APPENDIX A

THE NATURE OF INTEREST

Ricardo, Keynes, Marshall and Jevons
on the Rate of Interest

The interest of money is not regulated by the rate at which the Bank will lend, ..., but by the rate of profit which can be made by the employment of capital, and which is totally independent of the quantity or of the value of money.

D. Ricardo, *On the Principles of Political Economy and Taxation,* p. 511.

The interest of capital is, in other words, the ratio of the rate of increase of the product to total product.

W. St. Jevons, *The Theory of Political Economy,* General Expression of the Rate of Interest.

The account of interest in the main text (v. Chapter 1 pp. 28-31) consists in an extrapolation from the Platonic framework of Monetary Theory, which also provides for the proper and adequate understanding of a developed classical economy such as the Athenian. (That it meets this latter requirement will be shown in Volume III of this work, where a detailed analysis of the Athenian financial system will be presented). In what follows that account will be compared and contrasted to salient views on the subject by modern major economists.

Ricardo is clear on the fundamental differences between value of money and interest rate, as well on the nature of (basic) interest. In a concise passage (quoted and criticised by Keynes in his *The General Theory of Employment, Interest and Money,* 1973, p. 190), he aggressively explains: "The interest of money is not regulated by the rate at which the Bank will lend, whether it be 5, 3 or 2 per cent, but by the rate of profit which can be made by the employment of capital, and which is totally independent of the quantity or of the value of money. Whether the Bank lent one million, ten millions, or a hundred millions, they would not

permanently alter the market rate of interest; they would alter only the value of the money which they thus issued. In one case, ten or twenty times more money might be required to carry on the same business than what might be required in the other. The applications to the Bank for money, then, depend on the comparison between the rate of profits that may be made by the employment of it, and the rate at which they are willing to lend it. If they charge less than the market rate of interest, there is no amount of money which they might not lend; - if they charge more than that rate, none but spendthrifts and prodigals would be found to borrow of them" (Ricardo, On the *Principles of Political Economy and Taxation,* p. 511).

Keynes' criticism (*op. cit.* pp. 190-2) has to do directly and indirectly with the notion, central to his analysis, that the level of employment in an economy is a crucial parameter to its character and structure. But however this may be so with the sort of systems that Keynes had in mind (examples of an *interventionist capitalism*), it is of minor importance in a natural, truly free-market setting. *For unemployment is the product of regulationism:* there is no unemployment in the normative case of an open economy, of a natural, self-adjusting system, where labour, like any other utility, monetary assets included, finds its proper price under conditions of stable equilibrium. As Keynes himself observed, Ricardo is right "on the assumption of flexible money-wages" (*ibid.* p. 191). And in fact, in a natural economy, money-wages are very flexible, the only operating limit being a floor for the real-wages, which must be, at the *minimum,* the equivalent of sufficient sustenance for the

maintenance and reproduction of the labour force *(subsistence level).* What little remains short of full employment in such an economic system is "structural" unemployment due to *natural* (not humanly induced) rigidities in the mobility (spatial and transoccupational) of labour.

Keynes finds also fault (*ibid.,* p. 192) with Ricardo's position in that it assumes fixity in the rate of return for the capital, i.e. in the marginal efficiency of capital, irrespective of the amount invested. But this is a mere exploitation of an empirical feeling. Investment under conditions of stable equilibrium proceeds at the pace of the rate of economic growth. *Investment is additional output by anticipation.* More or less than that does not issue in a change in the *rate of return* for the capital, but in a change in its *value.* As Ricardo says, more or less money would then be required to do the same economic work. The rate of return for capital is on the other hand concerned with the real intensity of the economic activity and with its real output. As I said above, the value of money depends on its primary function as currency, namely to be a medium of exchange; while its "rent" depends on the credit requirements of the economy, themselves expressing the differential between future and present aggregate exchange.

Marshall also pointed in the right direction, at least as far as to associate higher interest rates to increased accumulation of capital in the future. In his *"General Conclusions as to Interest",* he maintains (*Principles of Economics,* 1916[7], p. 534; also quoted by Keynes, *op. cit.,* pp. 186-7): "Thus then interest, being the *price paid for the*

use of capital in any market, tends towards an equilibrium level such that the aggregate demand for capital in that market, at that rate of interest, is equal to the aggregate stock forthcoming there at that rate. If the market, which we are considering, is a small one — say a single town, or a single trade in a *progressive country* — an increased demand for capital in it will be promptly met by an increased supply drawn from surrounding districts or trades. But if we are considering the whole world, or even the whole of a large country as one market for capital, we cannot regard the aggregate supply of it as altered quickly and to a considerable extent by a change in the rate of interest. For the general fund of capital is the product of labour and waiting; and the extra work, and the extra waiting, to which a rise in the rate of interest would act as an incentive, would not quickly amount to much as compared with the work and waiting of which the total existing stock of capital is the result. *An extensive increase in the demand for capital in general will therefore be met for a time not so much by an increase of supply, as by a rise in the rate of interest;* which will cause capital to withdraw itself partially from those uses in which its marginal utility is lowest. It is only slowly and gradually that *the rise in the rate of interest will increase the total stock of capital*" (my italics). We must understand the "extensive increase in the demand for capital" as *the result* of anticipated considerable progress in economy. Interest being a return on the *employment* of capital, expected growth pushes upwards the rate of interest through the mechanism described by Marshall. An augmented rate of interest is rather the *effect*

of an expected rise in economic output, than its cause: but, of course, it is prior to the *realisation* of the heightened intensity of economic activity. Higher rate of interest in a natural environment strengthens, moreover, the economy by rechanelling capital from less efficient to urgently productive uses. In this way we also see that the basic, normative rate of interest will in the long run be equal to the general rate of return for capital employed. For if it be higher or lower from the general level of the latter, less or more employment of capital respectively will equilibrate the two rates automatically. We may thus, further, say that the rate of interest is the variable which equalises the demand for capital-employment to its supply, i.e. *investment to saving.* And so we see that the Classical Theory of the Rate of Interest (as Keynes called it, *op. cit.,* Chapter 14) can be derived from our previous account. Interest, it is confirmed once more, has to do with the debt-market for money, and its normative analysis is distinct from questions and parameters relating to the amount and value of money, i.e. to its primary currency-use as medium of exchange.

Furthermore, under normal condition saving is not hoarding; or, in other words, declining to consume now what is in one's immediate power to do, is not normally motivated by fear of approaching abnormality of primarily non-economic nature; it is rather *in the aggregate* the result of a rational choice to *employ* utility (liquid or otherwise) possessed otherwise than by immediate consumption. By parting with the direct use of utilities (in satisfying human needs, wants and desires), one never intends to keep them *idle,* if for nothing else then because of the sheer burden of

time (v. *Appendix G*) — unless one operates under the spell of extraordinary current or coming vicissitudes. Saving is *not* essentially "hedging" against projected extra-economic risks. It is in itself the realisation of a decision to put utility (and primarily liquid, abstract utility) in another employment than its immediately natural use, i.e. in consumption. Saving is inherently directed to such other employment: it forms the supply-potential for it. And the rate of interest is the degree of recompense for withholding consumption at which that supply-potential finds its actual employment (investment).

If this is so, it is evident that Keynes' *General Theory of Interest* rests on a confusion. He distinguishes (*op. cit.* p. 166) "two constituents of psychological time-preference" for consumption, "requir[ing] two distinct sets of decisions to carry them out completely". The first relates to what he calls *"propensity to consume"* and has to do with how much of one's income an individual "will consume and how much he will reserve in some form of command over future consumption". The second consists in *"liquidity-preference":* how much of an individual's reserved (i.e. unconsumed) income will he retain in liquid form under his immediate command and how much will he allow temporarily to be located and employed beyond his immediate control for a certain recompense. Keynes holds (against classical and neo-classical accounts) that interest relates chiefly to the latter "time-preference", the rate of interest being for him precicely *the reward for parting with liquidity* (*op. cit.,* p. 167). As he technically formulates it *(ibid.):* "For the rate of interest is, in itself, nothing more

than the inverse proportion between a sum of money and what can be obtained for parting with control over the money in exchange for a debt for a stated period of time". Thus the rate of interest is not a return to *waiting* as such, and herein, according to Keynes, lies "the mistake in the accepted theories" (p. 166).

But economic waiting is not normally a mere postponement of consumption. It is deferred consumption *for the sake of alternative employment of utilities (and, primarily, of liquidity).* The real picture which the individual economic agent sees is complex but unitary. He can either consume his income or put it (partly) into alternative uses. These other uses bring emolument with them, whether one employs himself his unconsumed income, or transfers the control of its use to another (and the two possibilities will tend to have on aggregate the same rate of return under normative conditions of stable equilibrium). Thus, in effect, the question for the individual economic agent is one of balancing present to future satisfaction *with a view to maximising over all enjoyment and well-being.* He implicitly institutes a (quasi)calculus of wants and pleasures, current and coming. And it is as part of this unified framework, and the result of one unified general outlook and particular choice that the decision how much to consume / how much to save, is taken. There is no "propensity to consume" independent of what can be saved (i.e. reserved) *for productive employment, and on what terms.* Far from being antithetical, consumption and liquidity (and, correspondingly, "propensity to consume" and "liquidity-

preference" far from being independent variables) are aspects of the same thing: one keeps so much liquidity as will cover his current and forthcoming consumption; the rest he either directly invest in one's own or another's business, or lets others to employ it profitably at a reward (i.e. saves it for investment).

It is true that customary classical formulations of the dominant rationale behind the rate of interest, as a reward for *waiting,* may lead one to construe saving as *mere* postponement of consumption. (See, e.g., Marshall, *op. cit.,* p. 581: "Everyone is aware that the accumulation of wealth is held in check, and the rate of interest so far sustained, by the preference which the great mass of humanity have for present over deferred gratifications, or, in other words, by their unwillingness to 'wait'"). As I have explained, however, the deferred gratification concerned does not proceed from the future consumption of the capital withhold from consumption now, but from its *return* over time through investment direct or indirect. What the rational economic agent always reckons is the effect of his decisions on the long-term and indeed *overall* pattern of his gratification and well-being, which he endeavours (as an ultimate end of his activity) to maximise. In this way he can incur partial deprivations *now,* not merely in order to reap enhanced gratification *tomorrow,* but with a view of optimising his *total life satisfaction* as an absolute integral. And I think this is the way Marshall, for example, would have liked to be interpreted.

Keynes seems as if he has confused patterns of time-preference in primitive societies with those of developed

economies. In an undeveloped agricultural house-economy, one literally saves now from his crops in order to consume later, as the need will arise; it is simply a matter of making to meet an inelastic consumption-schedule determined by the daily human wants, with a similarly inelastic production-pattern for the basic staples (the agricultural cycle). This is indeed *hoarding* of utilities — for the hour of need. Something analogous happens in every economy, when an individual institutes a spending pattern of his income, or rather of that part of his income which he decides to consume over a given period of time. This has indeed nothing to do with interest-rate. But this, equally, has nothing to do with *saving,* especially in the case of a market-economy. It is simply a question of expanding the time interval within which *consumption* is considered in order to equalise the differing shapes and phases of the income-function and the consumption-function to time. What *is* real saving in a market-economy is withdrawal of wealth created from the (direct) consumption pattern of its possessor altogether. The corresponding fact in a primitive economy, would be lending of, say, corn, or reserving it for employment other than direct consumption. But there, this eventuality is incidental upon the far more pervading reality of (with)holding for future consumption. Whereas in a fully developed market economy, keeping utility in abstract and liquid form (money) in order to meet consumption demands tomorrow, simply because there will be no installment of income tomorrow, is not saving. Checkable deposits with the Banks are *not* saving deposits: they carry *no* interest. Mere postponement of consumption does not

count as saving. Keynes in effect operates with a primitive notion of saving.

The way I have explained interest and its rate in the main text above (by extrapolating from Platonic theory and classical monetary and financial reality) finds its closest parallel in Jevons' theory of interest (*Theory of Political Economy,* Chapter VII, section on the *General Expression of the Rate of Interest,* French Tanslation 1909, pp. 334-6). Interest is the return on capital employment ("located", invested). It is measured by the increase of output resulting upon the employment of a given amount of capital. Thus, the rate of interest is equal to the increment of output relative to the increment in the employment of capital. (Understanding by employment or location of capital the product of its amount times the duration of its employment in that location). Assuming a function F(t) of output to time in a given process of production, the increase in output from t to t+Δt is F(t+Δt)-F(t). Now at any time t, we could either subtract the product F(t) at that moment or let it work within the said process of production. So that according to the internal logic of production, F(t) is the amount of capital employed (invested) at time t. The increase in the employment of capital (in the amount of the investment of capital) within the small time interval Δt, is, therefore, F(t)Δt. Hence, the rate of interest is:

$$\frac{F(t+\Delta t)-F(t)}{\Delta t} \cdot \frac{1}{F(t)},$$

or, at the limit (with Δt becoming a so-called infinitesimal):

$$\frac{dF(t)}{dt} \cdot \frac{1}{F(t)} = \frac{F'(t)}{F(t)}.$$

And thus the rate of interest equals the rate of increase in output to the total amount of output itself.

The result is in itself unexceptionable. But Jevons' deduction has been taken as open to various objections; and, it seems, warrantedly, since Jevons gives an unwarranted interpretation to his own inference. He considers that the rate of interest must rapidly approach zero; the reason being that whatever the rate of increase in output may be, and however great it may be made as a result of enhanced knowledge of reality and creative technological innovation, the total amount of wealth in the denominator becomes with the passage of time so great that it will dwarf the ratio. But this is patently absurd. Not all wealth created since the beginning of human time enters into the denominator. Capital is annihilated with the passage of time, fixed capital as well as circulating, by wear and tear, and obsoletization, as well as by consumption. The output involved in the above ratio is the output actually created in the corresponding production-process. So that, in general, Jevons' formula represents the real *rate of growth* (in a particular business or in a certain economy at large). Which is exactly what I have argued the rate of interest to be equivalent with on the basis of, albeit expanding within, the Platonic framework of Monetary Theory. The reasoning to this effect in the main text above is, furthermore, free from the kind of criticism leveled against Jevons' position and, even more so, deduction.

The General Theory of Interest has to be compared with what I have called pure rate of interest (cf. *Appendix G*). Anyway such rates of basic and normative interest as are treated here exclude components amounting in effect to insurance against risks (trade or personal), or to earnings of management, or to expectations as to the future purchasing power of money. (What Marshall encompasses under the category of gross interest to be contrasted to the pure one of the Theory of Capital; cf. *op. cit.* pp. 588-595). Thus, also, Fisher's "third approximation" to *real* interest-rate is not relevant here (it deals with risk; *The Rate of Interest,* 1907, chapter 11).The two first approximations (*op. cit.* chapters 6 and 7, and 8 correspondingly) to the *real* rate of interest according to Fisher have to do with time-preference and rate of return over cost respectively. But in a natural system under conditions of stable equilibrium, the rate of return on invested capital coincides with the rate of interest, i.e. with the rate of return on circulating medium or unfixed capital. In fact, time-preference patterns can have no other ultimate justification than the rational balancing between the relative value of *different employments of money,* i.e. of consumption compared to investment and saving (which last means *indirect* investment). So that the time-preference which weights present enjoyment against future enjoyment (under the general principle of *maximising total life well-being*) cannot be instituted without inherent reference to the rate of return on investment. The normative, basic rate of interest, therefore, must be taken to consist in that price for the *use* of money, at which saving and investment are equalised - a price which expresses necessarily the real rate

of returns of investment, just as it represents the real rate of return of saving. (Cf. for an eclectic formulation of this classical view Wicksell's theory on the *natural* interest rate. Keynes relativised this notion to the obtaining level of employment - a cardinal confusion; cf. *The General Theory etc.,* pp. 242-4. Wicksell distinguished from the *natural* rate of interest, the *market* rate of interest having to do with the ability of the Banks to create credit independently of the saving-schedules of individuals. Price stability results upon the equalisation of the natural rate of interest with the rate of interest determined by Banking policy).

This brings the matter to the issue of the actually obtaining rates of interest. Actual rates of interest in the context of the classical monetary and financial system, and their analysis in the framework of ancient monetary theory, will be studied in detail in Volume III of the present work. It will be shown that the actually operating normal rate of interest (abstracting from the risk-element which pushed it further upwards in relevant cases as, standardly, in bottomry loans) was high, but roughly equalled the rate of return from capital employed which was itself high and equalised for different employments of capital ranging from agricultural production to urban real estate to manufacturing and industrial concerns. (The figure can be put at 10-20% depending on the economy concerned, its level of development and time). This is a clear mark of an economy operating dynamically on the basis of a permanent general equilibrium condition.