

1983: MARX, KEYNES AND SCHUMPETER*

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The cloth of history is woven with an endless seam. I myself knew a man who knew a man who had known Napoleon. Newton was born the year that Galileo died. Both John Maynard Keynes and Joseph A. Schumpeter were born in 1883, the year that Karl Marx died.

Thünen's Bicentennial

Actually 1983 gives us four anniversaries to commemorate. Along with those of Keynes, Schumpeter and Marx, we have this June the bicentennial of Johann Heinrich von Thünen. Thünen's life exactly parallels that of Schumpeter but for a century: 1783 rather than 1883 for birth; 1850 rather than 1950 for death. Thünen is the least known of the four scholars even though as a microeconomist he is the greatest of them all. I have in mind not merely that Thünen clearly anticipated the spirit and the letter of John Bates Clark's marginal productivity theory of distribution -- which Thünen certainly did do half a century before Clark. What is insufficiently recognized is the grandeur of Thünen's general equilibrium model.

In 1803, before Thünen was legally old enough to drink or vote, already he had the vision of a central town surrounded by a homogeneous endless plain. Using data from his own Junker estate, Thünen deduced the rings of specialization that competition would establish around the town. Nearest to town, on the high-rent limited acres there, rural goods most expensive to transport will be grown. Farther out will come goods cheaper to transport. Land rent will fall steadily with radial distance from town, until rent reaches zero at the external margin of farthest cultivation. This complicated problem in nonlinear programming, involving an uncountable infinity of variables, Thünen understood would get solved by the algorithm of competition. Elsewhere, Samuelson 1983, I have provided the modern reformulation of Thünen that has been long overdue. And therefore I desist tonight from further mention of Thünen -- except to serve warning that no present-day economist should be put off by his weird doctrine of the natural wage as the geometric mean of labor's subsistence wage and its average product.

The Genius of Keynes

It is hard to ride three horses at once. Should I give 15 minutes to Marx, and then 15 minutes to each of Keynes and Schumpeter, leaving 5 minutes at the end for graceful wrapup? Or, rather, should I run down a list of points and compare the three of them?

Which scholar was the tallest? Which the shortest? History does not record Karl Marx's height and a close reading of the vast biographical literature can only permit the guess that Karl was the shortest and Maynard the tallest.

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It is a matter of record that Schumpeter and Keynes left no legitimate offspring. Although to Eleanor Marx, Karl's and Jenny's youngest daughter, it was dreadfully important that Karl and not Friedrich Engels fathered the illegitimate son of the Marx family's housekeeper, the only interest we have in this matter today is in calibrating commentators on Marx by how they handle this incident.

Even better to judge a new biographer Marx is to examine how he deals with Marx's antisemitism. Keynes, Schumpeter and Marx all displayed some of the racial bigotries of their respective times and circles. Since we have a more complete sample of Marx's correspondence, our modern sensibilities are most offended by his tasteless remarks about Ferdinand Lasalle's hair color and texture. But evidence of selfhate among assimilating members of minority groups is by now an old story. More interesting is how each biographer explains or explains away the young Marx's identification of predatory capitalistic behavior as peculiarly associated with Judaism.

My primary interest is in our heroes' scholarship not their pulchritude or social manners. From this viewpoint it does not matter that Keynes could be rude, that he wore loud brown shoes, and was to himself ugly. Or that Schumpeter was courtly, and Marx sometimes difficult. All three were brilliant, recognized early to be precocious. That Schumpeter by the age of 30 should have written three great books and received a Columbia honorary degree is truly remarkable. Bertrand Russell, as brilliant a mind as philosophy and mathematics can offer, testified that Maynard Keynes was the most brilliant conversationalist he ever heard. Higher praise than that is not possible. Long before Karl Marx had found his vocation, Moses Hess described him as the coming man of the new generation.

All three men were prodigious workers. Russell believed Keynes worked himself to an early death. Despite his pretence of never working hard, I can testify that Joseph Schumpeter drove himself hard, working every weekend, summer, and at night after keeping tedious office hours for mediocre students. Karl Marx strained his own health with incessant sedentary study; and his inability in the final 15 years of his life to get Das Capital finished must be attributed not to lack of effort but rather to sheer inability to make good his intention of explaining the rate of competitive profit by means of his idiosyncratic paradigm concerning the rate of surplus value.

Which of the three was the greatest economist? That is a naive question. But if you insist on asking it, my considered reply would have to be that John Maynard Keynes was scientifically the greatest economist of this century. Only Adam Smith and Leon Walras can be mentioned in the same breath with him. Karl Marx can be mentioned in the same breath with Mohammed and Jesus, but it is of scientific scholarship that I speak and not of political movements and ideology.

Without Joseph Schumpeter, valuable insights into the laws of motion of political change and economic development would be lost to us, along with one strand of business-cycle theorizing. Without Schumpeter we would know less about our subject's history. Still the 1983 corpus of economic science would not be qualitatively different from what it is now. Whereas, without the shift in analytical paradigm that Keynes exploded in the 1930s, one could not even phrase the modern defenses of Say's Law or the critiques of Keynesianism that are so important a part of today's economics.

Thus, when at long last Milton Friedman came to write down in the 1970 Journal of Political Economy what his monetarism was analytically, it turned out to be one specialization of the general Keynesian identities and behavior functions and not a very plausible one at that. The goatskins that contained the old wine were of post-1933

fabrication. When Benjamin Friedman analyzed in 1976 what the monetarists Karl Brunner and Allen Meltzer said their preferred theory was, again the paradigmatic equations were of a formal structure never seen in the pre-1933 literature -- and revealed themselves to be qualitatively indistinguishable from the models of the Keynesian James Tobin.

Post Keynes, ergo different from neoclassical macroeconomics. I know. I was there. I heard the University of Chicago tradition -- heard it from the lips of Frank Knight, Jacob Viner, Henry Simons, Lloyd Mints, Aaron Director, Milton Friedman, George Stigler, and Albert Hart. My hearing was good and I was a devout Yeshiva student, a dedicated Jesuit. Believe me, Don Patinkin is right. There was less there than met the ear. Dennis Robertson's Cambridge handbook on Money, and Alfred Marshall's unitary-elasticity demand for money were the alpha and omega of that allegedly subtle oral tradition. At the LSE and Harvard, the same macro economics prevailed.

A.C. Pigou put the matter well. In order to understand the macroeconomic world and to refute Keynes' extreme hypothesis of permanent unemployment equilibrium, Pigou had to replace his own Theory of Unemployment modes of analysis in favor of new modes never dreamed of in the pages of Leon Walras (or of the Gerard Debreu memoirs to come.)

Albert Einstein admitted the explanatory power of quantum mechanics as developed by Planck, Einstein himself, Bohr, Schrodinger, Heisenberg, and Born. But Einstein remained convinced that the probability notions of quantum theory did not say the last word on the subject. I suspect that 1999 post-Keynesian eclecticism will be as different from the 1983 variety as that variety is different from the 1939 version. If Einstein turns out to be right, Planck and Heisenberg will not be stripped of their greatness.

Keynes' role in the history of our subject is equally secure. That is why, when Time magazine asked me if Keynes is dead, I replied: Yes, Keynes is dead. And so are Newton and Darwin.

Marx's Serendipitous Beef with Smith

Enough of praise for Keynes. It is Karl Marx who needs refurbishing with mainstream economists. Marx gets too good a press with noneconomists. In consequence we economists miss noticing his one considerable theoretical achievement.

If you retain one thing from this lecture, let it be the following solemn admonition. NEVER MAKE A JOKE. This is as fatal in science as it is in politics.

My pen once referred to Karl Marx as "...a minor post-Ricardian .. a not uninteresting precursor of Leontief's input-output ..." That was worse than a crime. It was a blunder. So sincere a scholar as Maurice Dobb went to his grave, knowing that he could have nothing to learn from so frivolous a pen. That I consider a pity, since I regard Marx as a scholar deserving of analysis on his objective merits and without regard to the deification or denigration meted out to him in various regions and ideologies.

In the Festschrift for Lloyd Metzler, Samuelson 1974, I appraised Marx as a mathematical economist, eschewing Michio Morishima's hyperbole but hailing Marx's most original contribution in Capital's Volume II Tableaus of Simple and Expanded Reproduction. Marx's critics have missed this achievement, while at the same time his partisans have been praising his sterile paradigm that seeks to understand the general

level of macroeconomic profit by means of the detour through the irrelevant swamp of equal-percentage-markup of wages in every industry.

Only after years of reflection did I come to realize that Marx was led to his tableau breakthrough by error. In all four volumes of Capital, Marx struggled against what he considered to be a fatal flaw in Adam Smith's theory.² Smith said often:

Price of any product breaks into its wage component, interest component, and rent component. A nation's total income is the sum of all such components -- the wages its labor earns, the rent its land earns, the interest earned on its stock of capital. (Uncertainty and stochastic complications are here being ignored, so that competition is perfect and the interest rate and the profit rate are the same thing.)

Nonsense, replied Marx. The price of corn, along with wages-rent-interest, includes the cost of the farmer's seed, his horses, and other used-up instruments of husbandry. Four components, not three, make up Marx's price.

Smith, however, had already anticipated Marx's objection even though Marx never could understand the argument. Smith explained, in The Wealth of Nations, Book I, Chapter 6 and elsewhere, that any instruments of husbandry, such as a horse that gets used up in producing corn, is itself made up of the same three parts: the rent of land upon which the horse is reared, the wages of labor there, and the profits of the farmer rearing the horse. Smith even uses the mot juste of "value added." Smith is right, as Simon Kuznets, Wassily Leontief, and Pierro Sraffa have shown in our day.

Each stage's fourth component of used-up capital goods is decomposable ultimately into Smith's three basic components. Marx could never quite grasp this. He could just perceive the value-added resolution in the singular case where capital goods do not themselves need capital goods as inputs. But Marx feared a vicious circle of infinite regress in the more general case already glimpsed in his 1858 Grundrisse, where all goods as outputs need, along with their need for labor and land, some produced goods as inputs.

Let us throw no stone at Marx for being worried about Smith's procedure. Smith does provide only a wave of the hand by way of proof. And not until 1898, after both Marx and Engels were dead, did the obscure Russian economist V.K. Dimitriev 1904 provide the rigorous modern solution by way of solving steady-state simultaneous equations.

Let us rather be grateful that Marx began in confusion. For that did lead him to his steady-state tableaux of reproduction. And these, without Marx's realizing it, did provide Adam Smith with the rigorous vindication that Marx so badly wanted and the tableaux do offer us basic insight into input-output equilibrium.

Marx's Tableau

If you are an economic theorist about to go to jail, and you can take with you only two chapters out of the scores of chapters in Capital's three volumes, my advice is to hold on to the final two chapters in Volume II. From Chapters XX and XXI there, I shall sketch the nature of Marx's theoretical breakthrough.

There will be three goods in the present scenario: coal, a raw material or capital good that is never used for final consumption; corn, a consumption good that provides workers with their needed wage subsistence; finally, caviar, a luxury good that capitalists

spend their profit incomes on.

Take your ball pens out and write on your thumbnails the few technical and taste numbers that rule this scenario.

To produce 1 unit of coal output, assume that we need 1/3 unit of coal input along with 1 unit of direct labor. To produce 1 unit of corn output, assume that we also need 1/3 of coal input and 1 of labor input. Caviar is assumed to be produced by direct labor alone: with appropriate choice of units, 1 of caviar output requires 1 of labor.

I postulate that the real subsistence wage to keep each of 300 workers alive and reproducing their labor power is 1/3 unit of corn per period. We can then calculate for Marx that the profit rate must in the steady state be 50% per period. If there are 300 workers, the system must produce 100 of corn, 66 2/3 of coal, and 150 of caviar. Coal and corn sell for 3 wage units each, caviar sells for 1.5.

Here is how Marx's tableau ought to go.

Tableau I: Simple Reproduction
(rate of profit of 50%)

	C_j		V_j		$S_j = .5(C_j+V_j)$	
Coal	50	+	<u>50</u>	+	<u>50</u>	= 150
Corn	100	+	<u>100</u>	+	<u>100</u>	= <u>300</u>
						<u>525</u>
Caviar	<u>0</u>	+	<u>150</u>	+	<u>75</u>	= <u>225</u>
	<u>150</u>		<u>300</u>		<u>225</u>	
					<u>525</u>	

Remark 1: For stationary equilibrium, the first row sum must equal the first column sum; and likewise for the other respective row and column sums.

Remark 2: I have used as numeraire wage units. No harm in that; you may use your own scale convention. So each of the 300 laborers gets a nominal wage of 1. In those units the corn they buy costs them 3 units, and therefore they do end up with exactly their needed 1/3 of subsistence corn.

Now we can use Marx's own brain child to refute his suspicion that there is something rotten in Adam Smith's tripartite decomposition of price. The coding by underlining shows that Marx's fourth component of price -- used-up coal in this example -- is itself resolvable by the value-added computation into wages-interest-rent and nothing else.

Here are the taxonomic relations for (Kuznets) Net National Product or Income, NNP, written in the three equivalent modern ways:

$$\begin{aligned}
 (1) \quad \text{NNP} &= 300 \text{ wages} + 225 \text{ profit} \\
 (2) &= 525 \text{ final product of corn and caviar} \\
 (3) &= \text{Coal value-added of } (150-50) \\
 &\quad \text{plus} \\
 &\quad \text{Corn value-added of } (300-100) \\
 &\quad \text{plus} \\
 &\quad \text{Caviar value-added of } (225-0) \\
 &= \sum_j S_j C_j + \sum_j (V_j + S_j) - C_j = \sum_j S_j (V_j + S_j) \\
 &\quad \text{Marx's Detour}
 \end{aligned}$$

We have praised Marx. Let us be fair. Is there anything in his contribution that a well-informed Thomas Kuhn would have to declare to be a revolutionary paradigm different from the neoclassical or mainstream-economics paradigm? Are the models of Smith, Ricardo, Marx and the classicals different from those of Marshall, Wicksell, Solow and Arrow? My answer is a decided No.

I won't stop to argue the point but will merely refer you to my canonical version of the classical system, Samuelson 1978.

There it was shown that Smith, Malthus, Ricardo, Mill, and Marx had essentially one system in common. That common system, when you describe it fully, is seen to be after all a system of supply and demand qualitatively no different from those of present-day textbooks.

Actually, I have given Marx the benefit of modern knowledge and he would not thank me for it. In 1867 Marx thought he could improve on the coal-corn-caviar tableau that I showed you. He thought that bourgeois economists like Smith and me lacked understanding of that 50% rate of profit which each industry earned. Marx proposed a new theory purporting to provide deeper understanding of the rate of profit. Neither he, nor anyone else since 1867, has succeeded in showing that better understanding can indeed come from the new paradigm based on a common rate of surplus value for every industry. But let's look at what his novel paradigm was supposed to be.

Live direct labor is supposedly what produces surplus: that is Marx's starting point. So, in the three industries, he has capitalists markup the direct wage outlays by the same percentage amounts -- by the common rate of surplus value. Here is the correct way for me to write Marx's ideosyncratic 1867 version of his tableau, for the coal-corn-caviar technologies, the corn-subsistence wage, the capitalists' penchant for caviar, and with my numeraire defined in terms of wage units.

Tableau II: Reproduction 1867 Style

(Rate of surplus value of 100%)

	c_j		v_j		$s_j = 1.00v_j$	
coal	50	+	<u>50</u>	+	<u>50</u>	= 150
corn	100	+	<u>100</u>	+	<u>100</u>	= <u>300</u>
						<u>600</u>
caviar	<u>0</u>	+	<u>150</u>	+	<u>150</u>	= <u>300</u>
	<u>150</u>		<u>300</u>		<u>300</u>	
					<u>600</u>	

Unlike me, Marx would start out with this Tableau II rather than with my Tableau I. Only in his 1894 Volume III did he describe a "transformation" algorithm purporting to go from it to my bourgeois tableau. However, as he himself sensed, his 1894 algorithm was not quite right and would not lead back to my correct Tableau I. Thus the 1894 transformation (by relating column 3's total to the total of columns 1 and 2) would arrive at a false profit rate of $(50+100+150)/(50+50+100+100+0+150)$, which is $66 \frac{2}{3}\%$ rather than the correct 50%.

Forget Marx's minor error, which was corrected by Bortkiewicz in 1907, by Winternitz and Dobb around 1950, and subsequently by Seton, Morishima, me and many others. Concentrate on this: Arithmetic slips aside, we learn nothing new and worthwhile from the novel paradigm even when it is done right!

What was in Marx's mind? Ronald Meek, William Baumol, Ernest Mandel and others have tried to defend or explain Marx along the following lines:

1. From the 1867 version of Tableau II, we reckon up all the third-column surpluses and put them in a pot. Their total, in ratio to the total of the first two columns, gives us the macroeconomic average rate of profit.

2. Then, in actual microeconomic life, competition insures that industries get out of the total profit pot their respective profit shares in proportion not to their respective wage outlays, but rather in proportion to their respective wages-and-capital-goods outlays.

Of course there is no such macro pot into which the 1867 micro items are all put. And there is no such pot out of which 1894 (or 1776, or 1983) micro items are withdrawn. It is all a figment. An unnecessary figment. A misleading figment. The laws of motion of capitalism are blurred by the detour and so is the still picture of the competitive outcome.

To explicate the sterility of the 1867 paradigm, I'll flesh out my example to make it include the realistic fact that every economic system has a variety of technical blueprints to choose from. I now stipulate that 1 unit of coal output can be produced not only by 1/3 unit of coal and 1 of labor but also by any one of the following respective (coal, labor) input pairs:

$$(1/4,3); (1/3,1); (1/2,2/3); \dots; (1 - [1/2]^N, [1/2]^N[N^{-1} + 1/3])$$

Here the integer N can go as high as some specified number. Like Joan Robinson or John von Neumann, I am stipulating a finite number of optional alternative techniques or activities for competition to choose from rather than insisting on the J.B. Clark neoclassical game.

Now we can learn what it really takes to give workers a wage higher than the two tableaus' subsistence level. If workers will hold in their numbers, or capitalists will desist from caviar consumption enough to amass a plentitude of capital goods, then and only then will the laws of competitive capitalism mete out a maximal real wage and exorcize the profit rate of 50%.

Thus, if the integer N in (4) above is at all large, the workers' wage can rise from 1/3 of corn per period almost to 3 of corn per period -- a ninefold improvement. Marx's insistence that direct labor is alone productive does credit to his warm heart but dulls his reasoning brain.

Foul, you will cry? Samuelson has forgotten about reswitching? No: fair, I say. Although this simple example does not admit of reswitching, its point does not hinge on that fact. A universal truth needs to be comprehended once we stop prattling about metaphysical pots and face up to competitive arbitrage.

Any economy that starts out in a non-golden-rule technology can move into that golden-rule maximal-wage state only by intertemporal substitution along the way, in which someone sacrifices something of present-time consumption in favor of greater future consumption.

The above is a theorem, not a brief for capitalism. It is an valid in Peking as in Manchester. In Xanadu as on Robinson Crusoe's island. As valid for Garegnani as for Burmeister.

Expanding Reproduction

Keep the same technology as in Tableau I's stationary case, and the same subsistence-corn real wage. But replace the zero saving propensity of the stationary case by the assumption that capitalists always save a constant positive fraction of their profit incomes. This can define a balanced exponential growth tableau. (Just as there were two alternative tableaus in the stationary case, the 1867 Marx version and the alternative bourgeois version with the profit rates equalized, so there will be two versions here. However, in the case that I shall work out where all profits are saved and the resulting two industries left happen to have the same organic compositions of capital, Tableau IV can be omitted as merely duplicating Tableau III.)

When at work out Marx's tableous property, will they still be found to vindicate Adam Smith's three-part accounting decomposition in the growth case as in the stationary case? Yes. The value-added approach goes through just as before; the flow of product approach also checks through nicely provided we are careful to include in final products net capital formations of coal and of corn.

Here are two adjacent periods of the expanded-reproduction tableau. The initial period has been normalized so as to have the same 300 of labor supply as in Tableaus I and II. As before, I use for my numeraire wage units. To make the most dramatic test case, I assume capitalists save everything, eschewing all luxury caviar consumption and causing the system to grow exponentially at the same rate as the unchanged interest rate of 50% per period.

Tableau III: Reproduction With Balance Growth
(Profit rate and growth rate 50%; 100% saving rate)

Initial Period	C_j	V_j	$S_j = .5(C_j + V_j)$	
coal	150	+	150	= 450 = 300 + (450-300)
corn	150	+	150	= 450 = 300 + (450-300)
caviar	0	+	0	= 0
	<u>300</u>		<u>300</u>	<u>300</u>
			<u>600</u>	
Next Period				
coal	225	+	225	= 675 = 450 + (675-450)
corn	225	+	225	= 675 = 450 + (675-450)
caviar	0	+	0	= 0

I have underlined the wage-interest income items on the left. On the right I have underlined the final product flows. Thus for the initial period there is the increment of total coal stock, 450-300; and the increment of corn advances, 450-300; and the 300 corn consumed by workers out of their wage advances received at the beginning of the period.

In summary, here are Smith's vindicated accounting relations:

$$(4) \quad \text{NNP}_t = \text{Wages}_t + \text{Profits}_t + 0 \text{ Land Rent} \\ = 300 + .5(600) + 0 = \underline{300} + \underline{300} = \underline{600}$$

$$(5) \quad = \text{Summed Values-Added} = \sum_j (C_j + V_j + S_j) - C_j \\ = \underline{(450-150)} + \underline{(450-150)} + \underline{(0-0)} = \underline{600}$$

$$(6) \quad = \text{Consumptions}_t + \text{Net Capital Formations}_t \\ = \underline{300} + \underline{(450-300)} + \underline{(450-300)} = \underline{600}$$

It is a pity that Marx did not perceive and articulate this vindication of Smith and abandon the 1867 alternative paradigm as being not really necessary or helpful.

Insights From Conventional Sources

An anniversary is an occasion for celebration not for the pouring of cold water. As Dr. Johnson said, one is not under oath on these occasions. Let me stipulate in lawyer's language that Marx does sometimes proposed seminal insights into the evolution of the market economy.

Here is an example. Marx thought that innovation and accumulation were moving England toward fixed capital such as machines and structures, and relatively away from variable capital in the sense of wage-fund advances. He felt that this would reduce the demand for labor and either slow down wage increases or even lower wages.

Cheers for Karl. The only thing we can fault him for is not realizing sufficiently that such a process would negate his own law of the falling rate of profit.

What needs to be asked is this: Does this insight about a downward shifting of the demand for labor somehow flow from the 1867 rate-of-surplus-value paradigm? Is bourgeois economics incapable of generating and explaining this same hypothesis?

Answer 1. No, the 1867 novelty did not originate the hypothesis. Karl never uses mehrwert to arrive at it.

Answer 2. On reflection you will realize that non-Marxians arrive at the specified result when they posit that (a) labor and capital goods have an elasticity of substitution less than unity, and (b) labor-sparing inventions are occurring (either exogenously or as induced by rising wage rates).

The same point has to be made when someone extolls the classical writers for insights denied to later day neoclassicists: When Ricardo shocked his readers by pointing out in his third edition that invention of machinery could reduce the demand for labor, that ought not to shock readers of Frank Ramsey or Knut Wicksell -- even though it did shock McCullough and Ricardo's laissez-faire disciples. The effect is simply another ho-hum possibility under the heading of (b) just above.

In leaving this logical audit of Marx's hypothesis, I ought to warn that Marx may have been 180, off in his suspicion that nineteenth century innovation was tending to lower labor's relative share of total income.

Schumpeter's Vision

Enough on Marx as an economic theorist's theorist. And I have already praised Keynes enough. For all his world fame, Schumpeter's stock on the bourse of scholarly reputations was too long selling below its intrinsic worth.

Like other students of Schumpeter and like his academic colleagues and friends, I tended to regard as a bit comical his early celebrity as the chap who believed that the rate of interest would be zero in the stationary state. The same went for his 1939 fascination with the fol de rol of Kondratieff long waves, superimposed on the decade-length sinusoidal undulations of the major Juglar business cycle and on the Kitchin-Crum workaday 40-month National Bureau cycles. Among us professionals the recent revival of Kondratieff moonshine -- in its disparate Rostow, Forrester, Shonihara, and Christopher Freedman reincarnations -- does not make us look back more kindly on Schumpeter's Ptolemaic epicycles.

Schumpeter was right to insist that his basic vision of dynamic economic development would be little changed if the stationary state had a rendezvous not with a zero interest rate but with a positive Irving Fisher or Modigliani interest rate. And he was right in insisting that nothing in his own theory called for superimposed sine waves. Where we can disagree is with his contention that the facts cried out for him to adopt a three-wave schema. At the age of 20 I thought it odd that a great mind would be satisfied to explain the virulence of the Great Depression by the happenstance that all three cycles just happened to be in their downward phase.

For his cycle-cum-development theory of the business cycle connected with the entrepreneurial process of innovation, Joseph Schumpeter belongs on Mt. Olympus along with such business-cycle greats as Bagehot, Mitchell, Aftalion, Hawtrey, Spiethoff, Wicksell, Cassel, Robertson, Slutsky, J.M. Clark, Frisch, Hansen, Tinbergen, Kalecki, Haberler, Metzler, Warburton, Friedman, Klein, and honored others.

Schumpeter's second great claim to fame is as historian of economic analysis and as biographer. His 1954 posthumous book is a classic, even though it is a prodigiously uneven work and a sadly incomplete one. Too little time was accorded Schumpeter and posterity is the loser. One learns to tolerate his patronizing omniscience and to appreciate his provocative interpretations and undoubted erudition.

Paradoxically, however, the very greatest contribution that the economist Schumpeter made to the history of ideas was not strictly in the field of economics but had to do with the evolutionary trends in the post-capitalistic order. Capitalism, Socialism and Democracy reads better 40 years after its publication than it did in 1942 or 1950.

It is a great book. And this despite the fact that its main thesis does not quite convince. The demise of capitalism is not really speeded up the more successfully it fills its economic mission. That is not plausible in terms of logic; and the facts of 1900-1942, or for that matter 1942-1983, do not make it plausible.

But Schumpeter's sense that self-interest will lead voters and elites to use the power relations of government and other non-market collusions to alter the laissez-faire equilibrium does commend itself both to logic and to the facts of history old and new. Although Mancur Olson came to Harvard years after Schumpeter died, Olson's recent The Rise and Decline of Nations is very much in the Schumpeter vein with its stress on the Pareto-non-optimal harm occasioned by groups seeking their own interest.

Schumpeter's centennial has already coaxed out of me several reinterpretations of his work, as in Samuelson 1980, 1981. Therefore I shall desist with the remark that Schumpeter's over-narrow definition of what capitalism is, coupled with an over-broad definition of socialism, made him too cavalier in his expectations that capitalism would die and be succeeded by socialism.

Schumpeter was uncharacteristically naive in awarding Lange and Lerner victory over Ludwig von Mises on the issue of whether rational economic calculation would be possible under socialism. Of course Mises was wrong in his sweeping rejection. But Schumpeter of all people should have understood the importance of uncertainty, stochastic error, and dynamic innovation in all social life. And this might have been expected to lead him to award the victory to Hayek for his insistence on the difficulty of pooling information when command and bureaucracy limit the workings of the market. Had Schumpeter lived another third of a century he would also have realized what Oskar Lange had to learn the hard way, that few socialist societies will play the Barone-Lerner-Lange game of simulated decentralized market pricing.

Final Fun and Games

My time is almost up. We know how we feel about our three giants. How did they feel about each other?

Keynes is easiest to classify. He went whole hours not thinking about Joseph Alois Schumpeter. For Karl Marx Keynes had confident contempt, referring to Das Kapital as the bible of communism

...above and beyond criticism, an obsolete textbook which I know to be not only scientifically erroneous but without interest or application for the modern world... Even if we need a religion how can we find it in the turbid rubbish of the Red bookstores?

Joan Robinson thinks that Keynes might have developed his 1936 General Theory earlier and better if only, like Michael Kalecki, Keynes had known the works of Marx. She does not make her case. Others who knew not Marx -- Richard Kahn, J.M. Clark, Bertil Ohlin, Ragnar Frisch, ... -- came as close as Kalecki did to Keynes's notion that the equilibrium level of output and unemployment is determined by the adequacy of investment desires relative to the saving scheduled at each level of income. Marx's reproduction tableaux are seen on examination to be anticipations of Kuznetsian national-income accounting, no more Keynesian than they are Hayekian, as much like Leontief, Keynes' critic, as like Sraffa, Keynes' protege.

The Schumpeter-on-Marx Puzzle

In his indifferent contempt for Marx, Keynes was not atypical of the generation that taught me. New Left students of the 1960s were ill-informed to think that Marxism was a spectre that haunted the dreams of mainstream economists in the first half of the twentieth century. My teachers slept well.

Schumpeter, an exception, praised Marx as a great scholar. That is clear. What is not clear is why Schumpeter thought Marx to be great. You will search Schumpeter's writing in vain for a cogent argument. Moreover, I was Schumpeter's pupil. I attended his formal Harvard lectures and seminars. Many an hour I whiled away in his company -- as at the old Merle cafe across the street from Harvard's Widener Library, where economists used to drop in for coffee and gossip. But I never heard Schumpeter give reasons for placing Marx high as an economist.

It is as if what Schumpeter thought great in Marx was Marx's chutspah. Karl aimed so high. Claimed so much. But by this criterion every asylum is full of genius.

Marx purported to have a grand dynamics of development. So did Schumpeter. But Schumpeter's paradigm and Weltanschauung was quite other than Marx's, economically beneficent not malignant. If one man's economic vision was right, the other's had to be grossly wrong. Thus Marx feared technological unemployment. Schumpeter, Marx's alleged admirer, is all too cavalier in pooh-poohing its possibility.

Each Marxian insight Schumpeter despises. As a putdown of his Anglo-Saxon contemporaries, Schumpeter engaged in overpraised of Marx's totality. I have to report that overpraise was a characteristic Schumpeter ploy -- as when I heard him give a flowery introduction at Harvard for Ludwig von Mises, a scholar whose merits could not have been as low as Schumpeter privately placed them.

Schumpeter's rivalry with Keynes is easy to characterize. Few hours went by in which he did not measure himself against Keynes. In the late 1920s he regarded himself as in a race with Keynes to produce a treatise on money. That Schumpeter should have shelved the manuscript after the Keynes' Treatise on Money appeared is interesting. The Treatise, we now realize, was not a great book; it was at best a stepping stone to a great book; and in places it was an idiosyncratic deadend. Some feeling of dissatisfaction with Schumpeter's own manuscript, I believe, must have been involved. It is a question whether the posthumous publication of this German manuscript would have pleased its author. (On the macroeconomic theory of money, Schumpeter did have some ideas linking up spending flows with the flow of income; but no deep linkage with the stock of money seems to have been achieved by him.)

It was the reception of the General Theory that put Schumpeter's nose out of joint. Arthur Smithies reported that Schumpeter never discerned any scientific merit in Keynes' paradigm. Yet economists all over the world, including some of Schumpeter's own best pupils, praised Keynes and followed him. How to account for this if no scientific merit was involved? Schumpeter's rationalization was that it was Keynes's political message that won for him his false fame. In this Schumpeter was quite wrong; surprisingly wrong in that, long before Thomas Kuhn had hit upon his theory of scientific revolutions, Schumpeter had already stated that it takes a new theory to kill an old theory, not a new fact. What Schumpeter could not accept was the notion implicit in Keynes, that equilibrium could prevail without all markets clearing. Young people like me took this for granted: this was the usefulness of the Keynesian model that it let us understand the world as if, because of not-very-fully-described rigidities, its equilibria

involved changing degrees of unemployment and supply-demand discrepancies. The modern preoccupation with giving macroeconomics more articulated microeconomic foundations is in accord with Schumpeter's reservations about Keynes. But it is a shame that Schumpeter had to forego using the new useful paradigm just because he could not reconcile it with older paradigms and with an understood firm foundation.

Finally, what would Marx's attitude be toward Schumpeter and Keynes? We can make pretty good guesses about the answer to this hypothetical question. Marx has few good words to say for any contemporary or successor. Beyond that, Marx would have been repelled by Schumpeter's conservative ideology and attitudes. Schumpeter's playfulness would have annoyed him.

Keynes, Marx would have taken more seriously. But that means he would have been even weightier in his denouncing of Keynes. Marxians of the 1930s hated the General Theory. They denounced it as a covert way of getting the real wage down. What they could not stand was the notion that capitalism could be saved merely by some fiscal and monetary palliatives. If the system was condemned to die by its own self-induced cancers, a shaman who came forth with a laetrile that could reverse the cosmic time table of history had to be reviled as a charlatan. If the medicine man were correct in his claims for his magic, that would be an even worse offense.

Images of Fame

My time is up. I conclude with pictures of the gods and with the totems that made them gods. To be a great scientist, you don't have to produce shelves of books. You just have to produce at least one great idea.

First, here is a picture and signature of Thunen. Under Thunen's picture is the natural wage, formula $w = ap$, that made Thunen infamous not famous.

Second comes the picture and signature of Karl Marx. I follow it not with the tableau that makes him great, which is Tableau I that you have already seen. I follow Marx's portrait with Tableau II, which is what he and his followers wrongly think makes him great.

Third comes the picture of Keynes. It does not have the element of caricature that we so often see, but I think it is a good likeness of the hero just after the Treatise and just before the General Theory. Under the picture are the relations that make Keynes great: they are the equivalent of the Hicks-Hansen IS-LM diagrams, and Alex Leijonhufvud has it all quite wrong when he argues that Keynes is greater than Keynesianism. The cash value of a scientific theory is in its application.

Finally comes the picture of my old teacher. This portrait better than the photographs of earlier dates, catches Schumpeter as I remember him. I have put below the picture equations that encapsulate his vision of a process of periodic development, driven by oscillatory impulses from the side of innovation.

People speak of 1984 as an important date. For us economists the vintage year is 1983.

Footnotes

1. Not included here are the portraits that were flashed on the screen along with characteristic tags of wisdom associated with each author.

2. Adam Smith is currently being reevaluated upwards. Not only were the doubts of him by Marx wrong, as my current discussion shows. In addition the corrections of Smith that Ricardo thought needed turn out to be largely misapprehensions and errors on Ricardo's part. When Professor Samuel Hollander comes to prepare revised editions of his two books on Smith and Marx, he will have to reverse the balance and recognize that the canonical classical model that is common to all the writers and to Marx is already definitely in the Wealth of Nations. Schumpeter, Keynes and Marx would all have changes to make in their written evaluation of Smith and Ricardo.

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