicious act intended to impoverish the public, hoarding is a matter of saving food at a time when it is abundant (i.e. when prices are low) for a time when it is needed more badly (i.e. when prices are high). Without this arbitrage through time, prices would not have averaged out, but would have reflected the full variability of the harvests.

The police were particularly concerned about Paris, the political and population center which imported food from miles around. They created a zone ranging from about 25 to 30 miles around the capital in which they mad the *laboureurs* themselves bring all their grain to the city marketplace at least once or twice a month (ibid., p. 71-72). In the short run, such a policy

diverted grain to Paris, depressing the price in the city. In addition, it must have given more bargaining power to the Parisian consumers relative to their suppliers. Since the longer the *laboureurs* remained away from home, the greater was the cost they bore of neglecting their fields and family, they had to sell their grain quickly and return home. Said Delamare, "the inconvenience of the trip and the rush to return home induce the laborers and the others who bring their own grain to the market to relax on the price..." (quoted in ibid., p. 71). Moreover, they had to comply with a three day rule, in which they had to sell all their grain within three days, and could not increase their price after the first day despite any changing market conditions. Unable to stay long enough for competition between buyers to materialize, consumers may have been able to pick prices near the suppliers costs, extracting some of their surplus. In the long run, however, this policy must have shifted the supply curve back, even despite some restraints of free exit, thereby diminishing the quantity of grain, certainly for the nation as a whole, and also in Paris. This leaves the net effect in the city somewhat ambiguous.

A comparison of indexed wheat prices between Paris and Amsterdam does not show that one city had consistently higher or lower prices than the other. However, it does confirm that French grain prices were particularly volatile. Thus, while from 1715 to 1774 they ranged from 86 to 186, the indexed values in Amsterdam range only from 98 to 141 (see Tab. 1). Moreover, a look at five year averages disguises the seasonal fluctuations within a given year. Prices at Pontoise, for example, rise as high as 50 *livres* in early summer when supplies were limited, but then fell rapidly again at harvest time, when the cultivators had to sell all their policy to ensure that subsistence would reach everybody, it in fact created problems not only for consumers, but for farmers who wanted a secure price for their goods.

Table 1
Price Series in Index Numbers, 1730-34=100

Yrs	Paris	Amsterdam
1715-19	86	107
1720-24	137	98
1725-29	132	107
1730-34	100	100
1735-39	101	99
1740-44	138	117
1745-49	103	112
1750-54	129	111
1755-59	117	117
1760-64	106	132
1765-69	160	141
1770-74	186	140

Source :Riley 1986, pp. 9-13
Aftalion 1990, p. 38

Table 2
Monthly Prices of wheat at Pontoise in livres per setier

Month	Price
July 1788	25
August	27
September	33
October	29
November	32
December	33
January 1789	34
February	38
March	39
April	42
May	37
June	46
July	50
August	24

ECONOMIC ANALYSIS BEFORE THE PHYSIOCRATS

The concern of the police for subsistence was echoed in much of the economic theory that the physiocrats inherited. Sebastien Le Prestre, marquis de Vauban operated within a train of thought which flows through Cantillon to the early works of Mirabeau. He argued in his *Projet d'une dime royale* (1707) that, although "the true wealth of a kingdom consists in the abundance of commodities" (p. 50) and not in precious metals, "the greatness of kings is measured by the number of their subjects; it is in this that their weal, their happiness, their wealth, their strength, their fortune, and all the consideration that they have in the world consists" (ibid., p. 47). It is, after all, people who do the work that makes the kingdom what it is:

> It is still the base part of the people that, by their work and their commerce, and by what they pay to the king, enrich him and all his kingdom; it is what furnishes all the soldiers and sailors of his armies of the land and sea, and a great number of officers, all the merchants and petty officers of the judiciary; it is what exercises and refills all the arts and crafts; it is what makes all the commerce and manufactures of the kingdom; what furnishes all the ploughman [*laboureurs*], vintners and unskilled workers of the countryside; what keeps and nourishes the beasts; what sows the grain and collects it; what fashions the vines and makes wine; and, in short, it is what makes all the big and small works of the country and the city. (ibid.)

Although Vauban in this way emphasized population more than land, he was one of the first Frenchmen to emphasize the importance of production. And since agriculture was France's most important industry, he argued that government policy, especially the tax system, should be carefully created to avoid destroying farmers.

According to him, a poor tax system was in fact to blame for France's current economic problems--it could not be blamed on anything else, not "the bad weather, nor on the fault of the people, nor on the sterility of the land." As Vauban saw it, taxes were not so much at too great a level as they were "arbitrary." First, they were not proportional to family incomes, with powerful people able to secure an exception for the *taille* while the bulk of the taxes fell on the poor. Indeed, "it is very ordinary to see that a farm of 3 to 4,000 livres of revenue will be

assessed only 40 to 50 livres of *Taille*, while another of 4 to 5,000 livres s paying 100 and often more; this is what makes land ordinarily have half the cultivation which it needs" (ibid., p. 52). Second, the *Aides* (an internal sales tax on certain drinks) and *Douanes* (duties on imports, exports, and goods that crossed provincial borders) were destroying commerce once something was produced. This raised the costs of goods like wine and cider up to "very nearly ten, twenty and thirty times of what was necessary." The cost and risk of confiscation were so great that "the proprietor and the peasant prefer to let their produce perish at home, rather than transport it with so much risk and so little profit" (ibid., p. 53). The tax system, he said, by thus impeding cultivation, prevented the production of food and raw materials, for "the best land doesn't differ in any way from the worst if it is not cultivated."

To cure this illness, Vauban wanted to replace these arbitrary taxes almost entirely with the *dime royale* , a national tithe proportional to income, leveling it on all the "fruits of the land" and all industry, rents, pensions, etc. This less arbitrary tax would allow people to have the opportunity to succeed commercially, grow in number, and ultimately enrich the king.

Like his friend Vauban, Pierre le Pesant de Boisbuilbert believed that the main problem facing France was an arbitrary system of taxation that was making it impossible for commercial endeavors to survive. Not only did it impose direct costs, but many indirect ones as well. To avoid the *taille*, people hid their wealth and paid "sou by sou...either to avenge themselves on the collectors for having imposed too large a sum..., or to prevent those of the following year from assessing a like sum on account of the difficulty of [obtaining] payments." Consequently, collection costs were often greater than the tax revenues. Indeed, since "vengeance for the overcharge that one feels to have been imposed on him is perpetuated from father to son, it is necessary to agree that [the taille] is equally the ruin of property, of bodies, and of souls" (*Le Detail de France*, quoted in Roberts 1935, pp. 114-6).

But Boisguilbert's theoretical structure is of greater interest. He said that it is not enough simply to produce goods, people must consume them; but only then do goods become wealth. Indeed, "consumption and income are one and the same thing and the ruin of consumption is the

ruin of income."

This is of course true even though one person often produces the good that another consumes. For Boisguilbert, people are very interdependent, and are connected in a great "chain of opulence." Thus, if people destroy one link they would harm the whole. The chain "is of value only as a result of the assemblage of the links of which it is composed, and its value is lost, at least in great part, from the moment that a single link is detached from the chain" (*Dissertation* p. 402). In order to maintain their link, individuals must be able to sell their goods above costs.

Yet it is not just one industry that must obtain such a price, it is all of them, every link in the chain. Each must be able to sell its goods at a high enough price, but must also face other prices which are low enough for him to afford. They are all balanced against each other by an interlocking system of *prix proportionnels*, or proportional prices, which governs "the equilibrium of all products" which is the "sole conserver of general prosperity" (*Dissertation* p. 411). These "proportions... create all wealth, because it is by their means alone that exchanges, and as a consequence, commerce, can be carried on" (*Factum*, quoted in Roberts 1935, p. 250).

However, Boisguilbert did not believe that these *prix proportionnels* were prevailing. Grain prices, for example, were fluctuating wildly because trade restrictions prevented surpluses to travel to those areas suffering dearths. To achieve proportional prices, people-and the government-must understand the importance of the natural order and be willing to cooperate with it, giving up their desire to consume at prices which would leave others without a profit (*Dissertation* pp. 402, 406, 422). But nature has provided another way: when two people come together to bargain, they will achieve a proportional price if they are both motivated by self-interest and both equally matched. So long as proportional prices are maintained in this way, "an untold number of men" would be 'placed in a condition...to be able amply to procure all their necessities, and even superfluities" (Roberts 1935, p. 170).

For Boisguilbert, agriculture was the first link in this chain of opulence. Since subsistence is the first need of people, it is the first thing that they procure. Other professions can exist only if the remaining farmers produce enough food to exchange with them, for "all the professions,

arts and trades that compose a State, especially in France, where many more types and kinds meet than any other place in the world, have as their object their subsistence, while procuring or supplying that of others..." (*Traite des grains* p. 333).

Because of its basic position in the chain, if agriculture collapses, an especially large number of subsequent links will follow it. While each profession does "give employment reciprocally to one another,"

> not all have a function of equal necessity, nor are they all equally indispensable. Some furnish the necessary, such as the primary and grossest subsistence, that is to say, bread and liquors; others, something more, such as the less important dishes; still others, meats, among which are encountered many different degrees, such as the delicate, the sensual, the superfluous, and finally the fantastic and the absolutely useless. All of these different degrees, which are found not only in food, but also in clothes, in furnishings, in equipages, in spectacles, and finally in all the rest that is termed magnificence, and which gives life to more than two hundred professions, arts, and trades which are found in France, as has been said, take their birth from the fruits of the earth. If [the earth] became sterile as the sand of Africa, [this sterility] would dismiss and cause to perish more than on hundred and seventy of these two hundred professions. Thus, to repeat, their interest is to maintain the cultivator, and to prevent him from perishing. But it is a certain maxim in commerce that every trade must nourish its master, or that this master must immediately close his shop. Consequently, from the moment that the cultivator does not sell his wheat at a price which can cover the expenses of cultivation and all accessory charges, such as taxes and the different payments of rent, which happens sufficiently often, it is certain that this farmer will abandon everything, or will not be able to pay what he owes to the proprietor. Behold from this moment, all the two hundred professions in peril, and if the fate of this farmer is common to many, which is inevitable, since the evil proceeds from the general cause, all classes suffer a considerable decline.
>
> In truth, an owner of lands who is not paid can buy nothing since one has nothing without money. The first blow falls on the superfluous things; after that, if the disorder continues, one retrenches little by little, degree by degree, following the order that has just been noted. And as it is prosperity which gives them their birth, which is ordinarily only [that of] the fruits of the earth, [so] their fall drags everything with it (ibid., quoted in Roberts 1935, pp. 195-6)

Thus, agriculture is the most important profession, to which all two hundred professions owe their birth (*Traite des grains*, p. 326) and from which come all the faculties and possessions of the rich. All the wealthy people's surplus, like rents, charges and fees were actually goods only by fiction, and by relation to this first cause which gives them being" (ibid., p. 330). Given Boisguilbert's theory of proportional prices, it follows that the price of grain must be maintained high enough to support this industry in order to maintain all two hundred professions (see

ibid.,pp. 338-9, 346). "We see, therefore, that it is uniquely the price of grains... that determines the abundance and the wealth of the kingdom" (ibid., p. 352).

But while agriculture is important because of the importance of its produce to people, an attempt to find a directing role for the land itself or for Providence in Boisguilbert's writings yields little. Though he obviously did realize, as we have just seen, that disaster would occur if the earth "became as sterile as the sands of Africa," elsewhere he in fact denies that the land is especially beneficent:

> If the land in France produced wheat like it makes truffles and mushrooms; it would be a pure effect of its liberality, which would exact no expense or care for cultivation, so that it being necessary for everyone to wait for its purely gratuitous bounty, attention or work wouldn't have any part in the size of the harvest...

Now, it could be like this if cultivation took as little as it does in Egypt, where the Nile provides:

> both the cost of four workers who are necessary almost everywhere else to prepare the earth, and those of the fertilizer and improvements that must be given to it, such that it only remains to throw the seed on the mud and wait, without any fear of the cold, frost or storm, for it to return its value with usury; it is this which made the country to be formerly called *the granary of the Romans*, and which causes the dispositions of the weather [*du ciel*], which are nearly everything elsewhere, to be counted for nothing in that country.
>
> This system could also work in Muscovy, where the snow, remaining on the ground for eight or nine months' time, after melting leaves in the soil a salt that, with the help of a simple and very easy labor, replaces all kind of fertilizers, and gives, after only two months in the fields, a very abundant harvest.

Unfortunately, however, this is in fact not the case in France, where,

> far from the lands being nearly so liberal, one can be reassured that they are all, or the great part of them, very rebellious to the hand of the laborer, and very selfish, giving nothing for nothing, and then only in proportion to the care and fertilizer that is lent to them; and indeed, often when the weather is not favorable, many are encountered that cause bankruptcy, letting expire their fatal term or the harvest season without returning either interest or capital, that is to say, the seed. (ibid., p. 345)

Though for Boisguilbert the land is thus giving in some places, like Egypt, it is not in France and other areas. There the land is more characterized by the curse of Genesis, for "we can't say that the heavens...don't give...according to their whim: a long drought, a great amount of rain, a rough

and tiresome winter without snow, which is an excellent cover for wheat against the rigors of the cold, and finally a bit of *emnielle* [a disease]" (ibid., p. 355).[12] Boisguilbert's system does not rely on the seemingly "mystical" quality of land that the physiocrats do. Consequently, there is no reason why other professions, though less important, cannot also receive profits.

Another predecessor of the physiocrats that we need to look at is Richard Cantillon. Cantillon, an Irishman of Norman origins who operated his uncle's Parisian banking business for a while,[13] is especially important for his description of circulation (see Foley 1973, pp. 138-41; Herlitz 1961; Jevons [1881] 1931; and Meek 1962 pp. 266). Cantillon divides the nation into city and country and begins his analysis with the payment of rents by farmers. Of the money from the sale of food, 1/3 is the rent for proprietors, 1/3 is for the costs of production, including the subsistence of the farmers and their assistants, and 1/3 is profit for the farmers.

Unlike Boisguilbert, Cantillon argues that "Land is the Source or Matter from whence all Wealth is produced." Land "produces" and "supplies" produce, as do rivers and seas (*Essai sur la nature du commerce en general* [1755] 1931, p. 3). It also supplies the raw materials that make up other things. Thus, the intrinsic value of all commodities "is the measure of the quantity of Land and of Labour entering into its production, having regard to the fertility or produce of the Land and to the quality of the Labour" (ibid., p. 29), which, given some relationship or par between labor and land, can be further reduced only to land (see ibid., I. xi.).

Consequently, as with Boisguilbert, the agricultural sector, being the first to procure materials from the land, is the first to have anything to exchange; all other people work to exchange with it. In this way, it sets the circulatory process in motion: "The three Rents of the

12 For Boisguilbert, this inconsistency between places like Egypt and France is itself a measure of nature's benevolence. He writes that nature "loves all men equally and likewise wishes them to be able to subsist without distinction. But in this manna of grain she is not always as liberal in one region as in another. She gives it in profusion in one province and even in a kingdom, while she deprives another wholly. But she intends that by mutual aid they shall create a balance [which is] mutually advantageous, and that by averaging these two extremes of extraordinary dearness or of undue cheapness of grain there will result a condition which will create public prosperity, which is nothing less than the maintenance of this equilibrium..." (*Dissertation*, quoted in Roberts 1935, p. 254).

13 Though it is difficult to place Cantillon in a particular nation's school of thought, see Jevons [1881] 1931 for more on this subject.

Farmer must therefore be considered as the principal sources or so to speak the mainspring of circulation in the State" (ibid., p. 123). It has the important function of providing all the subsistence and raw materials that feed and maintain the other inhabitants of the nation: "If we examine the Means by which an Inhabitant is supported it will always appear in returning back to the Fountain-Head, that these Means arise from the Land of the Proprietor either in the two thirds reserved by the Farmer, or the one third which remains to the Landlord" (ibid., p. 45, see also p. 137). All further economic activity owes its origin to land, because the raw materials that other professions work with come from the land. While it may seem that some of the wealth originates in the city since the value of finished goods is greater than their raw materials, this added wealth only represents subsistence goods from the country that are consumed by the manufacturers in the course of their labor. "It is true that the Wool, for example, which is brought from the country, when made up into Cloth in the City is worth four times its former value. But this increase of Value, which is price of the Labour of the Workmen and the Manufacturers in the City, is exchanged for the Country produce which serves for their maintenance" (ibid., p. 139).[14]

Thus, the wealth of a nation relates totally to the land: all its raw material costs and all its labor costs represent expenses for products of the land. Accordingly, all people depend on the land and the agricultural sector and "live at the expense of the Proprietors of the Land" (ibid., p. 15), exchanging their labor for the produce of his lands, though the indirect nature of this relationship sometimes makes it invisible (see p. 47).

Last, many of these ideas about the primacy of agriculture were also confirmed by the Chinese philosophers. At a time when economic and political problems made Europe receptive to any new ideas from abroad, China achieved a particular level of fashionability in France.[15]

14 For Cantillon, then, all wealth is either subsistence goods or is exchanged for subsistence. In this way, he can make the curious statement that "the consumption of the Inhabitants of the State is, in a sense, entirely for Food. Lodging, Clothing, Furniture, etc. correspond to the Food of the Men who have worked on them" (ibid., p. 145).

15 For example, people craved sedan chairs, porcelain, lacquer-ware, silks, fire crackers, peep shows, new uses for paper such as playing cards and calling cards, tea, and, exemplified by Mme de Pompadour, Chinese hair styles (Maverick 1946, pp. 124-5).

The Chinese stressed the importance of agriculture for its nation's economy, holding farmers in high esteem, and avoiding heavy taxation, for, as Mencius said, "a wise magistrate levies but one [tax] at a time, and puts off levying the other two. If two are levied, people die of hunger; if all three are levied, fathers and sons are parted" (quoted in Maverick 1946, p. 79). Such ideas spread to Europe rapidly through a number of sources, including missionaries and traders (see ibid.).

THE PHYSIOCRATS AND SUBSISTENCE

The Physiocrats were every bit as concerned about subsistence as the police, arguing that it is the very foundation of society (*Droit naturel*, Meek 1962, p. 55). But like Vauban and Boisguilbert the Physiocrats argued that the key to providing subsistence goods lay in ensuring their production rather than through their distribution. They believed that the regulations of the police which were depressing prices bankrupted agriculture, destroying the source of the nation's wealth. A profitable agricultural industry would produce enough wealth for all, which could then be left to the proprietors to distribute. In a less sophisticated version of proportional prices, they argued that agricultural prices had to be high enough to allow farmers to survive and invest in their land, but low enough to allow other professions to survive as well (see *Hommes*, ibid., pp. 93-4). They thus urged not only that France should free exports, but also that it was

> essential that trade in the produce of the provinces should not be subjected to temporary and arbitrary prohibitions and licences, which ruin the countryside under the delusive pretext of assuring abundance for the towns. The towns subsist through the expenditure of the proprietors who live in them; thus, by destroying the revenue of landed property, this practise brings no advantage to the towns and no good to the state. (*Grains*, Meek 1962, p. 80).

The physiocrats also followed their theoretical predecessors in emphasizing the importance of agriculture in the maintenance of the circulatory process, occasionally citing them in their works. We know, for example, that they read all three of the writers mentioned above, though they claimed that the true honor of discovering the laws governing the economic order

belonged to Francois Quesnay, the "venerable Confucius of Europe." They read Vauban's *Projet d'un dime royale* and, of Boisguilbert, at least his *Detail de la France*. This work Quesnay used for statistics on the decline of tax revenue in the 17th century (*Maximes generales*, Meek 1962, pp. 261-2), as does Mirabeau, who along with Dupont praises the insights of this work (Cadet 1870, p. 371 and Roberts 1935, p. 324),[16] and who drafted a work on his importance (see *Notes inedites*). The physiocrats also read Cantillon's *Essai*, both criticizing him for "putting the cart before the horse" in seeking to increase population and labor in order to create more wealth (see Meek 1962, pp. 16-7), and, in *Grains*, praising him for recognizing other "fundamental truths" such as the fact that "the revenue of the king, the clergy, and the proprietors, and the gains of the farmer and of those whom he employs, turn into expenditure, which is distributed to all the other estates and to all the other occupations" (quoted in ibid., p. 267). Moreover, we know that they were familiar with the philosophy of the Chinese, for Quesnay wrote his own commentary on their system (see *Le despotisme de la Chine* 1767).

The physiocrats continue to stress that agriculture provides the objects of first necessity and that "the artisan's labour...merely procures for him the right to share in the consumption of the subsistence goods" of the cultivator (*Dialogue sure les travaux des artisans*, Meek 1962, p. 227). But they also criticize their predecessors for failing to subsequently see the existence of the *produit net*. Said Dupont of Boisguilbert,

> If he had seen that land and waters were the sole sources from which the labor of man can obtain wealth, and that labor of conservation, of manufacture, of exchange, etc., that have been quite improperly confounded under the generic term of industrial labor, did nothing except to exert itself on wealth already produced without adding anything thereupon; if he had recognized the existence of the net product, and distinguished it from the costs of reproduction; if he had combined these truths with others that he sensed, the honor of originating the principles of economic science would be due him. (*Ephemerides* 1769, quoted in Roberts 1935, p. 324)

PHYSIOCRATIC PROFITS AND THE MEANING OF THE NET PRODUCT

The physiocrats derived this "discovery" of the net product from the old ideas about the

[16] For a complete discussion of the evidence for the physiocrat's debt to Boisguilbert, including both their acknowledged and unacknowledged use of his works, see Cadet 1870, pp. 359-67.

general importance of agriculture together with a new and sharper definition of the focus of their study and the meaning of profits.

In their study of the science of wealth, they made the distinction between *value in use* and *value in exchange*. Value in use relates only to how badly people need the good; value in exchange relates also to market conditions. A diamond, for example, though having little use value relative to food, has a much greater value in exchange (*Hommes*, Meek 1962, p. 90).[17] The physiocrats identify this latter kind of value, the market value, with national "wealth" (see ibid., pp. 92-3 and *Maximes generales* p. 235).

The doctrine of the exclusive productivity of the land thus should not be interpreted to mean that all non-agricultural professions are useless. They are in fact crucial to a nation's economy, and contribute by allowing farmers to concentrate on their work without having to worry about making their own manufactured goods (see *Hommes*, Meek 1962) and by increasing the use value of goods.

But the physiocrats were more interested in the category of market value, or "wealth," than they were in use value. To understand how they analyzed wealth, however, we first need to understand how they viewed profits.

The physiocrats generally used the terms "profits" to simply mean "revenues," "gains," or "rewards." It is not until Adam Smith that we find the term clearly related to a return to the employers of capital, reduced by competition to a "natural rate" and distinguished from special "wages of management." Following Cantillon (see Herlitz 1961, pp. 130-1), the physiocrats viewed profits as *profits upon alienation*, the difference between the selling price and cost of a commodity.

From a *personal point of view*, anybody could receive profits, for everyone has to receive enough revenue to keep them in business. But from a *societal point of view*, profits become more complex. Profits basically remain profits upon alienation, but now much more is counted under the heading of costs. As Cantillon had already noted, the artisan's gain, for example, is simply a

[17] fCompare this with Adam Smith *The Wealth of Nations* [1776] 1931, I. iv, p. 28).

cost, the subsistence used up in the production of their commodities. Societal profits must be in the form of a surplus, the increased increment of wealth that is not offset by any costs.[18]

Given the view that market prices represent a given quantity of wealth, it follows that any profits of the nature of a surplus represent *new* wealth. Called the net product, such new wealth had to have a source that could in no way be interpreted as simply another cost-as any input such as labor and capital would. The physiocrats naturally found this source in land, for, as we have seen, past economists had already stressed the fact that the land "supplies" all the circulation of the economy and that all "200" other occupations depend on agriculture as the "first" occupation holding them up. But in taking this approach, the physiocrats move from an understanding that agriculture is the "first" link in a chain of opulence to the position that only agriculture is productive because only agriculture receives the *free gift* of new wealth from the land.

Consistent with this conclusion, the physiocrats argue, contradicting Boisguilbert, that the land can provide a surplus before cultivation. Mirabeau, when describing to Rousseau the argument that converted him to physiocracy says:

> I replied to him that...man was the primary cause in the creation of fruits. He [Francois Quesnay] started to laugh, and asked me to explain myself better and to tell him if man, when he arrived on the earth, had brought bread in his pocket to enable him to live until the time when the land, having been prepared, sown, covered with ripe crops, reaped, threshed, etc., could feed him. I was caught: one had either to imagine that man had licked his paws for 18 months, as the bear does during the winter in his lair, or to allow all the subsequent population to share the same benefit, because otherwise they too could not exist. (Quoted in Meek 1962 p. 17)

Just as the land freely provided food to people before they planted their first seed, so it continues to provide the net product.

Since agriculture receives the surplus, only farmers receive the net product, which they

[18] Within this context, the physiocrats rejected more clearly than Cantillon the possibility of profits merely from buying low and selling high. Instead, they tied their profits upon alienation to the prix fondamental, the sum of all costs of commodity, including worker's subsistence (Vaggi 1987, p. 128).

then pay to the landlords as rent, a category of income which is a "true something for nothing." Though they may receive enough profits to keep them employed, and though their final goods represent wealth, artisans on the other hand only transform pre-existing wealth and add it together:

> I do not wish to deny that there is an addition of wealth to the raw materials used in the goods created by artisans, since their labour does in fact increase the value of the raw materials used in their goods...We have to distinguish an *adding together* of items of wealth which are combined with one another, from a *production* of wealth. That is, we have to distinguish an increase brought about *by combing* raw material with expenditure on the consumption of things which were in existence prior to this kind of increase, from a *generation* or creation of wealth, which constitutes a renewal and *real* increase or renascent wealth. (*Sur les travaux des artisans*, ibid., pp. 205-7, italics in original; see also *Hommes*, ibid., p. 96)

Artisans add the value of their subsistence to their raw materials, but do not contribute any new wealth (see also *Impute*, Meek 1962, p. 105 and *Grains*, ibid., p. 73) and, hence, are not productive.

Thus, physiocratic doctrines about the relative productivity of different professions, though analyzed within a framework of prices and conditions of supply and demand, rest upon the central belief that nature provides a free product. Indeed, as we saw in Chapter 1, without this foundation, such doctrines become confusing and baseless.

CONCLUSION

Looking for the laws of economics that revealed the forces behind economic progress, the physiocrats found the net product to be the measure of new wealth added to the kingdom. Following their methodology, in trying to find its source, they looked to they physical laws of the universe for some principle of creating wealth. The physiocrats, in accepting the important place for agriculture that other thinkers had already established, found this principle in the land. They noted that the land, supplying a free surplus, had a beneficent nature. The physiocrats were unable to find a similar principle anywhere else in the economic circulatory system since any intermediary steps only pass on wealth, albeit in a different form, just as arteries only pass on blood once it has left the heart even though the quality of blood changes.

Concern about whether the physiocrats discovered a physical or value surplus need not cause any problems, for the physiocrats believed net products source lay in the benevolence of nature. Instead, I hope I have shown both that this source is critical to understanding the physiocrats view of the economy as a whole, and that it follows logically both from the methods they used and from the economic assumptions and concerns of the 18th century.

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