Radical Economics

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PREFACE

Confrontation within economics is 150 years old. In the last century it was vigorously pursued by the Ricardian economists in the UK and in France by Sismondi. At the turn of the century Henry George exercised enormous influence in the USA and Australia, not only for his solution to the problems of growth and income distribution – a single tax on land – but for his criticism of the ideas of professional economists. After 1896 Veblen and other 'institutionalists' launched criticisms on J.B. Clark, then the doyen of neo-classical economic thought, and extended their influence on public discussion of economic matters.

Coming closer to our own time, many economists have criticized both the capitalist economy in its everyday workings and the writings of supporters of a Keynes-neo-classical synthesis ('bastard Keynesianism' in Joan Robinson's terminology). Such an assault began to develop strongly in the 1960s, and resulted in the publication of new curricula for university students and new readings, textbooks and think-pieces to accompany them. In America the most influential have been D. Mermelstein (ed.), *Economics, Mainstream Readings and Radical Critiques*; Tom Christoffel, *et al.*, *Up Against the American Myth*; Howard Sherman, *Radical Political Economy*; and Richard C. Edwards (ed.), *The Capitalist System.*

In the UK Francis Green and P. Nore compiled *Economics: an Anti-Text* in the early 1970s and *Issues in Political Economy* in 1979, while Lawrence Harris and Ben Fine produced a number of works to challenge both neo-classical *and* right-wing Keynesian strongholds.

At Sydney University there is a strong tradition of a questioning political economy, although this would not have been immediately obvious from reading lists and curricula. In the nineteenth century there was Cinderella, followed in 1912 by Irvine, the first Professor of Economics. In the 1970s, a 'Political Economy Movement' was founded which holds conferences and produces the *Journal of Australian Political Economy*. In the 1980s such groups, as well as ecologists and critics of the economics of world mineral exploitation, seem likely to dominate the empirical side of economics.

As these contributions are to be dissected in later chapters, they will only be referred to briefly here, and it will be sufficient to make one key point of interpretation. Few of the more radical economists have had a Marxist approach to political economy. Critiques of them which lump the 'old Left' (Sweezy, Dobb, Braverman) in with the new radicals not only cause confusion, but misunderstand the deep underlying difference between radical and Marxian[1] political economy. In the following pages I take a wholly different view to such a conflation of the two schools.

The major works by 'realistic' economists[2] up to 1968 tend to concentrate on income distribution, racism, sexism, ecological damage, nuclear futures and the possibility of race war leading to the collapse of civilization. Today's economics, by contrast, is more likely to concentrate on value, the labour process, technological unemployment,[3] effective demand, monopoly and stagnation, inflation, *finanzkapital*, ownership and control, the state in economic life and non-capitalist modes of production.[4]

In this work, I take up the insights of political economy in the nineteenth century, the American institutionalists, maverick but influential writers like J.A. Hobson, H.D. Dickinson (UK), and Irvine (Australia) and 1970s economists of the Cambridge school. The aim is to show that moral outrage, while important in the 1960s and the 1970s, was only a *part* of the analysis previously developed by Hobson, Veblen, Irvine and others. In their theoretical constructs a number of earlier economists made really good contributions to the theory of income distribution and capital which foreshadowed the later 'Cambridge controversies'[5] of the 1960s and 1970s, of which more later. They also made important contributions to issues raised by important economists like Walras and J.B. Clark, but never incorporated into mainstream economics, especially issues related to the need for a more dynamic analysis—given that the modern industrial system is featured by trade cycles, cobweb cycles and economic instability in its forward movement.

An historical account of the Ricardian and the rise of the 'marginal utility' school of economists is followed by an examination of the responses to the apparent dominance of marginal utility economics in university education. These responses occurred largely in the 1970s, but have their parallels in the great interest taken by the man in the street during the 1920s, 1930s and 1970s in the role of banks ('funny money' theorists, Douglas Credit) and the hold of Henry George over many in political life who grappled with the economic problems that defied solution by professional economists.

For the man in the street *does* have a fascination with some of the

big questions discussed by economists, such as: What is the cause of the economic crisis which set in after 1974? Does its severity indicate that mankind has no future? What is to be done? Is social change desirable or possible?

The man in the street was quite correct in many of the suspicions he entertained in the 1930s and 1970s: that the working of a number of institutions, like banks, insurance companies and treasuries, were indeed 'contributors to crisis', but I have tried to also show the *necessary* working out of these institutions and their policies in the context of our modern industrial system. This has been done in order to get away from mere moral indignation at the working of such economic agents and multinational corporations. Outrage alone cannot lead to any clear perspectives on where we are heading in economic life. To take an example from Cuba. When Castro and his revolutionary forces took power, they found they would have to develop new institutions to *replace* the working of the foreign exchange market in its impact on the Cuban economy; to replace one-man management of sugar plantations, etc. But in order to do that effectively, they also found it necessary to study how the ingredients of Cuba's dependent economy actually worked. It proved impossible to abolish such mechanisms overnight, without a prior knowledge of the role and function of market forces and associated mechanisms.

If we do not take the close study of such functions into account, the analysis will, to use Joan Robinson's memorable phrase, 'lack grit'.

Notes

1. Examples would be Assar Lindbeck, *Political Economy of the New Left* (Harper and Row, NY, 1970), and D. Mermelstein (ed.), *Economics: Mainstream Readings and Radical Critiques* (Random House, NY, 1970).
2. Examples include Richard C. Edwards, Michael Reich and T. Weisskopf, *The Capitalist System* (Prentice Hall, London, 1972), chapters 5-10; Howard Sherman, *Radical Political Economy* (Basic Books, NY, 1972), chapters 5-11; Tom Christoffel, David Finkelhor and Dan Gilberg, *Up Against the American Myth* (Holt, Rinehart, NY, 1970), chapters 13-25; and Malcolm Caldwell, *The Wealth of Some Nations* (Zed Press, London, 1977), chapters 1-5.
3. L. Carmichael, *Technological Unemployment* (Amalgamated Metalworkers' and Shipwrights' Union, Sydney, 1980).
4. E. Mandel, *Late Capitalism* (New Left Books, London, 1975), chapters 3-9; P. Mattick, *Marx Against Keynes* (Porter Sargent, Boston, 1969), chapters 5-9; Tom Bottomore and Patrick Goode, *Austro-Marxism* (Clarendon, Oxford, 1978), chapter VI; R. Rowthorn, *Capitalism, Conflict and Inflation* (Lawrence and

Wishart, London, 1980), chapters 5-9; H. Braverman, *Labour and Monopoly Capital* (Monthly Review Press, NY, 1973), chapters 2-6.

5. G.C. Harcourt, *Some Cambridge Controversies in the Theory of Capital* (CUP, Cambridge, 1972), and G.C. Harcourt and N.F. Laing, *Capital and Economics* (London, Penguin, 1972).

INTRODUCTION

Change is *not* natural, not normal . . . fixity is.

Robert A. Nisbet, *Social Change and History: Aspects of the Western Theory of Development*, p. 270.

Nineteenth-century Stirrings by Radical Economists

The very first professors of political economy were appointed to UK universities in the 1820s. Among the first were Oxford (1825), King's College, London (late 1820s), and Trinity College, Dublin (1832). In the 1870s the new subject was to flourish, and we could begin by asking why.

In part the answer to this question can be found three and four decades later. Official enquiries were made into university education, as British capitalism found itself increasingly under threat from the growing power of the German and American economies. As a result, education for the upper and governing classes was revised and the emphasis moved away from the classics and towards modern studies: science, technology and economics.

In the 1820s, however, circumstances were rather different. Indeed, the early political economists had great difficulty in getting their subject accepted by the major universities—Oxford and Cambridge. In some measure this was due to their commitment to industrial capital at a time when those same Oxbridge colleges were dependent for their income on extensive land ownership throughout Britain, on a landlord class under fire from the rising bourgeoisie. There was also a growing fear in the 1820s to contend with: that interest in political economy by the lower orders might lead to a rising interest in politics and political activity.

The early UK economists got their leg in, however, because (as they repeatedly stated) the subject political economy actually offered a means of pacifying the working class. After the Napoleonic wars, English workers began undertaking extensive resistance to their economic subjugation in factories and farms and to their political repression in being denied the vote and the right to form trade unions. Strikes, riots (Peterloo), machine-smashing (Luddism), barn-burning ('Captain' Swing, whose peaceful meeting was attacked by Cambridge students and Dons wielding clubs), and clandestine political organizations (the Cato

Street Conspiracy) were the order of the day.

In such circumstances, state repression and a savage penal code formed the basis of the protection of the property of the rich. The new political economists, however, proposed to add a social theory that would help quell the discontent of the labouring class. As Michael White has pointed out, they repeatedly stated this aspect that:

> the workers must come to understand that their interests coincide with the industrial capitalist; and that their prosperity, like that of the middle class is dependent on the institution of private property and the free play of capital. Such an appreciation of the harmony of interest would be the inevitable outcome of the spread of enlightenment.[1]

This need to develop the 'right kind' of political economy was made more vital by the fact that other doctrines were abroad which denied any 'harmony of interests' between labour and capital. As one eminent economist put it:

> Can the labouring classes be safely left to suppose, as many a demagogue is ready to tell them, that inequality of condition is inexpedient and ought to be abolished, that a general spoilation of the rich and equal division of property would put an end to poverty forever?[2]

Who were these pro-labour demagogues? One of them was a former naval lieutenant and journalist, Thomas Hodgskin, who was very active in working-class circles in the 1820s and 1830s. He wrote and lectured widely, almost exclusively to working-class audiences. His political position was that of an egalitarian Godwinite anarchist. On education he thought 'it would be better for men to be deprived of education than to receive education from their masters; for education, in this sense, is no better than the training of the cattle that are broken to the yoke'.

Hodgskin's best book was a short one published in 1825: *Labour Defended Against the Claims of Capital.* In it he argued that human labour is the source of all wealth but that the private ownership of property—both capital and land—enabled the rich to exploit the direct producers of that wealth and live off their labour. He also polemicized with some vigour against those economists whom he regarded as apologists for the employers, including Mill, Adam Smith and Ricardo. His book concluded with the sentiment that 'the best means of securing

the progressive improvement, both of individuals and nations is to do justice and allow labour to possess and enjoy the whole of its produce'. Hodgskin has received a bad reception by history. He was largely ignored in orthodox circles, while in Marxist circles he fared little better, since he received over 50 pages of critical discussion in Marx's fourth volume of *Capital* published as *Theories of Surplus Value.* In his customary fashion, Marx subjected him to vigorous criticism, although allowing him some sympathy as part of the 'opposition to his economists'.

Hodgskin stands with Ravenstone and Bray as an early critic of the claims of the economists. William Thompson's *An Inquiry into the Distribution of Wealth* in 1824 complemented Hodgskin's work by analysing monopoly power in the labour market and in calling for *the wide dissemination of a new, radical* political economy. The Ricardian socialists, then, defended labour, while Senior, Whately, Ure, and other orthodox economists strongly criticized the activities of the lower classes where they led to reduction of hours worked, demands for political advancement or the destabilizing of existing patterns of income distribution.

In France, the main economist opposing the orthodox theory was Sismondi (1773-1842), who wrote an influential text on political economy and several shorter pieces on effective demand and economic crisis.[3] Sismondi had an interesting, uncompromizing standpoint. Economic crisis was endemic, he argued, because the level of workers' consumption regulates overall production yet is restricted by the low wages and poverty which capitalism produces as part of its 'self-regulation'. As capitalism develops its productive forces, the problem will become even worse, and any public policy such as state-organized redistribution of wealth would have to be radical indeed to have any effect. Colonies were not brought into Sismondi's analysis, so that a possible receptacle for excess savings (as stressed in the theories of J.A. Hobson, radical economist, and Rosa Luxemburg, Marxist) was not considered. From endemic excess savings the necessary conclusion followed: a permanently expanding capitalist social and economic system was *a priori*, and in practice, impossible. Of England, for example, he wrote:

> In this astonishing country, which seems to be submitted to a great experiment for the instruction of the rest of the world, I have seen production increasing while enjoyments were diminishing. The mass of the nation here, no less than the philosophers, seem to forget that the increase of wealth is not the end in political economy, but its

instrument in procuring the happiness of all. I sought for this happiness in every class and I could nowhere find it.

Sismondi went on to state the necessity for a new system of labour association under which the public sector would expand while the achievements of production would benefit those engaged in it, and in which half the profits of industrial enterprises would be distributed among the associated workers. There is evidence that Sismondi had some immediate influence on John Stuart Mill. In fact, there is a case for the argument that John Stuart Mill with his views on state intervention to reduce inequality is as much the fountainhead of social democracy as of the modern 'liberal' parties. This point cannot be gone into here. It is sufficient to note that from a reading of Mill's *Autobiography* it would appear that Harriet Taylor increasingly influenced him in the direction of socialism. Perhaps this reached a peak when Mill wrote in 1848:

> The form of association, which, if mankind continues to improve, must be expected in the end to predominate, is not that which can exist between a capitalist as chief, and work people without a voice in the management, but the association of labourers themselves on terms of equality, collectively owning the capital with which they carry on their operations, and working under managers elected and removable by themselves.[4]

Marx was later to criticize Sismondi for not seeing that a stimulus to total effective demand could come from independent spurts in the need for and supply of capital goods (such as 'bunching' in replacement needs, new innovation). Yet Sismondi, whose position was radical and *not* neo-Marxian, stands high for his important theoretical pages on the concept of effective demand, for which he later received accolate for having, with Malthus, challenged the leading position in political economy of Say's Law of markets which ruled out insufficient effective demand with its perspective that 'supply creates its own demand'. This point should not be overdone, however. As the Cambridge post-Keynesian school were later to hint, Say's Law in Ricardo's hands did have some advantages that both Malthus and Sismondi overlooked. Say's Law clarified the nature of savings and investment. It allowed the trade cycle to be studied properly. Investment included the unintended accumulation of stocks, and avoided the confusion in the writings of later Keynesians where an attempt was made to show

savings and investment can be one thing, a function, and not, an observable point, at the same time. In a sense, as Say's Law emphasized, economic decisions are interconnected, and an expansion of production in one direction may set in train a multiplier effect of increased demand for expansion in other directions.

Sismondi also had a growing influence on the workers' movement in Europe and his *kind* of under-consumptionism has deeply penetrated the left parties of Western countries. However, an even more popular concept among radicals was soon to follow: taxation of land values. The peak of its political and intellectual appeal came with the 'single tax' movement of which an American printer, Henry George (1839-97) was the main inspiration. George ran for Mayor of New York City in 1886 and nearly won. George suggested[5] taxing away the 'unearned increment' that accrued to landowners and using the proceeds for collective consumption and investment. The book became the all-time best seller on an economic issue.

A most interesting contribution was made between 1890 and 1912 by Theodor Hertzka in Austria. Criticizing capitalism on Sismondist lines, he sketched the radical institutional changes needed to overcome poverty, trade cycles and the political disadvantage of the lower orders. He also anticipated many of the debates about socialist economic models and socialist economic theory which later broke out in the 1920s and 1960s. In Hertzka's suggested socialist economic system a number of co-equal 'functional councils', all popularly elected, would administer social and economic affairs in their localities. Instead of central planning, market forces would play a leading role in the determination of the level and structure of production.[6]

Nor should one leave out the work of 'engineering economists' on the economics of public sector undertakings. A dozen 'engineering economists' made important contributions, which I will list briefly here, since they are ignored in neo-classical textbooks, though some have been praised in Schumpeter's *History of Economic Analysis* or noticed by specialists. Perhaps the earliest was a French army engineer, Le Prestre Vauban (1633-1707), who did thorough studies of the costs and benefits of fortifications. Giovanni Ceva (1647-1734), a University of Mantua engineer, published mathematical economic analysis of public sector expansion. A.N. Isnard (1749-1807) of the French public works department published *Traite des Richesses*, an early hydraulic model of the economy or 'general equilibrium' model which, with Louis Poinset's *Elements de Statique*, were taken over by Walras, key figure in the foundation of general equilibrium analysis.[7]

Systematic cost-benefit discussion of freight rates and construction of roads was carried out in 1832 by Henri Navier (1785-1836), to prove that a minimum amount of freight was the prerequisite for public goods to be provided economically. His contemporary, Joseph Minard (1781-1870), taught public finance at the Paris School of Engineering and gave an early version of how best to choose between variants of an investment project with a given output target, using compound interest to look at how 'present value' of capital changed. Italian-born hydraulics engineer Dupuit wrote a number of books on flood control of the Loire river, and then turned to price and investment policies in the public sector. He constructed a curve to represent the utility derived by the consumer from using a bridge, and in his 'On the Measurement of Utility of Public Works' (1844) worked out what a consumer would be prepared to pay. He concluded that projects like railroads with large fixed costs should adopt discriminatory pricing in order to utilize their capacity. Similar work was done by English engineer Fleeming Jenkin, of University College, London.

Belgian railway engineer Alphonse Belpaire[8] and American Charles Ellet[9] were interested in such problems of railway economics as returns on investment, cost structures and price discrimination. They were also, by sheer necessity, interested in the kind of location economics developed by Launhardt[10] (1832-1918) and E. Cheysson (1836-1910). These engineer-economists had theoretically solved the problem of how to find a point of minimum transport cost (i.e. where total freight costs per unit are at their lowest).

The nineteenth century, then, was rich in the political economy of public works. Such writers were influenced by their use of calculus and other methods from mathematics. In the twentieth century this trend became a fetish at the hands of professional economists, who lacked the vision of the engineers in supporting the idea of a viable public sector, and of course, lacked their contact with everyday life and practical construction work. First Frank Knight, and then Irving Fisher, hitched economic theory firmly to Newtonian mechanics, ignoring Alfred Marshall's warning that 'the mecca of economics lies in biology rather than mechanics'. Knight was to claim[11] that mechanics was a 'sister science' to economics, while Irving Fisher insisted[12] that there is:

> a rough correspondence between the play of economic forces and mechanical engineering . . . in fact the economist borrows much of the basic vocabulary from mechanics. Instances are equilibrium, stability, elasticity, expansion, inflation, contraction, flow, efflux, force, pressure, resistance, reaction, movement, friction.

It is interesting to note how many of the successful economists from this point of view have come from 'outside'. Not only do we have such founding fathers of economics as Petty and Quesnay (who were doctors) but we also have chemists (Colin Clark) and we have hydraulic engineers (Isnard, Dupuit), mathematicians (Von Neumann) and mathematical physics men (like R.M. Goodwin of Cambridge and Prof. John Blatt of Sydney). That means that many of the lasting contributions of neo-classical economics have come from men not professionally trained in this type of economics. In fact, when the economics profession became fully 'professionalized' in the twentieth century much of the vigour of the engineering-economists was lost, as specialization and reliance on mechanical analogies were both overdone.

Within economics itself a reaction now developed, centred on Cambridge, England. This reaction was first outlined in Marshall's *Principles of Economics* (1882), continued by Arthur Cecil Pigou (Professor of Political Economy at Cambridge after the 1920s). Pigou noted approvingly[13] Marshall's reticence in pushing too enthusiastically a concept like 'elasticity' (which came to him while he sat on a roof at Palermo shaded by a bath cover):

> Marshall has not been followed here by later writers. We have partial and total elasticity of production, elasticity of discounting, elasticity of expectations and elasticity of substitution. I doubt whether Marshall would have thought much of these. I can hear him sniff at economic toys.

John Maynard Keynes in his practice departed from the *kind* of mathematical apparatus constructed by neo-classical economists, being more influenced by Russell-Whitehead on the link of mathematics to philosophy, and his own research on the theory of probability. As Pasinetti has pointed out,[14] there is a different kind of 'causation' in Keynes' approach:

> The most striking fact which emerges clearly is Keynes' clear break with the sixty-year-old tradition of marginal economic theory and his return to the methods of analysis of the earlier classical economists of the beginning of the nineteenth century . . . Like Ricardo he is always looking for fundamentals. He singles out for

> consideration the variables he believes to be the most important . . . The characteristic consequence of this methodological procedure [is] the emergence of systems of equations of the causal type . . . as opposed to a completely interdependent system of simultaneous equations.

In more modern times Cambridge-school economist Nicholas Kaldor has spoken of the need to use 'rule of thumb', 'the state of the news' and 'stylized facts' to develop a theory of economic fluctuations and a theory of economic growth. He placed heavy emphasis on behavioural hypotheses of this kind,[15] rather than the neo-classical analysis of movements around equilibrium points.

The Land Transfer Programme: Radicals attack Neo-classical Economics

What stirred up many economists after 1890 was the emergence of a new theory of income distribution which appeared to justify the existing capitalist arrangements governing the 'rewards' to capital and labour. This controversial theorem was the 'co-ordination of the laws of distribution' on a unifying principle ('marginal productivity') by J.B. Clark in America and Philip Wicksteed, a London clergyman and friend of George Bernard Shaw.[16] Interestingly, J.B. Clark openly defended the 'justice' of capitalist rules of the game of distribution, provoking replies from T. Veblen, C. Ayers and J.A. Hobson. Wicksteed attracted rather less controversy, perhaps because of his view, expressed in *Commonsense of Political Economy*, that:

> the more we analyse the life of society the less we can rest upon the economic harmonies; and the better we understand the true function of the market, in its widest sense, the more fully shall we realise that it never has been left to itself, and the more deeply shall we feel that it must never be. Economics must be the handmaid of sociology.

The issue that realistically-minded economists had to face as the nineteenth century drew to a close was this: according to the new 1890s version of 'marginal productivity' theory, 'rent' and 'transfer earnings' which took *some* account of the supply side could be combined to explain the return to the 'factors of production' instead of doing this purely from the side of demand.[17] Analysis of supply had largely been ignored, notably in the theories of the Austrian School, although Marshall at Cambridge with his concept of quasi-rent and freelance economist J.A. Hobson both grappled with it.

The argument emerged slowly, and bits were added to marginal productivity theory by J.B. Clark, Hobson, Marshall and Stuart Wood; all aimed at co-ordination of the laws of distribution according to some unifying principle, and to move theory away from neglect by Austrian economics professors of the supply side and failure to emphasize the rent-earning capacity of factors of production which was involved with the appearance of short-run barriers to quick expansion of their supply.

Eventually the theory of income distribution which emerged admitted that while competition between employers will eventually lead to the factors of production being paid an amount equivalent to their 'marginal contribution' to production, various friction and 'institutional factors' would produce short-run monopoly-type earnings (quasi-rents) over and above the (competitively-determined) 'resource-transfer' level of payment. From the viewpoint of the economy as a whole, labour and capital receive 'transfer earnings' which is the level of payment necessary to prevent movement of land, labour and capital between industrial and agricultural sectors in response to price signals, while rent will be any earning over and above what is necessary to keep such a factor or production in existence.

Institutionalist economists, paradoxically, played some role in making the marginalist approach to income distribution more realistic. However, at the end of the nineteenth century, a counter-attack on the rightist version of neo-classical economics (and on the heart of its logical system, the marginal productivity theory of distribution and capital theory) was launched by Thorstein Veblen. This critique constituted a very important part of the rigorous strand of radical economics (as opposed to mere 'pop-sociology').

In 1898 Veblen[18] began what was to become a series of assaults on neo-classical theory. Apart from suggesting a better 'vision' of how Western economies work, he questioned the neo-classical analysis of the structure of production and of the capital stock. There was, in fact, a sophisticated attack involved in Veblen's work foreshadowing later ideas by Joan Robinson, Kregel and Harcourt. Veblen also focused attention on the theory of capital used by 'marginal productivity' theorists, especially its American expositor John Bates Clark. The Veblen contribution was a set of ideas whose time had come, for much of the general drift of Veblen's misgivings had been foreshadowed seven years before by Stuart Wood and six years before by J.A. Hobson.[19]

While a great deal has been said concerning Veblen's acid comments on wealth in *Theory of the Leisure Class* and about his institutionalist treatment of capitalism in *The Theory of Business Enterprise*, such attention may have obscured Veblen's direct theoretical challenge to the structure of neo-classical theory.[20] For he pointed out that 'capital is a pecuniary fact, not a mechanical one, [it] is the outcome of a valuation, depending immediately on the state of mind of the valuers', and went on to suggest that capital in business practice has an 'immaterial character'. If this were so, J.B. Clark could not discuss 'transfers of capital'—any pecuniary concept of capital contradicted Clark's theory.[21] 'Capital', then, would need to be specified and placed within a particular set of social relations to develop an adequate theory of its role in distribution.

Veblen went on to show that J.B. Clark, like Walras, had toyed with the idea of discussing the dynamic movement in the economy. While Walras had mainly given this up[22] (except for particular problems like hog-cycles), J.B. Clark had succeeded only in presenting a 'deranged static state'.[23] The reason was traced to the unsatisfactory foundations for 'dynamics' inherent in his marginalist analysis.[24] As hog-cycles demonstrate, output reactions to price are as important as the price reactions to other prices beloved by Walras and other general equilibrium theorists or even the price reactions to output changes of 'partial equilibrium' theory.

English institutionalist economist J.A. Hobson made two basic interventions: first to introduce the idea that factors of production earn rent as well as transfer earnings. As part of this analysis he co-ordinated the laws of distribution on a non-marginalist theoretical foundation. Second, he provided a theory of economic crisis based on imbalance of the capital goods and consumer goods sectors.

In an article of 1891 entitled 'The Law of Three Rents',[25] Hobson had mixed in institutionalist forces to explain why a common principle, other than 'elasticity of substitution' or some other marginal principle, could produce a common unifying distribution law, explaining the returns to the factors of production and why some of them receive monopoly rents.

Hobson made the elementary point that since the marginal productivity theory of distribution of Jevons and Walras was a demand side approach only, it could not contribute significantly to a situation where restrictions on the supply of factors dominated the processes of distribution. Each 'share' in the national cake accruing to land, capital and labour, respectively, contains *both* a minimum payment (to induce supply at all) *and* a rent. He showed that if there is a difference in the

amount of difficulty of procuring the supply of land, labour and capital, that difference will be measured by the relative rise in the rent level of the rent-paying portion of each factor's 'reward' and by a corresponding alteration in the aggregate product accruing to each.

After an initial attempt as a young man to defend Say's Law of markets, Hobson accepted the criticism of it by a business colleague, Mummery. He went on to suggest that marginalist economics was missing major points[26] about the real interdependencies and complementarities between investments as well as factors of production, and the interaction between the monetary and physical spheres.[27] This led him to sketch both a primitive version of an input-output system and to Marx's former distinction between a capital-goods and a consumer-goods sector and the need to analyse the intricate relationship between them.

Since the output of the consumer goods industries was restricted by an unequal distribution of income, investment opportunities involving expansion of the capital goods sector would, Hobson pointed out, be inevitably choked off. Hence savings would become 'excessive', a pool of frustrated investment potential would form which could not find profitable outlets. One outlet that would be tried, as Hobson complained,[28] would be the export of capital to other countries, comprising the 'economic taproot of imperialism'. Together with the 'Colonel Blimp' mentality of returning army officers and colonial administrators, it would lead to imperial wars such as the British assault on the Boers.

The theory of crisis pursued by Hobson was of great historical importance, and among other things, influenced Lenin's doctrine on imperialism. However, his solution, that of a liberal state intervening to make income distribution more even, sustain effective demand and reduce excess savings, did not carry conviction in a world of turbulent trade cycles and class struggles. Certainly few believed that such a course would effectively 'abolish' capital export and imperialism with it.

Hobson's political economy pushed him to support a mixed economy with some socialist elements:

> The strong distrust of officials (dubbed 'bureaucrats') may seem excessive in view of the general ability, honesty and public spirit in our services. I think it is excessive so far as the socialization of our monopoly and routine industries is concerned. For in these industries the incentive of free competition is either absent or is wasteful.

> The danger that besets Labour Socialism is its failure to recognise the fact that over a large area of industry, prize money in the shape of profit must continue to be a serviceable method of getting the best results of inventive ability, risk and enterprise into the products of industry. The notion that a sense of public service will operate upon all types of mind so as to get the best they have to give in contributions towards technological and business ability cannot be accepted for purposes of present practical progress.[29]

Radical Economists and the Public Sector

What socialist ideas were embodied in the writings of neo-classical economists? The answer is—not many. Wicksell in Sweden, Weiser in Austria and Walras in Switzerland held to views which challenged the results of the working out of market forces. Their position seems to have been that a model of the economy could be constructed which would show ideal allocations of resources, correct 'shadow' prices to charge for the use of factors of production, and the most effective choice of rival investment variants for achieving a fixed bill of goods. 'Imperfections' could be cleared up by government. Perhaps H.D. Dickinson in 1939 summed up the issue most succinctly when he said 'the beautiful systems of economic equilibrium described by Bohm-Bawerk, Marshall and Cassel are not descriptions of society as it *is*, but prophetic visions of a socialist society of the future'.[30]

Dickinson, of course, was wholly in favour of this conclusion. He sketched a 'market-socialism' in which market forces, unhampered by monopoly rents and inequality in the distribution of income, would operate in both the consumer goods and the labour markets. The central authorities would construct a series of accounting prices for capital and intermediate goods which would reflect the working out in practice of such economists' categories as 'elasticity of substitution', scarcity, 'opportunity-cost', etc. Prices reflecting these ideas would be worked out and handed down to relatively independent public corporations, which would be asked to set prices at a level close to 'marginal cost'. Oligopolistic firms which enjoyed decreasing costs due to scale economies or favourable location would be taxed and the proceeds paid into a 'marginal cost equalization fund' which would be used to finance collective consumption or new accumulation of capital carried out on behalf of the community as a whole.

Schumpeter, often seen as providing apotheosis for general

equilibrium systems of the Walras type, made some interesting comments on the adequacy of neo-classical economics in dynamic situations and for use in socialist economies. He did this in a little-known introduction to the Japanese edition of his *Theory of Economic Development* in 1937. After pointing out that Walras' technique 'effectively embraced the pure logic of, and interdependence between economic quantities', he went on to say that it is 'applicable only to a stationary process.' Schumpeter says 'I felt strongly that Walras' views on the passive nature of economic life were wrong'[31] and so he turned for dynamics to Karl Marx, who accounted for economic change by a theory 'which does not merely rely on external factors propelling the economic system from one equilibrium to another'. By implication, Walras' theory would have little relevance to social change or the 'economics of socialism' since it is not true that economic life in such a system is 'essentially passive and merely adapts itself to the natural and social influences which may be acting on it', as Walras had maintained.[32]

Wicksell wrote on the side of worker-managed economies, arguing that the rate of capital accumulation would be enhanced in a collectivist society and achieved in a less wasteful way than under capitalism. Schumpeter has described this view as Wicksell's 'radical liberalism'. One of Wicksell's points was that while in the interests of efficiency, labour would be paid its marginal productivity during working life, on retirement workers should also be paid a pension close to their previous peak income, so that a part of the industrial profits created by their labour would be returned to them as compensation for wear and tear on the commodity they had sold: human capital.

Some neo-classical economists also saw that marginal utility theory led *not only* to ideas of 'user-cost' and 'consumer surplus' (developed by Dupuit and Marshall), but also to the need for increased *total* utility in the economy by re-distribution of income in favour of lower income groups. Although there were reactionaries who tended to oppose this development in a fairly ideological way (J.B. Clark, Pareto and, to a lesser extent, F.Y. Edgeworth), the activity of Professor Pigou at Cambridge and some of the French economists pointed to a stronger sympathy with the working class, more akin to Wicksell's call (*Lectures*, Vol. 1, p. 1) for economics to become a revolutionary science.

I am certainly not going to argue here that the work of most economists was motivated by 'the evil intent of apologetic'. It is sufficient to establish the conservatism of the economics profession in the self-image of economists as 'professionals' who attempt to turn 'political economy' into a more rigorous 'economic science' with a 'rigour' akin to mathematical physics, and to the widespread (if sometimes unconscious) adoption of positivist philosophy. These issues are explored more fully in Chapter 1.

Moreover, as shown in the next section, it is clear at the *technical* level that very similar ideas to important parts of neo-classical economics have been put forward by members of the Communist Parties of Poland, the USSR and Hungary. These areas covered marginal cost pricing for agricultural goods produced from regions of different fertility and location; the use of compound interest in the choice of investment projects; and linear programming methods for choosing the most efficient combination of (say) railways and roads, or thermal and hydro power.

At a different level, some 'socialistic' ideas crept into economic theory by way of the transmission belt of 'public utility economics'. Many people working for railways, rivers and port authorities became defenders of the public sector itself. While they approached their task mainly from the engineering efficiency viewpoint, a number (Gustav Cassel, Hugo Meyer) came to be enthusiasts for public sector works.

Of course, it could be argued that the radical-liberal ideas of Wicksell, Weiser and Walras (and later in the 1930s Dickinson) are not really 'socialist' because those writers preferred to 'clean up' the workings of market forces by appropriate taxation and redistributive fiscal policies, rather than by wholesale expropriation of private property through the nationalization of the means of production, distribution and exchange. Clearly there is something to this, especially when one looks at the political influence and political practice of the most prominent twentieth-century exponent, C.A.R. Crosland, in his *Future of Socialism* written in the 1950s. However, such a curt dismissal of a huge corpus of work on economic theory and public policy would be to miss many insights and gems of analysis. Certainly the best of the economists with whom I have worked (notably Dobb and Kalecki) did not take so pre-emptive a view.

Perhaps many radicals failed to spell out the workings of a society where workers hire capital directly without any intervention by private owners, the workers themselves acting as self-managing investors.[33] In working out the principles and operation of such a 'market socialism' of the 'self-management' type, many of the contributions of neo-classical marginal economists of radical bent would be relevant, if only for their analysis of the 'imperfections', 'market imperfections' and 'perversities' in investment behaviour (e.g. discrimination against new workers in favour of capital-intensive equipment) that such a series of new institutions would throw up.[34]

The Debates About Socialist Planning and its Effectiveness

Planning for dynamic growth. How easy it sounded to traditionalist socialists—and how difficult and politically loaded in practice! Sacrifices are involved in each choice of an investment path. If the wrong choice is made, morale and labour productivity of the current generation of workers will fall—as we have seen in Poland since 1956.

In the West in the 1920s there was a debate launched which began questioning whether planning was feasible, indeed *a priori* possible at all.[35] In the United States concern at this time was, however, directed at a much more preliminary stage of the debate about public sector economics—the nature of the modern corporation[36] and the decline of competition in markets.[37] In Britain Professor Pigou made important, relevant suggestions for taxing 'diminishing returns' industries and subsidizing others.[38]

Yet it was in the Soviet Union (where art and culture were experiencing a renaissance in the pre-Stalin atmosphere of the 1920s) that economic science made the biggest leap forward for the period 1919-29. Translations of articles written at that time[39] indicate the richness of the theory of economic growth as a foundation for public policy (in turn this theory was based on insights of Rosa Luxemburg and Tugan Baranovsky). An American scholar has described the debate about planning and industrialization in the USSR at this time as a 'singularly exciting chapter in the history of economic doctrines,'[40] while a former participant in exile in the US agreed.[41] The discussion was taken forward by the examination[42] of the relationship between the model of G.A. Feldman of 1928-9 and the Western Harrod-Domar model of the 1950s, and of the Kovalevsky model[43] of Gosplan in the late twenties. All of this material throws severe doubt on the claim of Lionel Robbins that planned economic development (in his terminology, 'authoritarian collectivist growth') took place largely in the absence of a theory of planned economic development.[44] Nearer to the truth about this exciting period of the development of economic science in the Soviet Union was American Evsey Domar's comment that the Soviet growth theorists Feldman and Kovalevsky, like Tugan and Luxemburg before them had 'come closest to developing a substantial theory of economic growth'.[45]

A close study of the brilliant theoretical studies of G. Groman and

V. Bazarov (Menshevik economists of USSR Gosplan in the 1920s) reinforces this conclusion, while a serious examination of their theoretical writings and statistical analysis of alternative strategies for growth and investment[46] will form in the reader's mind an appreciation of just how good 'public sector economics' was in those days.[47] This can be reinforced by including the 'balanced growth' advocates, like Lev Shanin,[48] who were most often in a minority in the USSR, as well as Preobrazhensky who advocated unbalanced growth of sectors, not only in his better-known *The New Economics* but his later, more sophisticated, work (taking into account major objections by his critics).[49]

The 1930s public policy debates were dominated in the West by the impact of the ideas of J.M. Keynes and M. Kalecki. These I will leave for discussion in Chapter 3. Obviously, with the future of the capitalist system uncertain a whole number of new solutions were put forward. Clearly, too, the institutional restraints on effective resource mobilization posed by monopoly, inheritance and the 'unacceptable face of capitalism' in the form of rentiers came under ever closer scrutiny. Dickinson produced a most interesting little book, *Institutional Revenue*, in 1932 and Dobb, who wrote *Capitalist Enterprise and Social Progress* in 1925, followed it with *Political Economy and Capitalism* in 1938.

The problem of economic dynamics proved too difficult for those raised on Jevons, Marshall and J.B. Clark. Work on this crucial area both in the West and in Russia tended to fall to natural scientists who, in periods of a crisis of confidence among economists, have more than once shown an ability to step into the breach. The need to develop a non-linear theory of business cycles was obvious to such people—the difficulty of the mathematics involved having prevented economists making much headway.

So it came about that a French physicist, Le Corbeiller, suggested dealing with the trade cycle by means of the theory of relaxed oscillations[50]—a view taken up by Samuelson in 1950, when he suggested that the cobweb theorem, one non-linear theory of economics, *had* been solved—and now gave guidance to policy makers in the agricultural sector. It followed that other areas might also be solved by a new non-linear mathematics.[51]

Russian scientists in 1935-9 developed methods of non-linear mechanics with the idea of applying them to electronic circuits. They included the writings of Andronov, Kryloff, Bogolivhoff and Mandelstam,[52] ideas which must have made their impact on Leonid Kantorovich's Leningrad economic studies for improving the efficiency

of Soviet planning, although he himself was content at this time to 'sell' linear programming, a much lower level of difficulty in mathematical economics, to the Soviet authorities.

Among Western economists there was also a most interesting debate about the 'economics of socialism' spilling over into the 1930s, and taking issue with radical economics.

Von Mises, following the Dutch economist Pierson who wrote in similar vein in 1903, argued that a socialist economy was *a priori* impossible. In a 1920 article, followed by the book *Socialism*, Mises maintained that a socialist economy would lack a market for factors of production and hence could not efficiently decide between a more and a less economical allocation of investments and workers; it could be in no sense a 'rational' economy:

> It is precisely in the market that the prices of goods and labour power which form the basis of circulation is formed. Without a price mechanism there can be no means of calculation: prices could never be directed by economic considerations. In the socialist commonwealth every economic change is an undertaking whose success cannot be determined in advance or retrospectively estimated. There is only groping in the dark—socialism is the abolition of rationality.[53]

Economists in the 1930s (with the exception of Marxist academics like Dobb and Sweezy) answered Mises, but they did so by advancing a number of solutions to the problem *as he had posed it.* The professed answers and solutions of Dickinson, Lerner, Hall, Durbin and Lange all constructed a counter-factual model in which a system of prices would function, and would be determined (within the institutional framework and limitations of a socialist political system) by market or quasi-market forces.

In the most 'market-socialist' solution, H.D. Dickinson suggested[54] managers could bid competitively for capital goods and consumers could do the same for consumer goods. In Lange's scheme,[55] quasi-markets would operate for capital goods; while there would be no *actual* competitive bidding, there would be 'accounting prices' handed down from planners to socialist managers. Such prices would incorporate scarcity rents, the opportunity-cost of capital 'frozen' in investment projects and other 'economic' elements, as well as planners' preferences alone. What these economists established was a theoretical answer to the attack of Pierson and Mises: there would be no *a priori* reason why the problem of optimal planning and allocation solutions in a socialist economy could not be found.

One should notice, though, that these solutions gave away many unnecessary points to anti-socialist criticism. Since the 'Virginia School' today returns to Mises, it is worth looking at this a little more closely.

First, Mises had set up a very 'unreal' model of how capitalism itself worked. Later work by Arrow and others was to show that with different incomes and tastes as between 'voters', no optimal solutions could be found, except in the single case of a dictator laying down all the preferences and rules of distribution.

Second, as Dobb[56] and Peter Wiles[57] maintained, the notion of optimum allocation being bandied about was essentially a static one, starting from given quantities of productive resources and given consumer's wants. When the problem is put in a more dynamic setting, key quantities, previously treated as data, became dependent variables of development policy and were no longer usefully conceived of as market-price determined. Sraffa's rehabilitation of the distinction between 'natural prices' (with their more long-run characteristics) and short-term market prices has tended to underline this point.

Third, a doubt arose as to the *stability* of a Dickinson-type economy. Might there not develop the familiar disproportionate, jerky, unco-ordinated growth of various sectors, fluctuations in production and recurrent crises? It was suggested that some loss of perfection in achieving the economists' optimal allocation of resources might be worthwhile if such latent instabilities and uncertainties could be removed by a more centralized control of investment (if not production) than was allowed for in the Dickinson and Lange models. It was increasingly accepted in the 1930s that the overall rate and structure of investment which a community undertakes cannot be left to a market system to decide, but is a crucial question of public policy affecting a country's rate of growth and the balance of its present and future satisfactions—decisions which need collective decision in some form.

World War II found economists working in ministries and planning organs. Those who remained in universities were largely preoccupied with war loans and war finance, or with working out the implications of the 'Keynesian Revolution' in economic thought for post-war planning and reconstruction. The best known results of this intellectual endeavour were radical programmes: William Beveridge's *Full Employment in a Free Society*, and in Australia H.C. Coombs' 'White' Paper, *Full Employment in Australia* (1945); the latter was adopted in part by UNO.

Notes

1. M. White, unpublished Ph.D. thesis, University of Adelaide, 1981. This thesis examines the conditions of production of the work of Senior, Whately, Jevons, Marshall and Lloyd.

2. Ibid. On the death of the economist Whately (Senior's successor to the Political Economy chair at Oxford) in 1830, his daughter auctioned his extensive collection of rare wines gained from the spoils of his services to privilege as both Professor and Archbishop. Local labourers collected sufficient money to buy and drink a small quantity in celebration of his departure.

3. S. de Sismondi, *Nouveaux Principes d'Economie Politique* (3rd edition, Paris, 1951). Also useful are Sismondi, 'Two Papers on Demand', translations re-published in *International Economic Papers*, No. 7 (Macmillan, London, 1957), pp. 7-39.

4. J.S. Mill, *Political Economy* (1845), Book VI, Chapter vii.

5. Henry George, *Progress and Poverty* (Appleton, 1880).

6. G.D.H. Cole, *A History of Socialist Thought* (Macmillan, London, 1956), Vol. III, Part II, pp. 559-65.

7. See W. Jaffe, 'A.N. Isnard, Progenitor of the Walrasian General Equilibrium Model', *History of Political Economy*, Spring, 1969.

8. R.M. Robertson, 'Jevons and his Precursors', *Econometrica*, Vol. 19, No. 3, July 1951.

9. R. Ekelund and D.L. Hooks, 'Joint Demand, Discriminating Two-Part Tariffs and Location Theory: An Early American Contribution', *Western Economic Journal*, March 1972.

10. Robertson, 'Jevons and his Precursors', p. 18.

11. F.H. Knight, *The Ethics of Competition* (New York, 1935), p. 85.

12. Irving Fisher, *Mathematical Investigations into the Theory of Value and Prices* (Augustus Kelley, NY, 1961 ed.), p. 24.

13. A.C. Pigou, *Alfred Marshall and Current Thought* (Macmillan, London, 1953), p. 24.

14. L.L. Pasinetti, *Growth and Income Distribution* (CUP, Cambridge, 1974). See further discussion on this point in Chapter 3 below.

15. N. Kaldor, 'Capital Accumulation and Economic Growth', in J.A. Lutz and D.C. Hague (eds.), *Proceedings of a Conference held by the International Economic Association* (Macmillan, London, 1961), pp. 177-222.

16. The 'Co-ordination of the Laws of Distribution' was attempted by way of marginal productivity theory by various neo-classical economists in the period of the 1890s, building on an incomplete attempt by Jevons in 1870. The main idea was that the share of land was based on an objective (Ricardian) standard determined by location or fertility, while there were also 'subjective rents' accruing to labour and capital owners. This was written by J.B. Clark, 'Distribution as Determined by a Law of Rent', *Quarterly Journal of Economics*, April 1891; the second was by P. Wicksteed, *The Co-ordination of the Laws of Distribution* (Macmillan, London, 1894), who used Euler's theorem to put *all three* factors of production on a common basis.

17. For a concise textbook account of the issues of 'quasi-rent' and 'transfer earnings', see A. W. Stonier and D.C. Hague, *A Textbook of Economic Theory* (4th edition, Longman, London, 1972), pp. 326-34, and R.G. Lipsey, *An Introduction to Positive Economics* (Weidenfeld and Nicolson, London, 1969), pp. 436-51.

18. T. Veblen, 'Why is Economics not an Evolutionary Science?', *Quarterly Journal of Economics*, 1898; 'Professor Clark's Economics', *Quarterly Journal of*

Economics, 1908; and 'The Limitations of Marginal Utility', *Journal of Political Economy*, 1909.

19. In a thesis presented to the University of Sydney in 1956, I pointed out that the American Stuart Wood in 'A New View of the Theory of Wages', *Quarterly Journal of Economics*, October 1888 and July 1891, paralleled Hobson's later institutionalist critique of the 'laws of distribution'. But Hobson's feat was in turn ignored by neo-classical economists. G. Stigler in *Production and Distribution Theories* (Macmillan, NY, 1953) dismissed him in one line, and Edgeworth, *Papers on Political Economy*, Vol. 1 (Macmillan, London, 1916), while noting his existence (as well he might, having blocked Hobson's appointment to London University), did not go on to discuss his contribution.

20. I am indebted to Dr D.L. Clark (School of Economics, University of New South Wales) for this observation.

21. T. Veblen, 'Professor Clark's Economics', *Quarterly Journal of Economics*, 1908.

22. As noted by Joseph Schumpeter in his preface to the Japanese edition (1937) of Schumpeter, *Theory of Economic Development.* The preface is reprinted in R.V. Clemence (ed.), *Essays of J.A. Schumpeter* (Addison-Wesley, Cambridge, Mass., 1951).

23. T. Veblen, 'The Limitations of Marginal Utility', *Journal of Political Economy*, 1909.

24. See also Chapter 7, footnotes 12 to 16 below.

25. J.A. Hobson, 'The Law of Three Rents', *Quarterly Journal of Economics*, April 1891.

26. J.A. Hobson, *The Industrial System*, pp. 118-23.

27. Ibid., ch. 2.

28. J.A. Hobson, *Imperialism* (1902).

29. A development of these views is in J.A. Hobson, *Confessions of an Economic Heretic* (Allen & Unwin, London, 1938), chs. XIV-XVI.

30. H.D. Dickinson, *The Economics of Socialism* (Oxford University Press, Oxford, 1939), p. 205.

31. J.A. Schumpeter's 'Preface' was reprinted in R.V. Clemence (ed.), *Essays of J.A. Schumpeter* (Addison-Wesley, Cambridge, Mass., 1951), p. 159.

32. Ibid., p. 158.

33. Some glimmerings can be found in K. Wicksell, *Value, Capital and Rent* (Allen & Unwin, London, 1954), pp. 91, 98, 102, 120-1, 127-8. Some other more recent writings on self-managed workers' collectives as investors, are insightful. See R. Marris, 'discussion' in Richard Portes (ed.), *Planning and Market Relations* (Macmillan, London, 1971); J.E. Meade, 'Labour-managed Firms in Conditions of Imperfect Competition', *Economic Journal*, Sept. 1974, pp. 817-24, and the debate in *Journal of Economic Literature*, December 1972, and *Journal of Law and Economics*, October 1973, pp. 275-302. For Yugoslav practice in relation to attempts to counteract perverse behaviour of units of 'associated labour', see M.J. Broekmeyer, 'Self-Management in Yugoslavia', *Annals of the American Academy of Political and Social Science*, May, 1977, pp. 133-40, and A. Marinc, 'A Realistic Basis Has been Formed for Material and Social Development', *Yugoslav Information Bulletin* (League of Communists, Belgrade), November-December, 1980, pp. 1-6.

34. To give some examples which arise when the *maximand* of the firm becomes earnings per man instead of gross profit or the present value of future investments. In this case, if new members of the collective are co-opted, then net income per worker may fall, producing a bias against employing more fellow workers. Again, if prices rise and the value of marginal products rises less than average earnings per worker in value, a gain accrues to the collective (and per member) if someone from the work group is expelled. All gain here if the size of the collective is reduced, *even* if output also falls.

35. Ludwig Von Mises, *Socialism* (Cape, London, 1936).

36. A. Berle and Gardiner C. Means, *The Modern Corporation and Private Property* (Macmillan, NY, 1925).

37. See Arthur Burns, *The Decline of Competition* (McGraw Hill, NY, 1936).

38. A.C. Pigou, *The Economics of Welfare* (Macmillan, London, 1920).

39. See N. Spulber (ed.), *Soviet Strategy for Economic Growth* (Indiana UP, Indiana, 1964).

40. A. Erlich, *The Soviet Industrialization Debate 1924-28* (Harvard UP, 1960).

41. N. Jasny, *Soviet Economists of the Twenties* (CUP, Cambridge, 1972).

42. M. Dobb, *Soviet Economic Development Since 1917*, 6th ed. (Routledge and Kegan Paul, London, 1966), pp. 360-1.

43. A. Kaufman, 'Origin of the Political Economy of Socialism', *Soviet Studies*, Vol. 4, No. 3, 1953.

44. L. Robbins, *The Theory of Economic Development in the History of Economic Thought* (Macmillan, London, 1968), p. 119.

45. E.D. Domar, *Essays in the Theory of Economic Growth* (OUP, New York, 1957), p. 1.

46. Spulber, *Soviet Strategy for Economic Growth.*

47. Jasny, *Soviet Economists of the Twenties.*

48. L. Shanin, 'The Economic Nature of our Commodity Shortage,' cited in Spulber, pp. 205-211.

49. E. Preobrazhensky, 'Economic Equilibrium in the System of the USSR' originally published in *Vestnik Kommunisticheskoi Akademii*, No. 22, 1927, pp. 19-71 reprinted in Spulber pp. 124-173.

50. Le Corbeiller, 'Les Oscillations de relaxation', *Econometrica*, July 1933.

51. P.A. Samuelson, *Foundations of Economic Analysis*, (Harvard University Press, Cambridge, Mass., 1948).

52. N. Minorsky, *Introduction to Non-Linear Mechanics* (Edwards, Ann Arbor, 1947), pp. 2-3.

53. L. Von Mises, *Socialism* (Cape, London, 1936).

54. H.D. Dickinson, *The Economics of Socialism* (OUP, Oxford, 1939), pp. 65-117.

55. O. Lange and F.M. Taylor, *On the Economic Theory of Socialism*, (University of Minessota Press, Minneapolis, 1938).

56. M.H. Dobb, *Political Economy and Capitalism*, (Routledge, London, 1937), Ch. viii.

57. P. Wiles, 'Scarcity, Marxism and Gosplan', *Oxford Economic Papers*, 1957.