DAVID H. MACGREGOR AND THE MARSHALLIAN TRADITION AT OXFORD, 1920 – 1945

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Biographical Overview

Before Oxford

David H. MacGregor was born in Monifieth, Angus, Scotland in 1877 and died 8 May 1953 in Oxford. He was the second son of Rev. Robert Macgregor, Rector of Northside (Nithside) Academy, Dumfries, Scotland. He was educated at George Watson's College, Edinburgh and then attended and graduated from the University of Edinburgh in 1898, taking first class honours in philosophy. He then went to Cambridge where he studied economics under Marshall, taking a B.A. in 1901. In fact he was one of Marshall's favorite students and became quite attached to his method, that is to the use of theory tempered by empirical investigation, because, as one obituarist stated, "testing them as far as he could against the facts of ordinary life, they seemed to him the best available"(Andrews, 1953).[1] In 1904, he was elected a Fellow of Trinity College, Cambridge, on the strength of what was eventually published in 1906 as *Industrial Combinations*. This book was a pioneer work in the area of industrial economics and it was widely agreed that it made a major contribution to understanding industrial

[1]MacGregor's adherence to Marshall's method has also been commented on by G. C. Allen:

> ...[MacGregor] was in the old-fashioned Marshall tradition and had...little interest in rigorous analysis that came into vogue in the later years of his life. In my view, he was none the worse for that. I should say that in his books...and in his teaching he gave students a sounder understanding of the problems of the economy of his time than contemporary dons give them at present....It seems to me that...the value of his contribution was underestimated because the newer trends (fashions?) in economics passed him by (Allen, 1981).

combinations. Moreover, its popularity as a textbook in applied economics persisted for nearly a quarter of a century after its publication. At this same time, MacGregor was employed as a university lecturer in general economics and was paid, unofficially, by Marshall for the work. In 1908, he left Cambridge to become the professor of political economy at the University of Leeds, succeeding John H. Clapham. Thus MacGregor became a member of the cadre of Marshall's students who marched from Cambridge spreading the `gospel' wherever they went. [Andrews, 1953; MacGregor, 1906; and Allen, 1981]

The economics department at Leeds was quite young, having been established in 1902, and its purpose was to prepare students to enter the business world. Because of the requirement that candidates read books in foreign languages on the social conditions in other countries, few students entered the department. Thus, MacGregor expended much effort to correct the situation by putting the subject on a proper academic footing. In addition, he gave the department a strong leaning towards the industrial and social applications of economic theory. He was in close touch with the manufacturers and industrialists of the region and worked hard in the development of the Workers' Education Association in West Riding. Still, MacGregor found time to write *The Evolution of Industry* (1911) and articles on cartels.[2] Between 1915 and 1918, he was on a leave of absence with the British army in France and Italy. Upon returning he became the Stanley Jevons Professor of Political Economy at the University of Manchester in 1919, where he

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[2] See MacGregor (1909 and 1914). In general, the articles MacGregor wrote prior to the War (also see MacGregor 1907 and 1910) were a combination of commentary and descriptive with analysis, but not analytical with regard to theory—an issue that re-emerges in the inter-war years—see for example, MacGregor (1924b, 1925, 1926, 1929, 1930, and 1933).

continued his work on industrial economics.[3] With the approaching retirement of the reigning Drummond Professor of Political Economy, Francis Y. Edgeworth, the Electors of the Professorship offered it to MacGregor on July 27, 1921 and he accepted it five days later.[4] Thus in the Autumn of 1922, MacGregor began his long tenure as the professor of economics at Oxford. [Andrews, 1953; The Times, 1953; Shimmin, 1954; *The Brown Book: Lynda Grier Memorial Number*, 1968; and Oxford University Archives, 1921]

MacGregor at Oxford, 1922 - 1945

In his early years at Oxford, MacGregor engaged in extensive research into all aspects of industrial economics with view of revising his *Industrial Combination*.[5] As a result, he undertook statistical research into the behavior of business enterprises over the trade cycle and into business risk; continued his work on cartels, trusts and other industrial combinations; and became quite interested in proposals for the nationalization of industry. The scope of his research is indicated by the number of his articles and book reviews on cartels, trusts, and industrial inquiries that appeared in *The Economic Journal* and other

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[3] In 1920, he delivered a paper at a meeting of the Manchester Statistical Society on "The Present Position of the Trust Question." The paper is a general survey of the economic issues emerging from the existence of large business enterprises and cartels, drawing on American data and court cases.

[4] When the Electors advertised the Drummond Professorship, they received applications for the position from G. D. Dibble, E. Cannan, N. B. Dearle, and L. L. Price. MacGregor did not formally apply for the Professorship; rather the Electors offered it to him. [Oxford University Archives, 1921]

[5]In an effort to dispel any belief that he would alter his research and teaching to include history of political economy, MacGregor sent a note to he Registrar at Oxford stating that

> My own interests are in modern economics....The History of Political Economy would be a subordinate part of my teaching and study. As a matter of training and interests, I cannot but help this (MacGregor, 1921).

outlets during these years.[6] Moreover, MacGregor, in his lecturing between 1922 - 23 and 1933 - 34, gave fourteen lectures on industrial economics, averaging better than a lecture a year, and offered informal instruction to degree candidates on the subject matter in six different terms; and the lecturers covered statistical methods in economics; theory of interest and profit; theory of taxation and public finance; trusts, cartels, and concerns; competition and combination; and industrial relationships. In addition he was a member of the Committee on Restraint of Trade (1930) and the Committee on Gift Trading (1933). However, upon finishing his *magnum opus*, he suffered a nervous breakdown, due mainly to the death of his daughter, and while recovering found that the manuscript had been lost. All he could recover from it were the essays published in *Enterprise Purpose and Profit: Essays on Industry* (1934).[7] However never again was he able to generate the energy required to do novel research in industrial economics. In the years 1934 - 35 to 1944 - 45, MacGregor gave three lectures on topics in industrial economics, averaging a little less than one lecture every three years; rather he lectured on national income and its distribution, public finance, and other topics.

Prior to World War I, MacGregor was an eloquent speaker, but all this changed after his war service.[8] Instead of delivering a smooth easy-to-follow lecture, his post-war

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[6] See for example, MacGregor (1927a, 1927b, 1927c, 1929, 1930, 1932, and 1933)

[7] The book consisted of seven essays, four of which were partially or wholly published in the *Economic Journal*.

[8] As told to Professor Sir Phelps Brown by Lynda Grier (then Principal of Lady Margaret Hall), she had heard MacGregor speak at the Cambridge Union and thought him to be a most eloquent speaker. But as Phelps Brown remembers, this eloquence was not evident at Oxford and as a consequence his lectures were hard to follow, even though MacGregor spent three to four hours preparing them. Perhaps this was due to the fact that MacGregor was a signal man in the Ypres salient during World War I which meant that he had to leave the protection of the trenches and go out and repair the signal lines when artillery

lectures were punctuated with long pauses in which he looked out the window--it was as if he was thinking out loud and arguing with himself on the subject at hand rather than giving a lecture. Consequently MacGregor lectures were hard to follow. But this did not mean he did not attract students to his lectures; on the contrary some students were attracted to his style of lecturing while others, especially those who were economically and politically aware, were attracted by the topics he covered, such as the controversy over rationalization, the workings of cartels, and the problem of Co-op dividends.[9] However, in his later years MacGregor lost his influence on undergraduates because of the theoretical transformation of price theory from Marshall's supply and demand engine of economic analysis to perfect-imperfect competition models grounded in the equilibrium firm and the utilization of profit maximization, marginal revenue, and marginal costs. Part of it was due to his adherence to Marshall's method of analysis which made him old-fashioned in a profession which turns on fashion, and part was due to his criticisms of imperfect competition. In particular,

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bombardments occurred; and he suffered severe concussion from a head wound. In any case the war certainly had an effect on him. [Phelps Brown, 1986; Smith, 1992, p. 77]

[9]George Woodcock, when recounting his undergraduate days at New College in the 1930s, provides a glimpse of MacGregor as a lecturer at this time:

> In six terms I went regularly only to the lectures given by D. H. McGregor [sic], the Professor of Political Economy. I was attracted to McGregor equally by the style and by the subject of his lectures....A lecture by McGregor was usually complete in itself. He would set out to examine a question somewhat off the beaten track--e.g. `Is the Co-op dividend on purchases a distribution of trading profits which ought to be taxed, or a rebate of price which could get the Co-ops in trouble with manufacturers who fix and maintain the retail price of their products?'....McGregor [sic] would glance occasionally at a single sheet of paper about the size of an ordinary post-card….The style…[was]…painfully scrupulous and tortuous. [MacGregor] was, in effect, engaged in an argument with himself. I only occasionally took a note of something said. Generally, it was enough for me to sit and to observe how [his mind] worked (Woodcock, 1979, pp. 136 - 137).

MacGregor published an article on the co-operative dividend at the time he was lecturing to Woodcock on it—see MacGregor (1933) which is reprinted in MacGregor (1934).

MacGregor refused to accept the static framework and the new conceptualization of competition found in perfect and imperfect competition and refused to use the new marginalist tools (marginal revenue and costs) unreservedly. That is, accepting Marshall's dictums that theory must correspond to economic reality and that mathematics does not make economic theory, his lectures appeared old fashioned to the students of the later 1930s and MacGregor himself appeared to be out of touch with the current state of the discipline and living in the past, especially for example when he gave a series of lectures on the `Leading Ideas of Marshall' in the Hilary and Trinity terms in 1939 (which led to the publication of a largely ignored but important biographical, historical, and interpretive article on Marshall's *Principles* in light of the previous decade of marginalism—see MacGregor (1942).[10] [Andrews, 1953; and *Oxford University Gazette*, 1938 and 1939]

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[10]Professor R. S. G. Rutherford, a student and researcher at Oxford in the 1930s, wrote the following insightful statement about MacGregor in his later years:

> I think I did attend lectures from D. H. MacGregor, but his influence on teaching of economics was minimal. One respected him as being in the great classical tradition and a personal link with Marshall (one was asked to read `Enterprise, Purpose and Profit') but he seemed ineffective and unable to cope with a discipline that was so rapidly expanding, and which was so vigorously querying much he had been taught (Rutherford, 1981).

A more general reflective commentary on MacGregor by Oxford students who attended MacGregor's lecturers ranged from one student who found him a "fascinating expositor on industrial organization" to those who found him an extremely poor lecturer. John Hicks attended MacGregor's lecturers over the period 1923 to 1925, but did not think too much of them: "I went to MacGregor's lecturers, which consisted of simple demand-supply stuff, no doubt based on Marshall. Coming to them from my work in mathematics, I found them very dull." Another student who attended MacGregor's lecturers over a decade later, between 1935 and 1937, was Harold Wilson (1981), who recalled, "Certainly I attended lecturers by D. H. MacGregor, though he was felt by all of us to be living in the past." Other students also maintained that MacGregor's lecturers were somewhat difficult to follow, and his lecturing style problematic, to say the least. For example, one student, Roger Wilson recalled that, "though MacGregor appeared to have something to say, I can't remember that he ever finished his sentences." Another student, Henry Hodson, In 1945 MacGregor retired as Drummond Professor and devoted his time to writing a sequel to his *Evolution of Industry* which was published as *Economic Thought and Policy* (1949b). The sequel contained both a restatement of his views of industrial economics as well as a critical examination of the theory of imperfect competition. With the death of his wife in the late 1940s, MacGregor moved out of his more elegant house on Banbury Road and moved to a more ordinary lodging in the north of Oxford, just a stone's throw from the River Cherwell. In 1953 he had been invited to go to Michigan as a Distinguished Visiting Professor where he would have written a study of Keynes but was killed in a street accident before going (Minkes, 1982).

Marshallian Tradition at Oxford in the Inter-War Years

<u>Economics at Oxford Before PPE</u>

At the turn of the century, that is the 1900 – 1901 academic year, seven lectures in political economy were offered. Of these seven, Francis Edgeworth gave four—two on Mill supplemented by Marshall, one on foreign trade and based on Mill and one on currency in the 19th Century. Of the other lectures, one was on political economy as found in Adam Smith, a second on political economy in general, and a third on economic history and theory. These offerings were not different from those in the three preceding academic

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remembered that "I also attended lectures on statistics by Prof. MacGregor, but they were rather dull and so ill-attended that the course was soon abandoned." In contrast to this, other students still recalled MacGregor's sincerity and seriousness as expressed in his lectures. As one of them, Kenneth Robinson put it:

> I think of him as a lecturer in a very quiet key, who gave the impression of one struggling to reconcile a Cambridge Marshallian orthodoxy with some stubborn peculiarities of the real world as it had emerged in post-war Britain. He was not, in my recollections, a forceful lecturer, rather more a thoughtful man, who was unsure what it all added up to. But he made an impression—one of deep sincerity and seriousness.

years; and nor were they different from those of the three subsequent academic years. This dismal state of political economy at Oxford was dictated by its lack of presence in the examinations in *Literae Humaniores* and Modern History. At this time, examination in political economy consisted of one elective paper in *Literae Humaniores* and one-half of a compulsory paper and an elective paper in Modern History. In the Pass Final School there was a Pass Group in political economy which required on the part of students a knowledge of political economy that was obtained from *Wealth of Nations* and F. A. Walker's *First Lessons in Political Economy*; however the level of knowledge expected of the students was quite low and could easily be attained by a couple of months of moderate study. These offerings were not different from those of the previous decade or from those of the next twenty years, although towards the end of the period lectures on Mill, Marshall, and economic history began to appear. Thus was the dismal state of political economy at Oxford at the beginning of the 20th Century.

However, changes were coming to Oxford political economy. In 1904 the Diploma in Economics was established as a post-graduate qualification, first aimed at Oxford graduates. It initially consisted of three compulsory papers in economic theory, in the history of economic thought, and in the commercial and industrial history of Great Britain in the eighteenth and nineteenth centuries with some economic geography. Every candidate was also required to offer two special subjects selected from the areas of economic theory, economic history, and applied economics. The last area included such topics as public finance, pauperism, transportation, combinations and trusts, wage payments, money, statistical measurement of changes in prices, and statistical tests of prosperity. Finally, the lectures scheduled during the early years included history of the theory of wages, law and the labor contract, economic theory and economic history, views of Austrian economics, and the economic history of eighteenth and nineteenth century Britain. In 1907 the Diploma was altered so as to admit working class people and to include politics.

The teaching of economics at this time in Oxford was more historical and applied in orientation—such as to label it the Oxford approach to political economy. The Marshallian supply and demand theory was broadly accepted (even if it often Millian in presentation), but where many of the Oxford dons and lecturers differed from Marshall was in its usefulness. On the one hand, they argued that the theory was specific to a particular historical period of capitalism; thus when those conditions changed, the theory's theoretical conclusions would not necessarily or likely be appropriate. On the other hand, they argued that if political economy was to be useful, it must be applied to pressing economic and social problems. Thus, the Oxford dons were most interested in applying the theory to practical questions of socialism, state interference in the market place, fair wages, tariffs, unions and cooperatives, land reform, and the poor law system. In this context, the Oxford dons and lecturers were mostly interested in teaching their students only the basic rudiments of supply and demand theory and then move rapidly to historical and applied topics. Hence, it was a Millian version of supply and demand as modified and interpreted by J. S. Nicholson's *Principles of Political Economy*, Seager's *Introduction to Economics*, and C. Gide's *Principles of Political Economy* that dominated Oxford economics at this time; Marshall's *Principles*, although accepted as authoritative, was only presented to advanced students if at all. [Young and Lee, 1993]

Economics at Oxford in the Inter-War Years

The younger lecturers in the pre-war years, especially those that came through the Diploma in Economics program, saw themselves more as economists, specifically Marshallian economists. Thus they were apt to teach from the *Principles* or at least use utility theory and marginal productivity theories in their lectures; and they were also apt to view Marshallian supply and demand theory as the basis for theoretically explaining exchange, distribution, and employment. While in the minority prior to 1920, the composition of dons and lecturers who lectured on economic subjects changed rather quickly after 1920. The establishment of the Final Honours School of Philosophy, Politics, and Economics (PPE) in 1920 combined with students' interest in economic questions lead to increasing need to provide lectures and tutorials in economics. In turn this lead to a nearly twenty-year spree of hiring young, Marshallian-educated and inclined economists, such as Roy Harrod, Lionel Robbins, Robert Hall, Eric Hargreaves, Henry Phelps Brown, James Meade, Lindsay Fraser, Redvers Opie, Maurice Allen, and Richard Sayers. Consequently Marshallian supply and demand theory became more dominate as the core material to be taught, with all applied and historical topics secondary, especially if they were not based on the theory. As a result, the actual teaching of economics at Oxford became more theoretical and Marshallian and less historical so that by 1939 the historical emphasis had disappeared and economic theory dominated. In particular, lectures on economic history declined by nearly 50% between 1920-21 and 1938-39 (from 11 to 6) while lectures on the history of economics thought initially fluctuated between one and seven eventually grew to six in 1932-33 but then declined to one when its status was demoted to an elective paper. In contrast lectures in economic theory fluctuated around 14 on average each year and applied topics dramatically from an average of nine in 1920-23 to twenty-one for 1936-39.

The increasing emphasis and interest in economic theory is reflected in the transformation of the economics portion of the PPE examination during this period. That is, while many examination questions over the inter-war period were concerned with "real world" questions what became more and more evident were real world questions dressed up as theoretical questions, so the students were actually dealing with theory than the real per se. And because many of the real world qua theoretical questions dealt with money, credit, unemployment, and the depression, they largely drew upon the worlds of economists other than Marshall. However, there was a steady stream of micro-oriented questions: in the 1920s they included interest and productivity of capital, whether the interest rate could actually be explained as the result of a preference for present over future income, and the distinction between long and short periods in an analysis of cost of production; but in the 1930s, the questions were more oriented towards utilizing marginalist theory and perhaps the smoking gun transition question came in the 1933 examination when students were faced a question asking them to delineate the 'equilibrium price' and whether it could be distinguished from the older expression of 'normal price'. So when, in 1939 an examination question was set asking about the 'representative enterprise,' there was a protest about expecting students to know new terminology (MacGregor, 1942, p. 314). [Young and Lee, 1993]

Marshall, Price Theory, and Marginalism at Oxford

Marshall was clearly taught at Oxford in the inter-war period: students had tutorials where they ploughed through *Principles*, others remember lectures derived from *Principles* and working through it in preparation for exams, and even some read *Principles* during the long (or summer) holiday (see Lee, 1993a, pp. 7-9, 13, 18, 24, 29, 45, 53, 55, 63, 73, 90, 105, and 137). Moreover, because the prescribed books required the students to undertake a historical survey of the classical economists, many tutors, such as Hall, who accepted Marshall's continuity thesis, directed the survey so that it would inexorably lead up to Marshall (Lee, 1993a, p. 108). Finally, students were directed to read volumes from the Cambridge Economic Handbook series, including H. D. Henderson's *Supply and Demand* and D. H. Robertson's *Money* and *The Control of Industry*, as well as books and articles penned by Keynes, Pigou, Cannan, Cassel, and other non-Oxford economists which, in at least the 1920s, were thought to be compatible with Marshall. The point being is that many components of Marshall's *Principles*, such as utility, marginal utility, demand and supply curves, scarcity, price elasticity of demand, quasi-rents, diminishing returns, increasing returns, economies of scale, real costs, marginal productivity, support capitalism, were all part of the instruction at Oxford and hence part of Oxford economics, and this included MacGregor. In fact, in some cases, when giving lectures on price theory, an Oxford fellow would discuss the equilibrium firm and use marginal revenue and marginal cost and at the same time include a particular theoretical feature of Marshall's *Principles*.

With the influx of new Fellows throughout the interwar period, Oxford became populated by young economists who were not tied to the old ways of theorizing and who were eager `in arriving at practical maxims for economic policy' using the marginalist tools. Much of this work was beyond Marshall's *Principles* and hence did not concern the theoretical core of his supply and demand analysis of prices. However, the Oxford economists did reject Marshall's analysis of prices, his concept of the market supply curve, and his representative firm, As early as 1924, Harrod had already begun to formulate his ideas about the problems of supply curves, especially with regard to diminishing and increasing returns, a research agenda that eventually lead to his publications on imperfect competition. However, he did not really think that he was dismissing Marshall's supply and demand analysis and portrayal of the business enterprise, but rather improving upon them:

> The main doctrines of imperfect competition were worked out largely independently of myself and Joan Robinson….The main motive prompting me was to get nearer to reality. Orthodox theory had its monopoly theory and its theory of competition: the latter assumed an infinite number of producers working for a perfect market. This seemed so highly unrealistic that it seemed worth exploring what would happen if one made some intermediate assumption. No doubt any theory of this sort is only an abstract Skelton, a structure that will have to be revised in many particulars, only a very imperfect model of reality. But I do think it is an immense improvement on the old doctrine. [Harrod, 1936]

Of course Harrod's improvements did constitute a rejection of Marshall's analysis. It is clear that all the economists at Oxford, bar MacGregor, accepted the reformulation of supply and demand in marginalist terms and hence the models of perfect and imperfect competition and the equilibrium firm. For example, in his lectures on 'Questions in Advanced Economic Theory' (Trinity Term, 1935), Robert Hall dealt with the determinacy of prices. Arthur Brown's notes of the lectures indicate that Hall drew liberally from Edward Chamberlin's *The Theory of Monopolistic Competition* and Joan Robinson's *The Economics of Imperfect Competition*. Consequently, marginal costs and revenue, optimality, equilibrium, the individual firm, diagrams, and mathematics were central to Hall's lectures; and what was entirely absent was any notion of a representative firm or any other Marshall-like industrial analysis. As noted above, Hall's lectures were viewed by Oxford students as being up-to-date and not old-fashion; and Oxford post-graduate students, such as Henry Smith, also fell under the influence of Chamberlin and Robinson and the use of geometry as a tool of analysis (Smith, 1992, p. 76).

The replacement of Marshall's mode of analysis of prices, price determination, and the business enterprise with their marginalist counterparts is best seen in the work of the Oxford Economists' Research Group. The events leading to the formation of the Group, its purpose, and its research into pricing have been told in length elsewhere (see Lee, 1998 and Young and Lee, 1993). What is important to emphasis is the theoretical role of Chamberlin, Robinson, Harrod, and marginalism played in framing the Oxford economists understanding and analysis of the businessmen responses to the questions dealing with price determination. That is, the responses of the businessmen with regard to prices and price determination could lend itself to a theoretical interpretation that was distinct from marginalism, as with Philip Andrews's theory of normal cost pricing. However, with the exception of MacGregor and Hubert Henderson, all members of the Group were confirmed marginalists and accepted the imperfect competition/monopolistic competition approaches to price determination. On the other hand, the information they received from the businessmen clearly indicated that the latter thought of prices in terms of some relationship to average total costs and totally ignored the marginalist approach to pricing. In fact severe questioning by the Group failed to uncover any evidence that the businessmen paid any attention to marginal revenue or costs and that they had only the vaguest ideas about anything remotely resembling their price elasticities of demand. But this did not prevent the framing of the responses and evidence in marginalist terms.

In November 1937 Hall read a paper to the Group on "Notes on the Behaviour of Entrepreneurs During the Trade Cycle," which was an interpretative-theoretical analysis of the responses of the businessmen. In particular, Hall argued:

> In my opinion, the most usual type of competition among the firms which we have been considering is a modified form of oligopolistic competition, the governing factor being the idea of that what one of the entrepreneurs (Chamberlin) called a reasonable remuneration. Using very rough figures, I should say that in the absence of a cartel competitors will not follow you if you raise your price above total average cost plus a quantity of the order of 10 per cent, so that over a reasonable period the individual demand curve is highly elastic for prices higher than this, or in Harrod's terminology becomes greater than this in the short period. But they are compelled to follow you if you lower your prices below this, because if they do not do so you will gradually get their trade, the individual demand curve again becoming highly elastic in a reasonable period. Thus each individual firm has a demand curve which is highly elastic (the more competitors the more elastic) above full cost plus normal profit, but with an elasticity similar to the market elasticity below this. (See Chamberlin, Monopolistic Competition Chapter V for analysis of this effect). If this is so, then profit should be maximized by getting the price as high as you can persuade your competitors to put it unless there is an unusual degree of elasticity about the market. But receipts may well be maximized at a much lower price. [Hall, 1937, pp. 4 – 5]

In the subsequent version of the paper, "The Business View of the Relation Between Price and Cost" which was presented at the 1938 meetings of the British Association for the Advancement of Science, Hall makes it even clearer that the marginalist approach framed the analysis of the businessmen's responses:[11]

> Since our investigations throw some doubt upon the account of business behaviour usually given in text-books on economics.…The facts on which this paper is based may be stated briefly thus many business men appear to base their prices on average or full cost irrespective of the state of the market, and many others think that this should be the normal procedure. According to economic theory, this would be the most profitable course only (a) in perfect competition when this price corresponded to the optimum output (b) in imperfect competition when marginal cost equaled marginal revenue at the point where price equaled average cost. Thus it appears that the statement of economists about business behaviour is too simple. [Hall, 1938, pp. 2 – 3]

And this view was retained in the published version, "Price Theory and Business Behaviour" (Hall and Hitch, 1939). So from the beginning, the Hall and Hitch kinked demand curve was a marginalist response and explanation of why businessmen do not use marginalist analysis when determining prices, which was the way it was seen at Oxford:

> My own recollection is that the Hall/Hitch article made a considerable impact on Oxford economics. It was seen as a reconciliation of the logic of marginalism with the empirically established picture of full cost pricing…. [Brown, 1979, p. 168; also see Lee, 1981]

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[11] The marginalist frame of reference is also found in papers by Harrod (1937) and Charles Hitch (1937).

And what was entirely missing from the discussion was any reference to Marshall and his representative firm.[12] So by 1939, Marshall's industrial analysis had no place in the theoretical thinking of oxford economists.

MacGregor, Marginalism, and Marshallian Industrial Economics at Oxford

It appears that MacGregor had little impact on the Oxford Fellows and their economic theorizing: "...it would be fair to comment....that [MacGregor's] economic writings and lectures did not have much influence on the Oxford economists in the Twenties and Thirties" (Bretherton, 1980).[13] For example, MacGregor was a member of the Oxford Economists' Research Group and made contributions to its discussions. However, his previous work on industrial combinations, especially with respect to administered prices, had little impact on the Group's thinking or, more significantly, on Hall and Hitch and their writing on the kinked demand curve and full cost pricing. Moreover his criticism of the kinked demand curve went relatively unheard because, it can be supposed, "he still hankered after the realistic approach of Marshall"(Minkes, 1982).[14]

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[12] Marshall's influence shows up in one place—in the term "full cost prices". Marshall and his students frequently used the term to describe long-period competitive prices. It was adopted by Harrod in his 1937 paper but with the meaning somewhat changed. [Lee, 1998, p. 90]

[13]This change in MacGregor was quite evident to his contemporaries, as Professor Sir Austin Robinson has so poignantly recalled:

> I found him a curiously dry character who in his later years had never quite lived up to the promise of his earlier books....I think that it is equally true that in his last years at Oxford he had somewhat lost the capacity to inspire others. But all this seems to me strange because there was real life and penetration in the books themselves (Robinson, 1980).

[14]This state of affairs was rather unfortunate since, as Lord Roberthall has remarked, the Group's work and MacGregor's work were compatible and could have been brought together (Roberthall, 1980).

Why Oxford economists ignored MacGregor’s work on the business enterprise and industrial combinations needs to be explained.

MacGregor vs. Marginalism

One explanation is that MacGregor’s work simply did not `fit' in with the marginalist framework.[15] That is, the development of marginalism by Pigou and the other Cambridge economists was viewed by the participants themselves as simply developing and extending Marshall:

> were building on Marshall as we understood him. When I read economics one read Marshall's *Principles* very intensively and also everything else that Marshall had written. Not only the idea of Marginal Revenue but also its name derived at a distance from Marshall....If you go back to Pigou's *Economics of Stationary States*, Pigou, who was always a conscientious Marshallian, would never have admitted that he was doing anything else than derive from Marshall when he wrote that book almost entirely in marginal terms (Robinson, 1982).

Since MacGregor was not building on Marshall along marginalist lines, his work seemed unMarshallian to the Cambridge economists and, moreover, overly simplistic and technically deficient to his Oxford colleagues.[16] Thus, it was MacGregor's non-marginalist position that, in part, condemned him and his work to obscurity.

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[15] What needs to be noted is that MacGregor accepted Marshallian concepts, such as utility, real income as an amount of satisfaction, scarcity, consumer surplus, and marginal productivity theory of distribution, which were also accepted by Oxbridge economists of the 1930s. It was only in the area of marginalist approach to price determination, the supply curve, and the equilibrium firm that he appeared to be seriously old-fashioned. [MacGregor, 1908, 1924a, 1925, 1942, and 1949b]

[16] This would account for Robinson's position that MacGregor was not well soaked in Marshall, a position that Andrews, among others, would vigorously deny (see Andrews, 1952a and 1952b).

To clarify this, let us consider two examples concerning the optimal firm and pricing. The notion of the optimal firm emerged when it became clear theoretically that the size of the firm needed to be limited if competitive conditions were to exist. (The notion was also invoked to `explain' why a large number of small firms, hence competitive conditions, existed in many industries.) Thus the argument was developed that the managerial structure was given so that at some point as the firm increased its scale of production, its managerial costs would increase for whatever reason, hence producing the required U-shaped average total cost curve (for example, see Robinson, 1934 and 1935; Florence, 1934; and Hicks, 1939). MacGregor would not disagree with this analysis *as far as it went*; he would, however, simply add the proviso that the managerial technique was not given, but rather was scale dependent and therefore capable of being altered over time. This, of course, implies that MacGregor's analysis was fundamentally inconsistent with the aims and purposes associated with the optimal firm. Consequently his contributions to understanding managerial costs and their role in the growth of the firm were simply ignored--in fact they would have to be ignored if the notion of the optimal firm was to make any sense.[17]

With respect to pricing, the marginalist position is that the profit-maximizing firm equates marginal costs to marginal revenue when determining its short period price. Moreover, as noted above, the Oxford economists (as well as Cambridge economists) believed that firms actually used, in their own way, marginalist procedures when setting prices and that they should use them (Robinson, 1982 and 1984; and Maneschi, 1988).

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[17]Empirically, it appears that MacGregor had the better understanding of management and its relationship to the growth than did Robinson, Hicks, or most other economists of the inter-war period (Hannah, 1976).

Consequently, in their eyes, any argument suggesting that firms (or industrial combinations) administered short term prices to the market which were (1) based on what eventually became known as full cost or normal cost pricing procedures, and (2) designed to promote long term firm growth and industrial stability, would appear rather silly and in contradiction with the facts. In this light, it is easy to see why MacGregor's work on administered prices was ignored--it simply did not fit in with marginalist pricing theory. [Lee, 1989]

MacGregor, Business Enterprise, and Marshall

MacGregor vs. marginalism, however, is not the whole story. MacGregor approached the business enterprise not in terms of equilibrium and marginalist calculations, but in terms of its ability to reproduce itself and grow. Hence he argued that the growth of demand for industrial and consumer goods and services puts pressure on the enterprise's organization of production and its vertical and horizontal inter-enterprise relationships to satisfy them. At some point, however, the growth of demand creates such pressure on the existing organization of production that the ability of the enterprise to meet the increased demand declines and its survival becomes problematic. Consequently, the enterprise alters its organization of production and inter-enterprise relationships so that demand can more readily be met and its chances of survival increase. This evolution of the enterprise and its inter-enterprise relationships, MacGregor felt, went through three analytical and historical stages--from atomistic producers of the eighteenth century when demand was low, to Marshall's representative firm of the nineteenth century, and finally to the industrial combination of the present century when demand is high.

MacGregor argued that the industrial combination in the guise of the modern corporation was the representative enterprise of the 20th century. He then went on to provide a detailed understanding of how it worked with regard to management and the coordination of its internal activities. In particular, MacGregor pointed out that by internalising inter-enterprise relationships and establishing a more extensive goodwill relationship with suppliers and customers, the modern corporation became more insulated from the daily activities in the market and therefore capable of developing policies that were long term in outlook and design. In the case of prices, management adopted the price policy of administering a price to the market that was stable and embodied its expansion decisions. As for investment and growth, management undertook large investments that promoted overall productive efficiency and coordinated investment decisions so to reduce the possibility of excess capacity and hence destructive price wars. In this latter instance, management utilized its position within its various markets to obtain the necessary information to develop investment plans that enabled the corporation to expand its plant and equipment in line with its projected growth in sales and to act on novel investment opportunities. Finally, when adopting a particular growth policy that included diversification and vertical integration, MacGregor argued that management would take into account the possibility that the corporation's existing managerial structure might have to be altered to accommodate the new economic activities. [Lee, 1989]

MacGregor believed that the industrial combination or the large business enterprise was not incompatible with Marshall's conception of the supply curve or his representative enterprise.[18] Hence he had no problem with marrying the two and thus retaining Marshall's supply and demand analysis—see MacGregor (1942 and 1949b). But in fact his industrial combination with its administered prices, its internal capabilities to continually reorganize its organizational and productive structures, and its ability to control and manipulate competitive forces for its own interests does suggest that it is qualitatively different from Marshall's representative firm and incompatible with Marshall's (and marginalist) market supply curve. Yet MacGregor rejected such radical thinking which made his efforts to retain Marshall in light of his contributions look to the Oxford economists in the 1930s (and economists today) not just old-fashion but also intellectually lazy and theoretically incoherent. Adherence to Marshall is one thing, but the failure to theoretically engage and push Marshall's theory is altogether quite different—for theoretical engagement is essential for the life of any theory.

MacGregor and the End of Marshallian Industrial Economics at Oxford

As noted above, most of MacGregor's writings were a combination of commentary and descriptive with analysis, but not an analytical engagement with theory with the purpose to push if not alter its boundaries. To be sure, Macgregor made a significant theoretical contribution to Marshallian industrial economics when he argued, in *Industrial Combinations* (1906), that the industrial combination was the representative firm of the 20th Century, but and the next forty years he brought Marshall up-to-date and made the new representative firm more concrete. He could have used his accumulated knowledge of large business enterprises, cartels, and trusts to push the frontiers of Marshall's theory

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[18] MacGregor makes it clear in various publications that he is engaged in normal science vis-à-vis Marshall's representative firm and theory of prices—see for example (MacGregor, 1929).

and/or to critically engage with the concept of the equilibrium firm and the emerging marginalist approach. In particular, he could have in his lectures to students and in publications mounted a spirited critique of the equilibrium firm and marginalism as well as advancing a different the theoretical frontiers of Marshall's theory. But MacGregor did neither. Without theoretical engagement combined with reducing his lectures on industrial economics, replacing them with lectures on public finance and national income, he effectively abandoned Marshallian industrial economics and its distribution and let it be replaced by the equilibrium firm and marginalism. It was only after MacGregor retired and Philip Andrews began articulating his theory of competitive oligopoly that marginalism and the equilibrium firm were theoretically contested—but it was too late for the latter had conquered Oxford as completed as the Holy Inquisition conquered Spain.

Epilogue: MacGregor as Andrews' Marshall

At the September 1934 Aberdeen meeting of the British Association for the Advancement of Science, in a session on economic planning, MacGregor gave a paper on his research on joint stock company registrations. In the audience sat a young Philip Andrews who became more and more interested in the subject as he spoke. When they met afterwards, MacGregor encouraged Andrews to attend Oxford as a postgraduate. Upon arriving in Oxford in 1937, Andrews renewed his contact with MacGregor, in part, through their involvement in the Oxford Economists' Research Group and, undoubtedly, through his attendance at MacGregor's lectures on Marshall. Moreover MacGregor personally welcomed Andrews into his field of industrial economics as though he "were a distinguished and established scholar" (Andrews, 1964). With the onset of war in 1939, MacGregor and Andrews became more intimately involved through their activities in the

Nuffield College Social Reconstruction Survey.[19] More importantly, in 1943 the Courtauld Inquiry on the relationship between the scale of enterprise and efficiency was established, with MacGregor a member of the directing committee and Andrews as one of the researchers.

Through his work on the Courtauld Inquiry, Andrews gained detailed knowledge of businesses in the rayon and the boot and shoe industries. As he tried to make sense of it, Andrews gradually realized that the data produced conclusions that were quite inconsistent with many of the propositions found in the theories of monopolistic competition and imperfect competition. For example, his investigations of Courtaulds, where the production of rayon was a tightly specific chemical process, and of the boot and shoe industry where production was arranged in terms of teams of machines led Andrews to view the organization of production in terms of plant segments which consisted of a specific combination of capital equipment, and material and labor inputs needed to produce a specific flow rate of output. Consequently, if a firm constructed a plant that included many identical plant segments, then its short-period average direct cost curve would be horizontal, not upward sloping as depicted in neoclassical theory. In addition, Andrews adopted Macgregor's position that managerial organization was a technique which could be altered as the firm's scale of production increased. Thus the firm's average managerial costs would decline not only in the short period when the managerial technique was given, but also in the long period which it could be altered. Therefore Andrews concluded that the

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[19]An amusing side light to this relationship involved Andrews, who was in charge of economics tuition at New College between 1941 and 1948, occasionally sending pupils to discuss their work with MacGregor, who, in turn, would give them a splendid tea, go over their work and their interest, and send them back to Andrews with their eyes shining (Minkes, 1982).

firm's short- and long-period average total cost curve declined instead of being **U**-shaped as in neoclassical theory. One implication was that the neoclassical notions of the optimal size of the firm and firm equilibrium had no theoretical (or empirical) validity.

Through his analysis of the data, Andrews also became dissatisfied with the downward-sloping firm demand curve and its implication that manufacturing businesses could in some way control their sales through their price policy. In particular he rejected downward-sloping marginal revenue curves (and with them downward-sloping firm demand curves), and denied the relevance of the concept of short-period price elasticity of demand for analyzing the price behavior of firms. Rather it appeared to Andrews, in light of his data, that goodwill was the decisive factor which determined a firm's share of market sales, while the level of national income determined total sales in the market in question. In addition, he became convinced by his analysis of the data that competitive markets need not be defined in terms of competition between firms producing identical products; that oligopoly was the normal characterization of markets; and that oligopolistic markets were competitive irrespective of the number of firms in them. Finally, as a result of his investigations, Andrews came to believe that manufacturing businesses did not think that it was a good policy to play about with their prices in the search for maximum profit, and that they did believe that their normal-cost pricing policy gave them the correct prices subject to the emergence of actual competition. Thus, when trying to analyze the rayon industry in terms of conventional oligopoly theories such as the kinked demand curve and Joan Robinson's theory of imperfect competition and the boot and shoe industry in terms of Chamberlin's theory of monopolistic competition, he found that they simply did not fit the facts. So Andrews began rejecting marginalism and replacing it with a more realistic analysis of costs and a new theory of the relation of businessmen to their markets—his theory of competitive oligopoly.

Drawing in part from his experiences with the OERG and the Nuffield College Social Reconstruction Survey, from his research with the Courtauld Inquiry, and from MacGregor's work on the firm, Andrews struggled to develop a new and different theory of the manufacturing business which included theories of normal-cost pricing and prices, explanation for price stability, and a delineation of the firm's environment. In particular, his intellectual debt to Hall, Hitch, and the Oxford Economists' Research Group was to their documentation of the widespread usage of cost-plus pricing systems by businessmen and of the 'ethical' arguments espoused by businessmen to defend the price they set as the 'right price'. Andrews came to realize that both sets of data implied a range of theoretical ideas regarding price-fixing and prices which were incommensurable with marginalism. However, the data collected by the Group were not sufficient in themselves to enable Andrews to develop his theory of manufacturing business. What he lacked was detailed knowledge of individual manufacturing businesses. This was corrected through his work with the Survey and the Courtauld Inquiry.

During this period he became aware of the compatibility of his analysis with Marshall's theory of prices as applied to industrial markets.[20] This awareness was reinforced through his relationship with MacGregor. Andrews viewed MacGregor as a 'true-blue' pupil of Marshall and hence a source of an interpretation of Marshall that was

[20] It is of interest to note that in 1949 Andrews, in his tutorials, discussed *Manufacturing Business* as a critique of monopolistic competition and imperfect competition as applied to industrial pricing, and its links with Marshall's *Industry and Trade* were mentioned (Ford, 1981). At the same time, Andrews wrote a letter to Harold Macmillan saying that it was a shame that Marshall's *Industry and Trade* was out of print since judgments Marshall made in the book still held true (Andrews, 1949b).

uncontaminated by Pigou's equilibrium firm and Joan Robinson's theory of imperfect competition (both of which he felt were a betrayal of the Marshallian tradition). Moreover, MacGregor's own research on the firm provided Andrews with an example of Marshall's method of analysis in action, and with particular insights into the working of the firm which could not be found elsewhere. Thus, it is not surprising that Andrews dedicated *Manufacturing Business* to MacGregor who, in turn, valued the compliment and, in return, stated that "few people could have done a piece of work like this and you have really done it" (MacGregor, 1949a). Hence, Andrews considered his theory of the manufacturing business to be the only legitimate descendant of Marshall's theory of prices as applied to industrial markets.[21] However, as he did develop his theory of competitive oligopoly, Andrews moved further away from Marshall's theory, but not from MacGregor's many contributions and insights on the business enterprise. Thus, from the vantage point of the twenty-first century, MacGregor was Andrews's Marshall. [Lee, 1993b]

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[21]Given this close relationship between MacGregor and Andrews, it is not any wonder that H. R. Edwards has stated:

...my recollection, impression, would be that MacGregor's perception of the industrial process and competition would be similar to, a fore-runner of, so to speak, Andrews's (or Andrews in lineal intellectual descent from MacGregor) (Edwards, 1982).

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