13.10 Notes

1. Quoted in Henry Higgs, *The Physiocrats* (1897, New York: The Langland Press, 1952, p. 62.
2. See the paraphrase by Higgs, ibid., p. 45.
3. Henry William Spiegel, *The Growth of Economic Thought* (2nd ed., Durham, NC: Duke University Press, 1983), p. 192.
4. Elizabeth Fox-Genovese, *The Origins of Physiocracy* (Ithaca: Cornell University Press, 1976), p. 241.
5. I absorbed this insight from Professor Joseph Dorfman's lectures on the history of economic thought at Columbia University. As far as I know, this view has never seen print.
6. Foley provides the interesting speculation that Dr Quesnay's *Tableau économique* was heavily influenced by his erroneous conception of how blood circulates in the human body. V. Foley, 'The Origin of the Tableau Economique', *History of Political Economy* 5 (Spring 1973), pp. 121–50.
7. In Higgs, op. cit., note 1, pp. 149–50.
8. As 'Specimen Theoriae Novae de Mensura Sortis', in *Commentarii Academiae Scientiarum Imperialis Petropolitanae*, Tomus (1738), pp. 175–92. The article was translated by Louise Sommer as 'Exposition of a New Theory on the Measurement of Risk', *Econometrica*, 22 (Jan. 1954), pp. 23ff.
9. Schumpeter points out that Bernoulli noted that this assumption had been anticipated by a decade by the mathematician Cramer, who, however, had assumed that marginal utility diminished by a constant proportion, not of x but of the square root of x. One wonders how one is supposed to choose between either of these absurd assertions. The lesson is that when genuine science is replaced by arbitrary assumptions, deuces become wild, and any assumption is as good or as bad as any other. J.A. Schumpeter, *History of Economic Analysis* (New York: Oxford University Press, 1954), p. 303.
10. Emil Kauder notes the claim of Oskar Morgenstern that, while 'interindividual comparison of utilities cannot be justified', yet 'we live in making continuously such comparisons…'. Of course we do, but that process has nothing to do with science, and therefore has no place in economic theory, either in literary or mathematical form. Emil Kauder, *A History of Marginal Utility* (Princeton, NJ: Princeton University Press, 1965), p. 34n.
11. With one isolated exception, the important nineteenth century German economist, Friedrich Benedikt Wilhelm von Herrmann (1795–1868), *Staatswirtschaftliche Untersuchungen* (1832).

14 The brilliance of Turgot

14.1 The man

There is a custom in chess tournaments to award 'brilliancy' prizes for particularly resplendent victories. 'Brilliancy' games are brief, lucid and devastating, in which the master innovatively finds ways to new truths and new combinations in the discipline. If we were to award a prize for 'brilliancy' in the history of economic thought, it would surely go to Anne Robert Jacques Turgot, the baron de l'Aulne (1727–81). His career in economics was brief but brilliant and in every way remarkable. In the first place, he died rather young, and second, the time and energy he devoted to economics was comparatively little. He was a busy man of affairs, born in Paris to a distinguished Norman family which had long served as important royal officials. They were royal 'masters of requests', magistrates, *intendants* (governors). Turgot's father, Michel-Étienne, was a councillor of state, president of the Grand Council – an appeals tribunal of the *parlement* of Paris – a master of requests, and top administrator of the city of Paris. His mother was the intellectual and aristocratic Dame Magdelaine-Françoise Martineau.

Turgot had a sparkling career as a student, earning honours at the Seminary of Saint-Sulpice, and then at the great theological faculty of the University of Paris, the Sorbonne. As a younger son of a distinguished but not wealthy family, Turgot was expected to enter the Church, the preferred path of advancement for someone in that position in eighteenth century France. But although he became an Abbé, Turgot decided instead to follow family tradition and join the royal bureaucracy. There he became magistrate, master of requests, *intendant*, and, finally, as we have seen, a short-lived and controversial minister of finance (or 'controller-general') in a heroic but ill-fated attempt to sweep away statist restrictions on the market economy in a virtual revolution from above.

Not only was Turgot a busy administrator, but his intellectual interests were wide-ranging, and most of his spare time was spent in reading and writing, not in economics, but in history, literature, philology and the natural sciences. His contributions to economics were brief, scattered and hastily written, 12 pieces totalling only 188 pages. His longest and most famous work, 'Reflections on the Formation and Distribution of Wealth' (1766), comprised only 53 pages. This brevity only highlights the great contributions to economics made by this remarkable man.

Historians are wont to lump Turgot with the physiocrats, and to treat him as merely a physiocratic disciple in government, although he is treated also as a mere fellow-traveller of physiocracy out of an aesthetic desire to avoid being trapped in sectarian ways. None of this does justice to Turgot. He was a fellow-traveller largely because he shared with the physiocrats a devotion to free trade and *laissez-faire*. He was not a sectarian because he was a unique genius, and the physiocrats were scarcely that. His grasp of economic theory was immeasurably greater than theirs, and his treatment of such matters as capital and interest has scarcely been surpassed to this day.

In the history of thought the style is often the man, and Turgot's clarity and lucidity mirrors the virtues of his thought, and contrasts refreshingly with the prolix and turgid prose of the physiocrat school.

14.2 *Laissez-faire* and free trade

Turgot's mentor in economics and in administration was his great friend Jacques Claude Marie Vincent, Marquis de Gournay (1712–59). Gournay was a successful merchant who then became royal inspector of manufactures and minister of commerce. Although he wrote little, Gournay was a great *teacher* of economics in the best sense, through numberless conversations not only with Turgot but with the physiocrats and others. It was Gournay who spread the word in France about Cantillon's achievement. In addition, Gournay translated English economists such as Sir Josiah Child into French, and his extensive notes on these translations were widely circulated in manuscript in French intellectual circles. It was from Gournay that Turgot absorbed his devotion to *laissez-faire*, and indeed the origin of the phrase 'laissez-faire, laissez-passer' has often been incorrectly attributed to him.

It is fitting, then, that Turgot developed his *laissez-faire* views most fully in one of his early works, the 'Elegy to Gournay' (1759) a tribute offered when the Marquis died young after a long illness.[1]

Turgot made it clear that, for Gournay, the network of detailed mercantilist regulation of industry was not simply intellectual error, but a veritable system of coerced cartelization and special privilege conferred by the state. Turgot spoke of

> innumerable statutes, dictated by the spirit of monopoly, the whole purpose of which were [sic] to discourage industry, to concentrate trade within the hands of few people by multiplying formalities and charges, by subjecting industry to apprenticeships and journeymanships of ten years in some trades which can be learned in ten days, by excluding those who were not sons of masters, or those born outside a certain class, and by prohibiting the employment of women in the manufacture of cloth...

For Turgot, freedom of domestic and foreign trade followed equally from the enormous mutual benefits of free exchange. All the restrictions 'forget that no commercial transactions can be anything other than reciprocal', and that it is absurd to try to sell everything to foreigners while buying nothing from them in return. Turgot then goes on, in his 'Elegy', to make a vital pre-Hayekian point about the uses of indispensable particular knowledge by individual actors and entrepreneurs in the free market. These committed, on-the-spot participants in the market process know far more about their situations than intellectuals aloof from the fray.

> There is no need to prove that each individual is the only competent judge of the most advantageous use of his lands and of his labour. He alone has the particular knowledge without which the most enlightened man could only argue blindly. He learns by repeated trials, by his successes, by his losses, and he acquires a feeling for it which is much more ingenious than the theoretical knowledge of the indifferent observer because it is stimulated by want.

In proceeding to more detailed analysis of the market process, Turgot points out that self-interest is the prime mover of that process, and that, as Gournay had noted, individual interest in the free market must *always* coincide with the general interest. The buyer will select the seller who will give him the best price for the most suitable product, and the seller will sell his best merchandise at the lowest competitive price. Governmental restrictions and special privileges, on the other hand, compel consumers to buy poorer products at high prices. Turgot concludes that 'the general freedom of buying and selling is therefore... the only means of assuring, on the one hand, the seller of a price sufficient to encourage production, and, on the other hand, the consumer of the best merchandise at the lowest price'. Turgot concluded that government should be strictly limited to protecting individuals against 'great injustice' and the nation against invasion. 'The government should always protect the natural liberty of the buyer to buy, and the seller to sell'.

It is possible, Turgot conceded, that there will sometimes, on the free market, be a 'cheating merchant and a duped consumer'. But then, the market will supply its own remedies: 'the cheated consumer will learn by experience and will cease to frequent the cheating merchant, who will fall into discredit and thus will be punished for his fraudulence'.

Turgot, in fact, ridiculed attempts by government to insure against fraud or harm to consumers. In a prophetic rebuttal to the Ralph Naders of all ages, Turgot highlighted in a notable passage the numerous fallacies of alleged state protection:

> To expect the government to prevent such fraud from ever occurring would be like wanting it to provide cushions for all the children who might fall. To assume it to be possible to prevent successfully, by regulation, all possible malpractices of this kind is to sacrifice to a chimerical perfection the whole progress of industry; it is to restrict the imagination of artificers to all narrow limits of the familiar; it is to forbid them all new experiments...
>
> It means forgetting that the execution of these regulations is always entrusted to men who may have all the more interest in fraud or in conniving at fraud since the fraud which they might commit would be covered in some way by the seal of public authority and by the confidence which this seal inspires in the consumers.

Turgot added that all such regulations and inspections 'always involve expenses, and that these expenses are always a tax on the merchandise, and as a result overcharge the domestic consumer and discourage the foreign buyer'.

Turgot concludes with a splendid flourish:

> Thus, with obvious injustice, commerce, and consequently the nation, are charged with a heavy burden to save a few idle people the trouble of instructing themselves or of making inquiries to avoid being cheated. To suppose all consumers to be dupes, and all merchants and manufacturers to be cheats, has the effect of authorizing them to be so, and of degrading all the working members of the community.

Turgot goes on once more to the 'Hayekian' theme of greater knowledge by the particular actors in the market. The entire *laissez-faire* doctrine of Gournay, he points out, is grounded on the 'complete impossibility of directing, by invariant rules and continuous inspection a multitude of transactions which by their immensity alone could not be fully known, and which, moreover, are continually dependent on a multitude of ever changing circumstances which cannot be managed or even foreseen'.

Turgot concludes his elegy to his friend and teacher by noting Gournay's belief that most people were 'well disposed toward the sweet principles of commercial freedom', but prejudice and a search for special privilege often bar the way. Every person, Turgot pointed out, wants to make an exception to the general principle of freedom, and 'this exception is generally based on their personal interest'.

One interesting aspect of the elegy is Turgot's noting of the Dutch influence on the *laissez-faire* views of Gournay. Gournay had had extensive commercial experience in Holland, and the Dutch model of relative free trade and free markets in the seventeenth and eighteenth century, especially under the republic, served as an inspiration throughout Europe. In addition, Turgot notes that one of the books that most influenced Gournay was the *Political Maxims* of Johan de Witt (1623–72), the great martyred leader of the classical liberal republican party in Holland. Indeed, in an article on 'Fairs and Markets', written two years earlier for the great *Encyclopédie*, Turgot had quoted Gournay as praising the free internal markets of Holland. Whereas other nations had confined trade to fairs in limited times and places, 'In Holland there are no fairs at all, but the whole extent of the State and the whole year are, as it were, a continuous fair, because commerce in that country is always and everywhere equally flourishing'.

Turgot's final writings on economics were as *intendant* at Limoges, in the years just before becoming controller-general in 1774. They reflect his embroilment in a struggle for free trade within the royal bureaucracy. In his last work, the 'Letter to the Abbé Terray [the controller-general] on the Duty on

Iron' (1773), Turgot trenchantly lashes out at the system of protective tariffs as a war of all against all using state monopoly privilege as a weapon, at the expense of the consumers:

> I believe, indeed, that iron masters, who know only about their own iron, imagine that they would earn more if they had fewer competitors. There is no merchant who would not like to be the sole seller of his commodity. There is no branch of trade in which those who are engaged in it do not seek to ward off competition, and do not find some sophisms to make people believe that it is in the State's interest to prevent at least the competition from abroad, which they most easily represent as the enemy of the national commerce. If we listen to them, and we have listened to them too often, all branches of commerce will be infected by this kind of monopoly. These fools do not see that this same monopoly which they practice, not, as they would have the government believe, against foreigners but against their own fellow-citizens, consumers of the commodity, is returned to them by these fellow citizens, who are sellers in their turn, in all the other branches of commerce where the first in their turn become buyers.

Turgot indeed, in anticipation of Bastiat three-quarters of a century later, calls this system a 'war of reciprocal oppression, in which the government lends its authority to all against all', in short a 'balance of annoyance and injustice between all kinds of industry' where everyone loses. He concludes that 'Whatever sophisms are collected by the self-interest of a few merchants, the truth is that all branches of commerce ought to be free, equally free, and entirely free...'.[2]

Turgot was close to the physiocrats, not only in advocating freedom of trade, but also in calling for a single tax on the 'net product' of land. Even more than in the case of physiocrats, one gets the impression with Turgot that his real passion was in getting rid of the stifling taxes on all other walks of life, rather than in imposing them on agricultural land. Turgot's views on taxes were most fully, if still briefly, worked out in his 'Plan for a Paper on Taxation in General' (1763), an outline of an unfinished essay he had begun to write as *intendant* at Limoges for the benefit of the controller-general. Turgot claimed that taxes on towns were shifted backwards to agriculture, and showed how taxation crippled commerce and how urban taxes distorted the location of towns and led to the illegal evasion of duties. Privileged monopolies, furthermore, raised prices severely and encouraged smuggling. Taxes on capital destroyed accumulated thrift and hobbled industry. Turgot's eloquence was confined to pillorying bad taxes rather than elaborating on the alleged virtues of the land tax. Turgot's summation of the tax system was trenchant and hard-hitting: 'It seems that Public Finance, like a greedy monster, has been lying in wait for the entire wealth of the people'.

On one aspect of politics Turgot parted apparently from the physiocrats. Evidently, Turgot's strategy was the same as theirs: attempting to convince the king of the virtues of *laissez-faire*. And yet one of Turgot's most incisive epigrams, delivered to a friend, was: 'I am not an *Enclopédiste* because I believe in God; I am not an *économiste* because I would have no king'. However, the latter was clearly not Turgot's publicly stated view; nor did it guide his public actions.

14.3 Value, exchange and price

One of the most remarkable contributions by Turgot was an unpublished and unfinished paper, 'Value and Money', written around 1769.[3] In this paper Turgot, working in a method of successive approximations and abstractions, developed an Austrian-type theory first of Crusoe economics, then of an isolated two-person exchange, which he later expanded to four persons and then to a complete market. By concentrating first on the economics of an isolated Crusoe figure, Turgot was able to work out economic laws that transcend exchange and apply to all individual actions. In short, praxeological theory transcends and is deeper than market exchange; it applies to all action.

First, Turgot examines an isolated man, and works out a sophisticated analysis of his value or utility scale. By valuing and forming preference scales of different objects, Crusoe confers value on various economic goods, and compares and chooses between them on the basis of their relative worth to him. Thus these goods acquire different values. Crusoe chooses not only between various present uses of goods but also between consuming them now and accumulating them for 'future needs'. He also sees clearly that more abundance of a good leads to a lower value, and vice versa. Like his French and other continental precursors, then, Turgot sees that the subjective utility of a good diminishes as its supply to a person increases; and like them, he lacks only the concept of the marginal unit to complete the theory. But he went far beyond his predecessors in the precision and clarity of his analysis. He also sees that the subjective values of goods (their 'esteem-value' to consumers) will change rapidly on the market, and there is at least a hint in his discussion that he realized that this subjective value is strictly ordinal and not subject to measurement (and therefore to most mathematical procedures).

Turgot begins his analysis at the very beginning; one isolated man, one object of valuation:

> Let us consider this man as exerting his abilities on a single object only; he will seek after it, avoid it, or treat it with indifference. In the first case, he would undoubtedly have a motive for seeking after this object; he would judge it to be suitable for his enjoyment, he will find it *good*, and this relative goodness could generally speaking be called *value*, it would not be susceptible to measurement...

Then, Turgot brings in other goods:

> If the same man can choose between several objects suitable to his use, he will be able to prefer one to the other, find an orange more agreeable than chestnuts, a fur better for keeping out the cold than a cotton garment; he will regard one as *worth more* than another; he will consequently decide to undertake those things which he prefers, and leave the others.

This 'comparison of *value*', this evaluation of different objects, changes continually: 'These *appraisals* are not permanent, they change continually with the need of the person'. Turgot proceeds not only to diminishing utility, but to a strong anticipation of diminishing *marginal* utility, since he concentrates on the *unit* of the particular goods: 'When the savage is hungry, he values a piece of game more than the best bearskin; but let his appetite be satisfied and let him be cold, and it will be the bearskin that becomes valuable to him'.

After bringing the anticipation of future needs into his discussion, Turgot deals with diminishing utility as a function of abundance. Armed with this tool of analysis, he helps solve the value paradox:

> water, in spite of its necessity and the multitude of pleasures which it provides for man, is not regarded as a precious thing in a well-watered country; man does not seek to gain its possession since the abundance of this element allows him to find it all around him.

Turgot then proceeds to a truly noteworthy discussion, anticipating the modern concentration on economics as the allocation of scare resources to a large and far less limited number of alternative ends:

> To obtain the satisfaction of these wants, man has only an even more limited quantity of strength and resources. Each particular object of enjoyment costs him trouble, hardship, labour and at the very least, time. It is this use of his resources applied to the quest for each object which provides the offset to his enjoyment, and forms as it were the cost of the thing.

While there is an unfortunate 'real cost' flavour about Turgot's treatment of cost, and he called the cost of a product its 'fundamental value', he comes down generally to a rudimentary version of the later 'Austrian' view that all costs are really 'opportunity costs', sacrifices foregoing a certain amount of resources that would have been produced elsewhere. Thus Turgot's actor (in this case an isolated one) appraises and evaluates objects on the basis of their significance to himself. First Turgot says that this significance, or utility, is the importance of his 'time and toil' expended, but then he treats this concept as equivalent to productive opportunity foregone: as 'the portion of his resources, which he can use to acquire an evaluated object without thereby sacrificing the quest for other objects of equal or greater importance'.

Having analysed the actions of an isolated Crusoe, Turgot brings in Friday, that is, he now assumes two men and sees how an exchange will develop. Here, in a perceptive analysis, he works out the 'Austrian' theory of isolated two-person exchange, virtually as it would be arrived at by Carl Menger a century later. First, he has two savages on a desert island, each with valuable goods in his possession, but the goods being suited to different wants. One man has a surplus of fish, the other of hides, and the result will be that each will exchange part of his surplus for the other's, so that both parties to the exchange will benefit. Commerce, or exchange, has developed. Turgot then changes the conditions of his example, and supposes that the two goods are corn and wood, and that each commodity could therefore be stored for future needs, so that each would not be automatically eager to dispose of his surplus. Each man will then weigh the relative 'esteem' to him of the two products, and weight the possible exchange accordingly. Each will adjust his supplies and demands until the two parties agree on a price at which each man will value what he obtains in exchange more highly than what he gives up. Both sides will then benefit from the exchange. As Turgot lucidly puts it:

> This superiority of the esteem value attributed by the acquirer to the thing he acquires over the thing he gives up is essential to the exchange for it is the sole motive for it. Each would remain as he was, if he did not find an interest, a personal profit, in exchange; if, in his own mind, he did not consider what he receives worth more than what he gives.

Turgot then unfortunately goes off the subjective value track by adding, unnecessarily, that the terms of exchange arrived at through this bargaining process will have 'equal exchange value', since otherwise the person cooler to the exchange 'would force the other to come closer to his price by a better offer'. It is unclear here what Turgot means by saying that 'each gives equal value to receive equal value'; there is perhaps an inchoate notion here that the price arrived at through bargaining will be halfway between the value scales of each.

Turgot, however, is perfectly correct in pointing out that the act of exchange increases the wealth of both parties to the exchange. He then brings in the competition of two sellers for each of the products and shows how the competition affects the value scales of the participants.

As Turgot had pointed out a few years earlier in his most important work, 'The Reflections on the Formation and Distribution of Wealth',[4] the bargaining process, where each party wants to get as much as he can and give up as little as possible in exchange, results in a tendency towards one uniform price of each product in terms of the other. The price of any good will vary in accordance with the urgency of need among the participants. There is no 'true price' to which the market tends, or should tend, to conform.

Finally, in his repeated analysis of human action as the result of *expectations*, rather than in equilibrium or as possessing perfect knowledge, Turgot anticipates the Austrian emphasis on expectations as the key to actions on the market. Turgot's very emphasis on expectations of course implies that they can be and often are disappointed in the market.

14.4 The theory of production and distribution

In one sense Turgot's theory of production followed the physiocrats: the unfortunate view that only agriculture is productive, and that, in consequence, there should be a single tax on land. But the main thrust of his theory of production was quite different from that of physiocracy. Thus, before Adam Smith's famous example of the pin factory and stress on division of labour, Turgot, in his 'Reflections', had worked out a keen analysis of that division:

> If the same man who, on his own land, cultivates these different articles, and uses them to supply his own wants, was also forced to perform all the intermediate operations himself, it is certain that he would succeed very badly. The greater part of these operations require care, attention and a long experience, such as are only to be acquired by working continuously and on a great quantity of materials.

And further, even if a man

> did succeed in tanning a single hide, he only needs one pair of shoes; what will he do with the rest? Shall he kill an ox to make this pair of shoes?...The same thing may be said concerning all the other wants of man, who, if he were reduced to his own field and his own labour, would waste much time and trouble in order to be very badly equipped in every respect, and would also cultivate his land very badly.

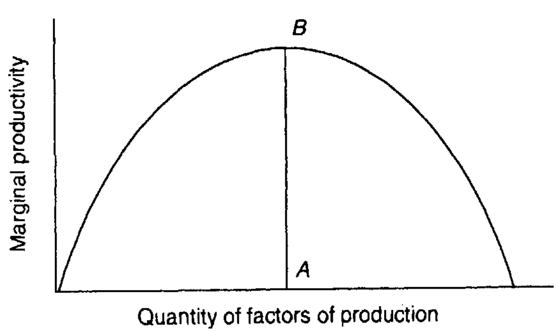
Even though only land was supposed to be productive, Turgot readily conceded that natural resources must be transformed by human labour, and that labour must enter into each stage of the production process. Here Turgot had worked out the rudiments of the crucial Austrian theory that production takes *time* and that it passes through various *stages*, each of which takes time, and that therefore the basic classes of factors of production are land, labour and time.

One of Turgot's most remarkable contributions to economics, the significance of which was lost until the twentieth century, was his brilliant and almost off-hand development of the law of diminishing returns, or, as it might be described, the law of variable proportions. This gem arose out of a contest which he had inspired to be held by the Royal Agricultural Society of Limoges, for prize-winning essays on indirect taxation. Unhappiness with the winning physiocratic essay by Guérineau de Saint-Péravy led him to develop his own views in 'Observations on a Paper by Saint-Péravy' (1767). Here Turgot went to the heart of the physiocratic error, in the *Tableau*, of assuming a fixed proportion of the various expenditures of different classes of people. But, Turgot pointed out, these proportions are variable, as are the proportions of physical factors in production. There are no constant proportions of factors in agriculture, for example, since the proportions vary according to the knowledge of the farmers, the value of the soil, the techniques used in production, and the nature of the soil and the climatic conditions.

Developing this theme further, Turgot declared that 'even if applied to the same field it [the product] is not proportional [to advances to the factors], and it can never be assumed that double the advances will yield double the product'. Not only are the proportions of factors to product variable, but also after a point, 'all further expenditures would be useless, and that such increases could even become detrimental. In this case, the advances would be increased without increasing the product. There is therefore a *maximum* point of production which it is impossible to pass...'. Furthermore, after the maximum point is passed, it is 'more than likely that as the advances are increased gradually past this point up to the point where they return nothing, each increase would be less and less productive'. On the other hand, if the farmer reduces the factors from the point of maximum production, the same changes in proportion would be found.

In short, Turgot had worked out, in fully developed form, an analysis of the law of diminishing returns which would not be surpassed, or possibly equalled, until the twentieth century.

(According to Schumpeter, not until a journal article by Edgeworth in 1911!) We have Turgot spelling out in words the familiar diagram in modern economics:



Increasing the quantity of factors, in short, raises the marginal productivity (the quantity produced by each increase of factors) until a maximum point, *AB*, is reached, after which the marginal productivity falls, eventually to zero, and then becomes negative.

14.5 The theory of capital, entrepreneurship, savings and interest

In the roster of A.R.J. Turgot's outstanding contributions to economic theory, the most remarkable was his theory of capital and interest which, in contrast with such fields as utility, sprang up virtually full-blown without reference to preceding contributions. Not only that: Turgot worked out almost completely the Austrian theory of capital and interest a century before it was set forth in definitive form by Eugen von Böhm-Bawerk.

Turgot's theory of capital proper was echoed in the British classical economists as well as the Austrians. Thus in his great 'Reflections', Turgot pointed out that wealth is accumulated by means of unconsumed and saved annual produce. Savings are accumulated in the form of money, and then invested in various kinds of capital goods. Furthermore, as Turgot pointed out, the 'capitalist–entrepreneur' must first accumulate saved capital in order to 'advance' his payment to labourers while the product is being worked on. In agriculture, the capitalist–entrepreneur must save funds to pay workers, buy cattle, pay for buildings and equipment, etc., until the harvest is reaped and sold and he can recoup his advances. And so it is in every field of production.

Some of this was picked up by Adam Smith and the later British classicists. But they failed to absorb two vital points. One was that Turgot's capitalist was also a capitalist–*entrepreneur*. He not only advanced savings to workers and other factors of production; he also, as Cantillon had first pointed out, bore the risks of uncertainty on the market. Cantillon's theory of the entrepreneur as a pervasive risk-bearer facing uncertainty, thereby equilibrating market conditions, had lacked one key element: an analysis of capital and the realization that the major driving force of the market economy is not just *any* entrepreneur but the *capitalist*–entrepreneur, the man who combines both functions.[5] Yet Turgot's memorable achievement in developing the theory of the capitalist–entrepreneur has, as Professor Hoselitz pointed out, 'been completely ignored' until the twentieth century.[6]

If the British classicists totally neglected the entrepreneur, they also failed to absorb Turgot's proto-Austrian emphasis on the crucial role of *time* in production, and the fact that industries may require many stages of production with lengthy periods of advance payment before production and sale. Turgot perceptively pointed out that it is the owner of capital

> who will wait for the sale of the leather to return him not only all his advances, but also a profit sufficient to compensate him for what his money would have been

> worth to him, had he turned it to the acquisition of an estate, and moreover, the wages due to his labour and care, to his risk, and even to his skill.

In this passage, Turgot anticipated the Austrian concept of opportunity cost, and pointed out that the capitalist will tend to earn his imputed wages and the opportunity that the capitalist sacrificed by not investing his money elsewhere. In short, the capitalist's accounting profits will tend to a long-run equilibrium plus the imputed wages of his own labour and skill. In agriculture, manufacturing, or any other field of production, there are two basic classes of producers in society: the entrepreneurs, owners of capital, 'which they invest profitably as advances for setting men at work'; and the workers or 'simple Artisans, who have no other property than their arms, who advance only their daily labour, and receive no profit but their wages'.

At this point, Turgot incorporated a germ of valuable insight from the physiocratic *Tableau* – that invested capital must continue to return a steady profit through continued circulation of expenditures, else dislocations in production and payments will occur. Integrating his analyses of money and capital, Turgot then pointed out that before the development of gold or silver as money, the scope for entrepreneurship, manufacturing or commerce had been very limited. For to develop the division of labour and stages of production, it is necessary to accumulate large sums of capital, and undertake extensive exchanges, none of which is possible without money.

Seeing that 'advances' of savings to factors of production are a key to investment, and that this process is only developed in a money economy, Turgot then proceeded to a crucial 'Austrian' point: since money and capital advances are indispensable to all enterprises, labourers are therefore willing to *pay* capitalists a discount out of production for the service of having money paid them in advance of future revenue. In short: the interest return on investment (what the Swedish 'Austrian' Knut Wicksell would over a century later call the 'natural rate of interest') is the payment by labourers to the capitalists for the function of advancing them present money so that they do not have to wait for years for their income. As Turgot put it in his 'Reflections':

> Since capitals are the indispensable foundation of all lucrative enterprises,...those who, with their industry and love of labour, have no capitals, or who do not have sufficient for the enterprise they wish to embark on, have no difficulty in deciding to give up to the owners of such capital or money who are willing to trust it to them, a portion of the profits they expect to receive over and above the return of their advances.

The following year, in his scintillating comments on the paper by Saint-Péravy, Turgot expanded his analysis of savings and capital to set forth an excellent anticipation of Say's law. Turgot rebutted pre-Keynesian fears of the physiocrats that money not spent on consumption would 'leak' out of the circular flow and thereby wreck the economy. As a result, the physiocrats tended to oppose savings *per se*. Turgot, however, pointed out that advances of capital are vital in all enterprises, and where might the advances come from, if not out of savings? He also noted that it made no difference if such savings were supplied by landed proprietors or by entrepreneurs. For entrepreneurial savings to be large enough to accumulate capital and expand production, profits have to be higher than the amount required to reproduce current entrepreneurial spending (i.e. replace inventory, capital goods, etc. as they are drawn down or wear out).

Turgot goes on to point out that the physiocrats assume without proof that savings simply leak out of circulation, and lower prices. Instead, money will return to circulation, savings will immediately be used either to buy land; to be invested as advances to workers and other factors; or to be loaned out at interest. All these uses of savings return money to the circular flow. Advances of capital, for example, return to circulation in paying for equipment, buildings, raw material or wages. The purchase of land transfers money to the seller of land, who in turn will either buy something with the money, pay his debts, or relend the amount; in any case, the money returns promptly to circulation.

Turgot then engaged in a similar analysis of spending flows if savings are loaned at interest. If consumers borrow the money, they borrow in order to spend, and so the money expended returns to circulation. If they borrow to pay debts or buy land, the same thing occurs. And if entrepreneurs borrow the money, it will be poured into advances and investment, and the money will once again return to circulation.

Money saved, therefore, is not lost; it returns to circulation. Furthermore, the value of savings invested in capital is far greater than piled up in hoards, so that money will tend to return to circulation quickly. Furthermore, Turgot pointed out, even if increased savings actually withdrew a small amount of money from circulation for a considerable time, the lower price of the produce will be more than offset for the entrepreneur by the increased advances and the consequent greater output and lowering of the cost of production. Here, Turgot had the germ of the much later von Mises–von Hayek analysis of how savings narrows but lengthens the structure of production.

The acme of Turgot's contribution to economic theory was his sophisticated analysis of interest. We have already seen Turgot's remarkable insight in seeing interest return on investment as a price paid by labourers to capitalist–entrepreneurs for advances of savings in the form of present money. Turgot also demonstrated – far ahead of his time – the relationship between this natural rate of interest and the interest on money loans. He showed, for example, that the two must tend to be equal on the market, since the owners of capital will continually balance their expected returns in different channels of use, whether they be money loans or direct investment in production. The lender sells the use of his money now, and the borrower buys that use, and the 'price' of those loans, i.e. the loan rate of interest, will be determined, as in the case of any commodity, by the variations in supply and demand on the market. Increased demand for loans ('many borrowers') will raise interest rates; increased supply of loans ('many lenders') will lower them. People borrow for many reasons, as we have seen: to try to make an entrepreneurial profit, to purchase land, pay debts or consume; while lenders are concerned with just two matters: interest return and the safety of their capital.

While there will be a market tendency to equate loan rates of interest and interest returns on investment, loans tend to be a less risky form of channelling savings. Thus investment in risky enterprises will only be made if entrepreneurs expect that their profit will be greater than the loan rate of interest. Turgot also pointed out that government bonds will tend to be the least risky investment, so that they will earn the lowest interest return. He went on to declare that the 'true evil' of government debt is that it presents advantages to the public creditors but channels their savings into 'sterile' and unproductive uses and maintains a high interest rate in competition with productive uses (or, as we would say nowadays, public debt 'crowds out' productive private uses of savings).

Pressing on to an analysis of the nature and use of lending at interest, Turgot engaged in an incisive and hard-hitting critique of usury laws, which the physiocrats were still trying to defend.

A loan, Turgot pointed out, 'is a reciprocal contract, free between the two parties, which they make only because it is advantageous to them'. But a contracted loan is then *ipso facto* advantageous to *both* the lender and the borrower. Turgot moved in for the clincher: 'Now on what principle can a crime be discovered in a contract advantageous to two parties, with which both parties are satisfied, and which certainly does no injury to anyone else?' There is no exploitation in charging interest just as there is none in the sale of any commodity. To attack a lender for 'taking advantage' of the borrower's need for money by demanding interest 'is as absurd an argument as saying that a baker who demands money for the bread he sells, takes advantage of the buyer's need for bread'.

And, if the money spent on bread might be considered its equivalent, then in the same way 'the money which the borrower receives today is equally an equivalent of the capital and interest he promises to return at the end of a certain time'. In short: a loan contract establishes the present value of a future payment of capital and interest. The borrower gets use of the money during the term of the loan; the lender is deprived of such use; the price of this advantage, or disadvantage, is 'interest'.