13.2 *Laissez-faire* and free trade

The main stress of the physiocrats was in two areas: political economy and technical economic analysis, and the difference in the quality of their respective contributions is so great as to be almost stupefying. For in general political economy, they were usually perceptive and made important contributions, whereas in technical economics they introduced egregious and often bizarre fallacies which were to plague economics for a long time to come.

In political economy, the physiocrats were among the first *laissez-faire* thinkers, casting aside contemptuously the entire mercantilist baggage. They called for complete internal and external free enterprise and free trade, unfettered by subsidies, monopoly privileges or restrictions. By removing such restrictions and exactions, commerce, agriculture and the entire economy would flourish. On international trade, while the physiocrats lacked the specie-flow-price mechanism of the brilliant and sophisticated Cantillon, they were far bolder than he in laying down the gauntlet to all mercantilist fallacies and restrictions. It is absurd and self-contradictory, they pointed out, for a nation to attempt to sell a great deal to foreign countries and to buy very little; selling and buying are only two sides of the same coin. Furthermore, the physiocrats anticipated the classical economic insight that money is not crucial, that in the long run, commodities – real goods – exchange for each other, with money simply an intermediary. Therefore, the key goal is not to amass bullion, or to follow the chimera of a permanently favourable balance of trade, but to have a high standard of living in terms of real products. Seeking to amass specie means that people in a nation are giving up real goods in order to acquire mere money; hence, they are losing rather than gaining wealth in real terms. Indeed, the whole point of money is to exchange it for real wealth, and if people insist on piling up an unused hoard of specie they will lose wealth permanently.

When Turgot became finance minister of France in 1774, his first act was to decree freedom of import and export of grain. The preamble of his edict, drawn up by his aide Du Pont de Nemours, summed up the *laissez-faire* policy of the physiocrats – and of Turgot – in a fine and succinct manner: the new free trade policy, it declared, was designed

> to animate and extend the cultivation of the land, whose produce is the most real and certain wealth of a state; to maintain abundance by granaries and the entry of foreign corn, to prevent corn from falling to a price which would discourage the producer; to remove monopoly by shutting out private license in favor of free and full competition, and by maintaining among different countries that communication of exchange of superfluities for necessities which is so comformable to the order established by Divine Providence.[1]

Although the physiocrats were officially in favour of complete freedom of trade, their besetting passion – and this reflects their often bizarre economics – were repealing all restrictions on free export of grain. It is understandable that they would concentrate on the elimination of a long-standing restriction, but they seemed to show little zeal for the freedom of *importation* of grain or for the freedom of export of manufactures. All this was wrapped up in the physiocrats' unremitting enthusiasm for high agricultural prices, almost as a good in itself. Indeed, the physiocrats frowned on exports of manufactured products as competing with, and lowering the price of, agricultural exports. Dr Quesnay went so far as to write that 'happy the land which has no exports of manufactures because agricultural exports maintain farm prices at too high a level to permit the sterile class to sell its products abroad'. As we shall see below, 'sterile' by definition meant everyone outside agriculture.

13.3 *Laissez-faire* forerunner: the marquis d'Argenson

While the physiocrats were the first economists to stress and develop the case for *laissez-faire*, they had distinguished forerunners among statesmen and merchants in France. As we have seen, the *laissez-faire* concept developed among classical liberal oppositionists to the absolutism of late seventeenth century France. They included merchants such as Thomas Le Gendre and utilitarian officials like Belesbat and Boisguilbert.

Bridging the gap between turn of the eighteenth century *laissez-faire* writers and the physiocrats of the 1760s and 1770s was the eminent statesman, René-Louis de Voyer de Paulmy, Marquis d'Argenson (1694–1757). The heir of a long line of ministers, magistrates, and *intendants*, d'Argenson's ambition was to become prime minister and save France from what he saw as impending revolution by instituting *laissez-faire*. A voracious reader and prolific writer throughout his life, d'Argenson only published in his lifetime a few articles in his *Journal Oeconomique* in the early 1750s, and these were not printed but widely circulated in manuscript form. For a long while, d'Argenson was erroneously credited by historians with originating the phrase *'laissez-faire'* in one of the articles in his *Journal* of 1751.

While d'Argenson did not originate the term, *laissez-faire* was his repeated cry to the French authorities, a cry he continued to stress even though his ideas were dismissed as eccentric by all his governmental colleagues. As *intendant* in his early years on the Flemish border, d'Argenson was struck with what he saw to be the economic and social superiority of free people and free markets across the border in Flanders. He then became greatly influenced by the writings of Fénélon, Belesbat, and Boisguilbert.

D'Argenson saw self-love and self-interest as the mainspring of human action, as bringing about energy and productivity in the pursuit of each man's happiness. Human social life, to d'Argenson, has the 'natural tendency to

inherent harmony when artificial constraints and artificial harmony and artificial stimuli are removed'. Looking to an enlightened monarch to remove these artificial subsidies and restrictions, d'Argenson pointed out that in the ideal society, the sovereign would have very little to do. 'One spoils everything by meddling too much... The best government is that which governs least'. Thereby the marquis anticipated the famous phrase attributed to Thomas Jefferson.

D'Argenson concluded that 'each individual [should] be left alone to labor on his own behalf, instead of suffering constraint and ill-conceived precautions. Then everything will go beautifully...'. Then continuing the proto-Hayekian point made by Belesbat:

> It is precisely this perfection of liberty that makes a science of commerce impossible, in the sense that our speculative thinkers understand it. They want to direct commerce by their orders and regulations; but to do this one would need to be thoroughly acquainted with the interests involved in commerce...from one individual to another. In the absence of such knowledge, it [a science of commerce] can only be...much worse than ignorance in its bad effects...Therefore, *laissez-faire*! (*Eh, qu'on laisse-faire*!')

13.4 Natural law and property rights

Not only were the physiocrats generally consistent advocates of *laissez-faire*, but they also supported the operation of a free market and the natural rights of person and property. John Locke and the Levellers in England had transformed the rather vague and holistic notions of natural law into the clear-cut, firmly individualistic concepts of the natural rights of every individual human being. But the physiocrats were the first to apply natural rights and property rights concepts fully to the free market economy. In a sense, they completed the work of Locke and brought full Lockeanism to economics. Quesnay and the others were also inspired by the typically eighteenth century Enlightenment version of natural law: where the individual's rights of person and property were deeply embedded in a set of natural laws that had been worked out by the creator and were clearly discoverable in the light of human reason. In a profound sense, then, eighteenth century natural rights theory was a refined variant of medieval and post-medieval scholastic natural law. The rights were now clearly individualistic and not societal or pertaining to the state; and the set of natural laws was discoverable by human reason. The seventeenth century Dutch Protestant, and in essence Protestant scholastic, Hugo Grotius, deeply influenced by the late Spanish scholastics, developed a natural law theory which he boldly declared was truly independent of the question of whether God had created them. The seeds of this thought were in St Thomas Aquinas and in later Catholic scholastics, but never had it been formulated as clearly and as starkly as by Grotius. Or, to put it in terms that

had fascinated political philosophers since Plato: did God love the good because it *was in fact good*, or is something good because God loves it? The former has always been the answer of those who believe in objective truth and objective ethics, that is, that something might be good or bad in accordance with the objective laws of nature and reality. The latter has been the answer of fideists who believe that no objective rights or ethics exist, and that only the purely arbitrary will of God, as expressed in revelation, can make things good or bad for mankind. Grotius's was the definitive statement of the objectivist, rationalist position, since natural laws for him are discoverable by human reason, and the eighteenth century Enlightenment was essentially the spinning out of the Grotian framework. To Grotius the Enlightenment added Newton, and his vision of the world as a set of harmonious, precisely if not mechanically interacting natural laws. And while Grotius and Newton were fervent Christians as was almost everyone in their epoch, the eighteenth century, starting with their premisses, easily fell into deism, in which God, the great 'clock-maker', or creator of this universe of natural laws, then disappeared from the scene and allowed his creation to work itself out.

From the standpoint of political philosophy, however, it mattered little whether Quesnay and the others (Du Pont was of Huguenot background) were Catholics or deists: for given their world outlook, their attitude toward natural law and natural rights could be the same in either case.

Mercier de la Rivière pointed out in his *L'Ordre naturel* that the general plan of God's creation had provided natural laws for the government of all things, and that man could surely not be any exception to that rule. Man needed only to know through his reason the conditions that would lead to his greatest happiness and then follow that path. All ills of mankind follow from ignorance or disobedience of such laws. In human nature, the right of self-preservation implies the right to property, and any individual property in man's products from the soil requires property in the land itself. But the right to property would be nothing without the freedom of using it, and so liberty is derived from the right to property. People flourish as social animals, and through trade and exchange of property they maximize the happiness of all. Furthermore, since the faculties of human beings are by nature diverse and unequal, an inequality of condition arises naturally from an equal right to liberty of every man. In this way, property rights and free markets, concluded Mercier, is a social order that is natural, evident, simple, immutable and conducive to the happiness of all.

Or, as Quesnay declared in his *Le Droit naturel* (*Natural Law*): 'Every man has a natural right to the free exercise of his faculties provided he does not employ them to the injury of himself or others. This right to liberty implies as a corollary the right to property', and the only function of the government is to defend that right.[2]

Many rulers of Europe were either entranced or intrigued by this fashionable new doctrine of physiocracy, and endeavoured to find out about it from its major theorists. The dauphin of France once complained to Quesnay of the difficulty of being a king, and the physician replied that it was really quite simple. 'What then', asked the dauphin, 'would you do if you were king?' 'Nothing', was the straightforward, stark, and magnificently libertarian answer of Dr Quesnay. 'But then who would govern?' sputtered the dauphin. 'The law', that is, the natural law, was Quesnay's accurate but no doubt unsatisfying reply.

A similar reply was certainly unsatisfactory to Catherine the Great, czarina of all the Russias, who sent for Mercier de la Rivière, jurist and at one time *intendant* (governor) of Martinique, to instruct her on how to govern. Pressed as to what the 'law' should be grounded on, Mercier answered the empress: 'On one [thing] alone, madame, the nature of things and of man'. 'But how then, can a king know what laws to give to a people?' the czarina continued. To which Mercier replied sharply: 'To give or make laws, Madame, is a task which God has left to no one. Ah! What is man, to think himself capable of dictating laws to beings whom he knows not...? The science of government, Mercier added, is to study and recognize the 'laws which God has so evidently engraven in the very organization of man, when He gave him existence'. Mercier added the pertinent warning: 'To seek to go beyond this would be a great misfortune and a destructive undertaking'.

The czarina was polite, but was definitely not amused. 'Monsieur', she replied curtly, 'I am very pleased to have heard you. I wish you good day'.

13.5 The single tax on land

Natural rights, *laissez-faire* libertarians always confront several problems or *lacunae* in their theory. One is taxation. If every individual is to have inviolable property rights, and those rights are to be guaranteed by the government, taxation, itself an infringement of property rights, presents an immediate problem to *laissez-faire* theorists. For *how high* should taxes be, and *who* should pay them?

Classical liberalism, however inchoate, had been born in France as an opposition to the statist absolutism of King Louis XIV in the latter decades of the seventeenth, and the early years of the eighteenth, century. A favourite programme of these liberals, as set forth by Marshal Vauban and by the Sieur de Boisguilbert, among others, was a single tax, a proportional tax on all income or property. The idea was that this simple, direct, universal tax would replace the monstrous and crippling network of taxation that had grown up in seventeenth century France.

To solve the problem of taxation, Dr Quesnay and the physiocrats came up with their own original single tax (*l'impôt unique*) – a single tax on land. The

idea was that tax would be low, and that it would be proportional and confined only to a tax on land and on landlords.

The rationale of the *impôt unique* stems from the singular physiocratic view that only land is productive. Land *produces* because it creates matter; whereas all other activities, such as trade, commerce, manufacturing, services, etc. are 'sterile', although admittedly useful, because they only shuffle around or transform matter without creating it. Since only land is productive, and all other activities are sterile, it follows, according to the physiocrats, that any other taxes will wind up being shifted on to land, through the price system. Therefore, the choice is to tax the land indirectly and remotely, while crippling and distorting economic activities, or taxing the land openly and uniformly through the single tax, thereby freeing economic activity from a fearsome tax burden.

From the standpoint of economic theory, the famous physiocratic tenet that only land is productive must be considered bizarre and absurd. It is certainly a tremendous loss of insight compared to Cantillon, who identified land *and labour* as original productive factors, and entrepreneurs as the motor of the market economy who adjust resources to the demands of consumers and to the uncertainty of the market. It is surely true that agriculture was the chief occupation of the day, and that most commerce was the transportation and sale of agricultural products, but this scarcely salvages or excuses the absurdity of the land-as-only-productive-factor doctrine.

It is possible that one explanation for this odd doctrine is to apply to the physiocrats the insight of Professor Roger Garrison on the basic world-outlook of Adam Smith. Smith, in a less outlandish version of the physiocratic bias, held that only *material* output – in contrast to intangible services – is 'productive', while immaterial services are unproductive. Garrison points out that the contrast here is not really between material and immaterial goods and services, but between capital goods and consumer goods – which are basically either direct services or a stream of services to be available in the future. Hence, for Smith, 'productive' labour is only effort that goes into capital goods, into building up productive capacity for the future. Labour in direct service to consumers is 'unproductive'. In short, Smith, despite his reputation as an advocate of the free market, refuses to accept free market allocations to the production of consumer *vis-à-vis* capital goods; he would prefer more investment and growth than the market prefers.

In the same way, could it not be true that the physiocrats had a similar outlook? The physiocrats, too, stressed *material* goods, and agriculture was the main material product. The physiocrats were also greatly concerned with economic growth, with increasing investment and national output, and especially with greater capital investments in agriculture. Indeed, the physiocrats were disgruntled with free market choice, and wanted to strengthen consumer

demand for agricultural products in particular. High consumption of farm products was beneficial according to the physiocrats, whereas high consumption of manufactured goods would promote 'unproductive' expenses and crowd out desirable purchases of agricultural products.

Some economists have gone so far as to speculate that the physiocrats would have been overjoyed at a policy of farm-price supports. Professor Spiegel believes that if the physiocrats

> had been faced with a choice between laissez faire and intervention on behalf of farm price supports, they would have chosen intervention. The means to resolve the economic problem that was foremost in their minds was the development of domestic agriculture rather than unconditional reliance on private initiative within a framework of competition.[3]

Perhaps the tip-off on applying the Garrison insight is the common attitude of Smith and the physiocrats on usury laws. Despite their generally consistent advocacy of absolute and inviolate property rights, and of the freedom to trade within and without a nation, Quesnay and the physiocrats championed usury laws, denying the freedom to lend and borrow. Adam Smith had a similar aberration. Smith, as we shall see further below (Chapter 16), and as Garrison pointed out, took this position in a conscious effort to divert credit from 'unproductive' high risk and high interest-paying speculators and consumers and toward 'productive' low risk investors. Similarly, Quesnay denounced the restrictions on investment and capital growth resulting from high interest rates and from the competition of unproductive borrowers crowding out credit that would otherwise go into capitalized agriculture. Usury laws were upheld on traditional moralistic grounds of alleged 'sterility' of money. But to the physiocrats, *all* activity except agriculture was 'unproductive', and so the problem was rather the competition such borrowing imposed on the 'productive sector'. As Elizabeth Fox-Genovese puts it: 'Quesnay... argues that the high interest rate constitutes neither more nor less than a tax upon the productive life of the nation – upon those who do not borrow as much as upon those who do'.[4]

It is true that part of the physiocratic attention here was on government debt, and it is certainly true that government debt raises interest rates and diverts capital from productive to unproductive sectors. But there are two flaws in such an approach. First, not all non-agricultural debt is state debt, and therefore not all higher interest is a 'tax' on producers. This returns us to the eccentric view of the physiocrats that only land is productive. Usury laws would cripple not only government debt, but also other forms of borrowing. And second, it seem odd to allow government debt and then to try to offset its unfortunate effects by the meat-axe approach of imposing restraints on usury. Surely it would be simpler, more direct, and less distorting to tackle the

problem at its source and call for the elimination of government debt. Usury laws only make things worse, and injure free and productive credit.

And so Quesnay – himself the son of a well-to-do farmer – was far more interested in subsidizing credit to farmers and keeping out competing borrowers than in stopping government debt.

There is another way of explaining the physiocratic attitude towards land as the sole producer. And that is to concentrate on the proposed *impôt unique*. More specifically, the physiocrats held that the productive classes were the farmers, who rented the land from the landlords and actually tilled it. The landlords were only partially productive, the *partially* coming from the capital advances they had made to the farmers. But the physiocrats were sure that the farmers' returns were all bid away by their competition to rent lands, so that in practice all the 'net product' (*produit net*) – the *only* net product in society – is reaped by the nation's landlords. Therefore, the single tax should be a proportionate tax upon the landlords alone.

Professor Norman J. Ware has interpreted physiocracy and its emphasis on the sole productivity of land as merely a rationalization of the interests of the landlord class. This hypothesis has been taken seriously by many historians of economic thought. But let us ask ourselves: what sort of self-serving doctrine says: 'Please: put all the taxes on me'? The beneficiaries of physiocratic policies would surely be every economic class *except* the landlords, including Dr Quesnay's own class of farmers.[5]

13.6 'Objective' value and cost of production

Although the physiocrats had useful insights into political economy and the importance of the free market, their distinctive contributions to technical economics were not only wrong, but in some cases proved to be a disaster for the future of the economic discipline.

Thus for centuries the mainstream of economic thought, generally embedded in scholastic treatises, held that the value, and therefore the prices, of goods were determined on the market by utility and scarcity, that is, by consumer valuations of a given supply of a product. Scholastic and post-scholastic economics had basically solved the age-old 'value paradox' of diamonds and bread, or diamonds and water: how is it that bread, so useful to man, is worth very little on the market, whereas diamonds, a mere frippery, are so expensive? The solution was that if quantities of supply are taken into account, the seeming contradiction between 'use value' and 'exchange value' disappears. For the supply of bread is so abundant that any given loaf will have a negligible value – in use or in exchange – whereas diamonds are so scarce that they will command a high value on the market. 'Value', then, does not pertain in the abstract to a class of goods; it is imparted by consumers to specific, real units, and such value depends inversely on the supply of a good.

The only thing left to complete the explanation was the 'marginal' insight imparted by the Austrians and other neoclassicals in the 1870s. The scholastics saw that the utility of any good diminishes as its stock increases; the only thing lacking was the marginal analysis that real-world purchases and evaluations focus on the next unit (the 'marginal' unit) of the good. Diminishing utility is diminishing *marginal* utility. But while the capstone of utility and subjective value theory was yet missing, enough was already in place to provide a cogent explanation of value and price.

Despite his troubling injection of 'intrinsic value' as a quantity of land and labour in production, Cantillon had continued in this late scholastic, proto-Austrian, tradition and had indeed made many contributions to it, particularly in the study of money and entrepreneurship. It was the physiocrats who broke with centuries of sound economic reasoning and contributed to what would become, in the hands of Smith and Ricardo, a reactionary and obscurantist destruction of the correct analysis of value.

Dr Quesnay begins his value analysis by disregarding centuries of value theory and tragically sundering the concepts of 'use value' and 'exchange value'. Use value reflects the individual needs and desires of consumers, but, according to Quesnay, these use values of different goods have little or no relation to each other or, therefore, to prices. Exchange value, or relative prices, on the other hand, have no relation to man's needs or to agreements among bargainers and contractors. Instead, Quesnay, the would-be 'scientist', rejected subjective value and insisted that the values of goods are 'objective' and mystically embedded in various goods irrespective of consumers' subjective valuations. This objective embodiment, according to Quesnay, is the cost of production, which in some way determines the 'fundamental price' of every good. As was even true for Cantillon, this 'objective' cost of production appears to be somehow determined externally, from outside the system.

13.7 The *Tableau économique*

Not as devastating for the development of economics as his fallacy of the cost of production or 'productive labour', but more irritating nowadays is Dr Quesnay's *Tableau économique*, the very invention that his glorifier Mirabeau called one of the three great human inventions of all time. The *Tableau*, first published in 1758, was an incomprehensible, jargon-filled chart purporting to depict the flow of expenditures from one economic class to another. Generally dismissed as turgid and irrelevant in its day, it has been rediscovered by twentieth century economists, who are fascinated *because* of its very incomprehensibility. All the better to publish journal articles on!

Dr Quesnay's *Tableau économique* has been hailed for anticipating many of the most cherished developments of twentieth century economics: aggregative concepts, input–output analysis, econometrics, depiction of the

'circular flow' of equilibrium, Keynesian stress on expenditure and consumer demand, and the Keynesian 'multiplier'. In recent years tens of thousands of words have been lovingly expended on trying to piece together what the *Tableau* had to say, and to reconcile it with its own figures and with the economy of the real world.

To the extent that Quesnay's *Tableau* anticipates all these developments, so much the worse for both the forerunner and the later product! It is true that the *Tableau* shows that ultimately real goods exchange for real goods, with money as an intermediary, and that everyone is both a consumer and a producer in the market. But these simple facts were known for centuries, and charts, lines (Quesnay's cherished 'zig-zags'), and numbers can only obscure rather than highlight their importance. At best the chart elaborates spending and income patterns to no purpose.[6] Furthermore, the *Tableau* is holistic, aggregative, and macroeconomic, with no solid grounding in the methodological individualism of sound microeconomics.

The *Tableau* not only introduced ungrounded and unsound macro thinking into economics; it also laid up mischief for the future by anticipating Keynesianism. For it glorified expenditures, including consumption, and worried about savings, which it tended to regard as crippling the economy by 'leaking' out of the constant circular flow of spending. This stress on the vital importance of maintaining spending was faulty and superficial in ignoring two fundamental considerations: saving is spent on investment goods, and the key to harmony and equilibrium is *price* – lower spending can always be equilibrated easily on the market by a fall in prices. It can be laid down as a veritable law that any picture or analysis of the economic system that omits prices from consideration can only be crackpot; and the *Tableau économique* was the first – but alas not the last – economic model which did precisely that.

Dr Quesnay of course gave to his circular flow model his own physiocratic twist: it was particularly important to keep up spending on 'productive' agricultural products, and to avoid diversion of spending to 'sterile' and 'unproductive' products, i.e. to anything else. Keynes, of course, was to avoid the physiocratic bias when he resurrected a similar analysis.

While the analytic merits of macro concepts, input–output analysis and econometrics are highly dubious at best, they are surely worse than nothing if the numbers are incorrect. But Quesnay's figures are spurious, for the France of his day or for any other epoch. And the would-be great mathematician made many simple mistakes in arithmetic in the portrayals of his beloved *Tableau*. At best, then, the *Tableau* was elaborate frippery; at worst, false, mischief-making, and deceptive. And in no sense did the *Tableau* do anything but detract and divert attention from genuine economic analysis and insight.

After contemplating this piece of egregious folly, it is a relief to turn to the blistering satirical attack on the *Tableau* by a conservative statist opponent of

the physiocrats, the attorney Simon Nicolas Henri Linguet (1736–94). In his *Réponse Aux Docteurs modernes* (*Reply to the Modern Doctors*) (1771), Linguet begins by ridiculing the idea that the physiocrats were not a cult, or sect:

> Evidence shows it: your mysterious words, *physiocratie*, *produit net*; your mystic jargon, *ordre*, *science*, *le maitre* [the master] your titles of honor showered on your patriarchs; your wreaths scattered through the provinces on obscure if excellent persons...Not a sect? You have a rallying cry, banners, a march, a trumpeter [Du Pont], a uniform for your books, and a sign like freemasons. Not a sect? One cannot touch one of you but all rush to his aid. You all laud and glorify each other, and attack and intimidate your opponents in unmeasured terms.

Linguet then turns his scornful attention to the *Tableau*:

> You affect an inspired tone and seriously discuss on what particular day the symbol of your faith, the masterpiece, the *Tableau Economique* was born – a symbol so mysterious that huge volumes cannot explain it. It is like the Koran of Mohamet. You burn to lay down your lives for your principles, and talk of your apostleship. You attack [the Abbé] Galiani and me because we have no reverence for that ridiculous hieroglyphic which is your holy Gospel. Confucius drew up a table, the I-Ching, of sixty-four terms, also connected by lines, to show the evolution of the elements, and your *Tableau Economique* is justly enough compared to it, but it comes three hundred years too late. Both alike are equally unintelligible. The *Tableau* is an insult to common sense, to reason, and philosophy, with its columns of figures of *reproduction nette* terminating always in a zero, striking symbol of the fruit of the researches of any one simple enough to try in vain to understand it.[7]

13.8 Strategy and influence

One problem that any *laissez-faire* liberal thinker must face is: granted that government interference should be minimal, what form should that government take? Who shall govern?

To French liberals of the latter seventeenth or eighteenth century there seemed to be only one answer: government is and always will be rule by an absolute monarch. Oppositionist rebels had been crushed in the early and mid-seventeenth century, and from then on only one answer was thinkable: the king must be converted to the truths and wisdom of *laissez-faire*. Any idea of inspiring or launching a mass opposition movement against the king was simply out of the question; it was not part of any thinkable dialogue.

The physiocrats, like classical liberals earlier in the eighteenth century, were not simply theorists. The nation had gone awry, and they possessed a political alternative they were trying to promote. But if absolute monarchy was the only conceivable form of government for France, the only strategy for liberals was simple, at least on paper; to convert the king. And so the strategy of classical liberals, from the exertions of the Abbé Claude Fleury

and his able student, Archbishop Fénélon in the late seventeenth century, to the physiocrats and Turgot in the late eighteenth, was to convert the ruler.

The liberals were well placed to pursue the strategy of what might be called their projected 'revolution from the top'. For they were all highly placed at court. Archbishop Fénélon placed his hopes in the dauphin, rearing the duke of Burgundy as an ardent classical liberal. But we have seen that these carefully laid plans turned to ashes when the duke died of illness in 1711, only four years before the death of Louis himself.

A half-century later, Dr Quesnay, again working through a king's mistress, this time Madame de Pompadour, used his position at court to try to convert the ruler. Success in France was only partial. When Turgot, who agreed with the physiocrats on *laissez-faire*, became finance minister and started putting sweeping liberal reforms into effect, he quickly ran into a wall of entrenched opposition that removed him from office only two years later. His reforms were angrily repealed. The leading physiocrats were exiled by King Louis XVI, their journal was quickly suppressed, and Mirabeau was ordered to cancel his famous Tuesday evening seminars.

The physiocrats' strategy proved a failure, and there was more to the failure than the vagaries of a particular monarch. For even if the monarch could be convinced that liberty conduced to the happiness and prosperity of his subjects, his own interests are often to maximize state exactions and therefore his own power and wealth. Furthermore, the monarch does not rule alone, but as the head of a ruling coalition of bureaucrats, nobles, privileged monopolists and feudal lords. He rules, in short, as the head of a power élite, or 'ruling class'. It is theoretically conceivable but scarcely likely that a king and the rest of the ruling class will rush to embrace a philosophy and a political economy that will end their power and put them, in effect, out of business. It certainly did not happen in France and so, after the failure of the physiocrats and Turgot, came the French Revolution.

In any event, the physiocrats did manage to convert some rulers, though not the monarch of France. Their leading disciple among the rulers of the world – and one of the most enthusiastic and lovable ones – was Carl Friedrich, margrave of the duchy of Baden (1728–1811) in Germany. Converted by the works of Mirabeau, the margrave wrote a précis of physiocracy, and proceeded to try to institute the system in his realm. The margrave proposed free trade in corn to the German Diet, and in 1770, he introduced the *impôt unique* at 20 per cent of the agricultural 'net product' in three villages of Baden. Administering the experiment was the margrave's chief aide, the enthusiastic German physiocrat Johann August Schlettwein (1731–1802), professor of economics at the University of Giessen. The experiment, however, was abandoned in a few years in two villages, although the single tax continued in the village of Dietlingen until 1792. For a few years, the

margrave also imported Du Pont de Nemours to be his adviser and tutor to his son.

In one notable meeting, the fervent margrave of Baden asked his master Mirabeau whether or not the physiocratic ideal was making sovereign rulers unnecessary. Perhaps they might all be reformed out of existence. The margrave had divined the anarchistic – or at least the republican – core underlying the *laissez-faire* libertarian and natural rights doctrine. But Mirabeau, dedicated as were all the physiocrats to absolute monarchy, drew back, sternly reminding his younger pupil that while the role of the sovereign would ideally be limited, he would still be the owner of the public domain and the preserver of social order.

Several other rulers of Europe at least dabbled in physiocracy. One of the most eager was Leopold II, grand duke of Tuscany, later emperor of Austria, who ordered his ministers to consult with Mirabeau and carried out some of the physiocratic reforms. A fellow-traveller was Emperor Joseph II of Austria. Another physiocratic enthusiast was Gustavus III, king of Sweden, who conferred upon Mirabeau the grand cross of the newly founded Order of Wasa, in honour of agriculture. Du Pont in turn, was made a Knight of the Order. More practically, when the physiocratic journal was suppressed upon the fall of Turgot, King Gustavus and the margrave of Baden joined in commissioning Du Pont to edit a journal which would be published in their realms.

But the physiocratic appeal to monarchy lost what little effect it had after the onset of the French Revolution. Indeed, after the revolution, physiocracy, with its pro-agricultural bias and devotion to absolute monarchy, was discredited in France and the rest of Europe.

13.9 Daniel Bernoulli and the founding of mathematical economics

We should not leave the *Tableau* without mentioning a French–Swiss contemporary of Cantillon who prefigured the *Tableau* in one and only one sense: he can be said to be the founder, in the broadest sense, of mathematical economics. As such, his work contained some of the typical flaws and fallacies of that method.

Daniel Bernoulli (1700–82) was born into a family of distinguished mathematicians. His uncle, Jacques Bernoulli (1654–1705), was the first to discover the theory of probability (in his Latin work, *Ars conjectandi*, 1713) and his father Jean (1667–1748) was one of the early developers of the calculus, a method that had been discovered in the late seventeenth century. In 1738, Daniel, trying to solve a problem in probability theory and the theory of gambling by use of the calculus, stumbled on the concept of the law of diminishing marginal utility of money. Bernoulli's essay was published in Latin as an article in a scholarly volume.[8]

Bernoulli was presumably not familiar with the arrival at a similar law, albeit in non-mathematical form, by the Spanish Salamancan scholastics Tomás de Mercado and Francisco Garcia nearly two centuries earlier. Certainly he displayed no familiarity whatever with their monetary theories or with any other aspect of economics, for that matter. And being a mathematician, he got even his own particular point wrong, introducing the form of the Law of Diminishing Marginal Utility that would return to plague economic thought in future centuries. For the use of mathematics necessarily leads the economist to distort reality by making the theory convenient for mathematical symbolism and manipulation. Mathematics takes over, and the reality of human action loses out.

One fundamental flaw of Bernoulli's formulation was to put his symbolism into a ratio, or fractional form. If one insists on putting the concept of diminishing marginal utility of money for each individual into symbolic form, one could say that if a man's wealth, or total monetary assets, at any time is x, and utility or satisfaction is designated as u, and if Δ is the universal symbol for change, that

$$\frac{\Delta u}{\Delta x} \quad \text{diminishes as } x \text{ increases.}$$

But even this relatively innocuous formulation would be incorrect, for utility is *not* a thing, it is not a measurable entity, it cannot be divided, and therefore it is illegitimate to put it in ratio form, as the numerator in a non-existent fraction. Utility is neither a measurable entity, nor, even if it were, could it be commensurate with the money unit involved in the denominator.

Suppose that we ignore this fundamental flaw and accept the ratio as a kind of poetic version of the true law. But this is only the beginning of his problem. For then Bernoulli (and mathematical economists from then on) proceeded to multiply mathematical convenience illicitly, by transforming his symbols into the new calculus form. For if these increases of income or utility are reduced to being infinitesimal, one can use both the symbolism and the powerful manipulations of the differential calculus. Infinitely small increases are the first derivatives of the amount at any given point, and the Δs above can become the first derivatives, d. And then, the discrete jumps of human action can become the magically transformed smooth arcs and curves of the familiar geometric portrayals of modern economic theory.

But Bernoulli did not stop there. Fallacious assumption and method are piled upon each other like Pelion on Ossa. The next step towards a dramatic, seemingly precise conclusion is that every man's marginal utility not only diminishes as his wealth increases, but diminishes in fixed inverse proportion to his wealth. So that, if b is a constant and utility is y instead of u (presum-

ably for convenience in putting utility on the y-axis and wealth on the x-axis), then

$$\frac{dy}{dx} = \frac{b}{x}$$

What evidence does Bernoulli have for this preposterous assumption, for his assertion that an increase in utility will be 'inversely proportionate to the quantity of goods already possessed'? None whatever, for this allegedly precise scientist has only pure assertion to offer.[9] There is no reason, in fact, to assume any such constant proportionality. No such evidence can ever be found, because the entire concept of constant proportion in a non-existent entity is absurd and meaningless. Utility is a subjective evaluation, a ranking by the individual, and there is no measurement, no extension, and therefore no way for it to be proportional to itself.

After coming up with this egregious fallacy, Bernoulli topped it by blithely assuming that *every* individual's marginal utility of money moves in the very same constant proportion, b. Modern economists are familiar with the difficulty, nay the impossibility, of measuring utilities between persons. But they do not give sufficient weight to this impossibility. Since utility is subjective to each individual, it cannot be measured or even compared across persons. But more than that; 'utility' is not a thing or an entity; it is simply the name for a subjective evaluation in the mind of each individual. Therefore it cannot be measured even *within* the mind of each individual, much less calculated or measured from one person to another. Even each individual person can only compare values or utilities ordinally; the idea of his 'measuring' them is absurd and meaningless.

From this multi-illegitimate theory, Bernoulli concluded fallaciously that 'there is no doubt that a gain of one thousand ducats is more significant to a pauper than to a rich man though both gain the same amount'. It depends, of course, on the values and subjective utilities of the particular rich man or pauper, and that dependence can never be measured or even compared by anyone, whether by outside observers or by either of the two people involved.[10]

Bernoulli's dubious contribution won its way into mathematics, having been adopted by the great early nineteenth century French probability theorist Pierre Simon, Marquis de Laplace (1749–1827), in his renowned *Théorie analytique des probabilités* (1812). But it was fortunately completely ignored in economic thought[11] until it was dredged up by Jevons and the mathematically inclined wing of the late nineteenth century marginal utility theorists. Its neglect was undoubtedly aided by its having been written in Latin; no German translation appeared until 1896, nor an English one until 1954.