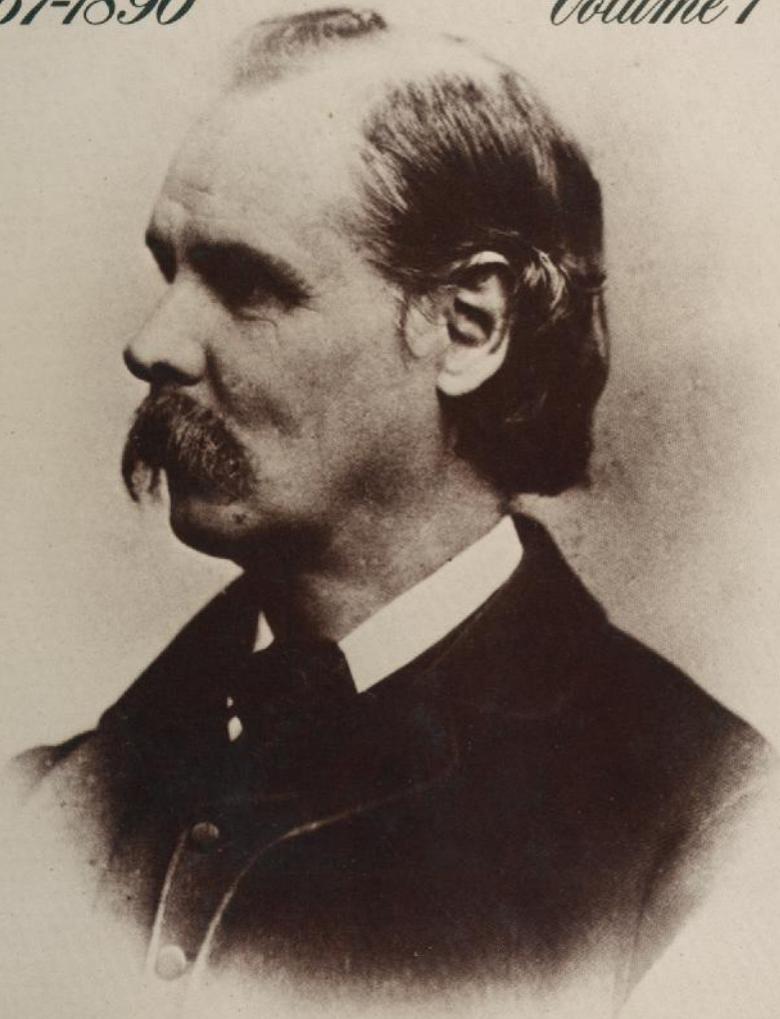


*The Early Economic Writings of
Alfred Marshall*
1867-1890

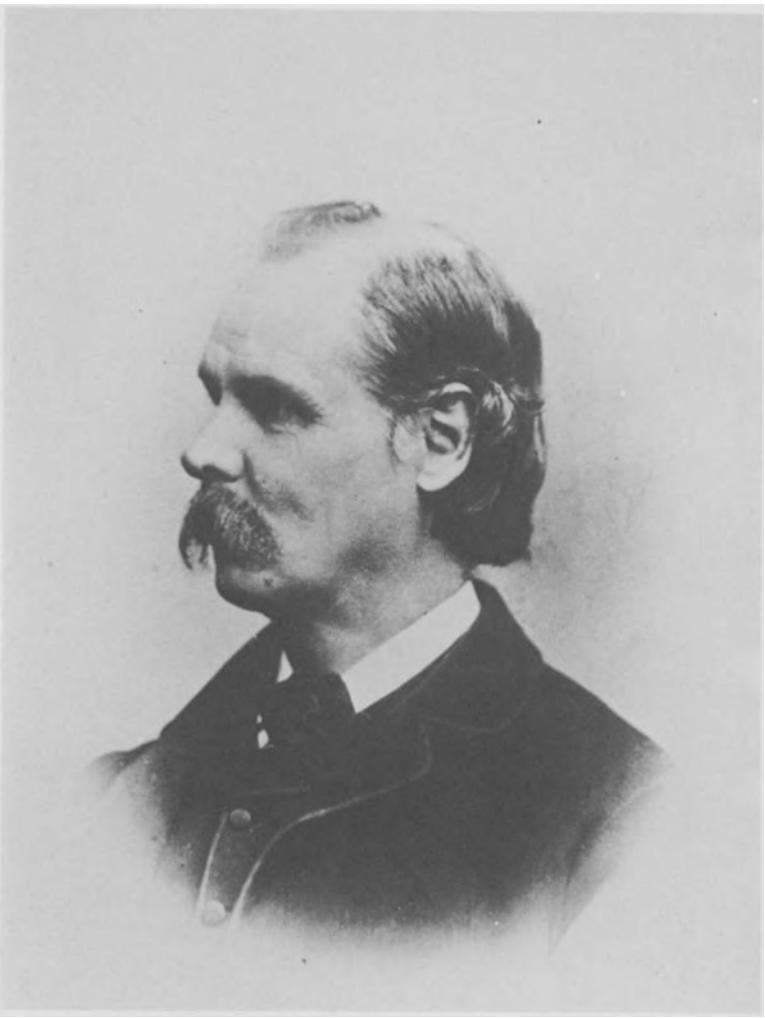
Volume 1



Edited and introduced by J. K. Whitaker

The Early Economic Writings of
Alfred Marshall, 1867–1890

Volume 1



Alfred Marshall about 1892

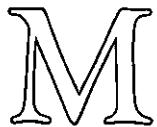
The Early Economic Writings of Alfred Marshall, 1867–1890

Edited and Introduced by

J. K. Whitaker

*Professor of Economics
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Volume 1



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Titles given by Marshall himself are in quotation marks

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This book would not have been completed without the encouragement and wise guidance provided by Professor Sir Austin Robinson. It could not even have been started without the willing and active co-operation of the Marshall Librarian, Mr P. Sraffa, who granted me free access to the riches of the Marshall Library. Further debts of gratitude are due to the Royal Economic Society for sponsoring the project, and to the University of Cambridge and its Faculty of Economics and Politics for the willingness to permit reproduction and publication of Marshall's manuscripts. The staff of the Marshall Library, led by Deputy Librarian Mr A. H. Finkell, have been helpful beyond the call of duty, and I also wish to acknowledge assistance from the Librarians of Trinity and St John's Colleges, Cambridge, Balliol College, Oxford, the Oxford University Institute of Statistics, and the University of Bristol. I am especially grateful to the Bristol Librarian, Mr N. Higham, for turning up the fine photographic portrait of Marshall and for permission to use it as a frontispiece.

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J. K. WHITAKER

Introduction

This book grew gradually from my finding among the papers of Alfred Marshall, now deposited in the Marshall Library, Cambridge, some of his unpublished early writings on economic theory. Marshall's 'unconscionable delay' in publishing his work, together with the fact that his early studies were encompassed in the formative years of neoclassical economics, lent considerable interest to this material. Accordingly, I embarked on an attempt to study Marshall's development as an economist during the years, 1867–90, which preceded the publication of his *Principles*. And at the same time I started to edit those of his manuscripts which appeared of interest, either for their own sake, or for the light they threw on Marshall's development. Here too, the year 1890 seemed an appropriate end point, partly because few manuscript items of interest survive from later years.

The present volume marks the culmination of both attempts. Part I, supplemented by the editorial introductions in the later Parts, gives an account of Marshall's career and intellectual development between 1865 and 1890, drawing on much previously-unknown, or unused, manuscript evidence. Parts II to V reproduce, with considerable editorial commentary, various groups of Marshall's unpublished writings from the years 1867 to 1890. The opportunity has also been taken to include a few previously-published items. Part III includes the chapters printed by Sidgwick for private circulation in 1879 under the titles *The Pure Theory of Foreign Trade* and *The Pure Theory of Domestic Values*. Part IV includes two brief items that are now inaccessible. Otherwise, apart from one

brief quotation, none of the manuscripts has been published before.

The character of the new material may be briefly indicated as follows. The group of writings reproduced in Part II appears to comprise Marshall's earliest systematic account of his economic doctrines. Exact dating is impossible, but all the items seem to have been written between 1869 and 1874. Part III reproduces those portions surviving from the manuscript for a book on foreign trade which Marshall wrote between 1874 and 1877, but never published. The four chapters printed by Sidgwick came from the theoretical appendix to this book, and are restored here to their original setting. Part IV reproduces various miscellaneous fragments on economic theory, some only of illustrative interest, but others containing substantial and previously-unknown contributions to the subject. Finally, Part V includes four pieces, on wider themes of economic and social policy, which bring out frequently-overlooked strands in Marshall's thought.

The Marshall papers are described in the concluding Appendix, which also details the editorial principles employed, but it must be observed here that only a small fraction of the available material is reproduced in the present volume. The problem of selection has not however proved difficult, as the remaining material seems too chaotic, laconic, tedious, or ephemeral, to retain much interest for all but the most dedicated Marshall scholar. Even some of the items chosen for reproduction are only rough drafts or working notes, not always easy to follow. But the lack of polish of a first draft is often compensated by a vigour lost in the repeated polishing to which Marshall subjected his finished works.

The publication of items which Marshall himself chose to suppress, or never complete, perhaps calls for some justification. One line would be to observe that in many cases Marshall himself was still toying, even at the end of his life, with the idea of publishing much of the material – or at least using it as a basis for publication. But this would miss the vital point that the criteria for publication should be quite different, fifty years after Marshall's death, from those appropriate during his lifetime. Now, Marshall belongs to history, with a

place sufficiently assured to exclude the need, or possibility, for excessive tenderness towards his reputation. Indeed, his long delay in producing a major publication makes it difficult to arrive at anything like a definitive judgement on his place and achievement as an economist in the absence of the early material given here. This is not to deny that such material may easily be misused and misinterpreted. The greatest danger lies in regarding it as comprehensive, neglecting the possibility that other, perhaps more complete and impressive, notes or essays may have been lost or destroyed. I have tried to bear this danger continually in mind in the editorial discussion, but this is a question on which the reader's judgement should also be perpetually employed. The hesitancy of my own conclusions is increased by the difficulties often met in dating individual items. On the other hand, repeated poring over the complete body of material, of which only a small proportion is given here, has increased my confidence in the correctness of my broad picture, however tentatively the individual details are indicated.

The division of editorial discussion and assessment between Part I and the introductions and commentaries in the subsequent Parts is not clearcut. The general aim has been to make Part I an overall survey, leaving detailed points to be taken up later, but the boundary line is inevitably arbitrary. As a matter of convenience and nomenclature, the 'Parts', which are numbered consecutively throughout the two volumes, are divided into 'Sections' (such as Section II.2) and the Sections are sometimes divided into 'Items' (such as Item II.2.1). Ample detail will be found in the Contents, which are given in full for both volumes on p. v *et seq.* above and repeated for Volume 2 at the beginning of that volume. These should be carefully consulted by the reader wishing to track down some particular topic. To assist such a reader, rather copious cross references are supplied at all points, and full citations of other works are provided within each Section. Cross references are given where possible by Part, Section and Item number without reference to Volume. For such references 'above' or 'below' may refer to the companion volume (Parts I and II being in Volume 1 and Parts III-V in

Volume 2). Since the two volumes are separately paginated, cross-volume page references are expressly indicated. Appendixes describe the editing of the Marshall manuscripts and account for unexplained editorial changes shown in the text.

List of Editions and Brief Titles used in Citation of Frequently-cited Works

A Works by Alfred and Mary Paley Marshall

1. A. and M. P. Marshall, *The Economics of Industry* (Macmillan, London, 1879; second edition, 1881). All citations are to the 1888 printing of the second edition referred to as *Economics of Industry*.
2. A. Marshall, *Principles of Economics, Vol I* (Macmillan, London, 1890; eighth edition, entitled *Economics: An Introductory Volume*, 1920; ninth edition, a variorum edition, edited by C. W. Guillebaud in two volumes, 1961). All citations are to the ninth edition (published by Macmillan for the Royal Economic Society). Volume I, the reprinted text of the eighth edition, is referred to as *Principles I*. Volume II, consisting of editorial notes and appendixes, and passages from earlier editions not included in the eighth edition, is referred to as *Principles II*.
3. A. Marshall, *Industry and Trade: A Study of Industrial Technique and Business Organization; and of their Influences on the Conditions of Various Classes and Nations* (Macmillan, London, 1919; fifth edition, 1923). All citations are to the 1923 edition referred to as *Industry and Trade*.
4. A. Marshall, *Money Credit and Commerce* (Macmillan, London, 1923) referred to as *Money Credit and Commerce*.
5. A. C. Pigou (editor), *Memorials of Alfred Marshall* (Macmillan, London, 1925) referred to as *Memorials*.

6. J. M. Keynes (editor), *Official Papers by Alfred Marshall* (Macmillan, London, for the Royal Economic Society, 1926) referred to as *Official Papers*.
7. M. P. Marshall, *What I Remember* (Cambridge University Press, Cambridge, 1947) referred to as *What I Remember*.

B Works by Other Authors

1. A. Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations* (first published in 1776). Referred to as *Wealth of Nations*. In the absence of a definitive variorum edition, all citations are given to the Modern Library printing of the edition by E. Cannan (Modern Library, New York, 1937) and also to the fourth McCulloch edition (Black, Edinburgh; Longmans, Brown, Green and Longmans, London; 1855), which appears to be the edition used by Marshall.
2. D. Ricardo, *On the Principles of Political Economy and Taxation* (first published in 1817). Referred to as *Principles of Political Economy and Taxation*. All citations are to the Sraffa edition (P. Sraffa, editor, *The Works and Correspondence of David Ricardo Vol I.*, Cambridge University Press, for the Royal Economic Society, Cambridge, 1951).
3. J. S. Mill, *Principles of Political Economy with Some of Their Applications to Social Philosophy* (first published in 1848); referred to as *Principles of Political Economy*. All citations are to the variorum edition, edited by J. M. Robson and introduced by V. W. Bladen, which appears as *Collected Works of John Stuart Mill, Volumes II and III* (University of Toronto Press, Toronto; Routledge and Kegan Paul, London; 1965).
4. J. S. Mill, *Essays on Economics and Society*, edited by J. M. Robson and introduced by Lord Robbins, *Collected Works of John Stuart Mill, Volumes IV and V* (University of Toronto Press, Toronto; Routledge and Kegan Paul, London; 1967) referred to as *Collected Works, Vols IV, V.*

List of Signed Articles and Books Published by Alfred Marshall During the Years 1872–90, Indicating the Most Accessible Reprinting

1. ‘Mr Jevons’ Theory of Political Economy’, *Academy*, 1 Apr 1872; reprinted in *Memorials*.
2. ‘Graphic Representation by aid of a Series of Hyperbolas of some Economic Problems having reference to Monopolies’, *Proceedings of the Cambridge Philosophical Society*, Oct 1873; reprinted below.
3. ‘The Future of the Working Classes’, a Paper read at a Conversazione of the Cambridge Reform Club, 25 Nov 1873. *The Eagle* (St John’s College) 1875; reprinted in *Memorials*.
4. ‘The Laws of Political Economy: What they can teach and what they cannot teach’, *Beehive*, 18 Apr 1874, and ‘The Province of Political Economy’, *Beehive*, 2 May 1874; reprinted in R. Harrison, ‘Two Early Articles by Alfred Marshall’, *Economic Journal*, Vol 73 (Sept 1963), pp. 422–30.
5. ‘On Mr Mill’s Theory of Value’, *Fortnightly Review*, Apr 1876; reprinted in *Memorials*.
6. *Economics of Industry* (with Mary Paley Marshall), Macmillan, London, 1879.
7. *The Pure Theory of Foreign Trade, The Pure Theory of Domestic Values*, privately printed, 1879; reprinted below.

8. Review of F. Y. Edgeworth, *Mathematical Psychics*, *Academy*, 18 June 1881; reprinted below.
9. *Economics of Industry*, second edition, 1881.
10. 'Where to House the London Poor', *Contemporary Review*, Mar 1884; reprinted in *Memorials*.
11. 'The Present Position of Political Economy', an Inaugural Lecture delivered at the Senate House, Cambridge in Feb 1885 (Macmillan, London, 1885) reprinted in *Memorials*.
12. 'Theories and Facts about Wages', *Cooperative Annual*, 1885; reprinted in *Principles II*.
13. 'How Far do Remediable Causes Influence Prejudicially (a) the Continuity of Employment (b) the Rates of Wages?' *Report of the Proceedings and Papers of the Industrial Remuneration Conference*, edited by Sir Charles W. Dilke (Cassell, London, 1885); the complete volume has been reprinted with an Introduction by J. Saville (Kelley, New York, 1968).
14. 'On the Graphical Method of Statistics', *Jubilee Volume*, a supplement to the *Journal of the [London] Statistical Society*, 1885; reprinted in *Memorials*.
15. Preface to W. Bagehot, *The Postulates of English Political Economy* (Putnam, New York; Longmans, London; 1885).
16. 'Remedies for Fluctuations of General Prices', *Contemporary Review*, Mar 1887; reprinted in *Memorials*.
17. 'Is London Healthy?', *Pall Mall Gazette*, 13 Apr 1887.
18. Preface to L. L. F. R. Price, *Industrial Peace* (Macmillan, London, 1887) substantially reprinted in *Memorials*.
19. 'The Theory of Business Profits', *Quarterly Journal of Economics*, Vol 1 (July 1887) pp. 477–81; reprinted in *Principles II*.
20. 'Wages and Profits', *Quarterly Journal of Economics*, Vol 2 (Jan 1888) pp. 218–23; reprinted in *Principles II*.

21. 'Cooperation', Presidential Address to the Twenty-First Annual Cooperative Congress, Ipswich, 1889; reprinted in *Memorials*.
22. *Principles of Economics, Vol I* (Macmillan, London, 1890).
23. 'Some Aspects of Competition', Presidential Address to Section F of the British Association, 1890; reprinted in *Memorials*.

For details of Marshall's evidence to official enquiries, his letters to editors, and his post-1890 writings, see the check-list in *Memorials*, pp. 500–8. For details as to the press reports of Marshall's Public Lectures in Bristol see *Memorials*, pp. 500–8 and Section IV of J. K. Whitaker, 'Alfred Marshall: the Years 1877–85', *History of Political Economy*, Vol 4 (Spring 1972) pp. 1–61. Also see R. H. Coase and G. J. Stigler (editors), 'Alfred Marshall's Lectures on Progress and Poverty', *Journal of Law and Economics*, Vol 12 (Apr 1969) pp. 181–226.

PART I

The Evolution of Alfred Marshall's Economic Thought and Writings over the Years 1867–90

I The Evolution of Alfred Marshall's Economic Thought and Writings over the Years 1867–90

I.1 An Outline of Marshall's Career between 1865 and 1890¹

Alfred Marshall's career between 1865 and 1890 falls into three distinct phases. First came the years of apprenticeship, 1865 to 1877, which spanned the interval between his degree and the resignation upon marriage of his College Fellowship and Lectureship in Cambridge. Second were the years 1877 to 1885 of his exile from Cambridge – spent partly in Bristol, where he became the Principal of the nursing University College, and partly in Oxford, where he succeeded Arnold Toynbee at Balliol as Tutor to the Probationers for the Indian Civil Service. The final phase followed his return to Cambridge as Professor of Political Economy in January 1885. This last phase culminated in the publication in 1890 of Marshall's *Principles of Economics, Volume One*, which cemented his lasting reputation and held Anglo-Saxon economics in its thrall for almost half a century.

The three subsequent subsections take up each of these phases in turn, dealing primarily with Marshall the man and the incidents of his life and mental development, rather than the evolution of his economic thought *per se*. The latter is

¹ For further biographical detail on Marshall see J. M. Keynes's memoir, *Memorials*, pp. 1–65; Mrs Marshall's *What I Remember*; W. R. Scott's obituary article 'Alfred Marshall, 1842–1924' in the *Proceedings of the British Academy*, Vol 11 (1924–5) pp. 446–57; and C. W. Guillebaud's sketch in *Principles II*, pp. 3–15, also his 'Some Personal Reminiscences of Alfred Marshall', *History of Political Economy*, Vol 3 (Spring 1971) pp. 1–8.

studied in later sections of Part I, and in more detail in Parts II–IV below.

1.1.1 *The Years of Apprenticeship, 1865 to 1877*

Marshall was elected to a Fellowship at St John's, his Cambridge College, upon receiving his B.A. in 1865 (at 23).² He had obtained great distinction in the Mathematical Tripos, appearing on the lists as Second Wrangler with a performance bettered only by J. W. Strutt, later to become Lord Rayleigh. Such a performance was an almost automatic claim to a Fellowship, and to the financial security so important to a start in life for one, like Marshall, with scholarly ambitions but parents of slender means.³ His Fellowship would not carry teaching obligations, or even require sustained residence in Cambridge, but it would be natural for a high Wrangler to supplement his stipend by private 'coaching' for the Mathematical Tripos. Marshall did this for two or three years and also spent several months during 1865 as a temporary mathematics master at Clifton College, a recently-established boys' school in Bristol.

Although a love for mathematics had brought Marshall 'to be a cabin-boy at Cambridge and climb the rigging of geometry and spy out the heavens',⁴ there is little to indicate that he was a born mathematician, a Routh or a Cayley. It is true that Cambridge legend has passed on a picture of the older Marshall reading for pleasure the first and last chapters of the latest mathematical treatise and inferring the rest.⁵ But this must surely be more colourful than correct. Despite an early

² For further information on mid-Victorian Cambridge, St John's College, and the Mathematical Tripos see D. A. Winstanley, *Early Victorian Cambridge* (Cambridge, 1940) and *Later Victorian Cambridge* (Cambridge, 1947); Leslie Stephen, *Sketches from Cambridge by a Don* (Macmillan, London, 1865) and *Life of Henry Fawcett* (Smith Elder, London, 1885); N. G. Annan, *Leslie Stephen* (Harvard Press, Cambridge, 1952); E. Miller, *Portrait of College* (Cambridge Press, 1961); J. B. Mullinger, *St John's College* (London, 1901); H. F. Howard, *An Account of the Finances of the College of St John the Evangelist in the University of Cambridge, 1511–1926* (Cambridge Press, 1935); A. I. Tillyard, *A History of University Reform from 1800 A.D. to the Present Time* (Heffer, Cambridge, 1913); S. Rothblatt, *The Revolution of the Dons: Cambridge and Society in Victorian England* (Basic Books, New York, 1968).

³ Leslie Stephen valued a high Wranglership at £5000 (*Sketches from Cambridge*, p. 38). Both Stephen and Fawcett had used success in the Mathematical Tripos as a calculated means of securing a start in life.

⁴ J. M. Keynes in *Memorials*, p. 3.

⁵ See *Memorials*, p. 81.

penchant for Euclid, there is from the first an awkwardness and hesitancy about Marshall's efforts at mathematical economics that argues against him ever having breathed wholly freely on the pinnacles of abstraction. Both Jevons and Edgeworth seem to have dwelt more comfortably in the realm of abstract logic, despite their inferiority to Marshall in mathematical training.

That a man without exceptional endowment of mathematical talent should become a high Wrangler may seem so surprising as to be improbable, but it should be observed that the Mathematical Tripos of the time involved primarily book-work and rapid manipulation, being almost as much a test of endurance undertaken for high prizes as a training for serious research in mathematics. Thus one Second Wrangler went on to become Lord Chief Justice Romer, while John Fletcher Moulton, who became Senior Wrangler in 1868 with the highest total of marks ever recorded, later became Lord of Appeal in Ordinary.⁶ Of course none of this proves that Marshall (or Romer or Moulton) was not a brilliant mathematician, diverted from his subject by other considerations or interests. But it does suggest that the common view of Marshall, as a mathematical giant who exercised great self restraint in resisting for economics's sake the natural bent of his own mind, may have become exaggerated.

In any case, whether by inclination or renunciation, new concerns were rapidly drawing him away from his first love of mathematics, and his persistence with mathematical coaching appears to have been due mainly to the desire to repay a wealthy uncle who had assisted his undergraduate career. Plunging headlong into philosophy, discovering Kant and Hegel, absorbing Darwin and Spencer, the newly-awakened Marshall came at last to ethics, psychology and – rather reluctantly – political economy; that is to the study on a secular basis of the possibilities for man's mental and material development, and the factors frustrating such development. In these concerns he was by no means alone, but was indeed mirroring the earnest preoccupations of many of the best minds among his contemporaries. It was an age of religious

⁶ See the respective entries in the *Dictionary of National Biography*. For a colourful characterisation of the Tripos see N. G. Annan, *Leslie Stephen*, pp. 23–7.

and intellectual ferment, with the yeast of the *Origin of Species* fully at work; an age of earnest disbelief and perplexity, and of feverish search for new intellectual foundations for life and social duty on the part of those who found the traditional tenets no longer acceptable. Marshall appears to have been among their number, suffering a sharp loss of religious faith shortly after gaining his B.A.⁷

Marshall later wrote an account of the early stages of his evolution into an economist:

On taking his degree at Cambridge in 1865 he proposed to devote himself to the study of molecular physics: but this design was cut short by the sudden rise of a deep interest in the philosophical foundation of knowledge, especially in relation to theology. He found metaphysics powerful in destruction, but disappointing on the constructive side. Instead however of returning to mathematics, he went on towards psychology and ethics. But he was hampered in questions of practical ethics by ignorance of their economic substratum. So he turned to that; and while still giving private lessons in mathematics, he translated as many as possible of Ricardo's reasonings into mathematics; and he endeavoured to make them more general.⁸

Marshall's thoughts must have advanced considerably along these lines by 1868, for he was then made a College Lecturer in Moral Sciences by St John's. But it was only slowly that his commitment to economics grew firm:

Psychology seemed to hold out good promise of constructive and progressive studies of human nature and its possibilities: and I thought that it might best meet my wants. By the kindness of my College I was made a lecturer on 'Moral Sciences'; which gave me a career in life; and, later on, I concluded that Political Economy – though not the most interesting member of the group to me then, was that which had been most neglected by academic students.

⁷ See *Memorials*, pp. 7–9.

⁸ From an autobiographical sketch, written sometime after 1910 (there is a reference to the late Professor Walras), for a proposed German compilation of 'Portraits and Short Lives of Leading Economists' by one Eckstein. Perhaps war prevented its publication. The quotation is continued on *Memorials*, pp. 20–1. For the full text see *History of Economic Thought Newsletter* (Spring 1972) pp. 14–17.

I taught economics because Pearson did not wish it but repelled with indignation the suggestion that I was an economist 'I am a philosopher straying in a foreign land: I will go home soon'.⁹

Marshall's brief dalliance with the infant study of psychology is of some interest. For there survive manuscripts of papers presented by him to a Cambridge discussion society – probably the Grote Club¹⁰ – when he was 'in the course of feeling my way towards a general theory of psychology, which, I have a growing tendency to believe, is capable of being developed into the true one'. His general approach he described as follows:

I wish to investigate what operations can and what cannot be performed by pure mechanism – mechanism, that is, such as is the subject of the daily occupation of the practical engineer. One of the considerations that led me to institute this enquiry was a belief (which I am prepared if called upon at some future time to substantiate) that there is no class of actions performed by brute animals which we cannot conceive to be governed and directed by purely mechanical agencies; while there is no race of men which is not known to perform actions which are incapable of being referred to such an origin. In saying this I do not mean that I believe such an account of the actions of brutes to be the true one. On the contrary though the question seems to me to be an open one, I incline strongly to the opposite opinion. But it seems to me that, though such a position has not been worked out; yet to the fact of its existence in a latent form is to be attributed many of the characteristic features of the speculations on the human soul which are exhibited in the religious history of the world. Deep down at the bottom of the conception of the distinctive nature of the human soul appears to be the fact that self consciousness was known to exist in man and that it was not proved to exist in Brutes.

⁹ Manuscript fragments by Marshall, probably written late in life. Now in the Marshall Library. The Reverend J. B. Pearson was a Fellow and Lecturer in Moral Sciences at St John's.

¹⁰ On the Grote Club, which must have had a considerable influence on Marshall, see *Memorials*, p. 6; S. Rothblatt, *Revolution of the Dons*, pp. 138–43; A. Sidgwick and E. M. Sidgwick, *Henry Sidgwick: A Memoir* (Macmillan, London, 1906) pp. 134–7.

The idea that Brutes are Machines is of course not in any sense new. But it will not be even at the present day easy to obtain general assent to the doctrine that all the phenomena of the human mind – all the indirect internal and external indications of what people call the human soul – can be accounted for by means of mechanical agencies plus self consciousness.¹¹

Marshall's speculations along these lines are not sufficiently striking or convincing to suggest that Psychology's loss exceeded Economics's gain when Marshall chose the latter as his life's work, leaving to James Ward¹² the establishment of a Cambridge school of psychology. But the decision was not an easy one. As Marshall much later explained to Ward, who came on the scene only in the 1870s and apparently remained unaware of Marshall's early psychological interests:

About 1871–2, I told myself the time had come at which I must decide whether to give my life to psychology or economics. I spent a year in doubt: always preferring psychology for the pleasures of the chase; but economics grew and grew in practical urgency, not so much in relation to the growth of wealth as to the quality of life; and I settled down to it . . .¹³

By this time, Marshall's characteristic ideas on economic theory were considerably advanced – a development reserved

¹¹ The quotation is from a manuscript essay by Marshall on 'Ferrier's Proposition I'. This Proposition is stated by him as: 'along with whatever any intelligence knows, it must, as the ground condition of its knowledge, have some cognisance of itself'. Marshall proposes to 'endeavour to defend it against its great antagonist Bain'. He alludes to earlier work by Morrell and Mansel as leading towards Ferrier's. For the background of psychological thought see, for example, R. Lowry, *The Evolution of Psychological Theory* (Aldine and Atherton, Chicago and New York, 1971).

Two other unpublished psychological essays by Marshall: 'Ye Machine' and 'The Law of Parsimony' are also preserved in the Marshall Library. The former describes Marshall's version of a mechanical intelligence with some parallels to modern cybernetics. The latter was presented to the Grote Club on 27 Mar 1867 (Sidgwick Papers, Add c104: 65, Trinity College, Cambridge).

¹² James Ward (1843–1925) was Senior Moralist in 1874 and became a Fellow of Trinity. In 1897 he was elected to a new Professorship of Mental Philosophy and Logic. See the 'Memoir of James Ward' by Olwen Ward Campbell prefixed to James Ward, *Essays in Philosophy* (Cambridge Press, 1927). (Ward taught political economy to the women students in Cambridge in 1875, but he and Marshall do not seem to have been close.)

¹³ Letter of September 1900, *Memorials*, pp. 418–9.

for separate discussion below.¹⁴ Having come to accept his lifetime commitment to economics, he seems to have abandoned any serious attempt to do independent work in psychology or philosophy. But his early ambitions in these directions did leave significant effects. More than most economists, Marshall remained aware of the broader context of his subject and its wider ramifications. In particular, the boundary between political economy and ethics always remained, not so much blurred – for he had a clear grasp of the methodological distinction between ‘ought’ and ‘is’ – as disregarded.¹⁵ In this sense, Marshall’s subsequent work is not merely economics, but repeatedly spills over into dealing with questions of applied ethics, as he himself frequently remarks.¹⁶ It also seems possible that his early dabbling in psychology inhibited him from early formulation of a narrowly and naively utilitarian calculus of individual decision, and helped account for his initially adverse reaction to Jevons’s work which had embodied such an attempt.¹⁷

Although, by the early 1870s, Marshall’s studies had narrowed primarily to economics and economic history, his teaching remained more diverse. In 1868, when Marshall had begun to lecture for it, the Moral Sciences Tripos covered logic, ethics and other branches of philosophy, as well as ‘mental science’ and political economy. Marshall explained:

When Pearson asked me to lecture on Political Economy I consented; but I should have preferred philosophy, which was his subject. Shortly after the College made me a lecturer: and I added Logic and Ethics.¹⁸

The intercollegiate lecture system was only beginning to develop informally,¹⁹ so that much of Marshall’s teaching would have been formally restricted to members of his own

¹⁴ See Section I.2, below.

¹⁵ See, for example, his 1874 articles in the *Beehive*, rediscovered and reproduced by R. Harrison, ‘Two Early Articles by Alfred Marshall’, *Economic Journal* Vol 73 (Sept 1963) pp. 422–30.

¹⁶ The most remarkable statement of his views on the connections between economics and ethics is reproduced, for the first time, in Section V.3, below.

¹⁷ See Sections I.2 and I.7, below.

¹⁸ From the letter of September 1900 to James Ward; *Memorials*, p. 418.

¹⁹ On this, and the other changes revolutionising Cambridge teaching between 1870 and 1885, see S. Rothblatt, *Revolution of the Dons*.

College. But his classes in political economy probably attracted auditors from other colleges (e.g. J. N. Keynes, and J. S. Nicholson: see *infra*). Now, as later, Marshall appears to have treated the pupil-teacher relationship as one involving commitment on both sides rather than formal contract. He also took an active part from the outset in the scheme, initiated by Henry Sidgwick in 1869, to provide lectures for women. Marshall, lecturing on political economy in the Lent term of 1870, was among the first group of those offering courses.²⁰ These courses were quite independent of the University, being given in a private coachhouse, and the lecturers received only a nominal fee of a guinea per student per term. Marshall continued to take an active part up to 1875, and also had a warm interest in the closely-associated movement to provide residential facilities. This culminated in 1875 in the construction of Newnham Hall. These connections acquainted Marshall with Mary Paley, who had been in 1871 one of the first group of students forming the nucleus from which Newnham Hall grew. By informal agreement, she took the examination for the Moral Sciences Tripos in 1874, and in 1875 began to assist the Principal, Miss Clough, as lecturer in political economy at the newly-built Newnham Hall. In May 1876 Mary Paley became engaged to marry Alfred Marshall, and the marriage took place the following summer.

The only detailed description of Marshall's classes in the earlier seventies is that recalled in old age by Mrs Marshall. It refers of course to the classes for women, but deserves to be quoted quite fully. There is little reason to think his College teaching would be of an essentially different character, though possibly giving more emphasis to analytical questions of economic theory.

Mr. Marshall was a great believer in papers. He set one every week, which formed the basis of his following week's lectures, and these papers, with the long red ink comments, were a great event

Mr. Marshall also gave a course on Moral and Political Philosophy scattered over the years 1873–4. This was

²⁰ See *What I Remember*, pp. 13–14; B. A. Clough, *A Memoir of Anne Jemima Clough* (Arnold, London, 1903) Chs. VI, VII.

chiefly on Bentham and Mill's Utilitarianism, and one of the papers set was a 'Dialogue between Bentham and an Ascetic'

He also said that Bentham had more influence on Economics than any other non-economist, his contribution being the stress laid on measurement. 'When you have found a means of measurement you have a ground for controversy, and so it is a means of progress.' Later on he lectured on Herbert Spencer's *Social Statics* and *First Principles*, and he introduced Kant and Butler's Sermons, and Thomas à Kempis and the *Mill on the Floss*, of which he spoke with great enthusiasm

About the same time he gave six popular lectures to women, which attracted a large class, in which he said much about right and wrong expenditure, especially of time. He was a great preacher.

Economics was, however, the main subject on which he lectured to us. In those days books were few. There were no blue books or Economic magazines and very few text-books. Mill was the mainstay, with Adam Smith and Ricardo and Malthus in the background. Hearn's *Plutology* was thought well of for beginners. Later on we read Jevons' *Principles*, Cairnes' *Leading Principles* and Walker on *Wages*. Mixed up with the lectures on theory were some on the History of Economics, Hegel's *Philosophy of History*, and Economic History from 1350 onwards, on the lines of the Historical Appendices to the *Principles*. He would give half an hour to theory and half an hour to history. He was keenly interested in Economic History. In 1875 he compiled what he called his "Red Book". It was arranged so that if a pin were run through its many pages at any given year the pin-hole would show what was happening that year in Philosophy, Art, Science, Industry, Trade, etc.²¹

The topics over which Marshall ranged in these classes reflect the catholicity of his early interests. But they also reveal a new concern with mastering the facts of economic

²¹ *What I Remember*, pp. 17–20. Presumably 'Jevons' Principles' was the *Theory of Political Economy*. Walker's *The Wages Question* could hardly have been used as it was only published in 1876.

life and economic history which seems to have become increasingly prominent after about 1873. In Marshall's own words:

he was attracted towards the new views of economics taken by Roscher and other German economists; and by Marx, Lassalle and other socialists. But it seemed to him that the analytical methods of the historical economists were not always sufficiently thorough to justify their confidence that the causes which they assigned to economic events were the true causes. He thought indeed that the interpretation of the economic past was almost as difficult as the prediction of the future. The socialists also seemed to him to underrate the difficulty of their problems, and to be too quick to assume that the abolition of private property would purge away the faults and deficiencies of human nature. Thus the problems of economics seemed to grow in difficulty and in urgency as he got nearer to them.

So, giving up at last all thought of ever returning to philosophy, he set himself to get into closer contact with practical business and with the life of the working classes. On the one side he aimed at learning the broad features of the technique of every chief industry; and on the other he sought the society of trade unionists, cooperators and other working class leaders. Seeing however that direct studies of life and work would not yield much fruit for many years, he decided to fill the interval by writing a separate monograph or special treatise on Foreign Trade; for the chief facts relating to it can be obtained from printed documents

He did indeed write the first draft of a monograph on Foreign Trade; and in 1875 he visited the chief seats of industry in America with the purpose of studying the problem of Protection in a New Country. But this work was suspended by his marriage²²

The search for economic reality, of which the tour of the U.S.A. was an aspect, is discussed in more detail in Section I.3 below, while the abandoned volume on international trade is considered in Section I.4. Another facet of Marshall's attempts

²² A continuation of the 'Eckstein' sketch (p. 6 above): compare *Memorials*, p. 20.

to extend his practical knowledge – though it probably also reflected a genuine concern for the widening of educational opportunity – was his early involvement with University Extension. The University Extension movement, pioneered by James Stuart of Cambridge, saw the Fellows of the older universities carrying light to some dark industrial corners.²³ We catch a glimpse of Marshall lecturing trades unionists at Halifax in 1874, and this particular episode gave rise to a printed discussion in the *Beehive*, a leading journal of the labour movement.²⁴

Mary Paley too gave some extension classes, lecturing at the market town of Stamford in 1875, and possibly out of this came a request by Professor Stuart that she undertake the writing of a short book on political economy appropriate for extension audiences. Once she became engaged to him, Marshall himself took a hand in the work and increasingly took charge. Serious work on the book began in the summer of 1876 and it finally appeared under their joint names in the autumn of 1879, with the title *The Economics of Industry*.²⁵ It is considered further in Section I.5 below.

Before leaving the 'years of apprenticeship', it seems desirable to attempt an inventory of the major personal influences that Marshall experienced and exercised during this first phase of his career. There can be little doubt that Henry Sidgwick was the pre-eminent figure in Marshall's circle in the late sixties and early seventies: much later Marshall was to write sorrowfully of Sidgwick: 'Ever since I knew he was really ill I have thought ceaselessly of the old days 1867–77, when he was more to me than all the rest of the University'.²⁶ In 1869 Sidgwick, four years Marshall's senior, had created a moral crisis for many of the younger generation of Cambridge dons by resigning his Fellowship because of scruples about subscribing to Church dogma, and he remained a lifetime leader in the movement for University reform which

²³ James Stuart was Professor of Mechanism and Applied Mechanics at Cambridge, but his chief fame came from his role as a leader in the Extension movement. For details see J. F. C. Harrison, *Learning and Living* (Toronto Press, 1961) Ch. VI.

²⁴ See R. Harrison, 'Two Early Articles by Alfred Marshall', loc. cit.

²⁵ *What I Remember*, p. 22.

²⁶ Letter to J. N. Keynes of 4 Sept 1900. Marshall Library, Keynes 1:108. See further Marshall's obituary remarks, *Memorials*, p. 319. See also ibid., p. 7.

gradually transformed Cambridge.²⁷ Marshall was particularly closely associated with him in the early days of that aspect of reform pertaining to the higher education of women, though the two drifted apart in later years on this question, as on others. But intellectually there seems to have been no particularly close rapport. In the early days the eager band of young dons centered on the Grote Club seems to have acknowledged no single leader, but discussed recklessly all questions under the sun. While later, Sidgwick's growing interest in economics, to which he devoted considerable energy in the decade 1875 to 1885, seems to have been a wedge between the two rather than a bond. Marshall, who had dedicated his own life to the subject, continued to view Sidgwick as a rank amateur, never appreciating his economic writings and remaining suspicious of the influence over economic teaching to which Sidgwick's unique position in the University gave rise.²⁸

Henry Fawcett, who in 1863 had succeeded George Pryme, the incumbent since 1828, as Professor of Political Economy in the University of Cambridge, belonged to a somewhat earlier generation, being already about thirty-five when Marshall first began to teach for the Moral Sciences Tripos in 1868.²⁹ The sightless Fawcett and his amanuensis-wife, formerly Millicent Garrett – who herself published in 1870 a highly successful primer on political economy³⁰ – resided diligently in Cambridge for eighteen weeks each year while he delivered his statutory University lectures. These were mainly

²⁷ For Sidgwick's role here see S. Rothblatt, *Revolution of the Dons*, and A. Sidgwick and E. M. Sidgwick, *Henry Sidgwick: A Memoir*.

²⁸ See, for example, *ibid.*, pp. 394, 402. However, Marshall did supply a handsome assessment of Sidgwick for the obituary notice by James Bryce (*Proceedings of the British Academy*, Vol 1 (1903–4) pp. 271–6). Marshall wrote that 'Perhaps [Sidgwick's] best economic work, and indeed the best thing of its kind in any language, is his treatment of the 'Art of Political Economy'; to use the name that he chose for his discussion of the economic functions of government and of the public conscience.' (p. 273).

²⁹ See the admirable *Life* by Leslie Stephen who had managed Fawcett's campaign for election to the Cambridge chair in 1863 – the last time it was put to the hustings. Fawcett's principal economic work was his *Manual of Political Economy* (Macmillan, London, 1863), which had gone through six editions by 1883. He became a Liberal Member of Parliament in 1865 and Postmaster General in 1880.

³⁰ Millicent G. Fawcett, *Political Economy for Beginners* (Macmillan, London, 1870). The seventh edition appeared in 1889.

on applied topics and in some cases were published in book form, such as *Free Trade and Protection* of 1878.³¹ But Fawcett took little interest in economic theory and philosophy, harnessing his far-from-negligible intellectual powers uncritically within the Millian framework enunciated in his *Manual*, and by 1868 his first allegiance was to the practice of politics. He can have had little to offer Marshall intellectually, and though they were certainly acquainted there is nothing to suggest that Fawcett had significant impact on Marshall's intellectual development, or indeed any serious role in the teaching for the Moral Sciences Tripos. Professors at this time were chiefly ornamental appendages addressing those who elected not to attempt honours, the so-called poll men.

So far as the development of his economic doctrines went, Marshall seems to have depended little in these early years on personal communication with economists outside Cambridge. His dealings with two of the more eminent of them, Jevons and Walras, are considered separately in Section I.7 below: otherwise there is little or nothing to report. Nor is there more reason to think that he derived significant impetus within Cambridge from the established teachers in Moral Sciences, such as Venn³² or J. D. Mayor, the latter a tutor of St John's who in 1863 had been runner up to Fawcett in the election for the Professorship.

In sum, it appears that Marshall's chief resources were the printed page, the conversation and questioning of his best students and, not least, the practical knowledge he would obtain by assiduous cross-questioning of any 'expert witness' who came within reach.

Aside from Mary Paley, the most noteworthy of Marshall's students during this early period were H. S. Foxwell, J. N. Keynes and H. H. Cunynghame. The first two remained in Cambridge as teachers, playing significant roles in the development of economic teaching there. But in the early 1870s it was probably Cunynghame who acted as the main sounding board for Marshall's emerging ideas on economic theory.

³¹ H. Fawcett, *Free Trade and Protection* (Macmillan, London, 1878).

³² J. A. Venn (1834–1923), Lecturer in Moral Sciences at Gonville and Caius College from 1862, was the author of *The Logic of Chance* (Macmillan, London, 1866).

The ebullient Henry Cunynghame³³ was Second Moralist (i.e. ranked second in the Moral Sciences Tripos) in 1873, and eventually found a career and a knighthood in the Civil Service. It was said of him:

Of his cleverness there never could be any doubt, though the routine of a public department was hardly the best field for its display. There appeared to be no subject of which he had not at least a working knowledge, and certainly none of which he was not prepared to talk at large.³⁴

Among Cunynghame's many enthusiasms was one for 'geometrical political economy', which surely derived from his acquaintance with Marshall during the years 1870–4 in which the latter was formulating his own 'ingenious mathematico-economic problems, expounded *more geometrico*'.³⁵ Bateson, the then Master of St John's, recalled of these years often seeing the two 'sitting side by side on the steps of the New Buildings cloisters absorbed in economic discussion'.³⁶ It was Cunynghame who invented for Marshall in 1873 a machine (unfortunately lost) for drawing the grid of rectangular hyperbolae needed for the monopoly diagrams. And there also circulated during the 1870s Cunynghame's privately-printed 'Notes on Exchange Value', which seem also to have become lost to sight.³⁷ Marshall retained a warm affection for Cunynghame, but did not hold his published work in high

³³ Not to be confused with the redoubtable controversialist William Cunningham (1849–1919), who was bracketed with F. W. Maitland as Senior Moralist in 1872 and became something of a thorn in Marshall's side after 1885. Cunningham lead a double life as churchman and scholar, emerging in the eighties as a leading English adherent of the historical school of economics. See the memoir by W. R. Scott, *Proceedings of the British Academy*, Vol 9 (1919–20) pp. 465–74.

³⁴ Quoted from *The Times* by J. M. Keynes in his 'Obituary: Sir Henry Cunynghame', *Economic Journal*, Vol 45 (June 1935) pp. 398–406. This article is reprinted in J. M. Keynes, *Essays in Biography (Collected Works*, Vol 10; Macmillan, London, 1972).

³⁵ Preface to second edition of W. S. Jevons, *Theory of Political Economy* (Macmillan, London, 1879), p. xli. 'Geometrical political economy' was the title of the book Cunynghame published in 1904 (Oxford Press). This epitomised his two earlier *Economic-Journal* articles on the subject.

³⁶ J. M. Keynes, 'Obituary: Sir Henry Cunynghame', loc. cit., p. 329.

³⁷ They are referred to by F. Y. Edgeworth in *Mathematical Psychics* (Kegan Paul, London, 1881) p. 96. See also *Principles II*, p. 463n. On the 'machine' see Item IV.4.1, below.

esteem, regarding it as 'hasty' – one of Marshall's more damning epithets.³⁸

Foxwell, four years younger than Marshall, had come up to St John's in 1868 with a London B.A.³⁹ He was Senior Moralist in 1870, and after some extension lecturing was elected to a Fellowship at St John's in 1874, becoming College Lecturer in Moral Sciences in 1875. At first he lectured on logic and philosophy, and only took to economics after Marshall left Cambridge in 1877. But he obviously had from the outset a considerable interest in economics and economic history and devoted himself wholly to these subjects after about 1880. His interest in pure economic theory was never profound, and it seems unlikely that he can have contributed greatly to the early development of Marshall's theories. However, by 1877 he seems to have become Marshall's closest friend and confidant in Cambridge, though the two drifted apart in the years after Marshall's return in 1885.

John Neville Keynes, ten years Marshall's junior, was Senior Moralist in 1875, becoming a Fellow of Pembroke College in 1876. Although now chiefly remembered as a logician – or perhaps as his son's father – he had a considerable interest in economics, and was the critic on whom Marshall chiefly relied during the composition of his *Principles*.⁴⁰ Because he came on the scene relatively late, Keynes's impact on Marshall's formative years cannot have been great, though the two appear to have come early to terms of cordial friendship which persisted to the end. Moreover, as a critic of Marshall's work, Keynes was too diffident

³⁸ See the discussion of Cunynghame's 1892 article in *Principles II*, pp. 808–13.

³⁹ For details see J. M. Keynes, 'Herbert Somerton Foxwell', *Economic Journal*, Vol 46 (Dec 1936) pp. 589–614, reprinted in J. M. Keynes, *Essays in Biography (Collected Works, Vol 10)* (Macmillan, London, 1972); Audrey G. D. Foxwell, 'Herbert Somerton Foxwell: a portrait', pp. 3–30 of *The Kress Library of Business and Economics* (Baker Library, Harvard, 1939).

Foxwell succeeded Jevons in 1881 as Professor in University College, London, but this did not interfere with his lifelong Cambridge residence and connections.

⁴⁰ On J. N. Keynes see C. D. Broad, 'Obituary: J. N. Keynes', *Economic Journal*, Vol 60 (June 1950) pp. 403–7; F. A. Keynes, *Gathering up the Threads* (Heffer, Cambridge, 1950); R. F. Harrod, *The Life of John Maynard Keynes* (Macmillan, London, 1951). Keynes's main economic work was his *Scope and Method of Political Economy* (Macmillan, London, 1891). His *Studies and Exercises in Formal Logic* (Macmillan, London, 1884) is a classic in its field.

and self-deprecatory to be completely effective, so that something was lost to Marshall when, in later years, Keynes replaced the stubbornly-independent Foxwell as confidant and adviser-in-chief.

To conclude this inventory, mention should be made of J. S. Nicholson, who came up to Trinity in 1873 and took the Moral Sciences Tripos in 1876. Marshall introduced him to Cournot and probably von Thünen, whose work like that of Cournot is mentioned in the course of Nicholson's Cobden-Prize Essay of 1877.⁴¹ But Nicholson seems not to have fallen under Marshall's spell. The debt he later acknowledged was to having written the Prize Essay while 'deeply impressed with the value of the historical method as exemplified in England by Thorold Rogers and Cliffe Leslie'.⁴² Nicholson left Cambridge in 1880 to become Professor at Edinburgh, and there is no indication of further serious contact with Marshall. But Nicholson, like Foxwell and Keynes, was among those whose remarks on the first edition of the *Economics of Industry* were taken into account during revision.

By 1877 Marshall was clearly the predominant economist on the Cambridge scene, the leader to whom the younger teachers, such as Foxwell and Keynes, looked. Yet his reputation outside Cambridge cannot have been large, even though rumours of his prowess had begun to percolate. His publications after a decade's study were meagre and showed promise rather than achievement.⁴³ His friends expected that

⁴¹ Published as J. S. Nicholson, *The Effect of Machinery on Wages* (Cambridge, 1878). In his 1893 Presidential address to Section F of the British Association, Nicholson observed that Marshall had advised him to read Cournot 'twenty years ago'. See R. L. Smyth (ed.), *Essays in Economic Method 1860-1913* (Duckworth, London, 1962) p. 115. There is an interesting memoir of Nicholson by W. R. Scott: *Proceedings of the British Academy*, Vol 13 (1927) pp. 346-67, and a briefer obituary by the same author in the *Economic Journal*, Vol 37 (Sept 1927) pp. 495-502.

⁴² Ibid., preface to the second edition (Swann Sonnenschein, London, 1892). J. E. Thorold Rogers (1823-90) was Drummond Professor at Oxford from 1862 to 1867 and again from 1888 to 1890. T. E. Cliffe Leslie (1827-82), an Irish writer on economic topics, became Professor at Queen's College, Belfast.

⁴³ For further detail on the British economic scene in this period see S. G. Checkland, 'Economic Opinion in England as Jevons found it', *Manchester School*, Vol 19 (May 1951) pp. 143-69; A. W. Coats, 'The Historicist Reaction in English Political Economy, 1870-90', *Economica*, Vol 21 (May 1954) pp. 143-53; H. S. Foxwell, 'The Economic Movement in England', *Quarterly Journal of Economics*, Vol 2 (Oct 1887) pp. 84-103.

the appearance of his book on foreign trade, on which work had been progressing since 1874 or 1875, would firmly establish his reputation in the world.⁴⁴ But in the summer of 1877 this still remained for the future. Meanwhile there were other, more pressing difficulties.

I.1.2 *Exile from Cambridge, 1877 to 1885*⁴⁵

Before Marshall could fulfil his engagement to marry Mary Paley, the pair had to find a new livelihood. For it was only after 1881, when Oxford and Cambridge were freed from their last mediaeval shackles, that the status of marriage became compatible with that of Fellowship of a College.⁴⁶ After some search, the solution was found in the Principalship of the newly-established University College, Bristol, to which Marshall was appointed on 25 July 1877 – his thirty-fifth birthday – at a minimum emolument of £700 a year.

The Bristol college was one of several civic colleges that were established, or took on new life, in the sixties and seventies of the last century: particular manifestations of a general awakening of concern for education. Bristol which opened its doors in 1876 was less successful than its competitors in attracting financial support, but was fortunate in the quality of the teachers it attracted during its early days. The college was not large. In 1880 there were seven professors, six lecturers and about 160 day students. There were also another 360 students attending the evening classes which were offered at extremely low fees.

The Principal superintended the day-to-day details of the running of the College, at first without even clerical assistance. But appointments, buildings and finance remained firmly in the hands of the College Council, which included both eminent academics – especially Jowett⁴⁷ – and local businessmen.

⁴⁴ See *Memorials*, p. 26n.

⁴⁵ For a fuller account of this period see J. K. Whitaker, 'Alfred Marshall: the years 1877–1885', *History of Political Economy*, Vol 4 (Spring 1972) pp. 1–61.

⁴⁶ A Lectureship might be held without a Fellowship (as in Sidgwick's case) but the Fellowship stipend would have been hard to replace. The Fellow's dividend at St John's was £250 from 1866–71 and £300 from 1872–8 (H. F. Howard, op. cit., p. 207). A Lectureship paid about £200.

⁴⁷ Benjamin Jowett (1817–93), student of Plato, Professor of Greek at Oxford, and the famous Master of Balliol. See Sir Geoffrey Faber, *Jowett: A Portrait with Background* (Harvard Press, 1957).

There is little indication that Marshall was directly involved in the irksome task of fund raising, but the financial constraints, and the need to keep the College favourably in the public eye, must have considerably increased the difficulty of his position.

Besides being Principal, Marshall was also Professor of Political Economy. After the first year Mrs Marshall took over the day classes as unpaid lecturer. But Marshall always continued to give the evening classes in his subject. Over the course of several years, his classes covered a considerable range of topics, with audiences composed mainly of school-teachers, those employed in commerce and banks, and day students – mainly women – who had mastered all the political economy offered in the day courses. Mrs Marshall subsequently recalled that his classes were 'less academic than those at Cambridge; and were a mixture of hard reasoning and practical problems illuminated by interesting sidelights on all sorts of subjects'.⁴⁸ The classes must have been a unique experience on both sides: certainly the students felt that they were experiencing something rather remarkable, and Marshall built up a loyal following of friends and disciples. His reputation in Bristol was further enhanced by a succession of successful public lectures, reported in detail in the local press.⁴⁹

What spare time remained during the first two years of Marshall's stay in Bristol was occupied mainly in bringing to completion the *Economics of Industry*, which grew more ambitious as it proceeded and effectively became a first statement of many of Marshall's original ideas on his subject. After his first year he seems to have abandoned the trade volume, on which he had been working since at least 1875, proposing to recommence work along rather different lines as soon as time permitted. In the summer of 1879 he did indeed give Sidgwick permission to have printed some parts of the abandoned trade volume for private circulation in Cambridge, and two pairs of appendixes were run off under the titles of *The Pure Theory of Foreign Trade* and *The Pure*

⁴⁸ *What I Remember*, pp. 23–4.

⁴⁹ For details see J. K. Whitaker, 'Alfred Marshall: the years 1877–1885', loc. cit., Section IV; R. H. Coase and G. J. Stigler (eds.), 'Alfred Marshall's Lectures on Progress and Poverty', *Journal of Law and Economics*, Vol 12 (Apr 1969) pp. 181–226.

Theory of Domestic Values. But these were never, in any sense, an authorised publication, and the percolation of a few copies outside Cambridge created later difficulties due to their ambiguous status.⁵⁰

The difficulty of Marshall's work in Bristol was greatly increased by a disabling illness, diagnosed as a kidney stone, which suddenly overtook him in the spring of 1879. Complete rest was enjoined initially, and there continued to be a considerable restriction on his physical mobility for some years. In the autumn, as soon as an early cure seemed impossible, he attempted to resign both his posts. He was eventually dissuaded and agreed to wait until the College had reached smoother water and a suitable successor could be settled on.

In fact he continued in both posts until October 1881, when William Ramsay – who had been appointed Professor of Chemistry in 1880 – took over as Principal. The Marshalls left Bristol almost immediately for an extended stay on the continent, spending several months in Palermo.⁵¹ By the time they returned to England in the following August, the manuscript that was to grow into the *Principles* was already well begun.

Marshall's initial intention on resignation had apparently been to turn to authorship, subsisting for a while on the slender means accumulated during the years of Principalship. But he was drawn back to Bristol when University College received additional funds for a Professorship of Political Economy. Marshall was appointed to the new post in the spring of 1882, Mrs Marshall again being given permission to help with the day classes, and the two returned to Bristol for the opening of the 1882–3 session. The funds for the Professorship had ostensibly come from Balliol College, Oxford, but it seems highly probable that they came in fact from the pocket of Jowett, the redoubtable Master of Balliol, who had come to admire Marshall during the latter's tenure of the Principalship. The friendship that had commenced then persisted until the end of Jowett's life, with regular exchanges

⁵⁰ For further details see Sections I.4 and I.5, below.

⁵¹ It is a common impression that the Marshalls spent most summers abroad. But during the years 1874–90 they were abroad only in 1876 (Switzerland), 1881–2, and 1889 (Bordeaux). There were visits to Guernsey in 1884 and 1887.

of visits, and probably exerted a considerable influence on Marshall's general outlook – Jowett being one of the most eminent men of his day and moving in the highest circles.

As events transpired, the Marshalls remained in Bristol for only one further year. In the spring of 1883 there was some talk of returning to Cambridge, the prohibition on married Fellows having been suspended in 1882. But Jowett was urging Marshall to come to Oxford, where the sudden death of Arnold Toynbee⁵² had vacated a lectureship to the Indian Civil Service Probationers at Balliol, and where prospects were bright for succeeding in due course the aged Bonamy Price⁵³ as Drummond Professor. Marshall explained his final decision to assume Toynbee's mantle in a letter to J. N. Keynes.

The fact that you really & heartily did wish us to come back [to Cambridge] is one of the pleasantest facts in our lives ; but it is made all the pleasanter when we reflect that we shall be doing nothing still further to narrow the already far too narrow room that you have for your econ. work I have been assuming that you have heard from Sidgwick that we are going to Oxford & that I am to give the lectures that Toynbee used to give there. But perhaps you have not heard it. We had a yearning to be with our old friends at Cambridge & to try to help on the Cambridge Tripos, which we like better than any exam at Oxford. But after all Oxford is a rich & nearly empty field in economic work & we are sure we are right in making our choice.⁵⁴

Marshall's years in Bristol were busy and effective ones, though overshadowed by illness and possibly also by a growing and daunting realisation of the difficulties he faced in adequately expressing between hard covers the true range and depth of his economic knowledge. But his retrospective view became increasingly and almost absurdly adverse. The whole decade 1877–87, during which the *Principles* was mainly composed, came in time to be written off as 'barren' years in

⁵² Arnold Toynbee (1852–83) is chiefly remembered as historian of the Industrial Revolution. See F. C. Montague, 'Arnold Toynbee', *Johns Hopkins University Studies in Historical and Political Science*, 7th Series, No. 1 (1889).

⁵³ Bonamy Price (1807–88), 'a genial nonentity', was Drummond Professor from 1868 to 1888.

⁵⁴ Letter to J. N. Keynes of 30 Apr 1883. Marshall Library, Keynes 1:74.

which he 'rather lost ground in his studies than conquered fresh'. It is hard to believe that such a claim could be even remotely warranted.⁵⁵

Among the incidents of Marshall's later years in Bristol, only four need be mentioned here. First was his appearance on 20 December 1880 before the governmental 'Committee Appointed to Enquire into the Condition of Intermediate and Higher Education in Wales and Monmouthshire'. Appearing in his role of Principal rather than economist, he gave the first of many astonishing displays as an expert witness before an official enquiry.⁵⁶

The second incident was his review of Edgeworth's *Mathematical Psychics* in *Academy*, April 1881 – the second and last review he ever wrote.⁵⁷ According to J. M. Keynes, this led to an acquaintanceship between the two 'which ripened into a lifelong personal and intellectual friendship'.⁵⁸ It is not clear how the acquaintance came about: possibly through Jevons, who was a neighbour of Edgeworth in Hampstead and had introduced him to Marshall's work: perhaps through Jowett, for Edgeworth had been a favourite when he read Greats at Balliol in the early seventies.

The third incident was a difference of opinion between Marshall and Sidgwick, the precise details of which remain unknown, but which led to the following advice to J. N. Keynes.

Sidgwick & I differ on some questions of literary morality, for one thing we could not agree in a discussion as to the use which he (not you) would be at liberty to make of your notes of my lectures & on hearing that he had asked you to help

⁵⁵ See Section I.6, below.

⁵⁶ For the transcript of his evidence see pp. 767–79 of the second volume of the Committee's report C. 3047. A brief outline of the views expressed by Marshall is given in Appendix A of J. K. Whitaker, 'Alfred Marshall: the Years 1877–1885', loc. cit.

⁵⁷ Reproduced as Item IV.2.11, below.

⁵⁸ J. M. Keynes, 'Francis Ysidro Edgeworth' in *Essays in Biography* (Collected Works, Vol 10; Macmillan, London, 1972) p. 255. Also see Edgeworth's 'Reminiscence' in *Memorials*, pp. 66–73; R. S. Howey, *The Rise of the Marginal Utility School* (Kansas Press, Lawrence, 1960) Chs. XI, XIII. Edgeworth, a non-practising barrister, three years Marshall's junior, had taken to economics only in 1879. He became lecturer and then Tooke Professor at King's College, London, in the 1880s and Drummond Professor at Oxford in 1891.

him with his book I asked Foxwell to give you my views on the subject.⁵⁹

The final incident to be mentioned was a series of three public lectures on Henry George's subject of Progress and Poverty that was given by Marshall in the spring of 1883. These lectures were a firm account of Marshall's views, premissed on a marginal-productivity theory of distribution of the kind expounded in the *Economics of Industry*. Sidgwick and Foxwell pressed him to publish the lectures, and Marshall's reply to Foxwell⁶⁰ is of sufficient interest to be reproduced in full.

Bryn-y-mor, Parry
Newport R.S.O
Pembrokeshire
22 July 83

My dear Foxwell,

It is difficult to give a short answer to your flattering-coaxing letter.

As general propositions I maintain that it is more important to establish truth than to confute error; & that controversy shd. be left to people with sound digestions.

It seems to me infinitely more important that I should solve difficulties w^h. still perplex me than that I should tilt at a successful rhetorician. The one thing that he says which is important, I think, is that economists are – to outward appearance at least – at loggerheads with one another. I w^d. rather put in one brick just where it shd. be in the slowly rising economic edifice than plant a hundred brickbats with the utmost dexterity exactly between the eyes of Mr. George.

Still the book has had so many buyers (though I doubt whether one in fifty of them has read to the end) that I almost determined to publish something about him. My weak point was that I did not know what to attack: a book as large as his own w^d. be wanted to refute all his fallacies. But I hoped that I shd. find out, in the course of my lectures at Bristol, which of

⁵⁹ Letter to J. N. Keynes, 1880 or 1881. Marshall Library, Keynes 1:75. Sidgwick's *Principles of Political Economy* appeared in 1883 (Macmillan, London).

⁶⁰ Letter to H. S. Foxwell. Marshall Library, Marshall 3:19.

his fallacies had stuck. I failed utterly. Trying to refute George in Bristol was like throwing oneself against a door that is not fastened. There was no resistance anywhere. There was plenty of enthusiasm for nationalisation of the land: if I had gone on fighting against that, I could have had opposition for ever. But there was no opposition to my attacks on George; & I practically had to leave him entirely out of the argument.

Still I was wavering: then I heard of Toynbee's death: & that disinclined me to act for the time: I did not want to say anything in any way opposed to Toynbee: & I thought I w^d. wait. Then came the Oxford post that meant a great deal of reading about India involving a good break in my writing. Now I am writing, but in September I must begin to read India again.

When I go to Oxford I shall hold out to my pupils there the same challenge that I held out to my pupils at Bristol. I shall defy them to shew me anything in George that is new & true; also to shew me any attack of his on Mill's doctrines that is even verbally valid against that rendering of Mill's doctrines that is to be found in the [E]conomics of [I]ndustry. (It seems to me that very few even of George's false sayings are less than fifty years old) {As to the laws of D[iminishing] R[eturns] & I[ncreasing] R[eturns] I admit that the account in the Economics of Industry is incomplete. We had intended to go into it more thoroughly in discussing American protectionist theories, in the Economics of trade & finance}⁶¹

Well, by this means, I shall find out which of George's fallacies are worth attacking, & if I find that the book is not already fast loosing its hold (w^h. I expect) I shall probably write a review article or two at Xmas or Easter.

What you say about Heitland⁶² is important I am not sure what he thinks: but if he really is taken by George, he is the only hard headed man whom I know who is. I had a talk with

⁶¹ The *Economics of Trade and Finance* had been announced as an intended companion to the *Economics of Industry*. See Section I.4, below. An annotation by Marshall in his copy of the first edition of the *Economics of Industry* (now in the Marshall Library) reads: 'Foxwell observes that it should be made clear that the return (to the last dose) we here speak of is return to the consumer, the return to the producer i.e. the rate of profit, will not necessarily rise under the Law of increasing or fall under the Law of diminishing returns'.

⁶² Presumably W. E. Heitland, classicist and Fellow of St John's.

Beeton.⁶³ But I thought he was *not* hard headed. He seemed to me to swallow everything in George; & I got no nearer knowing what to attack.

Meanwhile there is an eminent economist, who believes that George is important, & on whom the eyes of the world are turned. Verily let him refute George: why not. Go in old fellow, & win.

Only do not vilify Mill. I believe that some of the modern extravagant school, by exaggerating his faults instead of bringing out his virtues, as was their duty, have done more harm to economic science, than a hundred open enemies like George could do.

We have sold our house at Clifton, put our furniture in a warehouse & are spending the summer in Wales. This place suits us admirably. Good bathing, admirable sketching, river & sea boating, bracing air, perfect retirement &c. So though we had intended only to spend part of our time here, we may perhaps spend all here.

Again I say – go in & win.

Yours very sincerely

A. Marshall

The Oxford to which the Marshalls migrated in the autumn of 1883 was witnessing a burgeoning interest in ‘the social issue’. This was very much the legacy of two Balliol men: T. H. Green, who had died in 1882, and Arnold Toynbee, who had died in the full promise of youth earlier in 1883 and whose shoes Marshall had arrived to fill.⁶⁴ Toynbee’s missionary zeal and historical enquiries had done much to awaken a lively interest in economic studies, without going far towards bringing into existence in Oxford a group capable of serious discussion in economic theory. Marshall, with his unique combination of moral earnestness and scientific power, was the man above all others to exploit such a milieu. By all accounts his success was considerable and, like Toynbee, he

⁶³ Probably Henry Ramée Beeton, stockbroker and amateur economist. See Howey, op. cit., p. 119; J. M. Keynes, ‘Herbert Somerton Foxwell’, loc. cit., p. 594n.

⁶⁴ On Green and his movement see M. H. Richter, *The Politics of Conscience: T. H. Green and his Age* (Weidenfeld and Nicolson, London, 1964).

had large and enthusiastic classes, drawing many men from other colleges and from outside the group of Probationers for the Indian Civil Service which comprised his special charge.⁶⁵ It is interesting to speculate what he might have made in the way of an 'Oxford School of Economics' had his expectation of finding his life's work there been fulfilled. But, with the unexpected death of Fawcett on 6 November 1884, Marshall's Oxford career came to a sudden end after only four terms. There could have been little doubt about who would succeed Fawcett in the Cambridge chair, and Marshall's appointment had been confirmed by mid December.

The Oxford magazine mingled praise and regret:

Coming to tutorial work little more than a year ago, he has been energetic in the teaching of his subject, and has had his reward in large and appreciative audiences. He has done much to stimulate the study of economics in Oxford, and will be much missed.⁶⁶

Jowett wrote a letter sufficiently interesting in its sidelights to be reproduced in full:⁶⁷

West Malvern
Dec. 25. 1884

My dear Marshall,

I write to thank you for your kind letter: It has been a great pleasure & happiness to me to have known you & Mrs. Marshall: Thank you again & again for your never-failing affection to me & for your attachment to the College.

We shall greatly miss you at Oxford: the Undergraduates say to me 'Who will teach Political Economy to us now?' I have no doubt that there is an excellent field for teaching it, both at Oxford & Cambridge, partly because it is 'in the air' now, & also because it enters so largely into various University examinations: I think you are to be congratulated on the

⁶⁵ For details on the Probationer scheme at Balliol see E. Abbott and L. Campbell (editors), *Letters of Benjamin Jowett, M.A.* (Murray, London, 1899) pp. 131–58.

⁶⁶ *Oxford Magazine*, 21 Jan 1885.

⁶⁷ Letter from B. Jowett to Alfred Marshall. Marshall Library, Marshall 1:19. An edited version appears in Abbott and Campbell, op. cit., pp. 215–6 (where 'commercial movements' is unfortunately misread as 'communist movements').

subject of your Professorship both on this account & also because I believe that an immense deal may really be effected by it for the good of all classes. We shall be able by the help of Political Economy to look commercial movements in the face, to predict them a few days or weeks beforehand & to make the best use of the interval.

(Which is the most sensible man & which is the best teacher? – Keynes or Cunningham? We cannot offer much salary not more than £150–200 a year: But the lecturer if he succeeds would have a good chance of obtaining [Bonamy] Price's chair which must be vacant in 2 or 3 years time, as Price is not likely to be reelected.)

Will you be surprised at my attacking you about Symbols? (rather unfair, just when you are leaving us and in a letter to your wife).⁶⁸ I seem to see that various persons such as DeMorgan & Boole have tried to apply mathematics to subjects which did not admit of their use & have rather deluded themselves & others: (Henry Smith⁶⁹ had this feeling about such attempts) Now I do not object to their application to Political Economy, provided they are not regarded as a new method of discovery, but only as a mode of expressing a few truths or facts which is convenient or natural to the few whose minds easily adopt such symbols – Political Economy is human & concrete & should always be set forth in the best literary form: the language of symbols may be relegated to notes & appendices.

I have worried you enough about this matter, in which I have always fancied, perhaps erroneously there might be a danger to your 'opus magnum'. Wishing you success in the best sense for your work & your life.

Believe me my dear Marshall

Ever yours most truly

B. Jowett

⁶⁸ This 'attack' had been in a letter to Mary Marshall of 14 Dec (Marshall 1:124) written from Mentmore, Rosebery's house. See Abbott and Campbell, *op. cit.*, p. 215.

⁶⁹ Henry Smith (1826–83), Professor of Geometry at Oxford, had been a member of the Council of University College, Bristol, and a frequent guest of the Principal.

That Marshall should have proposed Keynes as his successor at Balliol is hardly surprising. He wrote to Keynes 'more unselfishly than you know':

There is such a demand for trustworthy teaching of economics in Oxford so strong a feeling among the undergraduates that there is not much good in hearing those who have taken it up so to speak as a plaything, that with your singular power of lucid exposition, you w^d. be certain to get hold of the best of them.⁷⁰

Keynes did in fact stand in on a part-time basis for the remainder of the academic year, but was unwilling to make the move to Oxford permanently.

Despite the brevity of his stay, Marshall when in Oxford did produce serious students in whom he took a lifelong interest. Two in particular deserve mention: E. C. K. Gonner and L. L. F. R. Price.⁷¹ Gonner, of Lincoln College, was one of Marshall's successors in the teaching of economics at Bristol, being Lecturer in Political Economy, Modern History and English Literature! In 1888 he moved permanently to University College, Liverpool, where he soon became Brunner Professor of Economic Science. Price, of Trinity College Oxford, took a First in Greats in 1885 and became a Fellow of Oriel in 1888, remaining in Oxford for the rest of his life. During 1886–7 he was a lecturer for the Toynbee Trust, which sponsored his work on *Industrial Peace*, published in 1887 with a lengthy preface by Marshall who found the experience of introducing another's work so frustrating that he vowed never to repeat it.⁷² During the late eighties, Price was one of the favoured few who read the proofs of Marshall's *Principles*.

⁷⁰ Letter to J. N. Keynes of 28 Dec 1884. Marshall Library, Keynes 1:71.

⁷¹ E. C. K. Gonner (1862–1922) is chiefly remembered for his work on economic history and as one of Ricardo's editors. He was knighted in 1921 for official services. L. L. F. R. Price (1862–1950) spent his life in Oxford, where he was Reader in Economic History 1909–21. He reviewed the second edition of the *Principles* for the *Economic Journal*, hailing it as an epochal work, closing decades of methodological squabbling and initiating a new era for economic study. ('Notes on a Recent Economic Treatise', *Economic Journal*, Vol 2 (Mar 1892) pp. 17–34.)

⁷² L. L. F. R. Price, *Industrial Peace* (Macmillan, London, 1887). Most of Marshall's preface is reproduced in *Memorials*, pp. 212–26, but opening remarks on Arnold Toynbee are omitted.

In lighter vein, mention might also be made of Bolton King of Balliol, whom Marshall wished to nominate for the (not-yet-Royal) Statistical Society :

I am getting to care about statistics a good deal : not to work at myself: I have not the time. But I think it is just the work for a rich young Oxford man who can afford to buy clerical assistance. I hope gradually to get several, & I want to make a beginning with King.⁷³

Among the incidents of Marshall's Oxford career were a public encounter with Henry George, then at the height of controversiality,⁷⁴ and the publication of 'Where to House the London Poor' as part of a symposium in the *Contemporary Review* for March 1884. To this period must also be attributed the composition of the paper Marshall gave to the Industrial Remuneration Conference in January 1885. One of the appendixes, entitled 'Theories and Facts about Wages', had been 'written in about two days in the summer of 1884'⁷⁵ and also appeared in the *Cooperative Annual* for 1885. This appendix incorporated substantial sections of the Lectures on 'Progress and Poverty' that Marshall had given in Bristol in the spring of 1883, and was as near as he came to fulfilling his half-formed intention to publish an attack on George.

Finally, it was probably also in Oxford that there occurred an incident leading to the appearance in 1885 of a student's edition of Bagehot's *Postulates of English Political Economy* with a brief preface by Marshall.⁷⁶ The story behind this was related to J. N. Keynes, who had apparently cited the preface

⁷³ Letter to H. S. Foxwell of 7 Nov 1883, Marshall Library, Marshall 3:23. Bolton King did, indeed, publish several statistical articles in the *Economic Journal* and the *Journal of the Royal Statistical Society*.

⁷⁴ The unruly meeting is admirably captured in the press report reproduced in R. H. Coase and G. J. Stigler (editors), 'Alfred Marshall's Lectures on Progress and Poverty', loc. cit.

⁷⁵ *Memorials*, p. 39n.

⁷⁶ See pp. v-vii of W. Bagehot, *The Postulates of English Political Economy* (Putnam's, New York; Longmans, London; 1885). Marshall wrote of Bagehot:

Perhaps there never was anyone better fitted to show the real bearing of Ricardian modes of reasoning on the practical problems of life, or to bring out the fundamental unity which, in spite of minor differences, connects all the true work of the present with that of the earlier generation of economists. (p. vi)

in the manuscript of his *Scope and Method of Political Economy* as indicating Marshall's approval of Bagehot's position.

I am troubled a little about your reference to Bagehot's 'Postulates'. The fact is I have always been rather ashamed of the part I played as to that. I met Mrs. Bagehot at dinner, & more with a view to being polite, than of set purpose, asked her whether she had thought of publishing the two chief essays separately at a low price. She shortly afterwards wrote that she was going to do so; & asked me to write a preface implying that she relied on me to do it, in consequence of what I had said to her. So I wrote very unwillingly. But really I am not in sympathy (intellectually) with Bagehot. He is most brilliant; but very hasty & in reading him I alternately agree & admire much, & differ & admire a little. I would not go into that, partly because Mrs. Bagehot w^d. not have liked it, partly because I had not time. The result was a short & utterly empty preface; & to speak quite frankly I am a little ashamed of having special attention called to it by your kindness.⁷⁷

The offending reference was deleted, but the underlying story serves as a caution as to how the accidents of social life may complicate the tracing of intellectual 'influences'.

I.1.3 Return to Cambridge, 1885–90

Marshall's years away from Cambridge had done much to widen his experience of affairs, and had brought him – mainly through Jowett – into familiar contact with men of worldly eminence. He returned to Cambridge in January 1885, aged forty-three and at the height of his powers. He had already achieved much, but two crucial obstacles still lay between him and full success. The first was the bringing to completion of the two-volume *Principles* on which work had already been proceeding for five years. The second was the establishment on a firm basis of the scientific study of economics in Cambridge.

The first of these goals was partly fulfilled in 1890 with the publication of Volume One of the *Principles*, but the definitive statement of his mature views on many branches of his subject

⁷⁷ Letter to J. N. Keynes, 27 Aug 1889. Marshall Library, Keynes 3:72.

continued to elude him for the remainder of his life, the late books being only an imperfect realisation of his ambitions. The detailed story is carried up to 1890 in Section I.6 below.

The second goal, the firm establishment of economics in Cambridge, was enunciated in his Inaugural Lecture,⁷⁸ which was a fully-considered statement of his attitude to his subject, showing all the hallmarks of his mature style. It concluded with a complaint at the subordination of the study of economics to the Moral Sciences Tripos,

... many of those who are fitted for the highest and hardest economic work are not attracted by the metaphysical studies that lie at the threshold of that Tripos,

and a catholic plea to those

... who have not the taste or the time for the whole of the Moral Sciences, but who have the trained scientific minds which Economics is so urgently craving,⁷⁹

to turn their attention to this most important of subjects. By 1890, however, there had not been much progress. J. M. Keynes records that:

At Marshall's lectures in the later 'eighties, apart from students from other departments and B.A.'s who might be attracted out of curiosity about the subject, there would be a dozen or less Moral Science students and two dozen or less History students.⁸⁰

It was, indeed, unfortunate that Marshall – very much the new-model professor – should have inherited a degree structure which had altered little over the past two decades, despite the profound changes overtaking university teaching in

⁷⁸ 'The Present Position of Economics', a lecture delivered in Feb 1885 at the Senate House. Published as a pamphlet by Macmillan in 1885, and reproduced in *Memorials*, pp. 152–74.

⁷⁹ *Memorials*, pp. 171–2.

⁸⁰ *Memorials*, p. 55n. The Moral Sciences Tripos had been founded in 1851 and revised in 1860 and 1867. Economics also played a minor part in the more recent History Tripos. There was some broadening of the Moral Sciences Tripos during the 1890s, but it was not until 1903, only five years before Marshall's retirement, that his aims were fully achieved by the foundation of a new Tripos in Economics and Politics. (See Marshall's 1902 'Plea ...', reproduced in *Principles II*, pp. 161–78.)

Cambridge during the interval.⁸¹ The effectiveness of his work proved to be impaired for many years by the constraints thus imposed, so that he could write in 1902:

through causes for which no one is – in the main – responsible, the *curriculum to which I am officially attached has not provided me with one single high class man devoting himself to economics during the sixteen years of my Professorship.*⁸²

In these circumstances, it was the B.A.s, fore-runners of the modern graduate student, to whom Marshall chiefly looked for disciples, and on whom his most generous attention was lavished. By this time his inimitable approach to serious students must have been fully developed.⁸³ His most important 'catch' in the years up to 1890 was A. W. Flux. Flux, son of a journeyman cement maker, was Senior Wrangler in 1887 and became a Fellow of St John's in 1889, having meanwhile turned to economics. Two other young mathematicians, W. E. Johnson and A. Berry, were also attracted to economics in this period, but were never more than half caught – though making useful contributions to economic theory.⁸⁴ Excepting these the first five years of Marshall's Professorship were barren. It was only after 1890 that the familiar names – Bowley, Chapman, Sanger, Pigou, Fay, Macgregor – come upon the scene.⁸⁵

Outside his university Marshall was increasingly overtaken by the consequences of success, in the form of invitations to

⁸¹ This transition is the subject of S. Rothblatt's *Revolution of the Dons*. Among the changes were new Triposes and University teaching posts, new laboratories, and the growth of intercollegiate teaching.

⁸² Letter to J. N. Keynes of January 1902, quoted in A. W. Coats, 'Sociological Aspects of British Economic Thought (ca. 1880–1930)', *Journal of Political Economy*, Vol 75 (Oct 1967) pp. 706–29. (See p. 713.) Coats's article gives a valuable account of the professionalisation of British economics in which Marshall's part was large.

⁸³ See the detailed description in an 1894 letter to Gonner reproduced in *Memorials*, pp. 380–3, and an amusing open letter to Marshall, *Cambridge Review*, Vol XI (24 Oct 1889) p. 19.

⁸⁴ A. W. Flux (1867–1942) left Cambridge in 1893 for Owens College, Manchester, and later moved to McGill. In 1908 he returned to England to become statistical adviser to the Board of Trade, and found his life's work. He was knighted in 1920. For Johnson and Berry see pp. 40–1 and 313–4 of W. J. Baumol and S. M. Goldfeld (editors) *Precursors in Mathematical Economics: an Anthology*, Reprints of Scarce Works on Political Economy, No. 19 (London School of Economics, 1968).

⁸⁵ As Marshall told Gonner in 1894, '... unfortunately more than half of those from whom I have expected most have been carried off by Headmasters to toil for the good of others' (*Memorials*, p. 381).

address various bodies and contribute to governmental enquiries. During the later eighties, he seems to have been more willing to assume such obligations than he later became, and this willingness must have helped retard work on his *magnum opus*. The most notable of the miscellaneous talks and addresses were as follows:

- (i) The paper, already mentioned, given in January 1885 to the Industrial Remuneration Conference.
- (ii) A contribution on 'The Graphic Method of Statistics' to the 1885 Jubilee Meeting of the Statistical Society. This was published in the Jubilee Volume,⁸⁶ and remained his most elaborate treatment of the subject.
- (iii) A lecture on 'The Pressure of Population on the Means of Subsistence' given at the recently-founded Toynbee Hall in the East End of London. An outline of this lecture is given in Part V, below.
- (iv) A paper stemming from the fact that in the autumn of 1886 Marshall 'joined the London P[olitical] E[economy] Club reading a paper on currency remedies for fluctuations of Prices at the February [1887] meeting. It was afterwards published in expanded form in the Contemporary Review for March 87.'⁸⁷
- (v) A long and thoughtful presidential address on 10 June 1889 to the Cooperative Congress at Ipswich, the culmination of Marshall's persistent and sympathetic interest in the co-operative movement.⁸⁸

⁸⁶ A supplement to the 1885 Volume of the *Journal of the [London] Statistical Society*. Marshall's paper is reprinted in *Memorials*, pp. 175–87.

⁸⁷ Manuscript note, Marshall Library. The paper referred to is Marshall's 'Remedies for Fluctuations of General Prices' (reprinted in *Memorials*, pp. 188–211). In December 1889 Marshall gave another paper to the Political Economy Club, this time on trades unions. (Letter to J. N. Keynes of 2 Dec 1889. Marshall Library, Keynes 1:93). Marshall's London contacts, made partly through Foxwell and Edgeworth, had brought him into familiar contact by the later 1880s with various London economists, including Wicksteed and the Civil Servants, Higgs and Bonar; probably Cannan too. See A. W. Coats, 'The Origins and Early Development of the Royal Economic Society', *Economic Journal*, Vol. 78 (June 1968) pp. 349–71; R. S. Howey, *The Rise of the Marginal Utility School*, Ch. XIII.

⁸⁸ *Memorials*, pp. 227–55. We know remarkably little about Marshall's earlier connections with cooperators and trades unionists. Beatrice Webb draws an unforgettable affectionately-wicked cameo of the ill-at-ease Marshall at the Ipswich Congress. See *My Apprenticeship* (Longmans Green, New York and London, 1926) pp. 354–61. (Also see pp. 338–41 for her rueful account of Marshall's half-serious, half-mocking attempt to dissuade her from the 'man's topic' of Cooperation.)

(vi) Finally – a fitting culmination to the decade – was his undertaking, after earlier refusals, the Presidency of Section F of the British Association for 1890. His presidential address was on 'Some Aspects of Competition' and remains one of his most interesting occasional pieces.⁸⁹

As to governmental enquiries, Marshall submitted written evidence to the Royal Commission on the Depression of Trade and Industry in 1886, while in 1887–8 he made his legendary marathon appearance as a witness before the Gold and Silver Commission – a performance so strenuous that he afterwards complained his abilities had been permanently diminished.⁹⁰

The final incident which might be noticed is the appearance during 1887–8, in the pages of the recently-founded *Quarterly Journal of Economics*, of a series of criticisms of the distribution theory of the *Economics of Industry*. These criticisms were not remarkable for insight, and Marshall replied effectively.⁹¹ But the exposure of such basic misunderstanding of his ideas by American authors, at a time when he was struggling to rearticulate his treatment of distribution for the *Principles*, must have come as a somewhat discouraging experience.

The appearance of Volume One of the *Principles* in July 1890 cemented Marshall's reputation, but even without it he would have earned by this time a secure if less commanding place in the history of economic thought. It is true that Foxwell's oft-quoted 1887 observation about Marshall – 'Half the economic chairs in the United Kingdom are occupied by his pupils, and the share taken by them in general economic instruction in England is even larger than this' – attests rather to the paucity of posts than the abundance of pupils.⁹² But the privately-printed chapters on *Pure Theory*, the *Economics of*

⁸⁹ Reproduced in *Memorials*, pp. 256–91. The full text was published in *Nature* and in the *Journal of the Royal Statistical Society*.

⁹⁰ See C. W. Guillebaud, 'Some Personal Reminiscences of Alfred Marshall', loc. cit., p. 7. Marshall's evidence is reproduced in *Official Papers*.

⁹¹ The critics were McVane, Laughlin and Walker. Marshall's responses are listed on p. xxii above.

⁹² H. S. Foxwell, 'The Economic Movement in England', loc. cit., p. 92. The 'Professors' would be Foxwell and Nicholson (hardly Edgeworth). The 'others' would be Keynes, Gonner, Price and Mrs Marshall.

Industry, and the several seminal contributions made during the eighties, amounted to a far-from-negligible output. In another way, too, Marshall's work during the seventies and eighties should not be viewed as mere prelude to the *Principles*. For Volume I was part of a larger scheme, never fully completed. The earlier writings, including those reproduced below, give glimpses into some of the topics proposed in 1887 for the projected Volume II: viz. 'Foreign Trade, Money and Banking, Trade Fluctuations, Taxation, Collectivism, and Aims of the Future.'⁹³

For several years after 1890 an expectant world awaited the completion of Marshall's *opus magnum*. Not all believed it could be brought to a satisfactory resolution,⁹⁴ and among those who reserved judgement was the shrewd and learned Italian economist, Luigi Cossa. Nevertheless, in 1892 Cossa judged Marshall to be the indubitable leader of British economics, and his assessment provides a fitting conclusion.

Alike as a teacher and as a writer, Professor Marshall has given proofs of an acute mind, a many-sided and well-digested familiarity with economic theories, a point of view regarding method which is at once comprehensive and accurate, and a power to measure justly the theories of the classical school. Of that school he is the representative and heir, for he follows the traditions of Adam Smith, allowance being made for altered views and circumstances. Like Jevons, but with more balance, he utilises mathematics; like Rogers and Cliffe Leslie, he favours historical studies; and finally, with Giffen,⁹⁵ he appreciates statistical induction, at the same time giving fair warning that bare facts which are facts only, and not welded together by theoretical inductions, are mute and unintelligible.⁹⁶

⁹³ See Section I.6, below.

⁹⁴ See, for example, the expression of Nicholson's views on pp. 107–8, below.

⁹⁵ R. Giffen (1837–1910), practical statistician, writer on economic subjects, and civil servant. Knighted in 1895.

⁹⁶ L. Cossa, *An Introduction to the Study of Political Economy* (Macmillan, London, 1893; a translation of the 1892 Italian edition) p. 357.

I.2 The Formation of Marshall's Economic Doctrines, 1867–73

Marshall described on several occasions the character of his early work in economic theory. The most comprehensive accounts run as follows:

my main position as to the theory of value and distribution was practically completed in the years 1867 to 1870; when I translated Mill's version of Ricardo's or Smith's doctrines into mathematics; [so] that, when Jevons' book appeared, I knew at once how far I agreed with him and how far I did not. In the next four years I worked a good deal at the mathematical theory of monopolies, and at the diagrammatic treatment of Mill's problem of international values....

By this time I had practically completed the whole of the substance of my Mathematical Appendix, the only important exception being the treatment of elasticity (Note III) and Edgeworth's contract curve Note XII *bis*. (Marshall to J. B. Clark, March 1908.)¹

Briefly—I read Mill's *Political Economy* in 1866 or '7, while I was teaching advanced mathematics: and, as I thought much more easily in mathematics at that time than in English, I tried to translate him into mathematics before forming an opinion as to the validity of his work. I found much amiss in his analysis, and especially in two matters. He did not seem to have assimilated the notion of gradual growth by imperceptible increments; and he did not seem to have a sufficient responsibility—I know I am speaking to a mathematician—for keeping the number of his equations equal to the number of his variables, neither more nor less. Since then I have found similar matters not quite to my taste in the economic work of nearly all those who have had no definite scientific training.

At that time and for long after I knew very little of the realities of economic life. But I worked at what I regard as the central problem of distribution and exchange. Before 1871 when Jevons' very important *Theory of Political Economy* appeared, I had worked out the whole skeleton of

¹ *Memorials*, p. 416. The 'Notes' referred to are those in the Mathematical Appendix to *Principles I*, pp. 838–58.

my present system in mathematics though not in English. My mathematical Note XXI concentrated my notions: but the greater part of the earlier notes and especially Notes XIV–XX were evolved in substance about the same time. These contained the substance of my doctrine of Substitution; though I did not make use of that term till long after.

As I have said in my original Preface, I owed much to the mental discipline afforded by Cournot; but the one book which really guided me was written by a landowner, who had very slight knowledge of mathematics, and indeed occasionally talked great nonsense in them. It was von Thünen, as you already know. (Marshall to L. C. Colson, 1908 or 09.)²

The claims made here are substantial, and if granted would recognise Marshall's originality with respect to many of the central ideas of the so-called marginalist revolution of the early 1870s. Of course, the Mathematical Appendix to the *Principles* is far from an abstract of the text. In the central group, consisting of Notes XIV–XXI, only Note XIV involves marginal ideas, if we exclude the rather peripheral Notes XVI and XIX. The six remaining (including Note XIV *bis*) deal with quite simple demand-supply analysis, generalised to cover joint and composite demand-supply effects – exactly the area in Marshall's early work where strongest evidence of significant early developments exists. But Note XIV is a statement of the Principle of Substitution (although it was only amplified to its dominant role in the Mathematical Appendix in the third edition of 1895³). And the preceding Notes give clear accounts of consumers' surplus and the balancing of utilities and disutilities at the margin.

Marshall made more-precise claims on other occasions. As early as 1883, he told Walras

I cannot be said to have accepted Mr Jevons doctrine of 'final utility'. For I had taught it publicly in lectures at Cambridge before his book appeared. I had indeed used

² 'Alfred Marshall the Mathematician as seen by Himself', *Econometrica*, Vol 1 (Apr 1933) pp. 221–2. For the reference to Cournot and Thünen see *Principles I*, p. x.

³ In the first edition, Note XIV had been a brief penultimate Note XXV (see *Principles II*, pp. 830, 835).

I.2 Formation of Marshall's Economic Doctrines, 1867–73 39

another name viz: 'terminal value-in-use.' But following the lead of Cournot I had anticipated all the central points of Jevons book and had in many respects gone beyond him. (Marshall to L. Walras, November 1883).⁴

He also denied any obligation to Dupuit or Fleeming Jenkin with respect to consumers' surplus, observing that 'my obligations are solely to Cournot; not to Fleeming Jenkin or Dupuit'.⁵ He claimed to have developed the marginal-productivity theory of distribution in 1869⁶, and the doctrine of quasi-rent in 1868, when 'exercised by McLeod's criticisms – now unjustly forgotten – on the unqualified statement that cost of production governs value'.⁷ As to the theory of wages, he was willing to admit the influence of Mill and von Thünen, but expressly excluded F. A. Walker, whose 1876 book, *The Wages Question*,⁸ had much in common with Marshall's early treatment of distribution in the 1879 *Economics of Industry*.

His claims on the development of his theory of wages bear repetition, despite being well known.

I cannot recollect whether I formulated the doctrine 'normal wages' = 'terminal' (I got 'marginal' from von Thünen's *Grenze*) productivity of labour before I read von Thünen or not. I think I did so partially at least; for my acquaintance with economics commenced with reading Mill, while I was still earning my living by teaching Mathematics at Cambridge; and translating his doctrines into differential equations as far as they would go; and, as a rule, rejecting those which would not go. On that ground I

⁴ W. Jaffé (editor), *Correspondence of Léon Walras and Related Papers, Vol I* (North Holland, Amsterdam, 1965) p. 794.

⁵ Letter to E. R. A. Seligman of 21 Oct 1896, reproduced in J. Dorfman (editor), 'The Seligman Correspondence', *Political Science Quarterly*, Vol 56 (Sept 1941) p. 408. See also letter of 6 Apr 1896, *ibid.*; and *Principles II*, pp. 263, 534.

⁶ See letter to E. Cannan of January 1898, *Memorials*, pp. 404–6. 'I then [1869] adopted the doctrine of the national dividend, its division into the shares of land, labour and capital, governed by the equivalence of differential coefficients of cost of production on the one hand (or disutility), and utility on the other ... There remained great lacunae in my theory till about 85 ...'

⁷ Letter to J. B. Clark of November 1902; *Memorials*, pp. 413–4. On McLeod see Item IV.2.8 below.

⁸ F. A. Walker, *The Wages Question* (Holt, New York, 1876).

rejected the wage-doctrine in Book II, which has a wage-fund flavour : and accepted that in his Book IV ; in which he seemed to me to be true to the *best* traditions of Ricardo's method (I say nothing in defence of Ricardo's positive doctrine of wages) and then to have got very close to what I afterwards found to be von Thünen's position. That was chiefly in 1867–8. I fancy I read Cournot in 1868. I know I did not read von Thünen then, probably in 1869 or 70 : for I did not know enough German. One side of my own theory of wages has been absolutely fixed ever since, to what by title of priority may be called the von Thünen doctrine. (Marshall to J. B. Clark, July 1900.)⁹

Most of these claims were advanced in private correspondence, where some carelessness and exaggeration might be forgiven : most were also made many years after the events to which they referred, leaving ample scope for lapses and shortenings of memory. That such exaggerations and lapses did occur seems incontrovertible. But, before adjudicating the question, it is necessary to give a brief account of Marshall's early theoretical work, as revealed by manuscripts and publications surviving from the first few years of his economic studies.¹⁰

Marshall's first faltering steps, in the subject which was to be his life's work, cannot be retraced with any confidence. He seems to have started in 1867 and 1868 on quite small-scale exercises suggested by John Stuart Mill's *Principles of Political Economy*. A mathematical notebook, some of whose entries appear to be very early, shows him working out minor developments and elaborations of Mill's treatments of money, rent, and so on.¹¹ Marshall seems to have invented, quite early on, a neat graphical reformulation of classical rent theory, in terms of the marginal yield to the application of 'doses' of labour and capital. With its aid he was able to show

⁹ *Memorials*, pp. 412–13. For the denial of Walker's influence see *Memorials*, p. 416.

¹⁰ The more important manuscript materials are reproduced in Parts II and IV, below.

¹¹ Some of the entries are reproduced in Section IV.3, below.

errors in Mill's treatment of improvements in cultivation.¹² However, the most important of Marshall's early discoveries was the symmetrical formulation of demand and supply curves. It was quite natural for a trained mathematician to perceive the lacuna left by Mill's inadequate formulation of demand. Mill himself came very close to stating a complete solution, especially in his 1869 review of Thornton,¹³ and Fleeming Jenkin, an engineer, had established quite unobtrusively a correct formal statement in 1868,¹⁴ as Cournot had much earlier.

In a sense, the co-ordinate representation of demand and supply by curves expressing quantities demanded and supplied as functions of price was a trivial step. Yet it became for Marshall the key unlocking many doors. His theoretical work during the next twenty years was in essence a thorough exploration of the interactions of supply and demand, taking

¹² For details see Section II.7, below. This success may well have impelled him towards a reliance on graphical methods. At least there is a cryptic reference to the fact that 'Improvements in cultivation decided me to adopt curves as an engine'. This is found in a manuscript note on 'Approximate History of Curves' (Marshall Library). The note appears to list the work done during long vacations and (after slight editing) reads as follows:

Long vacations: 66 Scotland, Philosophy; 67 Switzerland, ditto; 68 Dresden and Salzkammargut, curves beginning; 69 Berlin, West Tirol, Pol. Econ., A. Smith, Improvements in cultivation decided me to adopt curves as an engine; 70 East Tirol, Foreign Trade curves; 71 St Moritz, Miscellaneous, a good deal of history; 72 Aussee and East Tirol, chiefly history; 73 St Moritz with Agnes and May [his sisters], ditto; 74 Wales, beginning of paper on foreign trade which developed into i article on Cairnes ['Mr. Mill's Theory of Value'] ii book on Foreign trade; 75 America, Foreign Trade; 76 Switzerland, ditto; 77 Cornwall Economics [of Industry]; 78 Ufford, ditto; 79 Torcross, ditto; 80 Clovelly, Value; 81 Salcomb, ditto; 82 Achensee, ditto.

The date of composition of this note cannot be ascertained.

¹³ For Marshall's discussion of the treatment of demand in Mill's *Principles*, see *Memorials*, pp. 128–30. Mill's review, 'Thornton on Labour and its claims', appeared in the *Fortnightly Review*, Vol 5 (May, June 1869). It is reproduced in J. S. Mill, *Collected Works*, Vol V, where see especially pp. 636–7.

¹⁴ Fleeming Jenkin, 'Trade Unions: How far Legitimate?', *North British Review* (Mar 1868), reproduced in idem, *The Graphic Representation of the Laws of Supply and Demand and other Essays on Political Economy*, No. 9 in a Series of Reprints of Scarce Tracts in Economic and Political Science (London School of Economics, 1931), where see especially p. 17n. It seems probable that Jenkin had been anticipated by Leslie Stephen, like Marshall a Cambridge Wrangler. See F. W. Maitland, *The Life and Letters of Leslie Stephen* (Duckworth, London, 1906) p. 75.

full account of

- (i) the frictions preventing rapid adjustment,
- (ii) the fact that demand for productive factors is a derived demand,
- (iii) the fact that many commodities are jointly or compositely demanded or supplied.

By about 1870 Marshall's thoughts were sufficiently systematic for him to commence to set them out in a series of essays, or papers, which were probably composed over the years 1870–4.¹⁵ Without going into excessive detail, the picture revealed by these essays may be described as follows.

Value A comprehensive statement of the partial-equilibrium theory of price determination, recognising different degrees of supply adjustment and analysing falling supply curves. Extension to solve Mill's 'exceptional case' of joint supply with fixed proportions. Analysis of joint demand, and joint and composite demand and supply, and adumbration of monopoly equilibrium. The downward-sloping market demand curve is taken for granted and not derived from utility maximisation.¹⁶

Money The theory of value expresses the value of any particular commodity in terms of 'commodities in general'.¹⁷ The theory of money expresses the value of money in 'commodities in general', also. Thus the two theories play complementary roles.¹⁸ The demand for money by an individual reflects his balancing of the advantages of holding greater monetary command over other commodities against the cost of holding less of his assets in interest-yielding form. This is the nearest

¹⁵ They are reproduced in Part II, below. Some of the material reproduced in Part IV is also relevant.

¹⁶ Compare Section II.2 and Items IV.2.1 and IV.4.1, below.

¹⁷ The concept of 'commodities in general' runs through Marshall's early work. He appears to have borrowed it rather uncritically from Mill, and ultimately Ricardo, without giving much thought to its exact definition.

¹⁸ This was observed by M. Friedman, 'The Marshallian Demand Curve', *Journal of Political Economy*, Vol 57 (Dec 1949) pp. 463–95; reprinted in *idem, Essays in Positive Economics* (Chicago Press, 1953).

approach in the early work to a marginal analysis of consumer behaviour.¹⁹

Rent The price of agricultural output, and the rent of the land producing that output, are determined simultaneously by the demand curve for output, the marginal yield curve to the application of doses of labour and capital, and the profit-maximising condition that the value of the yield from a marginal dose should equal the cost of hiring that dose, which cost is taken as constant.²⁰

Wages The treatment is still tied to a wages-fund approach, to the extent of regarding wages as advanced from capital. The demand curve for labour thus represents the amount of available wage capital. This amount is not rigidly fixed, but adjusts to reflect capitalists' decisions to reallocate their capital to the form of machines, buildings, ornamental parks, etc. It is recognised that wages will be approximately driven by competition to equal the discounted value of the worker's product, and that the use of fixed capital will depend on the rate of profit, and hence the rate of wages. But there is no indication of a systematic derivation of these propositions in terms of a marginalist model with continuous substitutability of inputs.²¹

Welfare and Taxation Analysis of the positive effects of taxes is complemented by an analysis of welfare effects in terms of consumers' and producers' surpluses. Consumers' surplus appears to be derived on the assumption that each consumer buys either one or no units of the commodity in question. Marshall's more elaborate analyses of optimal systems of indirect taxes, and tax-subsidy schemes in the face of increasing returns, cannot be confidently traced before the mid-1870s.²²

¹⁹ For Marshall's early work on money see Section II.3 and Item IV.3.4, below.

²⁰ Compare Section II.7 and Item IV.3.1, below. Also see *Economics of Industry*, pp. 83–6, for what amounts to Marshall's own summary of his early ideas.

²¹ Compare Sections II.4 and II.6, and Item IV.3.3, below.

²² Compare Items IV.2.1, IV.3.5 and IV.3.6, below. For Marshall's analysis of optimal systems of indirect taxes – an analysis hitherto unknown and unexpected – see Item IV.4.2, below. For his tax-subsidy arguments see Section III.6 and Item IV.4.2, below.

International Trade A comprehensive and systematic development of international offer curves and trading equilibrium, whose abstractness and generality of design reveal Marshall's mathematical training more clearly than does the remainder of his early work.²³

The general picture revealed here, impressive as it may be, falls considerably short of Marshall's claims, as recorded above. Of course some of his writings may have been lost, and other ideas may not have been committed to paper. But the summary seems entirely consistent with the evidence of *all* the early manuscripts. Fragmentary traces, at least, might be expected to have survived if substantial developments had gone unrecorded, but of these there is no hint at all, outside Marshall's much later claims. Ultimately this is not a matter for great surprise. Mature reflection suggests the extreme improbability of the complex structure of Marshall's theoretical system having sprung to his mind ready formed, even in embryo, when he stood 'bewildered on his sudden entry into the strange land of economics, where many of the cardinal doctrines seemed to be mathematical propositions overlaid by the complex relations of real life; and at the same time distorted and stunted because the older economists had not recognized the mathematical conceptions that were latent in their own'.²⁴ This describes the conditions, not for the sudden, blinding discovery of a new system, but for patient construction by a process of careful refinement, clarification, accretion and synthesis, extending over a decade or more. It seems much more probable that this was the way in which Marshall developed his system from what, at the beginning, was little more than half-formed thoughts and vague intimations as to fruitful lines of development. The detailed process of evolution can only be conjectured, but the fragmentary evidence suggests that it went along the following lines.

There seems little reason to doubt Marshall's frequent claims that, to some extent under Cournot's influence,²⁵ he

²³ Compare Section II.8 and Item IV.3.2, below.

²⁴ *Memorials*, p. 359.

²⁵ Compare Item IV.2.1 below. Also see *Memorials*, pp. 359–60.

had developed the essential notions of demand-supply analysis and consumer and producer surplus before seeing Jenkin's 1870 paper in *Recess Studies*,²⁶ and so before the appearance of Jevons's book in 1871. But his derivation seems to have been only for the special case in which each buyer buys either one or no units of the commodity in question. In this special case, consumer surplus is the difference between 'value in use' to the consumer and 'value in exchange', or price. For the 'terminal' buyer, the two are equal, so that price is equal to 'terminal value in use'.²⁷ The market demand curve is downward sloping without exception, since no buyer will leave the market as price falls, and total consumers' surplus is measured by the usual excess area under the demand curve – provided only that the value in use of the commodity to each buyer is unaffected by a further fall in its price. This was probably taken for granted, since the aggregate measure could be applied only approximately in any case. Marshall can hardly have overlooked the general possibility of allowing consumers to buy more than one unit of the commodity, but

²⁶ Fleeming Jenkin, 'The Graphic Representation of the Laws of Supply and Demand', in Sir Alexander Grant (editor), *Recess Studies* (Edmonston and Douglas, Edinburgh, 1870). Marshall's copy is preserved in the Marshall Library and several of the essays are annotated, but not Jenkin's. Foxwell recalled, 'I happened to come across [Jenkin's 1870 paper] in the Easter vacation of 1870, when I was attending Marshall's lectures on diagrammatic economics, & I shall never forget his chagrin as he glanced through the article when I showed it to him. There was nothing in Cournot which so closely agreed with Marshall's general approach to the Theory of Value & particularly to his statement of the equation of supply & demand.' (Letter to J. M. Keynes, 24 Apr 1925, Keynes Papers, Royal Economic Society.)

Jenkin's full treatment of consumer and producer surplus awaited his 'On the Principles which Regulate the Incidence of Taxes', *Proceedings of the Royal Society of Edinburgh*, 1871-2. (Both papers are in the reprint cited on p. 41 above.) Marshall remained quite unaware of Jenkin's Edinburgh paper until after the publication of the *Principles* (*Principles II*, p. 534; letter to J. M. Keynes, 14 Dec 1910, Keynes Papers; letter of 6 Apr 1896 to E. R. A. Seligman in J. Dorfman, 'The Seligman Correspondence', loc. cit.).

It is remarkable that Marshall never referred to Whewell's attempts at the mathematical refutation of Ricardo. These attempts (only now beginning to receive proper appreciation) dealt rather clearly with demand, and must have been in familiar repute among Cambridge mathematicians of the 1860s. See W. Whewell, *Mathematical Exposition of Some Doctrines of Political Economy* (Kelley, New York, 1971).

²⁷ The phrase used in the 1883 letter to Walras quoted above. The word 'terminal' is not in fact found in the early writings, but the idea is clearly present.

there is nothing to indicate any detailed elaboration along such lines. Thus, there seems to be substantial truth in G. F. Shove's conjecture that 'Though one cannot speak with confidence, one may hazard the guess that Marshall began with the objective demand and supply schedules, the phenomena of the market-place, and worked back from them to their psychological basis, not (as was the case with Jevons) the other way about'.²⁸

Fleeming Jenkin had little to add, but when Jevons's eagerly-awaited book arrived, its heavy emphasis on the mechanics of utility maximisation must have been a surprise. Marshall's reaction was unenthusiastic, and one can sense two rather distinct reasons for this. First, Jevons's analysis of human behaviour must have seemed banal to one who had already discerned the route towards 'a general theory of psychology ... capable of being developed into the true one', and who, through intimate acquaintance with Sidgwick and the writings of Grote and Bentham, already possessed a refined appreciation of Utilitarian ethics.²⁹ Second, Jevons's stress on un-measurable utility, and his unsatisfactory concept of 'trading bodies', took the theory away from the realm of practical applicability. In contrast Marshall was willing to work with the operational 'excess-area' measure as his *definition* of consumers' surplus, without worrying much about any precise utility interpretation. For any application must be loose, at best, because of the need for supplementary information and value judgements on distributional questions.³⁰

Gradually, however, he seems to have found pedagogic virtues in Jevons's approach – one being that a neat formal analogy could be developed between consumer rent and landlord rent. *The Pure Theory of Domestic Values* shows an

²⁸ G. F. Shove, 'The Place of Marshall's Principles in the Development of Economic Theory', *Economic Journal*, Vol 52 (Dec 1942) pp. 294–329. (The quotation is from p. 307.)

²⁹ The quotation comes from p. 7 above. Marshall's copy of J. Grote, *An Examination of the Utilitarian Philosophy* (Deighton and Bell, Cambridge; Bell and Daldy, London; 1870) shows evidence of Marshall's careful reading of Bentham and Mill.

³⁰ For Marshall's views on the use of consumer surplus, and its relation to Jevons's work, see particularly *Principles II*, pp. 260–1.

interesting transitional stage,³¹ and Marshall's attitude had changed sufficiently by 1876 for him to credit Jevons with having 'brought out with excellent distinctness many vital points connected with this notion [of final utility]', thereby making 'one of the most important of recent contributions to Economics'.³² The demand theory of the *Principles*, which appears to have been finalised only in the early 1880s, marked the culmination of this transition to a more Jevonian mode of analysis. Marshall's treatment of the disutility of effort seems also to have been largely borrowed from Jevons, and was never perfectly reconciled with another idea – that wages measure the sacrifice parents make in the rearing and training of children.

Turning to the development of Marshall's distribution theory, it is difficult to believe that this had assumed a marginal-productivity guise as early as 1870.³³ The *Economics of Industry* of 1879 certainly presents what is essentially a marginal-productivity doctrine.³⁴ But the abandoned international-trade volume, probably written between 1873 and 1876, still shows strong traces of the belief that wages depend on the advancing of wage capital and hence on saving. Thus, it is argued that the conversion of capital into a fixed form may hurt workers by reducing wage capital and depressing wages. This is just one of the several features of Marshall's early work which indicate that he came to exaggerate the ease of his escape from classical preconceptions.³⁵

The international-trade volume shows an interesting transitional stage, with the earnings of labourers governed by a wage-advance approach, but the earnings of managers

³¹ See Section III.6, below, especially Ch. II, § 2 where the analogy between the two types of rent is also observed.

³² *Memorials*, p. 128n. See also *Principles I*, p. 101n.

³³ In contrast to his later claims as to progress by 1871, Marshall in 1879 only claimed to have been by 1871 'already in the habit of thinking of wages as the discounted value of produce; & not being clear in my own mind as to the mutual causal relations of the various elements. There was nothing that I looked at with greater interest than his [Jevons's] question produce = profits + wages. I did not think his solution valid. I knew I had not one myself.' (Letter to H. S. Foxwell of 10 Jan 1879, generously made available by R. Freeman.)

³⁴ For details see Section I.5, below.

³⁵ See Section III.2, below (especially Item III.2.3, § 17). Also see Sections II.4 to II.6, below.

governed by what appears to be a vestigial marginal-productivity theory.³⁶ This suggests that recognition of the analogy between earnings of labourers and earnings of management – an analogy firmly stressed in the *Economics of Industry* – might have been a crucial step in Marshall's development of a marginal-productivity theory of distribution in general. Against this must be set his frequent asseverations of indebtedness to the ideas of J. H. von Thünen, incurred not later than the very early 1870s. The adoption of a general marginal-productivity theory involved two distinct steps. The first was a recognition of the role of cost minimisation in inducing factor substitution. The second was a switch, away from the asymmetrical classical perspective, to a modern view of the flow of output as the source rewarding all the factors co-operating in production. Both steps could have been suggested by von Thünen,³⁷ and the second step was loudly announced by Walker in 1876. In view of the denial of significant indebtedness to Walker, the most probable conclusion appears to be that Marshall switched gradually to the new viewpoint through the early 1870s, arriving at a fully-conscious and coherent stand by about 1875. Doubtless this drift was to some extent under Thünen's influence, and was also aided by long pondering over Mill's Book IV, whose secular distribution theory could easily be reinterpreted from the new viewpoint so as to make it 'free from wages-fund taint'.³⁸ Traces of the first step – the idea of input substitution – can be found early on,³⁹ but this aspect of Marshall's work seems to have been fully developed only in the 1880s. Only then does he appear to have clearly adopted an analysis of distribution involving explicitly the partial derivatives of the production function.⁴⁰

³⁶ See Section III.2 (especially Items III.2.2, § 7 and III.2.3, § 17).

³⁷ Compare Marshall's notes on Thünen, Item IV.2.2, below.

³⁸ Marshall told Sidgwick in the late 1880s: 'In my opinion Mill's theory of wages is to be found in his Book IV, not II; and there, his point of view is quite modern, & free of wages-fund taint. I regard his essay on Thornton as a (misjudged) piece of magnanimity'. (Annotation to a copy of H. Sidgwick, *Principles of Political Economy* (Macmillan, London, second edition 1887) preserved in Marshall Library.) This annotation illustrates Marshall's habit of reading his own ideas into earlier work. See also *Principles I*, p. 824; *Principles II*, pp. 818–19; *Memorials*, p. 316.

³⁹ See Sections II.4 and II.6, below.

⁴⁰ See Items IV.4.4, IV.4.7 and IV.4.8, below.

But the general idea of marginal productivity is certainly indicated in the *Economics of Industry*.

The concept of quasi-rent is clearly indicated in the *Pure Theory of Domestic Values*, probably written around 1875.⁴¹ It can be glimpsed before this date only in the vaguer form of supply curves that are more inelastic in short periods than in long. But it remains quite possible that the general idea was recognised by Marshall as early as 1870, when he was concerned with the closely-related problem of reconciling discrepant classical theories of normal and market value.

Few of Marshall's theoretical discoveries of the early 1870s could have been evident at the time, outside a small circle of friends and pupils, and no contemporary assessment survives. Even for posterity, assessment is made difficult by problems of dating and possible loss of evidence. The one firm benchmark is the 1872 review of Jevons.⁴² This shows a clear recognition of economic interdependence, and makes approving reference to Jevons's marginal-productivity formulation of the demand for capital. But its treatment of distribution theory remains, like Jevons's, very hesitant and tentative. The review shows promise of great powers, yet it is consistent with the view that Marshall became prone in later life to exaggerate his precocity as a theorist.

Such a failing is venial enough, and it would run counter to all we know of Marshall's character, and the strength and selflessness of his dedication to economics, to doubt his claim that 'I make it a point of honour to acknowledge my obligations – whenever I contract them, and when they are not obvious.'⁴³ Still a tendency to harp on one's subjective originality, and a shade of ungenerousness towards one's contemporaries, can combine to give an unconscious but unfortunate air of intellectual dishonesty. Such tendencies in Marshall's case were among the less attractive strands in a remarkably complex personality, and were perhaps aggravated by the various causes frustrating for many years the adequate publication of his ideas. Yet we must join Marshall

⁴¹ See Section III.6, below, especially Item III.6.2, Ch. II, § 5.

⁴² *Memorials*, pp. 93–100.

⁴³ Letter to E. R. A. Seligman of October 1896 (reproduced in J. Dorfman, 'The Seligman Correspondence', loc. cit., p. 408).

in the mitigating recognition that a man's 'devotion to the truth which is dominant in his own mind will be apt not only to render him jealous of the position of complementary truths, but so far to pre-occupy his thoughts as to hinder him from perceiving all that these truths have worked in the minds of others'.⁴⁴

The way in which Marshall's early work developed appears to strengthen and confirm Shove's view of him as a direct descendent of the English classical school.⁴⁵ The pre-eminent influence traceable in his early work is that of J. S. Mill. By contrast, the influence of Cournot, Thünen and Jevons was initially slight, but perhaps significant in its longer-run consequences, while any influence from Walras, Menger, Fleeming Jenkin or F. A. Walker remained imperceptible.⁴⁶ For more than a decade after 1868, the works of the classical triumvirate, Smith, Ricardo and Mill, formed the backbone of Marshall's serious teaching of economic theory, so that he must have become profoundly familiar with their thought. They became his heroes, to be defended against the attacks of hostile critics, like Jevons, and misguided friends, like Cairnes.⁴⁷ The reverence for Adam Smith grew with Marshall's broadening interest in the applied and historical side of his subject. Ultimately, if he had an exemplar, it was surely Smith. On the other hand Mill soon came to be disparaged as a theorist in comparison to Ricardo, and even the latter appeared unfortunate 'in his choice of cases to be worked out in detail'.⁴⁸ Nevertheless, during the earliest years of Marshall's

⁴⁴ *Memorials*, p. 119.

⁴⁵ G. F. Shove, 'The Place of Marshall's Principles in the Development of Economic Theory', loc. cit., pp. 294–5.

⁴⁶ Marshall's relations with Walras are discussed in Section I.7, below. Menger's work appears to have remained completely unknown in England until well on into the eighties, so that any discussion of influences would seem beside the point.

⁴⁷ Marshall's 1876 essay on 'Mr. Mill's Theory of Value' (*Memorials*, pp. 119–33) was essentially a defence of Mill against Cairnes.

⁴⁸ *Memorials*, p. 162. The disparagement of Mill as a theorist started, but only very mildly, as early as 1875 in a letter to Jevons. (Reproduced in R. D. C. Black, 'W. S. Jevons and the Economists of his Time', *Manchester School*, Vol 30 (Sept 1962) p. 212.) See also *Memorials*, pp. 99, 374. In a manuscript note, apparently written around 1904 and now preserved in the Marshall Library, Marshall went much further, contrasting Ricardo's 'marvellous scientific instincts' with the 'lack both of scientific instinct and of careful habits of observation, which deprived Mill's unrivalled faculty of exposition, and his fine spirit of humanity, of much of their power for good, whenever he ventured far beyond Ricardo's track'. Having commenced by perhaps over-valuing Mill, Marshall seems to have ended by undervaluing him.

economic work, say up to 1872, the predominant influence seems to have been exercised by Mill's version of Ricardian theory.

By about 1874 Marshall's thinking must have become sufficiently precise for speedy publication of a small monograph on theoretical topics to be feasible, and such a course would have gone far to establish his fame. His unwillingness to do this is, perhaps, sufficiently explained by a reluctance to publish his theoretical work without its factual and historical underpinnings. Yet there were also conceptual perplexities which would have made any speedy publication incomplete. Most important was the difficulty of reconciling a firm conviction that increasing returns were widespread, with an equally-firm perception that monopolisation was not the common result. He told Flux

My confidence in Cournot as an *economist* was shaken when I found that his mathematics *re I[ncreasing] Return]* led inevitably to things which do not exist and have no near relation to reality. One of the chief purposes of my *Wanderjahre* among factories, etc., was to discover how Cournot's premises were wrong. (Marshall to A. W. Flux, March 1898.)⁴⁹

There were also difficulties in defining producer surplus under increasing returns, and even the concept of consumer surplus lost its simplicity and practical applicability when the implications of its reliance on constancy of the marginal utility of money came to be fully grasped.⁵⁰ Finally, the theory of distribution remained imperfectly settled in Marshall's mind even after 1876, so that he had remained reluctant to write about it in the *Economics of Industry*, 'because I did not then

⁴⁹ *Memorials*, pp. 406-7. For a similar passage see *Principles II*, p. 69, where Marshall adds that Cournot's failure 'contributed to make me hold back most of my diagrams as to value from formal publication for twenty years . . .' Elsewhere, Marshall accused Cournot of not recognising that his assumptions lead to monopoly (*Principles I*, p. 459; *Principles II*, p. 524), a slip one can only attribute to a lapse of memory.

⁵⁰ For the earliest evidence on Marshall's perception of these difficulties, see Item IV.4.2, below. See also *Principles II*, p. 797. C. W. Guillebaud records that the eventual recognition of the limited applicability of consumer-surplus analysis was one of Marshall's great disappointments. See C. W. Guillebaud, 'Some Personal Reminiscences of Alfred Marshall', *History of Political Economy*, Vol 3 (Spring 1971) pp. 6-7.

see my way clearly as to some parts of it.⁵¹ This suggests that the composition of that supposedly-elementary book was an integral part of the development of his theories. Indeed, the process of evolution seems to have extended well into the eighties.

I.3 The Search for Economic Reality

To a considerable degree, Marshall's earliest work in economics retained the 'bookish' *a priori* tone of the studies in philosophy and psychology from which it grew. But by the early 1870s a new tone emerges, with the elucidation and reconciliation of 'authorities' giving way to an increasing preoccupation with inductive and historical enquiry. One cause of this may have been Marshall's readings in the Socialist literature. He confided to an unknown correspondent in 1889

*Speaking generally I agree with your criticisms of Marx. His theory of value is in my opinion a series of *petitiones principii*. But I owe much to him. I read his book in 1870, & his extracts from English blue-books—garbled though many of them are—were of great service to me. Now everyone knows about the state of factory labour early in the century; in 1870 very few people had given their attention to it.¹*

But the growing interest in facts also reflected the natural bent of Marshall's mind. Like others of the immediate post-Darwinian era, he had a touching belief in the fruitfulness of close observation: like Galton, he was a keen student of physiognomy. Mrs Marshall recalled

Whenever he visited a fresh town his plan was to go first to the picture gallery & next to the best shop for buying prints or photographs for his collection of portraits. Of which he made a collection, grouping them as poets, musicians artists etc. He hoped to be able to make some generalisations w^h. w^d. enable him to find out physical

⁵¹ *Principles II*, p. 232.

¹ Letter of 20 Oct 1889. Marshall Library, Marshall 3:77.

characteristics of musicians poets etc. but he did not come to any conclusions.²

Thus, Marshall set himself 'to obtain some insight into industrial problems by obtaining leave to visit one or more representative works in each chief industry'.³ He also made efforts to gain first-hand knowledge of the workings of trades unions and cooperative societies, but we know very little about his associations here, prior to the Cooperative Congress of 1889.⁴ Later, in the early nineties, his service on the Labour Commission induced more intimate contact with the leaders of the trade-union movement.

Using a legacy of £250, Marshall furthered his search for a mastery over facts by spending the summer of 1875 in an extended visit to North America. And,

though his relations laughed at him, he always said that he never spent money so well. It was not so much what he learnt there as that he got to know what things he wanted to learn. He was able to see the coming supremacy of the U.S., to know its causes & the directions it w^d. take.⁵

He sailed on the S.S. Spain, of 5000 tons, arriving in New York on 6 June. His travels took him to Albany, Springfield, Boston, Lowell, Providence, Norwich, Rochester, Niagara, Toronto, Hamilton, Cleveland, Chicago, Omaha, San Francisco, St Louis, Indianapolis, Cincinnati, Columbus, Pittsburgh, Philadelphia, and back to New York, where on 2 October he re-embarked on the S.S. Erin. In the East the indefatigable Marshall visited many factories, and also the communist settlements of the Shakers and the Oneida Perfectionists.⁶ In the environs of Boston he toured the Chickering Piano works, 'the largest watch Factory (at Waltham) & the largest organ

² Manuscript note, Marshall Library. Headed 'Notes which repeat as little as possible those used in Keynes' Memoir', the notes were probably written after Marshall's death for the benefit of W.R.Scott.

³ *Industry and Trade*, p. vii. See also *Memorials*, pp. 358–9.

⁴ See pp. 12, 13, 34 above. Also see *What I Remember*, p. 44; *Memorials*, p. 50.

⁵ From the manuscript note by Mrs Marshall previously cited. The details which follow are based on notes and letters written by Marshall during his American visit, now preserved in the Marshall Library. The letters were written to his mother, Rebeccah Marshall. See Marshall Library, Marshall 3:66–76.

⁶ See Section V.3 below (Vol 2, p. 371) for further details of his visit to the Shakers.

Factory (Mason and Hamblins) in the world & six other factories'.⁷ At a horseshoe works near Troy, New York:

An elaborate notice was painted up 'No admittance; no passes given.' I went boldly into the office. The subordinates did not think of giving me leave: my card was sent into one of the firm: he cross examined me with some care & then said, 'As you are a stranger I have great pleasure in sending you over.' I was chaperoned by a policeman. The central operation was this: a bar of iron . . . was put red hot into a machine, a sort of hook caught it & pulled it back thus giving it the general outline of the shoe, then came two moulds down on it which gave it the rims & holes for the nails etc. They could make 60 a minute running extra high speed . . . It seemed to me to be a brilliant adaptation of an old idea rather than an original invention of a high order.⁸

Marshall's omnivorous eye for detail was exercised frequently on this visit to a strange new world. The loop to the West Coast took him through Virginia City, the silver-mining town in Nevada. This was 'Much quieter than it was a few years ago, gambling on smaller scale, less shooting'. Wages had been \$10 a day but had come down to \$4. 'Still anyone who worked for \$3.95 underground would infallibly be hung or shot. If it were not for the union wages would be down to \$2, or $2\frac{1}{2}$ as they are with the miners of California: but the union 4000 or 5000 strong with plenty of six shooters for tyrannical masters is strong enough to prevent them from going lower.'⁹ Casting a eugenic eye on 'the wild population of Virginia City', he found 'the stronger virtues . . . present in the men to a very high, an exceptionally high degree', so that 'the next generation might be a splendid race if the gentler virtues were present among the women. But there is scarcely a virtuous woman in the state of Nevada . . . The weak point of the far west lies in their women.'¹⁰

He was much impressed with American 'go' and, although he thought that 'nine Englishmen out of ten would find

⁷ Letter of 25 June 1875. Hamblin is correctly spelled Hamlin.

⁸ Manuscript note.

⁹ Manuscript note.

¹⁰ Letter of 22 August 1875.

themselves more happy & contented in Canada than in the U.S.', concluded that 'I myself if I had to emigrate, should go to the U.S.'¹¹

On his return to Cambridge, Marshall pondered at length on his American travels in a remarkable paper to the Moral Sciences Club, reproduced for the first time in Section V.3, below. There can be little doubt that the visit had been a formative experience, helping to reinforce an innate distrust of policies that would hamper the individual initiative whose ultimate promise for meliorating, liberating economic growth, had to be carefully weighed against any present inequalities and harshnesses it might engender. Both the promises and the flaws were writ large in American society.

Even in 1885, when Marshall had become an established figure, his zeal for field work remained unimpaired. In the summer of that year, a critical juncture in the composition of the *Principles*, the Marshalls spent some weeks in the north of England. Mrs Marshall kept notes on the tour, and the extracts which follow give some indication of its energetic pace.

Account of travels Aug. and Sept. 1885¹²

Coniston Copper mines....

Kirby Slate quarries....

Barrow Rapid growth – product of railways – docks, Iron and steel works – jute factory to employ women. Shipbuilding – Industrial conditions good. Town well built. Trams and trains and beautiful and interesting scenery, good air.... Saw large Steel works – and beautiful factory girl. Is factory life or domestic service best (i) for the girl (ii) for the race? Wonderful floating dry dock. Saw varieties of ore. Bessemer process. Rolling iron rails....

Millom Iron mines.... Iron furnace close by....

Whitehaven Very black and disagreeable. Coal mines close to sea.... The women looked ferocious.

Lancaster (Aug 25th) Charming rather conservative looking

¹¹ Letter of 10 July 1875.

¹² Manuscript note by Mary Paley Marshall, Marshall Library. The notes appear to have been used for p. 43 of *What I Remember*; see also, *Memorials*, p. 420, for a reference to the visit to Keighley. Ampersands are written out.

old town but a good deal of manufacture, chiefly furniture . . . Visited Gillow's - machine for cutting square furniture . . .

Preston (Aug 25th-27th) Fine enterprising town, most beautiful hotel we have seen . . . Visited Horrocks' spinning and weaving mills - went on trams and walked in working people's quarters. Children dirty. Excellent houses and furniture nearly universal. Favourite ornament large china dogs . . . *Blackpool* (Aug 27th-Sept 1st) Went to dancing on pier theatre. Dancing well conducted. Women superior to men physically . . . On Sunday 31st went to sacred concert, struck by fineness of faces of audience . . . On Saturday and Sunday great crowds of factory workers. No drunkenness or even drinking . . .

Aysgarth (Sept 1st-16th).

Keighley (Sept 16th) Ideal factory town . . . Visited Prince Smith's spinning machine works, all latest improvements. Were shown over by very intelligent man who had invented spinning machine w^h. stopped of itself when one strand broke . . .

Haworth (Sept 17th).

Saltaire (Sept 18th) Could not see over chief part of works but saw the place. I thought it rather dreary looking and sh^d. prefer life at Keighley . . .

Keighley (Sept 18th) Visited Hattersley's weaving machine works . . .

Sheffield (Sept 18th-24th) Black but picturesque. Sept 19th Walked about town. In evening went to all the markets . . . Sept 20th Sunday I went to Salvation Army in morning . . . In afternoon took train to suburbs . . .

Sept 21st Visited Mr. Stevenson . . . at his type-founding works. He said only 6 type founders in U.K. They had a monopoly and met together and fixed price of type . . . A[lfred] suggested that type sh^d. be cooled by compressed air system . . . In afternoon saw Hulton's electro-plate establishment. Were struck by inferiority of machinery . . .

Sept 22nd Mr. Stevenson called for us in morning . . . We went to Osborne's File makers and saw all the process . . . Only firm in Sheffield with file cutting by machinery . . . In afternoon Mr. Stevenson called and gave us introduction to Jessop's Steel works. There we saw process for blistering steel.

Young Mr Jessop spoke of great passion of workmen for country, on Sundays they w^d. take 20 and 30 mile walks . . . After this went to Rodger's Cutlery works . . .

Sept 23rd Went early . . . to Sir John Brown's Steel works. Saw armour plate 10 inches thick forged, cut, pierced with holes and manipulated by gigantic machines with greatest ease – Very grand sight . . . In afternoon went to Sorbey's Saw-making works.

There was much to admire in all this strenuous enquiry on Marshall's part, accompanied as it was by a voracious reading and annotation of all kinds of applied writings, and zestful cross examination of any 'practical man' within reach. Marshall attained an immense knowledge but, in the nature of the case, much of the knowledge soon dated, and much suffered from the unreliability of hearsay evidence. The process of acquisition, too, was far from costless. It retarded the composition of Marshall's writings. And, whether as cause or consequence, it appears to have been accompanied by a drift of interest and long-sustained thought away from questions of pure economic theory. The habit confided to Clark of restricting serious reading to books 'almost exclusively concerned with matters of fact; though I try to read or skim any piece of analysis in which a man works to produce knowledge and not to controvert others'¹³ seems to have been formed quite early on. The source of many of the flaws, as well as the virtues, of the *Principles*, lies in Marshall's almost obsessive attempt to apprehend in all its aspects an ever-changing economic reality.

I.4 The Abandoned International-Trade Volume and the 'Pure Theory'

Around 1873 or 1874, recognising that the full returns to his search for a comprehensive command of economic reality would come only after years of patient enquiry, Marshall embarked on the composition of 'a separate monograph or special treatise on Foreign Trade; for the chief facts relating to it can be obtained from printed documents'.¹ His visit to

¹³ *Memorials*, p. 417.

¹ *Memorials*, p. 20: see Section I.1 above, p. 12.

the United States in 1875 was governed, in part, by a desire to learn at first hand about American protectionist doctrines, and he consulted during his travels various American economic authorities.² The Chapter on American Protectionism was, in fact, never completed,³ but most of the book was put into a finished form – though doubtless Marshall would have revised further had he pressed on to publication.

He appears to have sent the largely-completed manuscript to the publishers Macmillan and Co. in 1876 or early 1877, at the same time broaching the project for a two-volume *Outline of Political Economy*, to be jointly authored by himself and Miss Paley. The draft outlines read:⁴

Theory of Foreign Trade etc.

Probably not more than 160,000 words (exclusive of marginal notes): almost certain not to exceed, 200,000 words. Some portions of MSS. (chiefly those pencilled at side) to be in smaller type. Types large and small those of Cambridge Shakespeare. Wish the price to be low rather than high but not extraordinarily low.

Outline of Political Economy

Part I Economics of Industry

Part II Economics of Commerce and Finance

Each part to consist of 24 chapters.

The chapters of Part I will average probably not more than 3000 words certainly not more than 3300 (i.e. the Part will contain probably not more than 72,000 words or 185 pages, certainly not more than 80,000 words or 205 pages). Type somewhat similar to Macmillans' Primers, price not to exceed 1/6. Copyright after ye second edition to revert to Miss Paley.

Alexander Macmillan replied in a handwritten letter of 17 April 1877 as follows.⁵

² See the Introduction to Section III.4, below.

³ A fragment is reproduced in Section III.4, below.

⁴ Marshall Library, Marshall 2:49, undated. Slight editorial emendations have been made.

⁵ Marshall Library, Marshall 2:36. Marshall's side of the correspondence has apparently not survived.

A Marshall Esqre
 St John's College
 Cambridge

Macmillan and Co.
 Publishers to the University of Oxford
 29 & 30, Bedford Street,
 Covent Garden, W.C.
 London. 17 April 1877

My Dear Mr. Marshall

I am glad to say that Mrs. Fawcett does not object to our publishing your & Miss Paley's book.⁶ The main point that she dwelt on was that both in title & form it should be made to appear as little as possible a rival to hers. This I assured her you would be anxious to do.

The terms on which we would be willing to publish this book would be of the same kind as we publish the Primers on. That is we pay a certain sum on publication calculated after a certain number of copies were sold to repay our outlay & yield an equivalent profit to us. After that we should pay a royalty for every copy sold. All these amounts could only be definitely settled when the size & cost of the book were ascertained. But we could pretty well fix it when the MS. was in our hands complete. I suppose you would like to have the MS. [for the *Economics of Industry*] back for thorough revision & completion.

We had agreed as I understood that we should publish your larger book [on Foreign Trade] on the terms that we take all risks of publication & share equally with you any profits that may arise. This we are willing to do & I understand you also agree to these terms.

In looking over your MS. [on Foreign Trade] it struck us that considerable improvement might be made in both the literary form & in the actual construction of the book. I have taken the liberty of sending the MS. to a friend who has an adequate knowledge of Political Economy but who is specially a man of fine literary taste. You will not mind I hope our

⁶ Macmillan and Company already published Mrs Fawcett's *Political Economy for Beginners* (First edition 1870, Seventh edition 1888), a highly successful Primer. It is interesting to note that in 1878 Macmillan also published W. S. Jevons's brief *Political Economy* in its *Science Primers* series. Also, and perhaps surprisingly given its difficulty, Marshall's book did in fact take much of the 'primer' market from Mrs Fawcett – at least according to Luigi Cossa. (See L. Cossa, *An Introduction to the Study of Political Economy* (Macmillan, London, 1893) p. 358.)

getting his suggestions. I trust both your books may succeed in our hands. With very sincere regards to Miss Paley & yourself believe me

Yours very truly
Alex Macmillan.

In a further letter of 14 May 1877, Macmillan reported that:⁷

We are returning your MS. [on Foreign Trade] by rail today. Our reader had been busy & only sent it back this morning. He had seen your articles in the *Fortnightly*,⁸ and thought highly of them as to substance & thinks also highly of this. But as regards the style, his judgement is that though fairly clear it wants vividness & the reader is not carried along. Perhaps the word that might convey best what he means might be that it is rather too merely meditative, as if you were thinking your own thought without fully bearing in mind the audience. He uses the word *intricacy*. I don't know whether this will help you much. I daresay as you go along you will find out the faults yourself. I would suggest reading bits of it aloud to a friend & seeing where & in what way he found it hard to understand. If once you get one sentence right in that sense it will lead to the rest coming right.

We will be ready to begin printing whenever you like. Perhaps we might as well have the agreements drawn up for both this book and the other smaller book. Have you thought of an exact title for the Educational book?

Here matters rested, apart from the settling of terms for the *Economics of Industry*,⁹ until the late spring of 1878 – a delay

⁷ Marshall Library, Marshall 2:37.

⁸ There was in fact only one article by Marshall in the *Fortnightly Review*: his essay on 'Mr. Mill's Theory of Value', Apr 1876.

⁹ The letter from Mr Jack of Messrs Macmillan and Co. offering terms (Marshall Library, Marshall 2:41) is of some interest and reads as follows, being dated 19 July 1877:

We have been thinking over the whole matter in the light of your statistics & of your MSS. We find 654 students attending Pol. Econ' classes, 120 examined, during year.

Assuming all of the 654 to use the book, & considering that each of the 120 will in course of time become a centre of Educational influence, we should think that 2000 might fairly represent the sale in the first years of which alone anyone would like to speak beforehand. Probably too the book requires a good deal of the

to be accounted for by the disturbances incident to marriage, the setting up of house, and the undertaking of onerous new duties as Principal and Professor at Bristol. Marshall then wrote the following draft for a letter to Mr Jack of Messrs Macmillan and Co.¹⁰ Portions in curly brackets were deleted.

In a letter dated July 26 1877 you asked 'shall we proceed to set up another specimen page or so [for the *Economics of Industry*] now, or will you be so much engaged that we ought to wait till hearing from you again'.¹¹ I answered that for some time to come we should be unable to proceed with the book. {I have delayed writing to you again till we could see our way to finishing the book off.} I think I am able to say

readers attention, a quality which will make it at once excellent for students & perhaps a little too high pitched for what one might call an eighteen penny audience. On the whole, feeling confident that a very considerable portion of the sale is equally secure whether the price is 1/6 or 2/6 seeing that the book will not look dear at 2/6, & that the second volume ought probably to sell at the same price and would not probably have so large a sale, we should decidedly advise 2/6 not 1/6 as the proper price.

The terms we could offer are

1. £50 to cover the first 4000 copies sold in England
2. 5d per copy on every copy beyond the 1st 4000 sold in England. Half for America.

We should urge you to make the final form as satisfactory as you can, to stereotype & to be content till a good many thousand have been used, with such corrections as stereotype plates permit. Whenever in your opinion & ours any completer revision is necessary, we bear all the mechanical cost & you undertake the literary work. It is for our mutual interest & for your reputation that the book should be kept fully up to the latest date.

Faithfully Yours
William Jack

We return the MSS. [of the *Economics of Industry*] to you in Mr Bowes' care.

The statistics quoted refer, presumably, to extension classes. In fact, the book sold 1600 during its first 9 months up to June 1880 (Marshall 2:43). In all 15,000 copies were sold (*Memorials*, p. 39) – giving at 5d per copy just over £300 in days when £300 was a tolerable annual stipend for a university lecturer.

¹⁰ Marshall Library, Marshall 2:49, undated. Slight editorial emendations have been made. The date could hardly be before the publication of Fawcett's book (it would be most unlikely that Marshall read it in manuscript) and could hardly have been after Easter 1879, when Marshall was struck by a severe illness. The reference to a visit to London in July and some further deleted details indicate composition in late Spring, and therefore determine the year as 1878. It is true that Marshall speaks of 'getting the book out by the end of this vacation' (i.e. by October 1878) but he was always an incorrigible optimist in such matters, and the fact is that the manuscript was far from complete at the time the letter was written, yet the *Economics of Industry* appeared despite Marshall's illness in October 1879.

¹¹ William Jack to Alfred Marshall, 26 July 1877 (Marshall Library, Marshall 2:42).

now confidently that if no unforeseen event occurs we shall be able to get it out by the end of this vacation. {I have given the book every minute of time that I could snatch from my College work.}

You may recollect that Mr. Macmillan and yourself urged us to abandon the notion that the book could conveniently partly be rewritten between the first and second edition; and that you advised us to try at once to put it into a form in which we should be content for it to remain.¹² We have followed this advice and have entirely rewritten already {the central and most important half of the book Ch. VI–XVIII} more than half the book. There is still about a quarter of the book which wants to be rewritten, and all of it requires a little finishing. But on the whole we are very much better satisfied with the book than we were at this time last year. We have put into it a good deal more original matter than it had then. But we think that it is not only better arranged, but also much more readable than it was before. And though I can't promise to remain satisfied with it always, I think there is much less chance of our becoming ashamed of it than there would have been if we had driven it through press last year.

I do not think that on the whole we have increased the amount of matter in the book {at all events not considerably}. It will I think still be well contained in the 250 pp. of kind of which you sent us a specimen. But as you know we would very much rather, now that the book is to be sold for 2/6, have 280 or 300 pp. somewhat less crowded; though we admit [it] is as good-looking a page as we ever saw with so large an amount of print in so small a space. If then you would kindly send us another specimen page or two now we should be very much obliged to you.

With regard to the book on Foreign Trade, I have come to the conclusion that it will never make a comfortable book in its present shape. My present notion is that I have three books before me all of which I hope to get out tolerably

¹² See William Jack to Alfred Marshall, 19 July 1877 reproduced above (p. 60 footnote). It appears that Marshall and Miss Paley met Alexander Macmillan, and probably W. Jack, on 17 July to discuss these questions. (See A. Macmillan to Marshall 16 July 1877, Marshall Library, Marshall 2:40.)

quickly {before the end of 1881} in the following order. They are:

- (i) a book on the method of diagrams {distinct from but allied to the methods of analytical mathematics} applied to economic theory including Foreign trade curves
- (ii) a book on Foreign trade for general readers
- (iii) the supplementary volume (on Banking Foreign Trade and Taxation) to that which is now nearly ready.

I could get the curves ready for the Press in a very short time. The Foreign Trade would take me a little longer. The supplementary small book would take us a good deal longer still. {I may perhaps ask for some advice on the question of the order of publication of these three books.} I find that Prof. Fawcett's book,¹³ interesting as it is, has taken up less than I thought it would of the ground I want to cover.

We may be passing through London in the latter half of July: but otherwise we shall not have an opportunity of calling on you unless we come to London on purpose. We could do this if there were a strong reason for doing so: but we are rather stingy of our little store of time.

A.M.

Thus, while the *Economics of Industry* was pushed to a successful conclusion, the Trade volume was abandoned, on the ground that 'it will never make a comfortable book in its present shape'.

What this shape had been, Marshall described in a letter of April 1904 to Henry Cunynghame.¹⁴

In 1874–7 I nearly completed the MSS. of a book on Foreign Trade. What I then regarded – though I do not do so now – as a fairly realistic treatment of the problem, adapted for the use of business men and other non-academics, was the text. Then followed appendices, consisting of the foreign trade curves; and also the other class of curves [for domestic

¹³ Henry Fawcett's *Free Trade and Protection* (based on lectures given in Cambridge in the autumn of 1877) was published by Macmillan in May 1878. Marshall received a signed copy from the author which is preserved in the Marshall Library.

¹⁴ *Memorials*, p. 449. For further details see Section III.1, below.

values] in order to get at consumers' surplus (a) in the open market, (b) in monopoly sales: where I wanted to get in some hyperbolas drawn by a certain machine you know of. I wanted these, because I found all methods of representing the 'total benefit' of foreign trade by their special curves very troublesome. Also I wanted to get out in print those hyperbolas etc. And lastly, in the appendices, I developed or tried to develop the abstract notion of international trade between employers' associations and trade unions.¹⁵

Consequently the Appendix had no realism about it: all that seemed in any way real was put into the first part, which was to be in bigger print.

Substantial portions of the proposed volume have survived and are reproduced in Part III, below. The four chapters which remain, from the seven planned for Part I, reveal enough of the character of this 'practical' first part of the book to suggest that Marshall's early attempts at inductive argument, and at the synthesis of theory and fact, remained faltering and imperfect. On the other hand Part II, the theoretical appendix, was marked by an understandable indulgence of pet notions which it was tempting to 'get into print' even if they were not absolutely essential to the purpose in hand. Thus this erstwhile appendix tended to run away under its own momentum towards becoming a fully-fledged theoretical study, whose relation to Part I was slight, even strained. The resultant disproportion was emphasised by the difficulties met in completing a concluding chapter of Part II, on the welfare effects of taxes on international trade. This was to be the keystone completing the elaborate arch, which had one of its two pillars in the theory of foreign values and the other in the theories of domestic values and taxation.¹⁶ Without this keystone the whole discussion of domestic values and taxation became largely redundant to the main argument.

In these circumstances Marshall's conclusion that the manuscript would 'never make a comfortable book in its

¹⁵ For Marshall's attempts to measure 'total benefit' in terms of his foreign-trade curves see Item II.8.2 below. On the 'machine' and the 'hyperbolas' see Item IV.4.1 below. There is, in fact, no indication of any intention to discuss questions of monopoly in Part II of Marshall's manuscript.

¹⁶ See the letter to Seligman quoted in Section III.1 below (Vol 2, pp. 3-4).

present shape' is not surprising, nor is his decision to revise it as two separate volumes. Part I was to become a 'book on foreign trade for general readers'; Part II was to become 'a book on the method of diagrams applied to economic theory including foreign trade curves'. The theory of domestic values was presumably to be given main prominence in the latter book, freed now of the shackles imposed by subordination to problems of foreign commerce.¹⁷

The proposed popular book on foreign trade made no progress, and no relic survives of further plans for it. The *Economics of Trade and Finance* – the companion announced in 1879 for the *Economics of Industry* – was never even started, though it was still contemplated in 1887. (It too planned to cover *inter alia* questions of trade and protection.)¹⁸ But the proposed book on diagrams, although it certainly did not appear speedily, seems to be the direct progenitor of the *Principles*, with a line of descent traced in Section I.6 below.

Meanwhile, in the Spring of 1879, after the onset of Marshall's illness, Sidgwick asked permission to print some of the chapters of Part II of the abandoned manuscript for use in the economic discussion society at Cambridge.¹⁹ The permission was granted, selection being left to Sidgwick, who chose to reproduce Chapters II, III, V and VI. Chapters II and III were printed with the title *The Pure Theory of Foreign Trade*, while Chapters V and VI were entitled *The Pure Theory of Domestic Values*. Cross references were suitably adjusted, but otherwise there was no editing and many traces of the earlier context survive.²⁰

¹⁷ These shackles had for instance caused the treatment of very short-run 'market' values to be slighted (compare pp. 119–20, below). Sidgwick observed 'I like Marshall's MSS on Foreign Trade, taken as chapters, though I am doubtful about the coherence of the book . . .' (letter to H. S. Foxwell of 2 Sept 1878, generously made available by R. Freeman). J. N. Keynes noted on reading the manuscript: 'Marshall's style of composition is bad, or rather he has not style at all' (Diary entry 27 July 1877, Cambridge University Library, Add 7827–67).

¹⁸ See the Preface to the first edition of *Economics of Industry* (1879); the letter to Foxwell of 22 July 1883 reproduced in Section I.1 above (pp. 24–6); and the letter to Macmillan and Co. of 12 Apr 1887 quoted in Section I.6 below (pp. 88–9).

The genesis of *Money Credit and Commerce* (1923) is too distinct to allow it to be considered as the completion of either of the earlier projects, though the early manuscript was called into service in its aid (see Vol 2, pp. 114–15 below).

¹⁹ See Section III.1, below.

²⁰ See Sections III.5 and III.6 below, where these are reproduced, together with most of Chapters I and IV.

As far as is known, there existed only a solitary copy of the manuscript, and printing was at the time the only adequate way of preparing further copies for a discussion group. Thus printing was not in any sense equivalent to formal publication. But inevitably copies came into circulation outside Cambridge, and knowledge of the existence of the chapters began to percolate among economists. Sidgwick sent a copy to Jevons, who referred in the Preface to the second edition of the *Theory of Political Economy*, dated May 1879, to Marshall's chapters as having 'just been privately printed in Cambridge'. Jevons appears to have loaned his copy to Edgeworth, who refers to Marshall's work several times in *Mathematical Psychics* (1881), characteristically without any clear reference.²¹

The ambiguous status of Marshall's work was extremely unfortunate. Marshall himself regarded it as still unpublished, rather than in the public domain, and discouraged further circulation. For example, he refrained from sending a copy of the *Pure Theory* to Walras, thereby heightening the latter's suspicions of Marshall's motives.²² Probably Marshall's reluctance in the early years reflected his expectation of the early appearance of a perfected version, whereas in the later 1880s his thought had advanced to a point making the *Pure Theory* seem jejune.

J. M. Keynes judged that 'it was a great pity that *The Theory of Foreign Trade with some Allied Problems relating to the Doctrine of Laisser Faire*, did not see the light in 1877, even in an imperfect form.'²³ However this may be, it was certainly a great pity that Marshall did not spend the few hours needed to revise Part II for Sidgwick and did not acquiesce more readily to the wider circulation which was probably inescapable.

²¹ See W. S. Jevons, *Theory of Political Economy* (fourth edition, Macmillan, London, 1911) p. xli; F. Y. Edgeworth, *Mathematical Psychics* (Kegan Paul, London, 1881); *Memorials*, pp. 66, 371. It seems most improbable that Jevons had read Marshall's manuscript as J. M. Keynes suggests (*Memorials*, p. 26n.).

²² See Section I.7, below.

²³ *Memorials*, p. 26. The title quoted by Keynes first appears in the footnote appended to the Preface of the first edition of the *Principles* (*Principles II*, pp. 7-8). See, however, Section III.1 below for the authentic title.

I.5 The 'Economics of Industry'

The negotiations with Macmillan and Co. which lead to the appearance of the *Economics of Industry* in October 1879 have already been described.¹ The book had been started by Mary Paley, but Marshall had a hand in it from early on, and soon took command. Mrs Marshall records:

When I returned to Newnham in October [1876] . . . we made the first outlines of the *Economics of Industry*, which Professor Stuart wanted as a text-book for the Extension Lectures and which with too light a heart I had undertaken to write. It was published in our joint names in 1879. Alfred insisted on this, though as time went on I realized that it had to be really his book, the latter half being almost entirely his and containing the germs of much that appeared later in the *Principles*. He never liked the little book for it offended against his belief that 'every dogma that is short and simple is false', and he said about it 'you can't afford to tell the truth for half-a-crown'.²

After the move to Bristol in 1877, the book was thoroughly rewritten, so that by the summer of 1878 Marshall could tell Macmillans 'We have put into it a good deal more original matter than it had'. The final version certainly bears Marshall's stamp, and it seems improbable that Mrs Marshall contributed much, outside the opening and closing chapters, apart from literary advice and assistance in drafting.³ It is quite a

¹ See Section I.4 above. There was a new edition in August 1881 with an interesting new Preface (partly reproduced in *Principles II*, pp. 12–13, 155–6) but changes in the text were minor. There were also small changes in later printings, the printing of 1885 being described as a third edition. The 1888 revision was the last, but there was a small reprint in 1891.

² Mary P. Marshall, *What I Remember*, p. 22. Marshall subsequently observed: 'Those who suggested that an educational work on economics should be written by a young student (who had attained only a very elementary knowledge of it) were not economists, and did not know that the task of combining simplicity with thoroughness is more difficult in this than in almost any other subject.' (Draft for letter of 2 May 1910 to an unknown Japanese correspondent who wished to publish a translation of the book. Marshall Library, Marshall 3:85. The parenthesised phrase was deleted.)

³ That is, Book I, Chs. I–V; Book III, Chs. VII, IX; chapters which contain more description than economic analysis. It must also be recalled that the first edition of the *Principles* acknowledged 'My wife has aided and advised me at every stage of the MSS. and of the proofs, and it owes a very great deal to her suggestions, her care and her judgment.' (*Principles II*, p. 37: see also *Memorials*, p. 368.) Thus, in a sense, the *Principles* too was a joint product.

remarkable little book and deserves close reading, having very much the character of a first draft of the *Principles*. It fore-shadows many of the qualities of the later book, but also (its length being only a little over 200 pages) has a conciseness and economy more akin to the *Pure Theory*.

The book is presented as 'an attempt to construct on the lines laid down in Mill's *Political Economy* a theory of Value, Wages and Profits, which shall include the chief results of the work of the present generation of Economists'.⁴ The special sense in which the book rested on Mill's work – that is, on the spirit rather than the letter – had already been indicated with considerable persuasiveness in Marshall's article on 'Mr. Mill's Theory of Value' in the *Fortnightly Review* for April 1876.⁵ Still, it was a special sense, and the unwary reviewers fell into the trap of taking the self-effacements at face value. The *Westminster Review* for January 1880 advised it as 'an introduction to the subject in the case of students who hope to proceed to the more detailed works of Mill or Fawcett', while the *Economist* for 28 February 1880 patronisingly applauded the Marshalls for explaining Mill 'with a skill and care which will render their volume of use to a class of readers who might not be disposed to unravel the difficulties presented by the greater work of their master'. (However, there was a thoughtful review by T. E. Cliffe Leslie in the *Academy* for 8 November 1879).⁶

Besides Marshall himself, that 'present generation of economists', whose chief results were to be incorporated in the book, seems to have comprised primarily Jevons, F. A.

⁴ Preface to the first edition, p. iii. (All page references will be to the 1888 printing.)

⁵ *Memorials*, pp. 119–33, where Marshall outlines 'the full power, which is latent, if not patent, in Mill's work'. The preface to the second edition of the *Economics of Industry*, the point where Marshall at last takes the reader into his confidence, explains that 'there is but little in the careful exposition... given by John Stuart Mill which is not, when properly interpreted, true as far as it goes' (p. v).

⁶ This review is reproduced in T. E. Cliffe Leslie, *Essays in Political Economy* (Longmans Green, London; Hodges Figgis, Dublin; 1888) pp. 73–82. (The volume is a second edition of Leslie's *Essays in Moral and Political Philosophy*, 1879.) Leslie wrote: 'The book before us makes greater changes in economic method and doctrine, compared with previous text-books, than might be perceived at first sight; for they are made without sound of trumpet, and for the most part without controversy' (pp. 73–4).

Walker and Cliffe Leslie.⁷ Leslie's inductive studies are respectfully cited on specific issues.⁸ But the neophyte reader could have gained little appreciation of the contributions of the other two authors. Jevons is credited with the 'happy phrase' of final utility, but not the concept, and is attacked only anonymously as the obvious leader of those, no less incorrect than Ricardo, who would make utility the sole basis of value.⁹ Yet, a main feature of the book was its correction of Mill's overemphasis on supply considerations and its crediting of demand with a role in the theory of value fully coordinate with that of supply. This being so, more notice of Mill's deficiencies and of Jevons's merits would have been seemly.

Walker is cited merely on points of detail. And, although Jevons, Walker and Leslie are listed, along with Hearn and Shadwell, as having 'all adopted the same general idea that wages are the share of the produce which the laws of supply and demand enable the labourer to secure',¹⁰ no indication is given of the considerable parallels between the theory of wages in the *Economics of Industry* and that set out in Walker's *The Wages Question* of 1876.¹¹ Instead, the new theory is read into Mill's 'recantation' of the wages-fund doctrine, which is converted, on very little evidence, into Marshall's (and Walker's) view that production is the source of wages:

Instead of holding that there is a certain amount of wealth deliberately set by to be used as Remuneratory capital, [Mill] regards wages and profits alike as coming from that net produce of land, labour and capital which, after

⁷ This is confirmed by the citations. Economists receiving more than one footnote citation are Mill (12), Leslie (8), Jevons (4), Walker (4), G. Howell (4), Bagehot (3), W. T. Thornton (2). Economists receiving more than one citation in the index are Mill (6), Leslie (5), Jevons (5), Bagehot (4), Ricardo (3), Walker (3), Carey (2).

⁸ See *Economics of Industry* pp. 171, 172, 177. In fact, Marshall's respect for Leslie was, or became, highly qualified (see p. 98 below).

⁹ See *ibid.*, pp. 70, 148. Jevons is also cited on the definitions of a market and of capital, and on the advantage of capital to industry (pp. 20, 67, 99, 124).

¹⁰ *Ibid.*, p. 205 note.

¹¹ F. A. Walker, *The Wages Question* (Holt, New York, 1876).

deducting rent and taxes, we have called the Wages-and-profits Fund . . .¹²

The effectiveness of the *Economics of Industry* as an aid to elementary pedagogy must have been reduced by such idiosyncrasies, but they do not impair its constructive contributions. On the constructive side, the book is noticeable for two main features (although brief mention might also be made of Book III's interesting discussions of regional variations in prices and wages, the trade cycle, and trades unions).

These two features are:

- (i) a distinction between Normal and Market values rather different from that made in the *Principles*,
- (ii) a treatment of distribution which was the first published statement of Marshall's mature approach and 'advanced the marginal productivity theory in England for probably the first time since Longfield and Butt wrote'.¹³

The distinction between normal and market values rests on the circumstances taken to underly normal values:

Normal results are those which would be brought about by competition if it acted freely, and always had time to cause those effects which it has a tendency to cause. Market results are those which actually are brought about by the complex social and economic forces of the world in which we live.¹⁴

Free competition is defined as follows:

A man competes freely when he is pursuing a course, which without entering into any combination with others, he has deliberately selected as that which is likely to be of the

¹² *Economics of Industry*, p. 204. It is admitted in the preface to the second edition that the book's treatment of distribution goes 'a good way apart from Mill', whose 'last utterance on the question in his review of Thornton, left part of it avowedly in an unsatisfactory state', although with 'hints as to the direction in which a solution was to be looked for'. Mill's review of Thornton – the famous recantation – appeared in two parts in the *Fortnightly Review*, Vol 5 New Series (May and June 1869) pp. 505–18, 680–700. It is reprinted as pp. 25–85 of Vol IV of J. S. Mill, *Dissertations and Discussions* (second edition, London, 1875). It is also reprinted as pp. 633–68 of *Collected Works*, Vol V.

¹³ G. J. Stigler, *Production and Distribution Theories: the Formative Period* (Macmillan, New York, 1942) p. 344.

¹⁴ *Economics of Industry*, p. 148.

greatest material advantage... he is supposed to be consulting his own material advantage and that of his family to the comparative neglect of the welfare of others.¹⁵

Competing man is far from a narrowly-selfish 'economic man' devoid of all altruism. But 'If every one always found his greatest happiness in trying to do that which was best for others, the world would have no theory of Normal values as it is described in this volume: some such Communism as that which prevailed among the early Christians would be the basis of economic theory.'¹⁶

The theory of normal value (and distribution) is systematically covered in Book II. Book III is devoted to a fragmentary discussion of various examples of market value (and distribution). These involve either the abeyance of the 'normal' forces due to

- (i) combination amongst buyers or sellers, or
- (ii) the prevalence of ignorance, inertia or established custom which all limit deliberate action.

Or they involve a restriction on the relevant time span which precludes one or both of

- (iii) the averaging out of random disturbances, and
- (iv) the full adaptation of supply in the face of the necessary gestation periods – especially long in the case of skilled workers (where point (ii) also contributes to the delay in adjustment).

Thus, for example, monopolies and trades unions are both treated as cases of combination and discussed in Book III on

¹⁵ Ibid., p. vi. No clear definition was given in the first edition. An annotation on Marshall's copy of this edition reads (at the beginning of Book II on Normal Value):

Here explain competition; say we only make classification roughly: we don't pretend to make sharp division: but in this [B]ook we do not make more allowance for sloth, apathy, ignorance, custom than we can help (bear in mind, though perhaps don't say so here, that in discussing the causes which determine the supply of skilled labour we are not able to act on this principle as much as in other parts of the book N.B. be on the lookout for other exceptions).

Marshall's copy is preserved in the Marshall Library.

¹⁶ Ibid., p. vi.

Market Value. This Book also covers temporary equilibrium, the effects of disturbances, and so on.

The taxonomic distinction between normal and market values is supplemented, and given point, by the belief that:

the Normal action of economic forces is hindered, or even overridden, but never destroyed by friction, by *combination* or by those passing events which exercise a restless influence on Market values.¹⁷

What this implies is a view of monopoly positions as transient and continually eroded by the forces of competition. Thus, trades unions are only admitted to be able to cause wages to deviate from their normal levels for 'a considerable time'. Such a view is not really accounted for in Book III, or even held to with consistency, though the instability of cartels is clearly observed. The view is also implied that customs are mutable and gradually adapt themselves to economic pressures.¹⁸ Thus:

Normal results are those which competition would bring about *in the long run*. The periods to which they relate must be sufficiently long to give time for the active forces of competition to overcome the passive resistances of ignorance, prejudice, custom, etc. They must be sufficiently long to enable us to neglect temporary fluctuations of supply and demand . . .¹⁹

In this way, normal values – themselves slowly changing – are seen as the underlying secular values towards which market values are continually gravitating. Their convergence

¹⁷ *Ibid.*, p. vi, stress added.

¹⁸ See *ibid.*, pp. vii, 128, 182. It is an interesting question as to how far the historical work of Sir Henry Maine helped form Marshall's views on the importance of custom. See H. S. Maine, *Ancient Law* (third edition, Murray, London, 1866); and *idem*, *Lectures on the Early History of Institutions* (Murray, London, 1875). Marshall's copies of both are preserved in the Marshall Library. Also see Maine's, 'The Effects of the Observation of India on Modern European Thought; the Rede Lecture, University of Cambridge, May 22, 1875' (Murray, London, 1875); and *Principles II*, pp. 738–9, where Richard Jones's name (Item IV.2.10. below) is also mentioned in this connection.

¹⁹ *Economics of Industry*, p. vii.

is often slow, and frequently interrupted by disturbances, but it is the grand fact of economic life.²⁰

When the *Principles* came to be written, the distinction between market and normal values ran along rather different lines, in an attempt to make more impregnable the view of normal values as those levels towards which market values are tending:

Normal does not mean Competitive. Market prices and Normal prices are alike brought about by a multitude of influences, of which some rest on a moral basis and some on a physical; of which some are competitive and some are not. It is to the persistence of the influences considered, and the time allowed for them to work out their effects that we refer when contrasting Market and Normal price....²¹

This switch to a very relativistic use of the term 'normal' appears to be one of the less felicitous features of the *Principles*, and it is to be regretted that Marshall did not refine and elaborate his earlier approach.²² As it was, the inconsistency between the two treatments probably helped turn him against the earlier work.²³

²⁰ '...the Market price oscillates with comparative rapidity up and down on either side of the Normal price; just as a cork floating on the surface of the water oscillates quickly up and down with every passing wave on either side of the mean level of the water, while that mean level itself is rising or falling slowly with the flowing or ebbing tide' (*ibid.*, p. 93). However, later it is argued without implying such a convergence that 'The theory of Normal value is the starting point from which we must set out to explore all the various irregularities and unevennesses of Market values.... It puts us in the right position for examining how man's action is modified by custom, or apathy, or generally by motives other than the desire for wealth'. (*Ibid.*, p. 149.)

²¹ *Principles I*, pp. 347-8. (See also pp. 33-6, 341-4, 363-80) An 1886 printing of the *Economics of Industry* (once the property of Mrs Marshall and now in the British Library of Political and Economic Science) is annotated for an envisaged revision: 'Be careful to strike out everything w^b. implies that normal value = competitive value....'

²² However, for a view more favourable to the treatment of the *Principles* see C. W. Guillebaud, 'Marshall's Principles of Economics in the Light of Contemporary Economic Thought', *Economica*, Vol 19 (May 1952) pp. 111-30.

²³ C. K. Hobson recalled that, in lectures of 1907-8, 'Marshall was talking one day about the early Trust Movement in the United States. He had watched this rather closely at the time, but had concluded that the forces at work were essentially transient and that competition would re-assert itself. The Economics of Industry was written while he held this view, and when later he changed his mind he regarded the book as misleading and took steps to have it withdrawn from circulation.' (Letter to J. M. Keynes, 3 Dec 1944, Keynes Papers, Royal Economic Society).

Coming now to the distribution theory of the *Economics of Industry*,²⁴ the distinction between normal and market values remains prominent, chief attention being given to the theory of *normal* distribution. This is seen as an integral part of the theory of normal value.

... there is a unity underlying all the different parts of the theory of prices, wages and profits. The remuneration of every kind of work, the interest on capital, and the prices of commodities, are determined in the long run by competition according to what is fundamentally the same law. This law of Normal Value has many varieties of detail, and takes many different forms. But in every form it exhibits value as determined by certain relations of demand and supply; and Cost of Production as taking the chief place among the causes that determine supply.²⁵

But, in fact, the treatment of commodity and factor prices is far from symmetrical. The normal price of any commodity is determined by the partial-equilibrium intersection of its normal demand curve with its normal supply curve. In contrast, normal factor prices are determined by a macroeconomic argument which is, in principle, of a general-equilibrium nature. The basic concept is the 'net annual income', which corresponds exactly to the modern concept of national income.²⁶ This income is the collective product and the combined reward of land, labour, and capital. The classical asymmetry in the treatment of labour and capital is now abandoned, but the classical practice of first eliminating rent by a separate argument survives. Marshall subsequently described the approach to distribution in the *Economics of Industry* as follows:

The general notion of distribution ... is the same as in my *Principles*. There are changes: for I was unwilling at that time to write upon distribution at all, because I did not then

²⁴ A fuller account of this theory is given in J. K. Whitaker, 'The Marshallian System in 1881: Distribution and Growth', *Economic Journal*, Vol 84 (March 1974) pp. 1-17.

²⁵ *Economics of Industry*, p. v.

²⁶ See *ibid.*, pp. 98-100, for a statement which would serve as an introduction to modern national-income accounting.

see my way clearly as to some parts of it. But I had settled the main outlines of the problem to my own satisfaction very early, under the good guidance of von Thünen. And the chapter on distribution in our little book proceeds on his plan of marching off to the margin of cultivation . . . to get rid of rent before starting on the general problem of distribution: so that the whole annual produce might be taken as divided between labourer and capitalist. Von Thünen . . . gave a good lead by suggesting symmetrical relations between labour and capital; the earnings of each being defined by the last profitable application of each at the margin. ('Distribution and Exchange', 1898).²⁷

The share of rent is said to be 'fixed by definite economic laws', though such a summary dismissal is hardly justified.²⁸ The share remaining to labour and capital is termed the 'wages and profits fund', or preferably the 'earnings and interest fund' – the earnings of management (a constituent of profits) being taken as more akin to wages than interest. The problem of distribution then becomes that of allocating this fund between interest on capital and the earnings of the various 'ranks of industry'.²⁹ In fact Marshall determines jointly both the amount of the fund and its distribution by the simultaneous interaction of the normal demands and normal supplies of the various factors of production.³⁰

His approach to the demand side is to postulate aggregate demand functions, justified partly by direct macroeconomic

²⁷ *Principles II*, pp. 232–3. It should be emphasised that there is no mention of von Thünen in the *Economics of Industry*.

²⁸ *Economics of Industry*, p. 95, also see pp. 81–7 for the treatment of a farmer's rent as 'what remains after deducting from his total produce the return to his last dose [of combined capital and labour] multiplied by the number of doses he applies' (p. 83).

²⁹ *Ibid.*, p. 95. Marshall uses the word 'industry' in its older sense as a synonym of 'labour', as well as in its modern sense.

³⁰ To sketch this in outline for the special case of only one kind of labour let x, y, ξ be the labour, capital and land supplied (ξ being fixed). The net annual income is $z = z(x, y, \xi)$ and rent is $\rho = \rho(x, y, \xi)$. Thus the earnings-and-interest fund is $u = z - \rho = u(x, y, \xi)$. If w, r are the prices per unit of labour and capital, there are demand functions (whose basis is discussed below) $x^d = x^d(w, y, \xi)$, $y^d = y^d(r, x, \xi)$. There are also supply functions, say provisionally, $x = x(w)$, $y = y(r)$. With the equilibrium conditions $x^d = x$, $y^d = y$, these demand and supply functions determine r, w, x, y and hence z, ρ and u .

arguments and partly by allusions to the marginal-productivity principle working on the microeconomic level. The following quotations give the flavour of the discussion.³¹

The rate of interest which results from the division of the Earnings-and-interest Fund into the shares of capital and industry [i.e. labour] will be found to depend upon the urgency of the demand of industry for the aid of capital.

... the demand of industry for the aid of capital will not be urgent if there is a large supply of capital in proportion to the population.

The current rate of interest measures the Final Utility to each borrower; that is the advantage to him of that capital which he is only just induced to employ.

The demand for each class of skilled labour depends on the competition there is for its aid. It is increased firstly by every increase in the capital that is ready to support and assist industry, and secondly by every increase in the unskilled labour, in the skilled labour of other classes, and in the business power that are competing for the aid of labour of this class.

... every increase in the supply of [skilled labour] tends to diminish the Final value in use of the work it does, and therefore to lower its wages.

... the Earnings of Management of a manufacturer represent the value of the addition which his work makes to the total produce of capital and industry: they correspond to the effective demand that there is for the aid of his labour in production.

Thus, capital and the various types of labour are regarded as demanding each others' aid and providing each other with a 'field of employment'. Each factor is in turn collectively demanded by the remainder, according to a demand function which depends upon the price at which the services of the factor are available, and the quantities of the other factors. The demands are channelled through the 'masters' or managers, who act as the agents for the others, the demands for the masters themselves being expressed through the

³¹ See *Economics of Industry*, pp. 120, 120, 124, 130, 142, 142 respectively.

available profit opportunities rather than by a list of market prices for their services.³²

All this, though somewhat allegorical, is easily developed into a full-blown marginal-productivity theory, but Marshall does not attempt this. He also fails to note the existence of an 'adding-up problem' which requires total earnings and interest to just exhaust the earnings and interest fund, and thus restricts the independence of the demand functions. It appears that he commenced to work explicitly with marginal products in order to derive the factor-demand functions only in the later 1880s.³³

If supplies of all factors were fixed, then the factor-demand functions would determine market-clearing prices for the services of all factors, including managers. But Marshall is unwilling to treat the supplies of labour as fixed even in relatively short periods, though he is prepared to admit that 'The annual addition to the capital of a country is not any considerable part of the whole.'³⁴ At the other extreme, factor prices would be supply-determined if there was only one price for each factor consistent with the supply of that factor remaining constant. Marshall does, in fact, appear to treat the normal prices of most types of labour as supply-determined in this sense. But the normal interest rate appears to be characterised in terms of a steady state of ongoing accumulation accompanied by an approximately-constant interest rate. The 'Law of the Normal Rate of Interest' is:

When the economic conditions of the country have been nearly uniform for a long period of time, the supply of capital is such, that the rate of interest which can be obtained for it is that which has been required to cause this supply to be forthcoming; and the rate thus determined is the Normal

³² *Ibid.*, pp. 129, 142.

³³ See Items IV.4.7–8 below. To continue the example of an earlier footnote, an explicit marginal-productivity approach to the factor demand functions would require deriving $x^d = x^d(w, y, \xi)$ from $w = \partial z(x^d, y, \xi)/\partial x^d$ and deriving $y^d = y^d(r, y, \xi)$ from $r = \partial z(x, y^d, \xi)/\partial y^d$. The adding-up requirement would then become $x\partial z/\partial x + y\partial z/\partial y \equiv u$. This of course holds if rent is $\rho(x, y, \xi) \equiv z(x, y, \xi) - x\partial z/\partial x - y\partial z/\partial y$, being treated as the residual claimant. This is essentially what Marshall does assume about rent, although his treatment is obscured by his working in terms of 'doses' of combined labour and capital.

³⁴ *Economics of Industry*, p. 124.

rate. The rate is in equilibrium when it is just that at which the whole supply of capital can find employment.³⁵

This concept of Normal interest remains both elusive and discordant, but gains added significance in the light of Marshall's attempts in the early 1880s to formulate explicit macroeconomic growth models.³⁶

The feature above all others that places the book in the English classical tradition is its treatment of labour supply.³⁷ This is essentially a cost-of-production approach. The customary 'standard of comfort', at which the unskilled will just be induced to raise a family, represents the cost of production of unskilled workers: 'the wages which afford the means of maintaining this Standard may fairly be called the Normal wages of unskilled labour there and then.'³⁸ While the cost of production of skilled workers involves a sufficient premium over the wages of the unskilled to induce parents to invest in the requisite training for their children. Such investment decisions are, for several reasons, not made on the same principles as those of a calculating slave owner or a manufacturer buying a machine. In particular they weigh the non-monetary advantages or disadvantages accruing to the child as well as the monetary ones.³⁹

The 'cost of production' of labour is thus not altogether analogous to the cost of production of a commodity. In any case it applies only to workers of average efficiency. Exceptional workers will get the same 'task wages' but their 'time

³⁵ Ibid., p. 126. See also p. 146 for the observation that the normal interest rate is a 'practically fixed and uniform amount at any given time'. And see p. 125 for a suggestion that accumulation will still proceed even at a zero interest rate.

³⁶ His attempts are reproduced as Item IV.4.4 below.

³⁷ This is already present in its essentials in Marshall's earliest essay on wages (see Section II.4 below).

³⁸ *Economics of Industry*, p. 130.

³⁹ Ibid., pp. 105–7, 130. Marshall's approach should be contrasted with that of Fleeming Jenkin in which each type of labour has its own 'standard of comfort' as its supply price. (Fleeming Jenkin, *The Graphic Representation of the Laws of Supply and Demand and Other Essays in Political Economy* (No. 9 in a Series of Scarce Tracts in Economic and Political Science, London School of Economics, 1931) pp. 93–106.) It should also be observed that, although Marshall follows Mill and Cairnes in stressing the restrictions imposed upon parents' choice of their offspring's occupation by ignorance and social mores, he nevertheless regards competition between all occupations as being effective, if indirect (*Economics of Industry*, pp. 107–8, 130–1).

wages' raised in proportion to their efficiency. The amount of this raise is a rent to the individual, but not necessarily to the occupation, as the expectation that some individuals will turn out to have higher efficiency enters into that prior estimation of average efficiency and earnings which governs entry into the occupation.⁴⁰

In a case where – even given unlimited time – a certain type of labour is not available in unlimited amounts at a fixed wage, the normal return to a worker of average efficiency ceases to be supply determined, and is equal instead to supply price at the margin, the case becoming analogous to that of a commodity with a rising supply curve.⁴¹ This is particularly likely in the case of 'business power' (i.e. managerial labour) which is otherwise treated in the normal theory just like any other kind of labour.⁴²

The theory of normal distribution briefly described here is further complicated by the fact that Marshall is unwilling to treat either the standard of comfort or the average efficiency of labour as exogenous. Instead, they are both treated as dependent on past levels of wages, an assumption, like that as to normal interest, which can only be properly explored in terms of dynamic models of accumulation and growth in living standards – models which Marshall did indeed start to formulate.⁴³ The 'economy-of-high-wages' argument that an increase in time wages can raise efficiency by improving the home environment, and thus raise task wages less than proportionately or even not at all, runs through much of Marshall's early work. It is a theme prominent also in Walker's *The Wages Question*, but it seems likely that Marshall derived his

⁴⁰ See *ibid.*, pp. 110, 132, 144. The last point is only hinted, probably not even clearly grasped, and awaited the *Principles* for clear statement (*Principles I*, pp. 577–9). Marshall gave a good summary of his other views on labour supply in a reply to F. A. Walker: 'The Theory of Business Profits', *Quarterly Journal of Economics*, Vol 1 (July 1887) pp. 477–81 (reprinted in *Principles II*, pp. 670–5). (Note: if e_i is the efficiency of worker i , where $i = 1, 2, \dots, n$, and w is the task wage to a unit of efficiency then time wages of worker i are we_i and average wages are $w\sum e_i/n$.)

⁴¹ See *Economics of Industry*, p. 143.

⁴² *Ibid.*, pp. 142–4. However, managers working with their own capital earn an extra premium on it equal to that normally required as insurance against 'personal risks' as to a borrower's probity (p. 144). This line of argument is explored at length in an early essay reproduced in Section II.5 below.

⁴³ For elucidation see J. K. Whitaker, 'The Marshallian System in 1881: Distribution and Growth', loc. cit.

views elsewhere, the writings of Thomas (Lord) Brassey, son of the famous contractor, being one significant source.⁴⁴

For the case of factors specific to a single industry, a supplementary partial-equilibrium approach to the theory of normal wages could be taken:

the Normal demand for the work of each trade . . . depends partly upon the desire of consumers to obtain the things which that trade produces or helps to produce, and partly upon the extent to which its aid is wanted by other industrial classes and the owners of capital who take part in making these things.⁴⁵

This is, of course, closely related to the doctrine of derived demand,⁴⁶ but it does not feature prominently in the *Economics of Industry*.

Such partial-equilibrium methods are more prominent when the effects of 'frictions' come to be discussed. (The distributional effects of 'combinations' are dealt with in the context of trades unions.) Indeed, an analysis of examples of this kind is the nearest approach to a systematic theory of market distribution that can be found in the book. The concept of quasi-rent – but not the term itself – is clearly implied, and Marshall concludes:

Thus we see how the Law that Normal value is determined by Normal Expenses of production is consistent with the fact that market fluctuations of value are the cause and not the consequence of market fluctuations of Expenses of production. If Ricardo and Mill had taken more pains to make clear the distinctions between the theory of Normal value and that of Market value, there could not have been as much controversy as there has been on the question

⁴⁴ Especially Thomas Brassey, *Work and Wages Practically Illustrated* (second edition, Bell and Daldy, London, 1872); idem, *Lectures on the Labour Question* (Longmans Green, London, 1878). Marshall's copies of both books are preserved in the Marshall Library. Much later, in 1904, S. J. Chapman, one of Marshall's favourite students, helped prepare a revised edition of *Work and Wages*. This is referred to in *Memorials*, p. 455. (See Lord Brassey and S. J. Chapman, *Work and Wages*, 3 Volumes, Longmans Green, London, 1904–14.)

⁴⁵ *Economics of Industry*, p. 128.

⁴⁶ *Principles I*, pp. 382–91, 852–3.

whether value is governed by Expenses of production, or Expenses of production by value.⁴⁷

'McLeod's problem' had thus been lucidly resolved.⁴⁸

From the broader viewpoint of the general evolution of Marshall's ideas, however, the chief significance of the distribution theory of the *Economics of Industry* lies in its clear evidence that Marshall had broken free from the straight-jacket of the wages fund, and had come to regard output as the common source from which the capital and labour employed in producing it receive net returns, rather than the source from which capital receives a gross return to remunerate and refund its wage advances. How much before 1879 this decisive change had taken place, it is difficult to say. But it appears to have been later than Marshall was wont to claim.⁴⁹ Even the *Economics of Industry* is not free of all signs of the struggle. The early chapter on capital, written at an earlier stage of conception, has much more of a wages-fund flavour to it. And some of the puzzles raised by the new viewpoint were not resolved until 1885, with the publication of Marshall's paper 'Theories and Facts about Wages', and had to be disposed of again in 1888 in response to that classical diehard, the American Macvane.⁵⁰

Marshall grew to dislike his first book, going so far as to dub it 'a hollow *Economics of Industry*, in which truth was economized for the benefit of feeble minds'.⁵¹ He gave a more just, though still hostile, assessment in a statement to be prefixed to a 1910 translation.⁵²

⁴⁷ *Economics of Industry*, pp. 166–7.

⁴⁸ On McLeod's problem see *Memorials*, p. 414 (quoted on p. 39 above). Marshall claimed to have resolved the problem much earlier, but this was his first published statement, though the idea of quasi-rent is firmly indicated in the *Pure Theory of Domestic Values* (Vol 2, p. 225 below).

⁴⁹ See Section I.2 above.

⁵⁰ 'Wages and Profits', *Quarterly Journal of Economics*, Vol 2 (Jan 1888) pp. 218–23. See *Principles II*, pp. 598–614, 822–7, for the texts of this and the earlier writing.

⁵¹ In a letter to E. R. A. Seligman of 23 Apr 1900 [printed in J. Dorfman ed., 'The Seligman Correspondence', *Political Science Quarterly*, Vol 56 (Sept 1941) p. 409]. See Vol 2, pp. 3–4 below for a fuller quotation.

⁵² Manuscript note: Marshall Library. The unknown Japanese translator was given grudging permission to publish his translation on the condition that the statement was prefixed. The covering letter is dated 2 May 1910 (Marshall Library, Marshall 3:85).

This volume was begun in the hope that it might be possible to combine simplicity with scientific accuracy. But though a simple book can be written on selected topics the central doctrines of Economics are not simple and cannot be made so. For the first half simplicity was given the preference; but in the second no progress could be made without more accurate foundations. Most of the first half being already in print, some patching was necessary:⁵³ and the second half was written on lines somewhat similar to those of the *Principles of Economics*. When that was published in 1890 we saw the difficulty of keeping in circulation together opinions as divergent as some of those in this volume and that: so we decided to suppress it. The place was taken by a new *Economics of Industry*,⁵⁴ made chiefly out of the *Principles* and that has been translated into Japanese. There are however some discussions in the third Book of the earlier volume which lie outside the scope of the later. That Book [III] was written with some care, and may be taken as representing well considered opinions: the same cannot be said of the whole of the present volume.

J. M. Keynes took the view that 'Marshall's feelings were due... to the fact that his theory of value, which was here first published to the world, was necessarily treated in a brief and imperfect manner, yet remained for eleven years all that the outside world had to judge from'.⁵⁵ There is surely some truth in this, especially if 'theory of value' is taken to include the new theory of distribution towards which Marshall was

⁵³ The 1881 preface to the second edition says: 'The first chapters were printed at a time when it was proposed to give the volume a more elementary character than was ultimately found advisable' (p. vii). Since nothing except a specimen page was in print when the letter of May or June 1878, describing a substantial rewriting, was sent to Macmillan and Co., it appears likely that there was yet another recasting and reconsideration between 1878 and 1879. (For the letter to Macmillan see pp. 61–3 above.)

⁵⁴ A. Marshall, *Elements of the Economics of Industry*, Vol I of Elements of Economics (Macmillan, London, 1892). There was a second edition in 1896 and a third in 1899, and many reprintings. The Preface to the later printings is dated October 1907. The book is noteworthy for containing Marshall's maturest statement of his views on trades unions (though upon completing the chapter on unions he told J. N. Keynes 'My brain is still very watery, & I am afraid I shall always be ashamed of this chapter' (Letter of 30 Jan 1892, Marshall Library, Keynes 1:204)).

⁵⁵ *Memorials*, p. 38.

still feeling his way in 1879. But the vehemence of his later distaste suggests that a more profound basis lay in the failure of the rather skeletal exposition to contribute to the desired ‘work of “real”-ising the results of abstract quantitative reasoning in Economics’.⁵⁶ He may too have come to recognise that it had involved an error of judgment to lavish, at such a critical stage of his career, so much time and effort within a framework so constraining. Who but Marshall would hide a radically new theory of distribution in an elementary textbook, and then confuse matters even more by implying that it was really presaged by Mill? The result was a book that failed to meet fully either the ambition to reveal his own new thinking or the aim of elementary exposition for extension audiences. Indeed, the intrinsic difficulty of many passages, makes it surprising that the book achieved the success it undoubtedly had with the public. As Foxwell remarked: ‘I can understand ... that Marshall’s book may be difficult & unattractive to beginners. The Special men don’t like it; their favourite book is Adam Smith’⁵⁷ But whatever the defects in this regard, the extent to which the composition helped Marshall to systematise his thinking, especially on distribution, and the practice it gave him in the art of exposition, should not be overlooked. Both were valuable, and necessary, steps in the long evolution of the *Principles*.

I.6 Towards the ‘Principles’¹

With some exaggeration, the broad outline of the process of composing the *Principles* was conveyed by Marshall in the following words:

⁵⁶ *Memorials*, p. 371. It should however be noted that Cliffe Leslie’s review had praised the book for making use of ‘provisional doctrines or generalizations [not] ... as premisses from which trains of deduction can be made, but as starting-points for the investigation of actual phenomena, and the ascertainment of the presence and operation of their actual causes and conditions’ (loc. cit., p. 74). This suggests that one critical observer found a more empirical flavour than is obvious at first glance.

⁵⁷ H. S. Foxwell to J. N. Keynes, 20 June 1881 (Marshall Library, Keynes 1:22) concerning extension teaching. By the later 1880s Marshall’s book was becoming a reference work for more elementary expositions, such as J. E. Symes, *A Short Text Book of Political Economy* (Rivington, London, Second edition 1889).

¹ This section reproduces in greater detail some of the material discussed in Section V of J. K. Whitaker, ‘Alfred Marshall: the Years 1877 to 1885’, *History of Political Economy*, Vol 4 (Spring 1972) pp. 1–61.

About 1877 I married; found myself committed to writing a cheap popular book [*The Economics of Industry*], which was necessarily superficial, and which I loathed. After a few years I became very ill, and expected not to be able to write anything considerable. So I took out the diagrammatic appendices which I had written for my book on International Trade; and decided to edit them, showing their uses, and above all their *limitations*: after that was done I expected to depart this life. But I slowly recovered. And so the purely analytical work in Book V of my Principles, with a part of Book III, were the kernel from which my volume expanded backwards and forwards to its present shape. (Marshall to L.C. Colson, 1908 or 1909.)²

The intention of 1878 to publish speedily a book on the method of diagrams³ had been set back by the onset of illness, and possibly also disconcerted by the circulation of the *Pure Theory* chapters by Sidgwick. Probably too, the composition of the *Economics of Industry* had turned Marshall's thoughts towards the integration of the theories of value and distribution, making him reluctant to publish anything before a satisfactory account of distribution could be incorporated. But there was a deeper consideration. In the early seventies he had consciously decided that 'In publishing his intellectual exercises without facing the grind of discovering their points of contact with the real world, he would be following and giving bad example'.⁴ To do the same now, after the lapse of years of patient industry, would – even under the threat of a physical breakdown – be an admission of total defeat. At any rate, within the year, and at the worst of his illness, Marshall's plans were already becoming more ambitious:

During the last two years I have been too much occupied with practical work to do any considerable amount of study or writing. I hope better days are in store, and I think soon I may begin on a book of curves of which the papers sent

² From 'Alfred Marshall, the Mathematician as Seen by Himself', *Econometrica*, Vol 1 (Apr 1933) pp. 221–2, where the date of marriage is printed as 1871. Also see *Memorials*, p. 21.

³ See the draft for a letter to Macmillan and Co. given in Section I.4 above (pp. 61–3).

⁴ These words are J. M. Keynes's (*Memorials*, p. 34).

you by Mr. Sidgwick will form the basis. The pure theory of international values I don't much care about. I don't think it can be made easy without curves, and I think I shall leave it very much as it stands; but in the rest of the book I propose to give only a subsidiary place to curves, and to develop the application of the theory somewhat. In this way I hope to contribute my mite towards that work of 'realising' the results of abstract quantitative reasoning in Economics of which I recognize in you the chief author. (Marshall to W. S. Jevons, 30 June 1879).⁵

Macmillan and Co. were enquiring after the manuscript in 1880,⁶ but serious work on the projected book started only in the academic year, 1881–2, which the Marshalls spent on the continent. The state of the manuscript at the end of that year is described in a note of Marshall's.⁷

The general arrangement of the book was altered at Capri in the latter half of March 82. That is, it was decided then to put definitions at end of book, to have chapter on elasticity of desires (including a great part of what had been in old chapter on Demand) before chapters on Value, to have a separate chapter on Market bargaining and another on joint production and joint demand. The old chapters were regrouped in skeleton for this purpose.

Arrived at Venice about April 20. Began to re-read Cournot and to recast, so as to get somewhere near the final form, the first few chapters. Made another attempt at an introduction or preface, whichever it may turn out to be. Continued on the same lines at Waidbruch 29 May–2 June, and Achensee 4 June →. Up to 11th June had done first draft of I Measurement II Continuity (Continuity of Definition being left quite in the rough) III Elasticity of Desires (statistical part being left rather in the rough) IV Statement of Problem V Pure theory of equilibrium of Demand and Supply.

⁵ *Memorials*, p. 371.

⁶ 'When you have your new book into some shape and can tell us its probable size we shall be very glad to hear from you'. Letter of 22 June 1880, Marshall Library, Marshall 2:43.

⁷ Entitled 'Historical 1882: On way home from Sicily'. The note is undated, but cannot have been written very much after the event. It is slightly edited.

Stayed at Achensee and Walchensee⁸ till August 3 during which time recast the skeleton of chapters immediately following Ch. V. Decided to take Joint Demand and Supply next, did a little at it : made a rough draft out of old material of Ch. VII on Market Bargaining, Ch. VIII on Normal Expenses of Production, Ch. IX, X on Normal Earnings. Suspended work till August 23 the first day of stay at Bournemouth.

Then began to consider chapters on monopolies combinations and foreign trade. Slightly altered their proposed arrangement and made a rough settlement of the questions to be discussed in them ; this occupied about a fortnight ; then spent three weeks in making a first draft from tolerably full notes of Ch. on equilibrium of Demand and Supply continued till September 25 ; when suspended writing and studied economic history of England till October 17.

This outline confirms Marshall's statement that 'the purely analytical work in Book V of my Principles, with a part of Book III, were the kernel from which my volume expanded backwards and forwards....'⁹

In March 1883, he wrote to Foxwell:

I am looking forward to nearly 6 months almost uninterrupted work on my book. I shall not spare the time that w^d. be wanted for publishing my lectures on Progress & Poverty.¹⁰

While in July 1883 he told Walras to expect the book in a year or two :

... j'espère d'avoir beaucoup de temps pour mes propres travaux à Oxford ; et de vous envoyer après un ou deux années un traité de la théorie économique¹¹

But progress was slow. A succinct account of the further development is provided by J. M. Keynes, based on notes supplied by Marshall.¹²

⁸ Both lakes are in the Bavarian Alps between Munich and Innsbruck.

⁹ From the letter to L. C. Colson, p. 84 above.

¹⁰ Letter of 30 Mar 1883. Marshall Library, Marshall 3:13.

¹¹ W. Jaffé ed., *Correspondence of Léon Walras and Related Papers. Vol 1* (North Holland, Amsterdam, 1965). Letter 578 (23 July 1883).

¹² *Memorials*, pp. 39-40.

Marshall intended at first to cover the whole field of Economics in a single volume. His theory of Distribution was taking shape in 1883 and 1884. In the summer of 1885 (in the Lakes), the first of his Cambridge Long Vacations, the volume began to assume its final form. 'The work done during this year,' he wrote, 'was not very satisfactory, partly because I was gradually outgrowing the older and narrower conception of my book, in which the abstract reasoning which forms the backbone of the science was to be made prominent, and had not yet mustered courage to commit myself straight off to a two-volume book which should be the chief product (as gradually improved) of my life's work.' In 1886, 'my chief work was recasting the plan of my book. This came to a head during my stay at Sheringham near Cromer in the summer. I then put the contents of my book into something like their final form, at least so far as the first volume is concerned. And thenceforward for the first time I began to try to put individual chapters into a form in which I expected them to be printed.' In 1887 (at Guernsey), 'I did a great deal of writing at my book; and having arranged with Macmillan for its publication, I began just at the end of this academic year to send proofs to the printers: all of it except about half of Book VI being type-written in a form not ready for publication, but ready to be put into a form for publication — I mean the matter was nearly all there and the arrangement practically settled.' In 1888, 'by the end of the Long Vacation I had got Book V at the printers, Book IV being almost out of my hands. Later on I decided to bring before the Book on Normal Value or Distribution and Exchange a new Book on Cost of Production further considered, putting into it (somewhat amplified) discussions which I had intended to keep for the later part of the Book on Normal Value. That Book now became Book VII. This decision was slowly reached, and not much further progress was made during this Calendar year.' 'During the first four months of 1889 I worked at Book VI, finishing the first draft of the first four chapters of it, and working off Book V. Meanwhile I had paid a good deal of attention to the Mathematical Appendix and got a good part of that into print. The Long Vacation, of which

eight weeks were spent at Bordeaux Harbour, was occupied chiefly with Book VI, chaps. v and vi, and Book VII, chaps. i-v.' The work was now pushed rapidly to a conclusion and was published in July 1890.

The letter offering the *Principles* to Macmillan and Co. had read as follows:¹³

Messrs. Macmillan & Co.,	Balliol Croft, Madingley Road, Cambridge. 12th April 1887.
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Gentlemen,

I am writing a book on 'Economics', which will cover about the same ground as Mill's Political Economy, and will probably be of about the same length, or a little shorter. I propose to publish it in two volumes octavo; of which the first will, I hope, appear this autumn and the second about two years later.

This book will be the central work of my life; and I shall regard it differently from anything I have written or may write. Partly for this reason, and partly because I think I may want to publish a very cheap popular edition of it, or of some part of it, at no very distant date, I should like to retain control over the copyright.

May I ask you whether you can accept it on the 'half-profits', or 'royalty' system, with the condition that the copyright lapses to me after four (or five) years from the publication of the second volume?

I should like the price of the octavo edition to be not very high: partly because books on economics are read by many students whose means are small, and who are not taking the subject up for examination, so that they avoid high priced books on it.

¹³ C. W. Guillebaud, 'The Marshall-Macmillan Correspondence over the Net Book System', *Economic Journal*, Vol 75 (Sept 1965) pp. 518-38. A more prolix draft for the letter is also preserved (Marshall Library, Marshall 2:1). A deleted passage reads: 'The main purpose of my life has been for the last 15 years & will be for the future to write this book and gradually to improve it that it may do for this generation something like what Mill's book did for its'.

I should also wish to be free to use it in writing a new edition of the 'Economics of Industry' and in writing the long promised 'Economics of Trade and Finance'.

Mathematics cannot now be avoided in some branches of economics; but I have stowed them away in an appendix at the end of either volume: some diagrams w^h. do not require a knowledge of mathematics have been inserted in the footnotes.

I enclose a table of contents: and am sending separately a draft more or less rough of a little more than half the first volume.

Yours very faithfully,

Alfred Marshall.

The contents that were proposed for Vol II, and for what was then intended to be the final Book VI of Vol I, are outlined in a note of 1 October 1887.¹⁴

Vol. II will probably contain:

- Book VII Foreign Trade
- Book VIII Money and Banking
- Book IX Trade Fluctuations
- Book X Taxation
- Book XI Collectivism
- Book XII Aims for the Future
- Mathematical Appendix

Book VI Value Distribution and Exchange

- Ch. I Introduction
- Ch. II Central Problem
- Ch. III Central Problem continued
- Ch. IV Field of Employment for Capital and Labour
- Ch. V Rent in relation to value
- Ch. VI Rent continued, Agricultural Rent,
Land Tenure
- Ch. VII Rent continued, Influence of Progress on Rent
- Ch. VIII Earnings
- Ch. IX Earnings continued

¹⁴ Marshall Library, Historical Notes (slightly edited).

- Ch. X Interest
- Ch. XI Earnings of Management, including Cooperation
- Ch. XII Wholesale & Retail Prices
- Ch. XIII Secular Changes, Pressure of Population
- Ch. XIV Conclusion, containing summary reference to influence of Trade Unions and notice of Trade Combinations etc.

Although Marshall had projected to Macmillan and Co. a publication date of Autumn 1887 for Vol I, it actually appeared almost three years afterwards. And a comparison of the above outline for Book VI with the contents of Books VI and VII as they actually emerged in the first edition of Vol I, shows that considerable restructuring and refinement still remained in 1887. The closing stages of the long struggle are graphically captured in the following extracts from a series of letters written to J. N. Keynes.¹⁵

24 February 1888: I am at last making some progress with my book. I will send you Book III in a few days unless I hear to the contrary.

1 March 1888: I am ashamed to trouble you with my proofs. But I take you at your word. I send you two chapters on agriculture w^h. I had put in type last October in order to get Mr. Bullock Hall's criticism on the purely technical parts.

Book IV Ch. I, a short introductory chapter on Supply in general will be in type soon. At present I have been at work on the Chap. on 'Capital'. I have completely rewritten it for about the eighth time, reintroducing a great part of what I had in it some time ago. It has a historical Note, the only one w^h. I am at present inclined to introduce. I will send you a proof of it when I get it. It will contain implicitly suggestions as to the way of handling German definitions . . .

20 August 1888: After long delays w^h. are partly due to my fault, partly that of the Press, I send you the first four of a batch of chapters [from Book IV] on 'Industrial Organization': the fifth relating to 'Business Management' is at the Press & I will ask them to send you a proof direct . . .

¹⁵ Marshall Library, Keynes 1: 78–97 and Keynes 3:70. For other extracts from this correspondence see *Principles II*, pp. 260–1, 364–5, 400.

There remains in Book IV a final chapter summing up the conditions of Supply. Then comes Book V short & nasty ; on the 'General Theory of the Equilibrium of Demand and Supply' : & then Book VI w^h. is to be very much like Book II of the Economics of Industry.

Up to the beginning of 'Organization of Industry' is 300 pages, from there to the end of the Volume I think 300 more. It's a long job.

27 August 1888 : I have given up the hope of bringing out my Vol I in January but I still hope to get it out in March.

All but 200 pages are now with the printer, or next door to being so. There remain 200, of which about half are I think in good condition, but the other 100 have some of them to be written & the rest to be rewritten.

I am now busy with diagrams which swarm in the latter half of Book V.

26 October 1888 : I am making hardly any progress with my work just now. So you won't get Bk VI ch. 1 as soon as I hoped.

14 November 1888 : I have calculated pages & find I can't bring out Vol I before Easter.

20 December 1888 : I think now I shall probably leave Bk V almost exactly as it is, but bring together immediately after it the analysis of the difficulties of Cost of Production into a separate short Book before the long Book on 'Distribution & Exchange' instead of scattering them over that Book. I began to write a Book with that title in the middle of last Term : but found difficulties in arrangement & gave it up. But though awkward, it will enable me to be explicit ; & on the whole I have decided to try to get on with that plan. The chief change I shall make in Bk V is to say that the conditions under w^h. the supply curve can be inclined negatively will be discussed finally in the new Bk VI.

15 January 1889 : I have quite decided to bring that part of the old Book VI (on 'Distribution & Exchange') w^h. relates to difficulties as to Cost of Production into a place by itself as a new Book VI putting off Distribution & Exchange to be Book VII. I shan't send anything more to the press till I have got Book VI nearly written. I have quite decided that I can see no reason for modifying the substance of anything I have said

about unstable equilibria. But I shall make my explanations fuller.

27 May 1889: My book goes slowly; & just now indeed I am not working at it at all. Cooperation has filled by mind for some time, & will do so till term is over.¹⁶ (Book VI 'Cost of Production' is partly finished . . .) I expect to get my Vol I out before Xmas or anyhow immediately after.

23 July 1889: I send you the remainder of Bk VI on Cost of Prod. Bk VII is on the way but it limps shockingly.

Undated: I have had to rewrite what had been intended to be the first chapters of Book VII. This is partly due to rearrangement w^h. has caused delay; but now I am going on . . .

I have sent the first two Chapters of Book VII to the Press some time ago. The Note on Ricardo had been arranged to go at end of Bk VII. I have just decided to put it at end of Bk VI.

2 December 1889: My book do grow: Oh! it *do* grow!
B. B. Bother it!!

2 April 1890: I have at last completed my discussion of Demand & Supply in relation to Capital [and] Business Power. It has spread over three long chapters; the remainder of w^h. I hope to send you in a couple of days. Please don't return any till you get all. During the months November–January when I am sure I had (Influenza)^{1/n} where n is perhaps 3 or 4, my work was so flabby that I destroyed most of it, & am ashamed of what is left; & at the end though I was a little brighter I wrote so fast that I don't like those chapters. They seem to me too long winded: & as space is becoming very valuable I sh^d. be glad of suggestions as to parts that you think sh^d. be cut out or curtailed. I have already cut out one or two things.

I send the table of contents as far as printed, not for you to correct, but to show you the geography. You may like to know that there remain one Chapter on Demand & Supply in relation to land; & one or two winding up chapters. I shall have to leave out much that I had wanted to get in.

Thus, the Herculean labour came to an end, and Volume I finally appeared in July 1890.¹⁷ Work on Volume II – which

¹⁶ Marshall gave his Presidential Address to the Cooperative Congress on 10 June 1889.

¹⁷ *The Times* had an advance copy and the review appeared on 24 July. See C. W. Guillebaud, 'The Marshall–Macmillan Correspondence Over the Net Book System', loc. cit., p. 525.

Marshall in 1887 had expected to publish in 1889 – proceeded for many more years. ‘By 1903’, he wrote,¹⁸

a very rough draft for the continuation of my *Principles* extended to more than a thousand pages; and it was becoming obvious that I could not hope to finish the work on the scale to which I was then working... The order proposed for the continuation of my *Principles* changed many times: but I left it in 1903 fairly settled as follows: –

1. Currency (first stage)
2. International Trade (first stage)
3. Credit and its Markets
4. Produce Markets
5. Business Combinations and Monopolies, Transport Problems
6. Association and Combination in relation to Employment
7. Credit Fluctuations (including second stages of Currency and International Trade)
8. The Distribution of the National Income (concluded on the basis of Book VI [VII in first edition] of my first volume)
9. Public Finance.

At this critical point of his work on Volume II, Marshall’s efforts were diverted into writing what was intended to be a short topical book on the current controversies over free trade. Like the *Principles*, this book too grew to giant proportions and absorbed Marshall’s energies for the remainder of his life. When it appeared, *Industry and Trade* was only an incomplete realisation of the new project. While *Money Credit and Commerce*, published in Marshall’s eighty-first year, represented a desperate last-ditch compromise between completing the scheme of which *Industry and Trade* was a part, and rescuing some of the material from the abandoned Volume II of the *Principles*.¹⁹

¹⁸ Undated manuscript fragment, Marshall Library, possibly written in connection with the preface to *Industry and Trade*. Slightly edited.

¹⁹ Fuller details will be given elsewhere. What a pity that Marshall could not follow out his own mock-serious proposal in a letter to Foxwell of 14 Apr 1897 (Marshall Library, Marshall 3:32). ‘If ever I get my Vol II finished, I have a notion of preparing carefully some semi-popular lectures; getting them taken down by shorthand; and then working them up into a sort of tourist’s guide to Marshall. I think I find it easier to follow the methods of the impressionists when speaking than when writing’.

The struggle up to 1890 to complete even Volume I of the *Principles* had been severe. Marshall's own retrospective justification, written around 1910, attributed the delays primarily to ill health. He had come to view 1877–87 as a 'barren decade'.

... while engaged, in conjunction with his wife, in writing a short account of the Economics of Industry, forcibly simplified for working class readers, he contracted an illness so serious that for some time he appeared unlikely to be able to do any more hard work. A little later he thought his strength might hold out for recasting his diagrammatic illustrations of economic problems. Though urged by the late Professor Walras about 1873 to publish these, he had declined to do so; because he feared that if separated from all concrete study of actual conditions, they might seem to claim a more direct bearing on real problems than they in fact had. He began therefore to supply some of the requisite limitations and conditions, and thus was written the kernel of the fifth book of his 'Principles'. From that kernel the present volume was extended gradually backwards and forwards, till it reached the form in which it was published in 1890. It was mostly written when his strength was still low, and was based chiefly on material collected before 1878. In fact between 1877 and 1887 he rather lost ground in his studies than conquered fresh: and even after 1891 much time was given to removing the traces of haste in his first volume. But he felt strong enough to take a share in the work of the Royal Commission on Labour 1891–1894: and these years of direct contact with the most urgent problems of industry on its human side went some way to fill the gap caused by that barren decade.²⁰

But, although there were certainly appreciable interruptions and delays in the years after 1877, the existence of similar and even more exaggerated procrastinations and indecisions after 1890 suggests that external events were not the main causes of

²⁰ This continues the quotation by J. M. Keynes (*Memorials*, pp. 20–1) from an autobiographical note written by Marshall. (For details see footnote p. 6 above.) The improbability of direct contact between Walras and Marshall as early as 1873 is noted in the following section.

delay. These have to be sought rather in fundamental aspects of Marshall's character and ambitions, some of which are touched upon in Section I.8 below.

How far did Volume I of the *Principles* contain theoretical ideas and developments not present in the publications and manuscripts of the 1870s?

The analysis of utility, demand and consumer surplus seems to have been fully reconsidered in the early 1880s when, for instance, the concept of demand elasticity was invented.²¹ But, although refinements were added, and the shift toward a Jevonian mode of analysis was completed, there appears to have been no essential change from the position revealed by the *Pure Theory of Domestic Values*. Indeed, inconsistencies and other unsatisfactory features which mar the treatment of demand and consumer surplus in the *Principles*²² suggest that Marshall's review during the eighties was insufficiently thorough to bring the mathematical analysis into full conformity with his intentions.

So far as the theory of supply goes, there also appears to have been considerable refinement during the eighties. There was a more detailed and elaborate treatment of cost, with special reference to the time period involved, and a clearer conception of the representative firm as a resolution to the problem of reconciling falling supply curves with the persistence of competition (though this was not so clearly treated in the early editions of the *Principles* as in the later). But again, it is hard to find anything essential not already present in the seventies.

The distribution theory of the *Principles* is clearly outlined in the *Economics of Industry*, although this earlier statement is not entirely free of reverions to wages-fund ideas.²³ But the

²¹ Compare Section IV.5 below; *Memorials*, p. 45 n. 2.

²² See G. J. Stigler, 'The Development of Utility Theory', *Journal of Political Economy*, Vol 58 (Aug., Oct 1950), reprinted in G. J. Stigler, *Essays in the History of Economics* (Chicago Press, 1965); R. F. G. Alford, 'Marshall's Demand Curve', *Economica*, Vol 23 (Feb 1956) pp. 23-48; M. Friedman, 'The Marshallian Demand Curve', *Journal of Political Economy*, Vol 57 (Dec 1949) pp. 463-95, reprinted in M. Friedman, *Essays in Positive Economics* (Chicago Press, 1953).

²³ See Section I.5 above. For a general account of the distribution theory of the *Principles* see H. M. Robertson, 'Alfred Marshall's Aims and Methods Illustrated from his Treatment of Distribution', *History of Political Economy*, Vol 2 (Spring 1970) pp. 1-65.

Principles develops the argument in several important ways, all of which appear to be attributable in large part to the 1880s:

(i) The stress on the cost-minimising, advantage-maximising Principle of Substitution between productive factors,²⁴ a principle never fully described in the *Economics of Industry*.

(ii) The synthesis of quasi-rents, and of rent elements in earnings, with the theory of rent on land, so that the latter becomes 'the chief species of a large genus of economic phenomena'.²⁵

(iii) The analysis of marginal productivity with much greater precision and detail than the rather vague allusions of the *Economics of Industry*.

Even so, the discussion of marginal productivity remains sufficiently muted and qualified that Stigler is able to classify Marshall as a marginal-productivity theorist only after some deliberation.²⁶ The *Principles* still couches the essential arguments in terms of such circumlocutions as

... we may call to mind the double relation in which the various agents of production stand to one another. On the one hand they are often rivals for employment; any one that is more efficient than another in proportion to its cost tending to be substituted for it, and thus limiting the demand price for the other. And on the other hand they all constitute the field of employment for each other: ... the national dividend which is the joint product of all, and which increases with the supply of each of them, is also the sole source of demand for each of them.²⁷

Yet Marshall had worked out during the 1880s a much clearer formulation for his own use, in terms of production functions and their partial derivatives.²⁸ Such a conception clearly underlies the discussion of the *Principles* but it is kept hidden from the reader, not even being allowed to reveal itself in the Mathematical Appendix, except through the vague hints of Note XIV.

²⁴ See especially *Principles I*, pp. 662–3.

²⁵ *Principles I*, p. 629.

²⁶ G. J. Stigler, *Production and Distribution Theories: the Formative Period* (Macmillan, New York, 1941) Ch. IV.

²⁷ *Principles I*, p. 665; also see p. 536.

²⁸ See Items IV.4.7 and 8 below, in comparison with IV.4.4.

The *Principles* also concerns itself with themes of growth and change, the views of the classical economists and the currently-fashionable Darwinism both being apparent as influences. Again, Marshall's work has firm roots in the seventies but seems to have been refined later. We know that in the early eighties Marshall was even formulating equations for macroeconomic growth models.²⁹ Such formal skeletons were again carefully hidden from the reader of the *Principles*, but probably helped inform its treatment of the underlying questions. The *Principles* also outlines a theory of interrelated socio-economic change in terms of 'Standards of activities and of wants: of life and of comfort'³⁰ which is only vaguely foreshadowed in earlier work. Marshall's ideas here have typically been ignored, or treated as victorian bric-à-brac, but they deserve more sympathetic consideration.³¹

In summary, the specific theoretical developments of the 1880s were essentially minor, yet even from a narrowly theoretical viewpoint there is an element of synthesis and generality in the *Principles* that marks it off from the earlier writings. It would not be wholly correct to describe this as a pervasive awareness of general equilibrium. Marshall pays scant attention to the interconnection of commodity markets on the demand side and to the links from factor prices to commodity prices via the role of income in demand functions. His emphasis on biological analogies of change and adaptation also militates against a Walras-like clarity in the delineation of simultaneous interdependence as a property of general equilibrium. Much more central to Marshall's vision is his time analysis and his emphasis on continuous gradation, in which all edges are blurred, and yet a few guiding principles provide an element of unity amidst diversity. With customary hyperbole he declaimed 'the book was written to express one idea; & one only'.³² He continued:

²⁹ See Item IV.4.4 below.

³⁰ *Principles I*, p. xxxi.

³¹ See however T. Parsons, 'Wants and Activities in Marshall', *Quarterly Journal of Economics*, Vol 46 (Nov 1931) pp. 101–40. Parsons's assessment seems ripe for reconsideration.

³² Letter to N. G. Pierson, the Dutch economist, 8 Apr 1891. Marshall Library, Marshall 3:97.

That idea is that whereas Ricardo & Co. maintain that value is determined by Cost of production, & Malthus, MacLeod, Jevons & (in a measure) the Austrians that it is determined by utility, each was right in what he affirmed but wrong in what he denied. They none of them paid, I think, sufficient attention to the element of *Time*. That I believe holds the key of all the paradoxes w^h. this long controversy has raised. When Ricardo spoke of Cost of production as determining value he had in mind periods as to which cost of production is the dominant force; when Jevons emphasized utility, he had in mind shorter periods. The attempt to work all existing knowledge on the subject of value into one Continuous & harmonious whole, by means of a complex study of the element of Time permeates every Book almost every page of my volume. It is the backbone of all that, from a scientific point of view, I care to say.

Parallel to the correspondence with J. N. Keynes about the proofs of the *Principles* was a correspondence about the proofs of Keynes's *The Scope and Method of Political Economy*, which appeared in 1891.³³ For want of a better place, the following extracts from letters by Marshall are appended to conclude the present section.

Undated: I don't think we disagree about *method*. I don't think you say anything about it in your proofs with which I don't agree. But we differ about *people*. I hold that the 'classical' economists knew their facts – but only put an abstract of them in their shop front. Also I don't think they were nearly as abstract as you do. Ever since I wrote my own earlier chapters I have altered a little in their direction in consequence of a more careful study of what they say about wages. And I have gradually become convinced that whenever the Irishman Cliffe Leslie undertook to set right the English economists about the facts of English life, he was wrong in consequence of the paucity of the facts at his disposal: though he made a show of knowledge by putting all he knew in the shop window.

³³ Macmillan, London, 1891. Marshall's side of the correspondence is preserved in the Marshall Library. The extracts are from Keynes 3:69 and Keynes 3:73. For another extract (re Bagehot's *Postulates*) see p. 31 above.

20 September 1890 (about the strategy of teaching economics): My own notion is

- (i) Begin with Analysis, which is an essential introduction to all study of facts whether of past or present time; with perhaps a very short historical introduction.
- (ii) Go on to call to mind the student's knowledge of the economic conditions in which he lives. Show the relations in which they severally stand to one another and carry analysis further, making it more real and concrete.
- (iii) Build up a general theory or process of reasoning applicable to Value Money Foreign Trade etc., with special reference to the conditions in which the student lives, and pointing out how far and in what ways, it can be made to bear on other conditions.
- (iv) Give a general course of economic history
- (v) Qe. Return to economic theory and carry it further
- (vi) Consider economical conditions in relation to other aspects of social life
- (vii) Treat of the economic aspects of practical questions in general and social reform in particular.

N.B. (v) May come almost anywhere; or, for some classes of students, may be omitted altogether.

I.7 Marshall's Relations with Jevons and Walras

Although few new facts can be added as to Marshall's relations with W. Stanley Jevons and Léon Walras, a brief rehearsal and reconsideration is called for, given the significance of the question for the history of economics. The story opens with Marshall's rather grudging review of Jevons.¹ This displayed – humanly enough – the condescension of the certified Second Wrangler at Jevons's occasional mathematical fumblings, and a trace of pique at the extent of theoretical territory to which Jevons's energetic, but less than exhaustive, exploration had established clear claim of priority. It should be recalled that up to the appearance of the *Theory of Political Economy*, Jevons had been known as the author of careful statistical investigations and down-to-earth applied works. Thus, his

¹ *The Academy* (1 Apr 1872) reprinted in *Memorials*, pp. 93–9.

foray so far from practical measurement, into the realm of hedonical economics, must have come as a surprise—and to Marshall a disappointment too. Also, the castigation of Mill and Ricardo gave offence.²

Surprisingly, Jevons did not think Marshall's review, which was signed, either noteworthy or particularly unfair, and seems to have dismissed it without attempting to contact its author.³ Marshall on his part, seems to have made no effort to communicate his ideas and ambitions. Instead, it was George Darwin—son of the naturalist and, as a member of Trinity, a close neighbour of Marshall's in Cambridge—who opened discussion with Jevons and became his most significant early disciple in England.⁴

Contact between Marshall and Jevons occurred only in December 1874, when Jevons visited Cambridge as an examiner for the Moral Sciences Tripos and got, at second hand through the examination answers, some insight into Marshall's work. (This was the occasion on which Mary Paley took the Tripos by informal arrangement.) Even then, there seems to have been little hard discussion, possibly because the visit was too hectic to leave time. Jevons also made the acquaintance on this occasion of Foxwell, a fellow examiner,

² See *Memorials*, pp. 99–100. Marshall annotated his copy of the first edition of the *Theory of Political Economy* (apparently the one he used in writing the review, and now in the Marshall Library): 'Mill's language is horribly slipshod but there is nothing stated in this account which Mill does not state in some form or other at some part of his account' (p. 102); 'He [Jevons] does not know what Ricardo means by "rate of wages"' (p. 258). A third source for disappointment might have been the very fragmentary nature of Jevons's treatment of distribution—the topic for which Marshall's own difficulties were greatest. (See p. 47 above.)

³ See H. A. Jevons (edited), *Letters and Journal of W. Stanley Jevons* (Macmillan, London, 1886) p. 309 (Letter of 7 July 1874). It is not clear why J. M. Keynes should say 'There is no evidence that Jevons was aware of the authorship of the *Academy* review'. (J. M. Keynes, 'William Stanley Jevons 1835–1882: a Centenary Allocution...', *Journal of the Royal Statistical Society*, Vol 99 (Part 3, 1936) p. 535; this essay, without the accompanying discussion, is reprinted in J. M. Keynes, *Essays in Biography* (Collected Works, Vol 10; Macmillan, London, 1972).

⁴ Darwin soon turned his attention to astronomy, but his two essays on economics are of high quality. Jevons described him as 'a very good mathematician and an acute economist' (*Letters and Journal*, p. 311). See G. H. Darwin, 'Commodities versus Labour', *Contemporary Review*, Vol 22 (Oct 1873) pp. 689–98; idem, 'The Theory of Exchange Value', *Fortnightly Review*, Vol 17 New Series (Feb 1875) pp. 243–53. There is nothing to suggest that Darwin and Marshall were in serious communication at this time.

who was soon to become his closest acquaintance and chief correspondent in Cambridge.⁵

In January 1875 Jevons sent copies of his recent paper on 'Progress of the Mathematical Theory of Political Economy'⁶ to Marshall and Foxwell, taking the occasion to urge Marshall to print 'what you have already worked out on the subject'. It was Foxwell who must have first responded by giving a fuller account of Marshall's work, for in February 1875 Jevons wrote to him:

I have been very much interested in your letter concerning my paper. It has told me much, which I had no previous means of knowing, concerning the ideas current in philosophical subjects in Cambridge. I was not aware that Marshall had so long entertained notions of a quantitative theory of political economy, and think it is a pity that he has so long delayed publishing something on the subject.⁷

A day or two before this letter was written, Jevons had received a response from Marshall, who admitted – whether out of conviction or politeness – that 'the substantive difference between us is less than I once supposed', adding that their chief divergence was on Mill. And even on Mill, Marshall would admit that he 'was not a constructive genius of the first order, and that generally the most important benefits he has conferred on the science are due rather to his character than to his intellect'.

The suggestion is strong that Marshall's attitude continued prickly, and that he failed to grasp the obvious opportunity to open genuine intellectual discussion. Jevons examined again in Cambridge in December 1875, the occasion when J. N. Keynes came first in the Tripos. Shortly after the examiners' meeting, James Ward wrote to congratulate Keynes observing 'I sh^d. fancy you pleased [Jevons] better in Logic than in Economy: he evidently doesn't believe much in Marshall, &

⁵ This and the next few paragraphs are based upon the *Letters and Journal of W. Stanley Jevons* and R. D. C. Black, 'W. S. Jevons and the Economists of his Time', *Manchester School*, Vol 30 (Sept 1962) pp. 203–21. Uncited quotations come from pp. 212–14 of the latter.

⁶ Given to the Manchester Statistical Society on 11 Nov 1874 and printed in the *Journal of the [London] Statistical Society*, Vol 37 (Dec 1874) pp. 478–88.

⁷ *Letters and Journal*, p. 331.

was amused by your curves.⁸ But relations soon thawed, although without ever becoming more than cordially polite. In 1877 Marshall received a handsome testimonial from Jevons for the Principalship at Bristol, and in 1879 Jevons received – from Sidgwick – a copy of the *Pure Theory* chapters. These removed any lingering doubts in Jevons's mind as to 'Marshall's scientific powers,'⁹ and Jevons also formed a high opinion of the *Economics of Industry* after being sent one of the first few copies to be bound.¹⁰ But he responded firmly, and properly, when Foxwell again raised Marshall's claims to priority. This was in 1879, after the appearance of the second edition of the *Theory of Political Economy*, with its much fuller treatment of precursors, and its extended sketch of Jevons's views on distribution. It is interesting that Foxwell felt it needful to add the reassurance that 'Marshall always spoke in the highest terms of your book from its first appearance: which might prove either that he was prepared to agree with it, or that he had learnt a good deal from it, or both.' Jevons replied:

As regards the analogy of laws of wages and rents, of course I do not know what Marshall gave in his lectures in 1869, as I neither attended them nor have seen notes, unless, indeed, the answers of some candidates.... As regards Marshall's originality, I never called it in question in the slightest degree, having neither the wish nor the grounds. ... I have no reason to suppose that Marshall saw any printed report of my first brief paper; but of course ... in my book of 1871 I could not possibly have borrowed anything from Marshall.¹¹

That such questions should even be raised at this stage is a remarkable fact, symptomatic of Marshall's unwillingness to lay his intellectual cards on the table.

⁸ Letter transcribed in J. N. Keynes's diary for 13 Dec 1875 (University Library, Cambridge, Ad 7827-67). A further illustration of limited intellectual contact is provided by Jevons's report on his discovery of Cournot in 1875. Compare W. S. Jevons, *Theory of Political Economy* (fourth edition, Macmillan, London, 1911) pp. xxix-xxx.

⁹ *Letters and Journal*, p. 409.

¹⁰ Compare *Memorials*, pp. 66, 371.

¹¹ *Letters and Journal*, pp. 408-9.

It was argued in Sections I.2 and I.5 above that the form, though not the substance, of Marshall's theoretical work was influenced by Jevons more than Marshall would admit. His failure to make warmer acknowledgments could be accounted for partly by his personality and circumstances, and the effect of Cambridge's excessive insularity. But it may also have reflected his continuing view that Jevons's book was fundamentally misguided, and that Jevons's strength lay in applied rather than theoretical economics.¹² Given such a position, it would have seemed easier and less embarrassing to counter Jevons's views more by what was *not* said than by open controversy. Such a strategy characterised the *Economics of Industry*, and may have appeared the best way of achieving the pre-eminent goal of constructively advancing the subject. But it certainly left Marshall open to the charge of being less than frank.¹³

Marshall's acquaintance with the work of Walras probably came through Jevons, who had been approached by Walras in May 1874.¹⁴ Jevons publicised Walras's ideas in the paper 'Progress of the Mathematical Theory of Political Economy', so that Marshall must have known of them, and their similarity

¹² Although Marshall later gave ample and warm praise to Jevons's achievements, I do not think it can be said that he ever fully endorsed the *Theory of Political Economy*. See *Memorials*, pp. 99–100, *Principles I*, pp. 813–21. It is, however, perhaps worth noting that Marshall had praise for Jevons's views on social questions writing:

I think many people will be surprised at finding how important Jevons' social essays are, when they come to be collected: but I don't think their full importance will be seen unless they are looked at in connection with his views on applied economics.

(Letter to Foxwell, 19 Jan 1883, Marshall Library, Marshall 3:7). Jevons's social essays were collected in *Methods of Social Reform* (Macmillan, London, 1883).

¹³ In the discussion of J. M. Keynes's 1936 Allocution, Jevons's son, H. S. Jevons, stressing the differences in the approaches of Jevons and Marshall observed:

... it is interesting to speculate what would have been their relations if my father's life had lasted much longer, and he had been able to read the *Principles*. Surely that would have brought them together, and the effect upon each of them might have been great.

(*Journal of the Royal Statistical Society*, Vol 97 (Part 3, 1936) p. 549.)

¹⁴ The full Jevons–Walras correspondence is available in W. Jaffé (edited), *Correspondence of Léon Walras and Related Papers, Volume I* (North Holland, Amsterdam, 1965); also see Volume III, letter 1783.

to his own, by January 1875.¹⁵ He does not seem to have communicated with Walras,¹⁶ but he did at some stage acquire a copy of the 1874 edition of Walras's *Éléments d'Économie Politique Pure*.¹⁷ He must have read the book carefully up to *Leçon 12* (p. 65), where his annotations end with the comment :

On this page a slovenly attempt is made to represent the demand for *a* as the supply for *b* geometrically: it seems to have no use: so pass over this page. ['Slovenly' struck out.]

But there remains a suspicion that he 'passed over' more than p. 65. At best, he never showed much comprehension of Walras's work and appears to have held it in low regard.¹⁸

Surprisingly, Jevons did not bring Marshall's name to the attention of Walras, despite the latter's initial eagerness to establish contact with sympathetic English economists. In 1879 Foxwell's name was mentioned in connection with teaching at Cambridge, but Walras by this time seems to have become discouraged by his failure to gain much recognition in England, and by Jevons's obvious reluctance to enter into technical discussion. Thus it was only when Foxwell took the initiative in January 1882 that Walras came into direct contact with Cambridge economics. And it was only in December 1882, a few months after Jevons's death, that Walras was at last given Marshall's name as 'the ablest of our living Economists'.¹⁹

For a few years there was an intermittent Marshall-Walras correspondence.²⁰ There was an exchange of works, Marshall

¹⁵ They were also echoed in G. H. Darwin's 'The Theory of Exchange Value' of February 1875.

¹⁶ Around 1910, Marshall wrote of having been pressed by Walras in 1873 to publish speedily (*Memorials*, p. 21 and above p. 94). But the whole detail and tenor of Walras's correspondence with England points to the extreme improbability of this. Possibly Marshall was thinking of Jevons's advice of 1875.

¹⁷ Corbaz, Lausanne; Guillaumin, Paris; Georg, Basle; 1874. The rebound and recut copy is preserved in the Marshall Library.

¹⁸ In 1883 Marshall had forgotten the distinction between his own and Walras's approaches to market stability (*Correspondence of Léon Walras... Vol. I*, letter 595).

¹⁹ See *Correspondence of Léon Walras... Vol. I*, especially letters 433, 525, 544.

²⁰ There is nothing to suggest that the published correspondence is incomplete. See *Correspondence of Léon Walras... Vols I and II* on which the remainder of the present section is based.

sending not the *Pure Theory*, of which he made no mention, but the *Economics of Industry*. He was nettled by Walras's observation that it accepted Jevons's doctrine of final utility: 'I cannot be said to have accepted [it] . . . For I had taught it publicly in lectures at Cambridge before his book appeared.'²¹ But, apart from this outburst, Marshall committed himself no further than civility required. By 1886 the correspondence had already languished, and a final punctiliously polite note from Marshall in September 1889, acknowledging receipt of Walras's second edition, merely confirmed his unwillingness for further debate.²²

That correspondence between two of the most eminent economic theorists of the day should have died on the vine probably reflects a temperamental gap which would have doomed it even without more proximate faults and misapprehensions. But such additional obstacles did undoubtedly arise on both sides. The correspondence opened at an inopportune time for Marshall, who must have been at his most sensitive as to his slipping claims to priority, and pressed and anxious to bring his own work to speedy completion. He seems to have taken little pain to confirm or modify an unfavourable first impression of Walras's work. Writing to J. N. Keynes in 1889, he observed:

I think I spoke to you some time ago of Pantaleoni as seeming to me to have much truer mathematical instincts than Jevons, Walras, Launhardt & Co., & I may now add Wicksteed.²³

He also seems to have been unpersuaded by Walras's applied work. It is true that Marshall and Walras had very different goals in mind for their work – Marshall intent on 'real'-ising abstract economics, Walras mainly on elaborating and perfecting pure theory. But the contrast between Marshall's

²¹ Ibid. Vol I, Letter 595 (1 Nov 1883). (A fuller quotation is given on pp. 38–9 above.)

²² Ibid. Vol II, Letter 922 (19 Sept 1889).

²³ Letter of 15 Jan 1889, Marshall Library, Keynes 1:88. The lack of reference to Walras's work is a noticeable feature of the Marshall Papers.

cool and superior attitude to Walras, and his later admiration of J. B. Clark, tends to confirm Foxwell's opinion that judgement was never Marshall's strong point.²⁴

On Walras's side there was already sensitivity about the unenthusiastic reception of his ideas in England, and incomprehension of the phlegmatic British temperament. Had he not scolded Jevons 'Vous autres Anglais vous êtes trop pressés. En fait de science, *time is not money*'?²⁵ But he was willing to try again, and made in the later 1880s another energetic attempt to get his work translated. But soon he came to see that Marshall was intent on laying claim to a synthesis of the theories of value and distribution which would ignore his own prior work and claims, and the situation was not eased by the fact that these claims tended to be inflated.²⁶ The last straw was Walras's discovery, through Maffeo Pantaleoni, of the extent to which Marshall's theoretical work had been concealed from him.²⁷ It was argued above that Marshall's reluctance to circulate the chapters on the *Pure Theory of Foreign Trade and Domestic Values* reflected the circumstances under which they were printed, rather than a conscious attempt by labelling his publication 'for private circulation' to conserve 'des droits de priorité sans rien publier de façon à pouvoir continuer ses recherches tout à son aise, sans être devancé par personne' – as was Walras's charge.²⁸ Indeed, the surprise is that Marshall granted Pantaleoni permission to reproduce the foreign trade diagrams in his

²⁴ See letter from Foxwell to J. N. Keynes of 6 Feb 1912, Marshall Library, Keynes 1:44. On Marshall's attitude to Clark compare *Memorials*, p. 414 and C. W. Guillebaud, 'Some Personal Reminiscences of Alfred Marshall', *History of Political Economy*, Vol 3 (Spring 1971) p. 7. [Taussig wrote to Marshall: 'I note with interest and just a shade of amusement what you say . . . of my friend Clark and of the relation of his work to yours. You are over-modest about yourself and over-generous in what you say of Clark. . . . He has ingenuity and a perverse sort of originality, but he has no power of sustained reasoning and no sober sense of the realities of life'. Letter from F. W. Taussig to Marshall, 14 Oct 1907, acknowledging receipt of the fifth edition of the *Principles*. Marshall Library, Marshall 3:83.]

²⁵ *Correspondence of Léon Walras . . . Vol. I*, Letter 465 (Mar 1880).

²⁶ See *ibid.*, Vol. II, Letters 799, 812 (12 June and 10 Oct 1887).

²⁷ See *ibid.*, Letters 903, 909, 912 (8, 17, 28 Aug 1889).

²⁸ *Ibid.*, Letter 909 and Section I.4 (p. 66) above.

Principii di Economia Pura of 1889²⁹ – perhaps, with the imminence of the *Principles*, he was assuming a more relaxed attitude to his earlier work. But Walras could be forgiven for putting the worst construction on the facts he saw.

Exasperated by Marshall, and believing Foxwell and Edgeworth to be more under Marshall's influence than they in fact were (finding Foxwell blandly unresponsive, and Edgeworth almost wilfully difficult), Walras soon came to regard 'L'école de Marshall' as an enemy rather than an ally. For a time he thought Wicksteed might be 'mon homme pour Angleterre', but Wicksteed soon gave even greater offence.³⁰ By the mid-nineties Walras seems to have accepted the insuperable insularity of 'MM. les économistes Anglais' and abandoned them to their own devices.

I.8 Marshall's Aims and Achievement in the 'Principles'

Marshall had deferred the full publication of his theories for many years, 'because he feared that if separated from all concrete study of actual conditions, they might seem to claim a more direct bearing on real problems than they in fact had'. The 'requisite limitations and conditions' were slowly supplied as the *Principles* was extended from the kernel of Book V,¹ and when, at last, the finished book appeared, it bore an ample embroidery of facts and figures. This feature doubtless made the book seem more lifelike, and increased its attractiveness and pedagogic value for certain classes of readers. Yet, it seems a mistake to think that the close intermingling of fact and theory was the essential element in Marshall's purpose. After all, the facts are used rather for illustration than as an integral part of the enquiry, and, as J. S. Nicholson complained – perhaps unfairly, but not without some truth – 'His history is vague, old-fashioned and excessively weak; his examples are mainly of the old *a priori* kind or at best curious

²⁹ Barbèra, Florence, 1889. [There was an English translation entitled *Pure Economics* (Macmillan, London and New York, 1898).] See also *Correspondence of Léon Walras... Vol II*, Letter 912 and *Money Credit and Commerce*, p. 330n.

³⁰ *Correspondence of Léon Walras... Vol. II*, Letters 925, 1194 (13 Oct 1889; 9 Oct 1894).

¹ See *Memorials*, p. 21, the source of the quotations just made.

rather than important.² Marshall's description of Smith's approach might equally well be applied to himself:

... he did not very often prove a conclusion by detailed induction. The data of his proofs were chiefly facts that were within everyone's knowledge, facts physical, mental and moral. But he illustrated his proofs by curious and instructive facts; he thus gave them life and force, and made his readers feel that they were dealing with problems of the real world, and not with abstractions...³

What Marshall seems to have been aiming at was something different from a straightforward inductive enquiry. His aims have nowhere been summarised more perceptively than by W. R. Scott in a passage deserving extensive quotation.⁴

It is far from accidental that in the prefaces of his three most important books, in the text, and also in his letters, he alludes to two guiding principles. The first in order of time, though the less universal, was that of continuity. In the years when Marshall's economic thought was forming, he climbed the Alps with Kant's *Critique* as his constant companion, and it was no doubt from Kant that he adapted the expression of this principle in the form *Natura non facit saltum*. The idea of the organic nature of economic life was stimulated by Herbert Spencer, and Marshall records how

² Letter from J. S. Nicholson to J. N. Keynes, 27 July 1890. (Marshall Library, Keynes 3:81.) The letter continues '...the repetition is so great that his plan must be faulty; and if he is to cover the whole ground of what I understand by P.E. he will at the same rate take 6 volumes. At the same time his pure theory is extremely good and deserves the highest praise, especially because he was really the first to introduce the ideas in England'.

It may be worth noting that Marshall's 'economic history' – eventually relegated to Appendix A of the *Principles* – is rather his attempt at a theory of the evolution of market economies and the enterprise system. Although masked as a historical account, it is in fact highly speculative, and tells us more about Marshall's world view than about the objective facts of the past.

³ *Principles I*, p. 759n. As usual, slight qualification is in order. Marshall elsewhere emphasised the inductive element in Smith (*Memorials*, p. 379), and Book IV of Marshall's own *Principles* might be regarded as verging on the inductive. However, Marshall himself recognised Book V as strictly theoretical: it 'refers to realities for the purpose of illustration only, not of construction'; 'Construction', he added, 'begins with Book VI'. (*Principles II*, pp. 72–3.) The ill-defined concept of 'construction' appears central to Marshall's methodological purpose.

⁴ See W. R. Scott, 'Alfred Marshall, 1842–1924', *Proceedings of the British Academy*, Vol 11 (1924–5) pp. 446–57. The quotation comes from pp. 449–50.

in his youth 'a saying of Spencer sent the blood rushing through the veins of those who a generation ago looked eagerly for each volume of his as it issued from the press'. Hegel, and in particular Hegel's *Philosophy of History*, taught him the continuity of human institutions and [the continuity] in the development of the humanistic sciences. Further, the same idea of continuity appealed to Marshall through his mathematical studies in a special form, namely, in so far as observation of quantities relates not so much to aggregates as to increments of aggregates, and in this connection he was aided by Cournot and in a less degree by von Thünen.

In the *Philebus* Plato makes Socrates say that a true understanding of the One and the Many was a gift of heaven to men, and Marshall's elucidation of his second principle of 'the Many in the One and the One in the Many' shows him as the newest Prometheus who thereby threw a blaze of light upon economic relations. Starting from the conception that the work of the economist is 'the disentangling the interwoven effects of complex causes', he develops a species of dialectical movement, by which, on the one side, through searching analysis he shows that what seems simple, uniform, or one – sometimes in experience, sometimes in previous economic theory – is not so in reality, but must be resolved into its constituent elements. From this tendency it follows that an apparently simple statement in Economics is rarely true. Then there is the reverse tendency, namely, that, as the multiplicity of established fact is examined and the ideas latent in it are drawn out, the principles which explain it are found to be fewer than was supposed and several of these may be resolved into one still more comprehensive. It was always Marshall's double aim to get greater reality by pushing his analysis through many fields of inquiry in order to exhaust every thing relevant: while, no less, by tracing the causes of causes he tracked them to their point of interaction.

It is the Darwinian motto of the continuity of nature which captures the title page of the *Principles*,⁵ with the alternative

⁵ See also *Principles I*, pp. vi–x.

Hegelian motto being reserved for *Industry and Trade*. Yet, much of the peculiar genius of the *Principles* can be accounted for – increasingly so with successive editions – by viewing it as Marshall's attempt to inculcate in the reader a proper appreciation of his dialectic of the particular and the general: of the cumulative construction of an 'organon' through the systematic tracing out of the fundamental causes of known effects and the full effects of known causes.⁶

The overriding importance which Marshall came to attach to this guiding principle of 'the Many in the One and the One in the Many', is revealed in the statement 'In my view the *Many* is the ground of study; the *One* is the Holy Grail to be sought by the pious and laborious pilgrim; and the *One* where so found is to help as a guide through life over the broken ground of the *Many*'.⁷ Nowadays, this sounds strange and half mystical, but the hyperbole should not be allowed to mask the fact that Marshall's views on method were quite orthodox for his day. He was in substantial agreement with Wagner, a leader of the moderate wing of the German Historical School, and differed on few major points from the views expounded by J. N. Keynes in his *Scope and Method of Political Economy*.⁸

Keynes described Marshall's approach as 'deductive political economy guided by observation'.⁹ Observation was ascribed particular importance in determining the choice of assumptions, or the judgement as to when particular assumptions might safely be used. A direct empirical verification of conclusions, although desirable, was usually made difficult by

⁶ See *Principles I*, pp. 776–9 and *Memorials*, pp. 297–8, 379.

⁷ Letter from Marshall to W. S. Hewins of 12 Oct 1899, reproduced in A. W. Coats, 'Alfred Marshall and the Early Development of the London School of Economics: some Unpublished Letters', *Economica*, Vol 36 (Nov 1967) pp. 408–17. The remark is apropos of Launhardt on railway theory. Marshall continues, 'Launhardt's plan seems to me (I have not read him) that of standing where he happens to be, and jumping in the air and jumping again, in hopes that the Holy Grail will come floating past and stick in his fingers as he jumps'. No doubt a similar observation might have been proffered about Walras's axiomatic approach to economic theory.

⁸ Macmillan, London, 1891. In 1897, Marshall claimed that his views on method were 'midway between Keynes + Sidgwick + Cairnes and Schmoller + Ashley'. (See J. M. Keynes, 'Herbert Somerton Foxwell', *Economic Journal*, Vol 46 (Dec 1936) p. 593n.) For a laudatory view of Marshall's approach see Wagner's review of the *Principles*: A Wagner, 'Marshall's *Principles of Economics*', *Quarterly Journal of Economics*, Vol 5 (Apr 1891) pp. 319–38.

⁹ J. N. Keynes, op. cit., p. 217n.

the very complexity of economic events necessitating the deductive method.¹⁰ Thus it was that '... the direct and formal study of facts, perhaps mainly those of his own age, will much exceed the study of mere analysis and 'theory', in its demands on the time of any serious economist; even though he may be one of those who rank most highly the importance of ideas relatively to facts...' ¹¹

In Marshall's case, the fruits of observation were harvested in the *Principles* mainly in the form of assumptions and judgements of a broad qualitative nature. The book's scientific contribution would have been little impaired by the suppression of the anecdotal fact which embroidered it. However, he did look forward to the development of a more quantitative form of economic analysis, and it seems probable that he would have approved the general spirit of later econometric developments, if not all the details of their form.¹²

The replacement of the didactic *a priori* doctrines of classical political economy by emphasis on the development of an economic organon – modifiable by new facts or circumstances, and an invaluable, but only partial, aid in studying particular questions – did much to reconcile the deductive and historicoevolutionary approaches to economics. Foxwell, in his important 1887 survey of the state of English economics,¹³ saw these as two of the tributary streams conjoining in the recent economic movement. But he also saw a third, which like the other two had been brought together in Marshall's own person. This was 'the moral and humanistic criticism of our economic life and institutions',¹⁴ with its sources in the humanitarian movements of the earlier nineteenth century, and in the writings of Ruskin, Kingsley, and others: possibly

¹⁰ See *ibid.*, pp. 214–26; *Principles I*, Appendix C. (The latter is Marshall's most comprehensive methodological statement.)

¹¹ *Principles I*, p. 778.

¹² Compare *Memorials*, pp. 301–6, 419–27. Schumpeter has stressed Marshall's role as a precursor of econometrics. See particularly J. A. Schumpeter, 'Alfred Marshall's *Principles*: a Semi-Centennial Appraisal', *American Economic Review*, Vol 31 (June 1941) pp. 236–48, reproduced in his *Ten Great Economists* (Oxford Press, 1951).

¹³ H. S. Foxwell, 'The Economic Movement in England', *Quarterly Journal of Economics*, Vol 2 (Oct 1887) pp. 84–103. Also consult L. L. F. R. Price, 'Notes on a Recent Economic Treatise', *Economic Journal*, Vol 2 (Mar 1892) pp. 17–34.

¹⁴ Loc. cit., p. 90.

also in socialist critiques of capitalist society. This strand in Marshall's thought was the source of those 'pious asides and prim moralisings' which may seem out of place in a treatise like the *Principles*.¹⁵

The role played in Marshall's book by ethical considerations deserves more careful consideration than it is usually given. Ethics enter, on one side, because the 'Ideals' held by the individual actors in the economy are a portion of the economist's data. Moreover, these ideals can be expected to change in systematic ways,¹⁶ so that changes in ethical beliefs and attitudes form an integral part of a *positive* theory of socio-economic change – a preliminary to that understanding of the general laws of evolution of human character, viewed by Marshall as the ultimate goal of social science.¹⁷ This aspect of Marshall's work was correctly seen by Talcott Parsons as involving 'the interweaving with his organon of a second body of strictly theoretical doctrine, a theory of the progressive development of human character and activities in relation to economic wants and want-satisfaction'.¹⁸ Unfortunately Marshall left this side of his theorising highly implicit and never made a full statement of it.

Ethics enters, on the other hand, in the guise of 'the ethics of political economy', which is described by J. N. Keynes as combining the functions of economist and moralist, 'the general principles of social morality being considered in their special bearing on economic activities'.¹⁹ Given clearly-agreed ethical axioms, the economist-philosopher may, as Keynes proposes, 'scientifically define men's duties in their economic relations one with another, and, above all, the duties of society, in so far as by its action it can control or modify economic conditions'.²⁰ But without such axioms, the

¹⁵ For an important treatment of this aspect of Marshall's work, see G. R. Shove, 'The Place of Marshall's *Principles* in the Development of Economic Theory', *Economic Journal*, Vol 52 (Dec 1942) pp. 294–329, especially Section II. The quotation in the text is from p. 316.

¹⁶ See Section V, below, for new evidence on this.

¹⁷ 'To that all history tends; from that proceeds all prediction, all guidance for the future.' *Memorials*, p. 300.

¹⁸ T. Parsons, 'Wants and Activities in Marshall', *Quarterly Journal of Economics*, Vol 46 (Nov 1931) p. 102.

¹⁹ Op. cit., p. 60.

²⁰ Ibid. The original reads 'to define'.

approach lapses into mere preaching. It can hardly be denied that such lapses on Marshall's part were frequent. Nevertheless, there is a third, and intermediate, role for ethical discussion to which some at least of Marshall's 'prim moralisings' may be attributable.

This third role stems from the fact that the full consequences of economic acts are seldom obvious. Thus, it is very hard for the individual actors – businessmen, unionists, voters, statesmen, and so on – to know whether their acts conform to their own ethical precepts. Education of a greater awareness and sophistication as to the ultimate consequences for society of alternative individual or political actions may thus cause the principles of action to be modified, so as to bring the consequences more closely into line with the intentions. This possibility gives to the economist, as educator, an independent role in inducing changes in behaviour, and justifies the working out of various *illustrative* examples involving ethical assumptions. Such examples have the function of showing that the rights and wrongs of the question are not always as they appear to be on the surface.²¹

Marshall's achievement in the *Principles* fell, almost inevitably, short of his grandiose aims. The difficulty that later readers have met in grasping the full scope of his intentions is due partly to the failure to state these intentions clearly, and partly to defects in the structure and style of the book. The difficulties also reflect a change in methodological fashion away from Marshall's rather loose and relativistic theorising. The consequence is that the *Principles* has come to be viewed as a mine to be quarried for gems, rather than a railway conveying a coherent and fully-articulated theory of economic equilibrium and change.²²

²¹ See, for example, *Memorials*, pp. 396–7. Also see Section V.2, below.

²² This borrows the analogy applied by J. M. Keynes to *Industry and Trade* (*Memorials*, p. 63).

PART II

Early Essays on Economic
Theory *c.* 1867–74

II Early Essays on Economic Theory c. 1867–74

II.1 Introduction to Part II

It appears that between 1869 and 1873, Marshall committed to paper his first systematic account of the views he was forming about the central questions of economic theory. The manuscripts reproduced here belong to that phase. Their exact purpose remains uncertain: they do not seem to have been written for immediate publication, but are more formal than lecture notes. Most probably they were working drafts, designed to serve eventually as the basis for a more comprehensive and elaborate essay or treatise. But doubtless they were also read by favoured students like Foxwell, Cunynghame or J. N. Keynes,¹ and so helped to forward the early propagation of Marshall's views and claims to originality.²

The four major essays on Value, Money, Wages and International Trade, which are the most significant of the items reproduced in the present part, show a thread of continuity sufficient to hint at a unified conception. But the essays on

¹ J. N. Keynes wrote to Marshall on 18 Oct 1898:

'Although I still do not remember this particular set of notes, I remember of course many other sets of a similar kind which it was my privilege to read when I was an undergraduate....'

Marshall Library, Marshall 1:109 (the notes being referred to are not identifiable).

² Foxwell, in particular, upheld Marshall's claims in correspondence with Jevons, and even testified in print that prior to the appearance of Jevons's book Marshall had 'revived and extended the analysis of Cournot' ('The Economic Movement in England', *Quarterly Journal of Economics*, Vol 2 (Oct 1887) p. 88). Similarly, Cunynghame claimed that 'in 1870 Professor Marshall had shown to his students the demand and supply curves in a form very similar to those set out by Fleeming Jenkin'. (H. H. Cunynghame, *Geometrical Political Economy*, Oxford Press, 1904, p. 9.)

aspects of rent theory form a separate strand in Marshall's thought and remain imperfectly integrated with the rest. In any case Marshall's treatment is far from comprehensive. The topic of capital is covered merely by fragments, while profits are considered only from a restricted viewpoint. The lack of complete unity and cohesion may be due to the disappearance of material. But it is equally likely to reflect gaps in Marshall's thinking. These would be normal at such an early stage of development, and could occasion surprise, only because Marshall took such pains to emphasise the completeness of his initial inspiration.

The opportunity is taken to include a few supplementary notes which appear to be closely related to the other items. No hard-and-fast boundary can be drawn between these, or other peripheral items, and the items of early date that are reproduced either in the miscellany of Part IV or among the applied essays of Part V. The contents of the present Part were selected merely to give as coherent a view as possible of Marshall's early thinking on economic theory, with further and supporting material left for inclusion in the later Parts. The role of Section I.2, above, as a general introduction to the present Part of the volume should also be emphasised.

The items reproduced in this Part of the volume are grouped into the following Sections:

- II.2 Value
- II.3 Money
- II.4 Wages
- II.5 Profits
- II.6 Capital
- II.7 Rent
- II.8 International Trade

The items are numbered within each Section (as II.2.1, II.2.2 etc.—see the Table of Contents for a detailed listing) and are briefly described at the beginning of each Section. Each Item is given a title, which is original only if enclosed in quotation marks, and has an editorial 'Introduction', followed by Marshall's 'Text'. Any quotations in the Introduction are expressly indicated, while editorial additions to the Text are enclosed in the usual square brackets, as are editorial

footnotes to the Text, or editorial additions to original footnotes. The only exception to this is Item II.7.1, an exposition of Marshall's early rent theory, which is essentially an Introduction to the remaining items in the Section on Rent.

The details bearing on dating are indicated in the introductions to the separate items, but the subject remains a vexatious one. It seems very likely that the essays on Value, Money, Wages and Rent, and the Fragments on Capital, were all written before the appearance of Jevons's *Theory of Political Economy* in 1871. Certainly they show no trace of Jevons's influence (or that of Jenkin or Thünen for that matter). But the essays on International Trade, Wages of Superintendence and Absentee Landlords were probably written in the years following 1871, perhaps as late as 1874.

II.2 *Value*

This Section includes an early Essay on Value and a brief Note on Joint and Composite Demand.

II.2.1 *Essay on Value*

Introduction This remarkable essay, which foreshadows so much of Marshall's later development of the theory of value, is described in the following letter to J. N. Keynes, which relates to the proofs of Marshall's *Principles*.¹

Balliol Croft
Madingley Road, Cambridge
8 Dec. 88

My dear Keynes,

I am quite ashamed to ask you to look at M.S.S. of mine when you ought to be doing your own book. But the case is one in which I do very much want advice:—

The inclosed was part of the first systematic account of my views on value (I can't fix the date, but I believe it was 1870. I know for certain it was before 1874). In them I have divided

¹ The bulk of the letter is reproduced in *Principles II*, p. 365. The summary statement mentioned here, interleaved as p. 24, 1 of the manuscript, is given below as a footnote to the Text. The reference to Wicksteed is presumably to P. H. Wicksteed, *The Alphabet of Economic Science* (Macmillan, London, 1888), while the chapter on 'Domestic Values' is, of course, Chapter 1 of the *Pure Theory of Domestic Values*.

markets according to lengths of periods A, B, C, D (for short statement see p. 24, 1) and make the supply curve a horizontal straight line for A, necessarily inclined positively for B and C, and of all sorts of shapes for D. (There is some exaggeration in the D figures as I drew them.)

Substantially I believe the account given in these papers to be right and that given by Wicksteed (as I understand it) to be wrong. I have however a great deal more to say about the D curves some of which is already in slip; and some of which was to have come later, but will now go anyhow into Books IV and V.

In writing the chapter on 'Domestic Values' in the appendix to my Treatise on Foreign Trade, I left out about A:B:C:D partly because they do not bear directly on foreign trade problems. And when writing my present Book V, I decided after some doubt to do the same.

But now I am inclined to think that my fear of over-complexity has led me to adopt a course which is likely to be misunderstood; and I am doubtful whether I ought not to bring back the substance of A:B:C:D.

Ought I?

I don't want you to write an answer if it would take you long.

At all events if you are likely to be in Cambridge about the 19th, I will come to Harvey Road on the day after I return and ask for a verbal answer.

Your apologetic and grateful Bore

Alfred Marshall

That the Essay should have been composed in 1870, or perhaps 1871, seems much more probable than any later date. Marshall told Edgeworth in 1892: 'In my earliest MSS. of all, those written *in the late sixties* I talked a little about temporary demand and supply curves. But I gave them up as not leading to anything, and encumbering the ground.'² More cogently, the Essay on Value seems to be presupposed in both the Essay

² Marshall to F. Y. Edgeworth 26 Apr 1892, Marshall Library, Marshall 3:60. (Other parts of the letter are reproduced in *Principles II*, pp. 808–11.) The stress is added.

on Money (Item II.3.1 below), which Marshall dated at about 1871, and the Essay on Wages (Item II.4.1 below) which represents a very early and crude stage of Marshall's thought. In all these three Essays the only contemporary economist, besides Mill, who gets much notice is W. T. Thornton. Neither Fleeming Jenkin nor Jevons is mentioned, and no trace of either's ideas may be discerned. Thornton published his *On Labour...* in 1869, with sufficient success to call for a second edition in 1870.³ He was a gadfly, whose strictures on the theory of supply and demand provoked the thought of Jevons and Jenkin, as well as Marshall. Writing in 1870, before he knew of Jenkin's 'Graphic Representation...', it would be natural for Marshall to pay considerable attention to Thornton, without mentioning Jevons or Jenkin. After the appearance of Jevons's *Theory of Political Economy* in 1871, however, such a proceeding would seem distinctly odd.

It is true that the work of Cournot and Thünen is not mentioned either, though Marshall fancied he read Cournot in 1868 and Thünen in 1869 or 1870.⁴ A nod in Cournot's direction would certainly have been appropriate when introducing the demand curve, or mentioning monopoly, but there is no point at which the failure to cite him becomes glaring. Thus, there is no compelling reason to think that the Essays were written before Marshall discovered Cournot's work: indeed, some trace of his influence might be suspected.⁵ On the other hand, it is hard to believe that the Essay on Wages could have been written by someone as strongly influenced by Thünen's thinking as Marshall claimed to have been, and this suggests that all three Essays were written before he became familiar with Thünen's ideas, making 1870 the most probable date. Yet, the hard fact remains that Marshall in 1888 was unable – at least on the spur of the moment – to date the Essay on Value confidently for Keynes before 1873, the reference date

³ W. T. Thornton, *On Labour: its Wrongful Claims and Rightful Dues* (Macmillan, London, 1869; second edition, 1870).

⁴ *Memorials*, p. 413.

⁵ 'Under the guidance of Cournot, and in a less degree of von Thünen, I was led to attach great importance to the fact that our observations of nature, in the moral as in the physical world, relate not so much to aggregate quantities, as to increments of quantities, and that in particular the demand for a thing is a continuous function, of which the "marginal" increment is, in stable equilibrium, balanced against the corresponding increment of its cost of production'. *Principles I*, p. x.

presumably being that of the paper to the Cambridge Philosophical Society,⁶ i.e. October 1873.

The Essay on Value has many parallels to the later *Pure Theory of Domestic Values* and to those parts of the *Principles* dealing with the equilibrium of supply and demand.⁷ The general treatment of demand and supply curves, and of the stability and multiplicity of equilibrium, is common to all three versions. But the earliest version has several distinctive features.

Its treatment of demand rests on the implicit assumption that each individual buys, or does not buy, a fixed amount of the commodity in question. Thus, the law of demand is established on the simple ground that 'whatever number of persons are willing to buy a commodity at any particular price, a number at least as great will be willing to buy it if the price falls'.⁸ The idea of consumer rent is presaged by the observation that 'the value in use of the commodity to the buyers... cannot be less, though for many of them it may be much greater, than [the price].'⁹

The treatment of supply involves, as the letter to Keynes indicates, a distinction between four different time periods. In periods of class A, individual sellers set price by precedent and sell from stock whatever is demanded. Periods of class B are also defined on the assumption of a fixed stock of goods in the hands of suppliers, but now the current supply is obtained by deducting from the total stock the amount reserved for future sale. The suppliers 'do not follow blindly the prices in some other market, but they calculate the "value in use" to themselves of the commodity by looking forward to what are likely to be the relations between supply and demand'.¹⁰ This reservation

⁶ Reproduced as Item IV.4.1 below.

⁷ That is, Book V, Chs. I–III, V, VI, XII; and Appendixes H, I. Marshall indicated in the third edition that the substance of the demand–supply curves had been used in lectures 'in or before 1870' (*Principles II*, p. 534).

⁸ p. 145 below.

⁹ pp. 130–1 below. There is a parallel assertion for sellers, apparently implying that each seller sells only one unit (or, at least, a small whole number of units), for otherwise the marginal unit for each seller would have a value in use to him just equal to the price. The sequel suggests that the latter is what Marshall implicitly assumes, so that, to rescue him, we must interpret him as saying that it is the *average* value in use to the seller, over all the units he sells, which may be less than price.

¹⁰ p. 135 below.

demand is inversely related to current market price, so that the current supply is positively related. Normally, the past expectations which gave rise to the current stock in hand would have been sufficiently accurate to ensure that only a small amount of stock is actually reserved for future sale when the current market price is established by the interaction of demand and the current-supply schedules.¹¹

It is class B which is in fact dealt with in the *Principles* for the case of 'Temporary Equilibrium of Demand and Supply';¹² but it receives relatively little emphasis there. As Marshall explained to Edgeworth in 1902:¹³

You know I never apply curves or mathematics to market values. For I don't think they help much. And market values are, I think, either absolutely abstract or terribly concrete and full of ever-varying (though individually vital) side issues. Also *Ox* for market values measures a stock and not a 'flow'; and I found that, if I once got people to use Demand and Supply curves which discussed stocks along the axis of *x*, they could not easily be kept from introducing the notion of stock when flow was essential.

The supply curves in both cases C and D involve a rate of flow of production and sales, just like the short-period and long-period normal supply curves of the *Principles*. But the distinction between the two cases runs on quite different lines than in the *Principles*, where the short period involves fixed stocks of production appliances and skilled labour, while the long period involves full adjustment of these stocks, sustained by steady replacement flows so that 'all is flow'.¹⁴ In the Essay on Value, the 'resistance or friction which has to be overcome before capital will move from one employment to

¹¹ That is, if S is total stock in hand, $R(p)$ the reservation demand as a function of current price (so that $dR/dp < 0$) and $D(p)$ current demand, then the current equilibrium price is determined by $S - R(p) = D(p)$ and $R(p)$ at this equilibrium price is small compared to S .

¹² *Principles I*, Book V, Ch. II.

¹³ *Memorials*, p. 435. Also consult *Principles II*, pp. 65, 364, 808–11. In 1898 Marshall claimed to have abandoned the use of market curves 'twenty years ago' (*Principles II*, p. 65).

¹⁴ *Principles II*, p. 65n.; also see p. 364 (footnote from p. 423 of first edition) and *Principles I*, pp. 373–9.

another' is provisionally neglected,¹⁵ while frictions inhibiting the movement of skilled labour remain unmentioned. The distinction between cases C and D turns instead on whether changes in 'modes of production' are excluded (case C) or admitted (case D). However, even for case D, there is a clear distinction between induced changes in modes of production and those due to the general progress of knowledge and society, with 'all changes... being rigidly excluded which do not follow as a direct consequence from the changes in the amount produced'.¹⁶

Supply curves are rising in case C, but judged to be typically falling in case D, at least over certain ranges.¹⁷ The question of whether an individual firm might not monopolise a decreasing-cost industry is handled in the following way.

It has been tacitly assumed that an increase in the economy of labour which results from the production on a large scale depends on an increase in the total amount produced. If capital moved perfectly freely and there were no practical limit to the proportion of the whole trade connection which a firm can obtain this result might often be brought about through the displacement of small manufactories by one or a few large ones. As it is this cannot in general happen without a social change which is by the very definition of the curves excluded. And the extent of the assumption made is that the smaller the total amount produced be, the more difficult it is to start and to keep employed large manufactories.¹⁸

¹⁵ p. 147 below. The recognition of friction leads to a hint of the quasi-rent concept: friction 'sometimes keeps down prices at the expense of producers and sometimes contributes to that artificial monopoly which occasionally enables them to realize very large profits' (*ibid.*). Shortly before this, the concept of rent to the differential advantages of producers is also suggested.

¹⁶ p. 140 below.

¹⁷ On reading the *Essay on Value*, G. J. Stigler observed (by letter): 'The exclusion of backward-bending supply curves is so dogmatic that one may infer that Marshall did not analyse the utility foundations of supply.' This inference is surely borne out in the wider context of Marshall's early work. (See also the first *aide memoire* in Item IV.5.1, below). Interestingly, Marshall recognised in his 1872 review of the *Theory of Political Economy* the significance of Jevons's derivation of a backward-bending supply curve of labour. But he interpreted the phenomenon in terms of collective bargaining over hours, not individual behaviour (*Memorials*, p. 96).

¹⁸ p. 151 below.

Here, surely, is the germ of the representative-firm concept. Here is also one of several indications that although 'We assume in our theoretical work that competition acts freely',¹⁹ Marshall's conception of competition was from the first a qualified one akin to monopolistic competition.

The *Essay on Value* also incorporates interesting discussions of the function of money in exchange and joint demand and supply. It is marked, too, by many small felicities, and makes a fascinating and significant addition to the canon of Marshall's work.

The manuscript runs to fifty-seven pages octavo, written in a fair hand, as the facsimile shows.²⁰ There are also seven pages of figures. Some of the pages are renumbered and must have been part of an earlier draft. Marshall's haphazard numbering of the diagrams has been replaced by a more logical sequence.

Text Adam Smith regarded the 'value in use' of any particular object as depending upon its utility. He thereby makes himself the judge of what is useful to other people and introduces unnecessary confusion.

The value in use of a thing to a person is the value of the things which must be given him in order that he may be induced to give it up, or which he will give rather than not obtain it: in other words it is the amount of pleasure he would derive from obtaining it or of pain he would undergo from losing it.

The phrase 'water has great value in use but in general none in exchange' appears paradoxical; but is really vague. Any particular quart of water has no value in exchange, because it has no value in use. The person who refuses to pay anything for it does so because he knows he will be able to obtain other water gratis. The error arises from neglecting, when calculating the value in use of a thing to a person, to consider the terms on which, if he refuses this thing another like it will probably be offered to him; and the terms on which,

¹⁹ p. 134 below.

²⁰ See p. 126.

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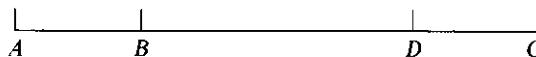
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Facsimile of first page of manuscript of Essay on Value.

if he wants to part with it, he is likely to be able to dispose of it at.¹

In a simple barter, as in the case of Dr Livingstone exchanging muskets for ivory with a tribe in Central Africa, the considerations which enter are but few.² Dr Livingstone sooner than not effect the exchange would give a musket for *AB* ivory, they sooner than not effect it would give *AC* ivory for a musket. Each side tried to delude the other as to the relative value in use to himself of the two commodities. Finally they come to terms at a rate *AD* somewhere between *AB* and *AC*.



Turgot commences his account of value by considering a case of this sort, and then says that in the case of a large market each side considers the circumstances not only of himself and the man with whom he is bargaining, but of all those who are carrying on transactions in these two commodities.³ But it is not at all easy to do this. For instance there are not many who want to change lead for wine and vice versa. There are many who want to change away wine, and many who want to get wine in exchange for something else, but many of the former do not want lead and many of the latter have no lead to change away. And it is for this reason that society has adopted the device of money: taking as its standard sometimes cattle, sometimes pieces of salt, sometimes metals.

¹ [This point is amplified in an annotation to Marshall's copy of the first edition of Jevons (now preserved in the Marshall Library):

The rate at which a man will barter away anything is determined by an equation of the form $du_1/dx = du_2/dy$ (p. 69): but this supposes that in utility we comprehend prospective utility (p. 73). Now prospective utility cannot be determined by inquiring how great a want a man will have of a thing. We must also inquire how great difficulty he expects to have in obtaining it: thus labour is a cause of value.

Further annotations suggest that this was the copy Marshall used when reviewing the *Theory of Political Economy* in 1872. The review's first paragraph restates the point (*Memorials*, p. 93).]

² [The famous meeting with Stanley was in October 1871 and Livingstone was buried in Westminster Abbey in April 1874. The tone of this reference would seem more consistent with an early date for the composition of the Essay.]

³ *Réflexions sur la Formation et la Distribution des Richesses* [translated as one of the Economic Classics edited by W. J. Ashley (Macmillan, New York, 1898). The exact reference is to § XXXII, pp. 29–30 of this edition.]

Thus people talk of the price at which wine can be sold; meaning the amount of money for which it can be sold. This is what Adam Smith calls 'nominal price': and it is open to this objection that if we are considering long periods variations in the value of money would alter the nominal price of a thing without its real value having altered. Thus unnecessary confusions would be introduced. It remains then to consider what is the fundamental distinction between buying and selling which underlies the fact that in the one case money is given for commodities and in the other commodities given for money. A seller is a person who has something say lead which is not of so much value in use to him as it is to some other persons; there may be many things he wants but instead of trying to exchange lead for any one of these he tries to exchange it for a command over commodities in general. The only use of the money which he receives is to *indicate* that the person who receives the lead from him has handed over to him a certain amount of this command. And all that he demands with regard to the nature of this money is that it shall be something which other people will be willing to take from him in exchange for what he wants. Thus in some places cattle are money because society has tacitly agreed to take cattle in exchange for the things which it has to dispose of. A seller then is a person who has some particular commodity which he wishes to give in exchange for command over commodities in general. The amount of this command which must be given to him in order to induce him to part with it is the value in use of it to him.

A buyer is a person who wishes to obtain some particular commodity in exchange for command over commodities in general. The amount of this command which he is willing to give in order to obtain it represents the value in use of it to him.

The amount of this command will be always called the price of the commodity; but though it may be sometimes convenient to express this real price in terms of the nominal or money price it will not be assumed that this is done unless it be specifically stated that it is.

We are now in a position to give an accurate account of the terms demand and supply. Whenever the terms are used there

is always a reference tacit or explicit to a particular market at a particular time. To this point we shall return. It is first necessary to find out what the supply of and demand for a commodity mean. Ricardo used the former term as though it meant the whole amount of the commodity which was to be sold on any terms; and the latter he regarded as measuring in some way the eagerness of buyers.⁴ He then speaks of the ratio between supply and demand as regulating prices in some cases. Mill points out that there cannot be a ratio between such heterogeneous quantities as a supply and demand in Ricardo's sense; and that what is really meant is that there is a certain price at which the amount produced for sale is equal to that demanded by the buyers.⁵ But not only is he not thoroughly consistent in his language: but his ideas were not sufficiently clear to prevent his following Ricardo in that false application of the supply and demand theory which gave rise to the 'wages fund' theory. It was left for Thornton to restate more clearly Mill's position, to carry the analysis further, and to sweep away for ever the doctrine of the 'wages fund'. In an article in the Fortnightly (May 1869) Mill concedes these positions, remarking only, firstly, that Thornton's discovery is an addition to, not a subversion of the theory of demand and supply: though it is subversive of that special application of it which gave rise to the doctrine of the wages fund.⁶

The true meaning of demand and supply can best be seen by referring to a figure [Figure 1]. If any particular amount of a commodity is to be brought to a certain market at a certain time, there is a certain price at which it can so be brought. Thus, if we measure the amount brought into the market by distances measured along the line Ox (Figure 1) we may represent the price at which an amount OM_1 can be so brought by the length of the line M_1P_1 drawn from M_1 at right angles to Ox . And if we give M_1 all possible positions in succession along Ox we shall find for the positions of P_1 a curve such that if from any point on it a perpendicular be drawn to Ox this

⁴ [Compare Item IV.2.7 below.]

⁵ [J. S. Mill, *Principles of Political Economy*, Book II, Ch. II, § 4 (pp. 466–8).]

⁶ [J. S. Mill, 'Thornton on Labour and its Claims', *Collected Works*, Vol V, pp. 633–68.]

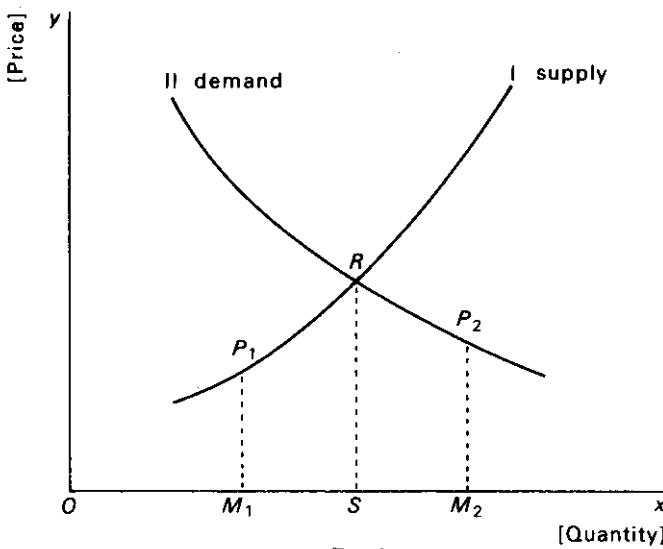


FIG. 1

perpendicular will measure the price at which an amount measured by the portion cut off Ox between O and the perpendicular can be brought to market.

This curve we shall call 'I' or 'the supply curve'. It is obvious from the very definition that the value in use of the commodity to those sellers who bring into the market the amount OM_1 cannot be greater, though it may for many of them be much less, than M_1P_1 .

Again if any particular amount of the commodity is to be sold in the market during the given time, there is a certain price at which it can be so sold. Thus we may measure the amount sold by distances measured along the line Ox [Figure 1] and the price at which an amount OM_2 can be got rid of by the length of a line M_2P_2 drawn from M_2 at right angles to Ox . By giving M_2 all possible positions along Ox we obtain a curve called 'the demand curve' or 'II', such that if from any point on it a perpendicular be drawn to Ox this perpendicular will measure the price at which buyers can be found for an amount measured by the portion of Ox cut off between O and the perpendicular.

It is obvious from the definition that the 'value in use' of the commodity to the buyers who between them take off the

amount OM_2 cannot be less, though for many of them it may be much greater, than M_2P_2 .

At a point at which the curves cut one another there will be equilibrium, that is the amount bought will be such that the price at which it can just be brought into the market will be equal to the price at which that amount can be just got rid of. But this *equilibrium point* will belong to one of two fundamentally different classes according as to the *left* of the point of intersection the supply curve lies *below* or *above* the demand curve. For let the amount supplied at any time be Om (Figure 2) and let a line drawn from m at right angles to Ox cut I and

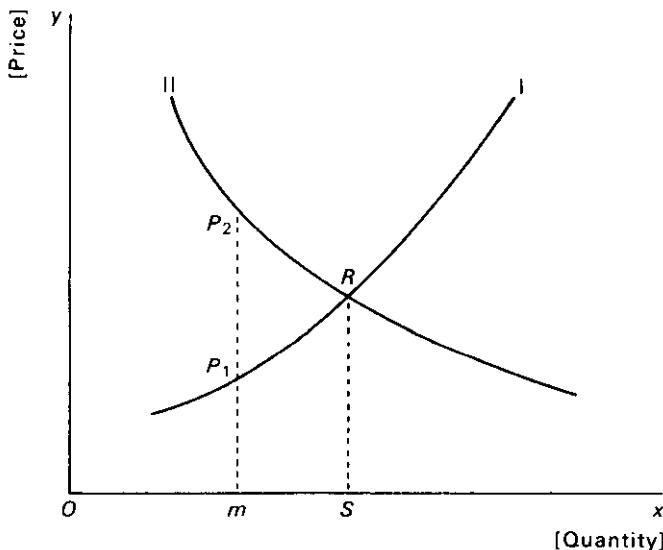


FIG. 2

II in p_1 and p_2 respectively. If mp_1 , the cost of supply, be less than mp_2 , the price at which it can be sold, the trade will be a profitable one, production will be stimulated and m will move to the right. So if mp_1 be greater than mp_2 , the trade will be an unprofitable one, production will be checked and m will move to the left. Thus R being the point of intersection and RS drawn perpendicular to Ox , if no other point of intersection

intervene between R and p_1 , m will always tend to move towards S if I (the supply curve) lies below II (the demand curve) to the left of R and above II to the right of R . We may call the equilibrium at R in the one case *stable* and in the other case *unstable*. Thus, to take a case which we shall hereafter find to be a possible case *viz.* that represented in Figure 3, A and C

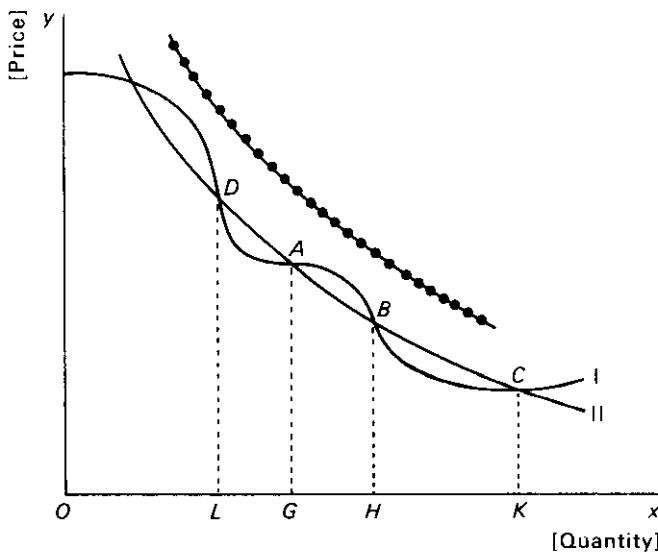


FIG. 3

represent stable equilibrium, D and B unstable. Practically the amount produced cannot remain at D or B , any more than the course of a river can lie along the ridge of a mountain range. But, so to speak, H serves to denote the division between the watersheds of A and C .

This distinction between stable and unstable points of equilibrium is of vital importance. It has reference simply to the relative positions of the curves in the neighbourhood of the point of intersection: and does not refer to the special circumstances which give rise to the shapes of the curves in each particular case. But it cannot be understood in its full bearing until these are examined. We proceed to do this.

Accordingly our next question is :— How are we to estimate the value in use to the seller i.e. that amount of command over commodities in general which must be offered to him to induce him to part with that particular commodity which he has on sale? In general terms he will accept an offer if he thinks that if he refuses this he will not be able to get a better one. But this is not sufficiently explicit. It will always be for his advantage to take an offer at once rather than to wait for a long time and then receive only a slightly increased amount. The extent of his unwillingness to wait will depend upon the importance to him of having ready money, that is upon the rate of interest at which he can borrow if he wants to borrow, or can lend if he wants to lend. Taking this rate at 5 per cent, it would be equally advisable for him to take £100 now, and for him to wait a year and at the end of it get £105 for his commodity: but it would be better for him to wait if he was likely to get £105 at the end of half a year or £110 at the end of a year.

If the chances against a man's getting any sum of money are 9 to 1 the value of his expectation is $\frac{1}{10}$ of that sum. Thus if by waiting he is sure to get £105, but equally likely to get this sum at the end of 6 months and of a year, the value of his expectation is equal to $\frac{1}{2}$ the present value of £105 at the end of 6 months (i.e. about £102.10.0) together with $\frac{1}{2}$ the present value of £105 at the end of a year (i.e. £100). His whole expectation is worth the sum of these i.e. £51.5.0 + £50 = £101.5.0: that is he ought to take an offer of £101.5.0. and ought not to take a less offer.

The number of instances of this kind may be indefinitely extended. Similar considerations enter into the question of determining the value in use to the buyer. Though as he is in general somewhat pressed for time, they are in general simpler in this case.

The next question is :— What are the data which buyers and sellers have to ascertain in order to decide on the probability of their obtaining better offers by waiting? These of course arise from the circumstances of the particular market at the particular time under investigation. We must therefore first define what we mean by a market and then consider how the nature of these data is affected by the size of the market and the

duration of the time in which the sales referred to are transacted.

By a market for any commodity is meant a locality or set of localities subject throughout to the same circumstances of supply and demand so that the commodity is sold at the same price throughout. These conditions are of course never rigidly complied with: though in some cases they are very nearly. The phrase market price assumes that they are tolerably nearly complied with. We assume in our theoretical work that competition acts freely: but insofar as it does not the results obtained from the theory will require to be corrected by making allowance for this before they can be applied to any particular case.⁷

The circumstances which determine the supply and demand of a commodity are widely different for different cases, the differences depending mainly on the length of the period of time to which the investigation applies. We shall find that the various cases which may occur fall conveniently under four heads which we shall call A, B, C, D respectively.

In A the time is very short, the whole amount bought a very small proportion of the amount on sale; the buyer is influenced merely by considering whether he can afford to pay the price at which the commodity is offered, and does not in general look forward to either a rise or a fall in the price; the seller fixes his price in general without much thought merely following the prices which rule in some large market and which are themselves determined by considerations such as those discussed under B and C. The value in use to him is the value at which he is likely to dispose of his commodity and if he regulates his price in this way he is not likely either to be undersold or to sell much too cheaply. Such is the case of almost all retail dealers of almost all kinds of commodities for very short

⁷ Inequalities of price are indeed often more apparent than real. A man who pays four shillings for a pair of gloves which he knows he could have bought in the next street for three, pays three shillings for the gloves and expends the fourth on love of display, on indulgence of old associations, or saving of time. He buys something extra just as much as if the gloves had had extra fancy work upon them. And to the shopkeeper the establishment which he has to keep up in order to obtain a certain class of customers is in general a source of expense just as much as the extra fancy work would have been. But real inequalities arise when high prices are paid solely through the ignorance of the buyer; and these are the more important the smaller the scale of the transactions considered.

periods. Extraordinary circumstances might make him raise his price if an altogether exceptional run on his shop set in. But we need not regard them in our figure [Figure 4]. We may

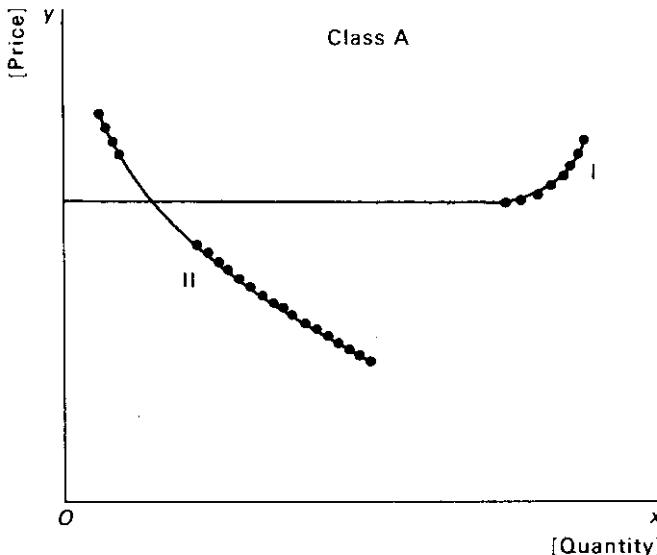


FIG. 4

draw our supply line straight (horizontally) the dotted portion at the end indicating what might possibly happen under these unlikely circumstances. So with regard to the demand line. At the ordinary price the demand will be very small; extraordinary and altogether improbable circumstances might make it take the form represented by the dotted portion of the line. The class A is very unimportant in itself: but for various reasons it is important to have it clearly marked off and separated from the others.

In class B the time is not long enough for fresh commodities to be produced in order to eke out the supply; but the dealers fix their prices independently i.e. they do not follow blindly the prices in some other market, but they calculate the 'value in use' to themselves of the commodity by looking forward to what are likely to be the relations between supply and demand.

In this case we may suppose that the greater part of all the supply in the market is sold off. Such cases are those of fish and vegetable markets for one day; of corn markets for considerable periods less than a year; and of the London market for any manufactured commodity for a period for which the dealers have only to take into account the amount already in existence, at least directly. As a matter of fact prices do not remain constant during such periods: but they would do so if dealers could make their calculations beforehand with sufficient accuracy. Notably the price of corn varies from time to time as buyers and sellers become aware of fresh circumstances which are likely to influence the supply and demand. In such a case as that of the fish market the 'value in use' to the seller is calculated without any reference whatever to the cost of production; but in most cases the price at which he is likely to be able to sell is that which will cover, including profits, the price which he reckons it has cost him or other people to produce it. For people have in general been able to anticipate the state of the market: and it has been their interest to produce neither much more nor much less than can be sold at this price. In the case of the fish market this consideration did not enter because the fishermen did not regulate the amount they caught according to the market on the particular day. The number of the fishermen is indeed determined, as we shall see in case C, by the general circumstances of the market for a long period, but for any particular day the cost of production is a given quantity and they catch what they can.⁸ The uncertainty of the harvests make the corn market for a year very similar in many respects to the fish market for a day. We have said that in calculating 'value in use' the dealers are not directly dependent on what will be the cost of production in the future. Indirectly they are: for if this will fall and

⁸ [The following supplementary note, interleaved in the manuscript, appears to fit in at this point.] *Note to Class B:* If the fish merchants have made up their minds to sell all their fish, whatever the price they can obtain, the supply line will take the form of a vertical straight line and $OS \times SR$ [in Figure 5] will represent the gross price they will obtain. But by selling a smaller amount OS' , they would obtain a gross price represented by $OS' \times S'R'$: and it is quite possible that this might be greater than $OS \times SR$. This end might be attained by the destruction of part of the fish, after the example of the celebrated destruction by the Dutch of a portion of their spices: or it might be done by an arrangement whether formal or informal that they should not sell at a lower price than $S'R'$ for a given kind of fish, or this course of action might be imposed upon them by the government.

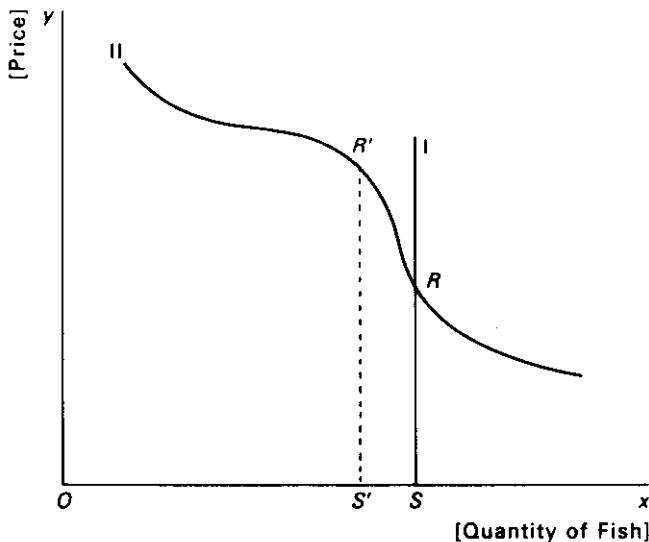


FIG. 5

consequently the price will fall before long very much, everyone tries to sell out all his stock before this takes place, and the eagerness of sellers forces the fall in price to begin at once and be effected gradually. All such changes however may be neglected in the typical figure [Figure 6]. This will represent circumstances in which the supply and demand are sufficiently known beforehand for the calculations to be tolerably accurately adjusted with regard to the amount sold and the price at which it is sold. This amount will often be nearly the whole stock on hand and therein the case differs markedly from the preceding one. But the lines should only be drawn firmly in the immediate neighbourhood of their point of intersection: dotted continuations may be supplied from the fancy to indicate what would be the prices of supply and demand corresponding to totally unlikely amounts of the quantity sold. It may be noted that the circumstances of sale of diamonds for long periods fall under group B. If however the periods be so long that the amount in the market can be appreciably affected by the inducements held out to diamond seekers they will more appropriately fall under class C.

Class C applies to cases in which no change in the modes of production is contemplated but the periods are sufficiently

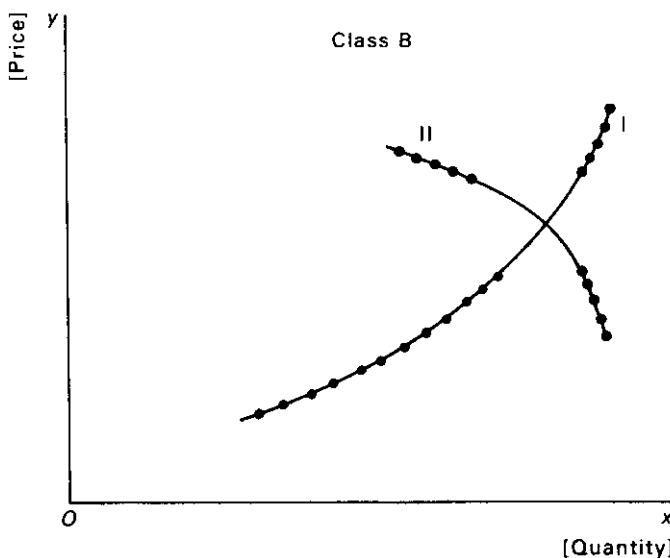


FIG. 6

long to enable the supply to be regulated so as to meet the demand. Thus taking average results, the value in use to the sellers, the price at which they are willing to sell when any given amount of the commodity is sold in a given time, is the cost of production, including profits, at which this amount can be permanently sold. In general, as by hypothesis no new modes of production are to be introduced, an increase in the amount produced can only be effected at an increase in price. When economy of production is effected by increased division of labour consequent on an increase in the amount produced it will be convenient to regard the change as one in the mode of production and to exclude it from class C. Its place will be in class D. Class C then includes such cases as that of the corn market for a few years, of manufactured articles for varying periods, and perhaps of diamonds for some centuries. For manufactured commodities the supply curve will in general rise rapidly as it moves to the right if the price either of raw material or of highly skilled labour of which there is a limited quantity is an important element in their whole cost of production.⁹

⁹ [An unnumbered figure like Figures 1 and 2 is labelled 'Class C'.]

We now pass to class D. For this also there is an upper limit to the periods which can be considered. Political Economy must assume the prevalence of commercial habits in a certain form and degree. And it is impossible to trace a direct connection between Economical causes and effects for any period that embraces a social revolution by which these habits have been greatly changed. Some important results may be obtained for periods that are long enough to include that gradual development of commerce and economy of labour which is effected during generations of continuous social progress. But in the present state of Political Economy they are so few and so indefinite that they in general are best arrived at by applying a special course of reasoning to each particular case.¹⁰ There remain periods short enough for it to be possible to neglect changes in the general habits and skill of the people and in their command over mechanical resources, but long enough to include changes in supply and demand which may in many cases be considerable. The investigations of class D refer to periods of this class.¹¹ The causes which

¹⁰ [This is one of the passages incorporated from an earlier draft, where the following sentence had followed.

'Again if the period be very short the prices will mainly depend upon the 'higgling and bargaining' between a few individuals with regard to commodities which are already on sale'.]

¹¹ [The following summary interleaved as p. 24,1 of the original manuscript and referred to in the letter to Keynes can be conveniently appended here.]

Periods such that no appreciable additional amount can be produced in time to meet alteration in demand	natural prices	A: Case of a retail shop
Periods sufficiently long for any additional amount required to be produced as the demand alters and for all casual variations to be neglected, average results alone regarded		B: Case of a fish market or of a corn market for a year C: When no changes in mode of production are included D: When such changes in mode of production as are consequent upon changes in amount produced are allowed for
A is not an independent case. Prices in A are really determined by prices in B, or more often C.		

In every case except A dealers calculate so as to be able to sell at a price sufficient to cover cost of production. They may err (i) through wrongly estimating demand: this occurs in the black cloth trade if the Queen dies suddenly (ii) through not being able to determine the amount which will be produced in consequence of a given outlay. Thus in a fish market for a day or a corn market for a year the price may not correspond at all nearly to the cost of production. But it will in average cases such as those represented in C and D.

determine the price will not include any alteration in the amount which can be disposed of at a given price nor any change in the circumstances of production except such as may be directly due to a change in the amount produced: among which will be prominent systematised division of labour and the application of machinery already invented but which previously to the change it has been inexpedient to employ. Thus one or other of the curves may be rendered false by such an event as a change in fashion, a war, a plague, the invention of new machinery, the opening up of a new market or of a new source of supply, the discovery of some new application of the commodity or the competition of a new rival. It must be distinctly understood that in any of these cases the old curves must be thrown aside and new curves drawn. The period for which the curves are valid dates from the occurrence of any such event to the occurrence of the next one. Thus for this class when we speak of 'the price $P_1 M_1$ at which the amount OM_1 can be brought into the market' we mean the price at which that amount will be able to be produced for sale each year, say, by the methods of production which are likely to be adopted if such an amount be brought into the market; all changes in methods of production being rigidly excluded which do not follow as a direct consequence from the changes in the amount produced.

The forms which the supply curve may take in class D are very various. A striking illustration of what might happen is afforded by the case of steel pens. In 1820 they were made by hand and a gross cost £7.4.0: about 1830 machinery was introduced and they were made at a cost of 8s. per gross: afterwards they were made in large factories where the division of labour was made use of, all the more difficult portions of the work were done by machinery, so that in 1861 out of 1428 persons engaged in the manufacture 1268 were females from the age of five years upwards, and in 1867 the cost price for the ordinary qualities was twopence up to sixpence per gross. These circumstances are represented in Figure 7. It must however be conceded that as many of the improvements were probably due to inventions which were independent of the amount produced, the case is rather an illustration of what might take place than an instance of what has taken place. A

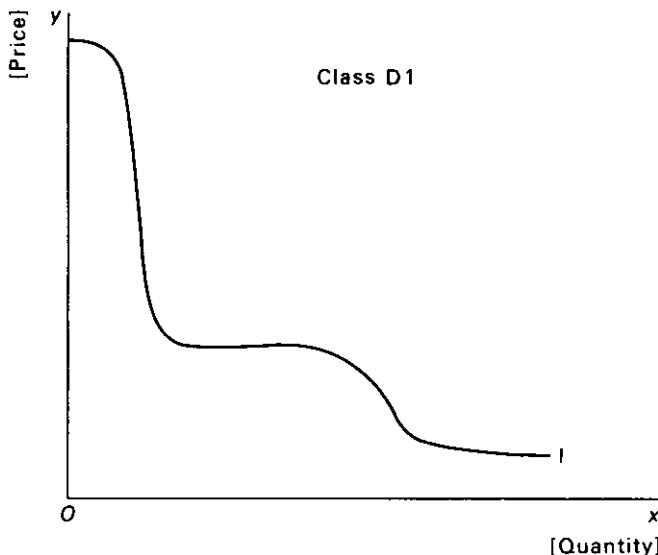


FIG. 7

more *bona fide* instance is afforded by the case of Australian preserved meat the methods of dealing with which appear to have been elaborated before the manufacture itself began. In such a case highly paid skill is required for superintending small works, as the works increase this expense does not increase proportionally, and the application of machinery renders the cost of production in other ways less. But this diminution in cost will not proceed uniformly as the amount produced increases. Thus the curve will probably assume the wavy form represented in Figure 8. The irregularities will be partly due to the varying price of the raw commodity, these variations in price are likely to make the curve even bend backwards as in Figure 9 [to which the demand curve and the labelled points have been added].¹²

¹² It may be remarked that there are cases in which the curve I during part of its course descends while moving to the right and which yet might appear to belong to class C. It will be found however most convenient to regard them under class D. This may fairly be done because the cheapening as the amount produced increases must be due to some economy of labour, which may be regarded as a new mode of production.

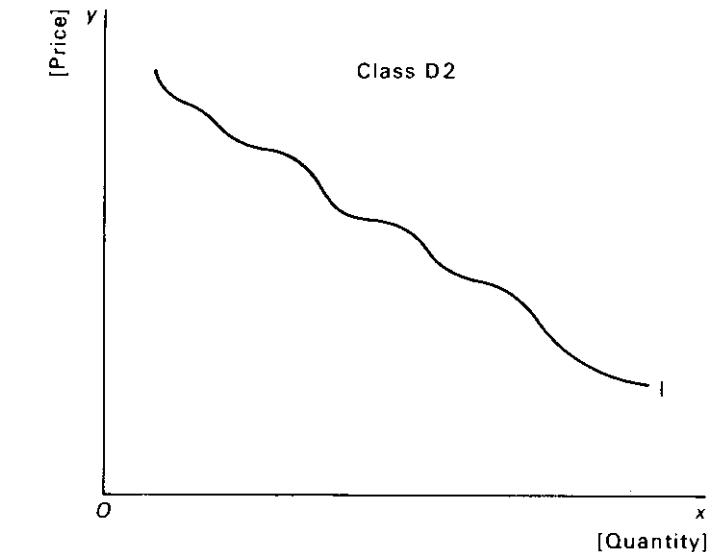


FIG. 8

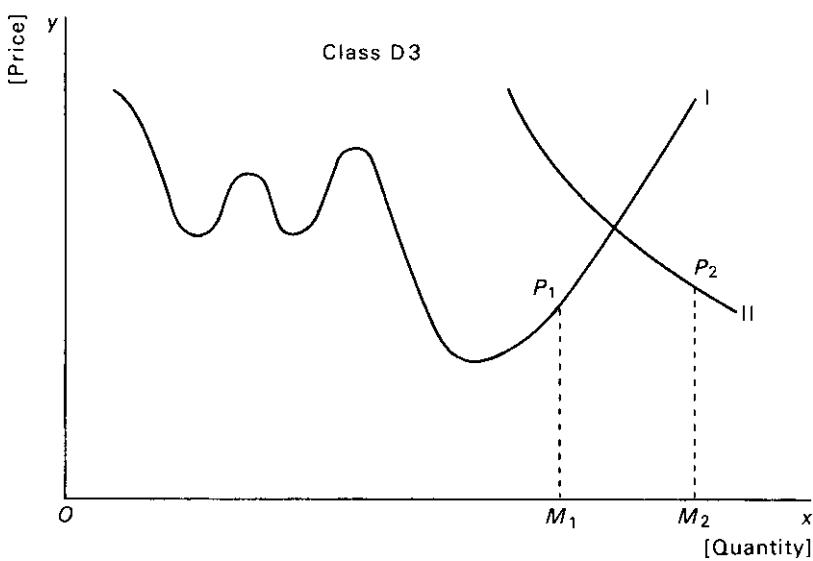


FIG. 9

The price $P_1 M_1$ represents the value in use to the last of those who produce for sale commodities which are together in amount equal to OM_1 : that is, since in such long periods all temporary disturbances are neglected, the cost of production of that portion which is produced under greatest difficulties when the amount OM_1 per annum is produced.

The price $P_2 M_2$ represents the 'value in use' to those buyers who are the last induced to buy the commodity when an amount OM_2 per annum is sold, and who would not buy if the price were higher.¹³

We have excluded from consideration changes in the mode of production of a commodity consequent on the general social progress of a country because such changes are not in general closely connected with, and cannot in general be expressed in terms of changes in the amount of, a particular commodity. But this does not apply to agricultural produce as a whole. An increase of the means of supporting population will tend to promote that rapidity of social and intellectual development which in general results from the intercourse between town and country population. It is thus likely on the one hand to cause improvements in the art of agriculture and on the other to introduce that economy which results from keeping in constant employment those most expensive of all aids to production *viz.* roads, railways and canals. In this case the only appropriate standard of value is found in a day's labour of an ordinary agriculturalist.¹⁴ Measuring then in this standard the lines drawn at right angles to Ox we find that the supply curve will frequently approach Ox while receding from Oy : and that the general shape of the supply curve for the agricultural produce of a country may take some such form as that represented in Figure 9 or Figure 10. Many

¹³ It must be conceded that it is only possible very roughly to ascertain the value of $P_2 M_2$ for any position of M_2 . For in order that any commodity should have the greatest possible sale consistent with a given price it is necessary that everyone should know not only of its existence but of the various uses to which it can be put and that arrangements should have been made so that it may be sold wherever it is wanted and applied to whatever purpose it can with advantage be applied. Considerable time is often required for such knowledge to be diffused and such arrangements to be made: and there is room for considerable error in making allowance for this disturbing cause.

¹⁴ [For further light on this rather puzzling conclusion see Ch. 1 of *Pure Theory of Domestic Value* (Vol 2, p. 208 below).]

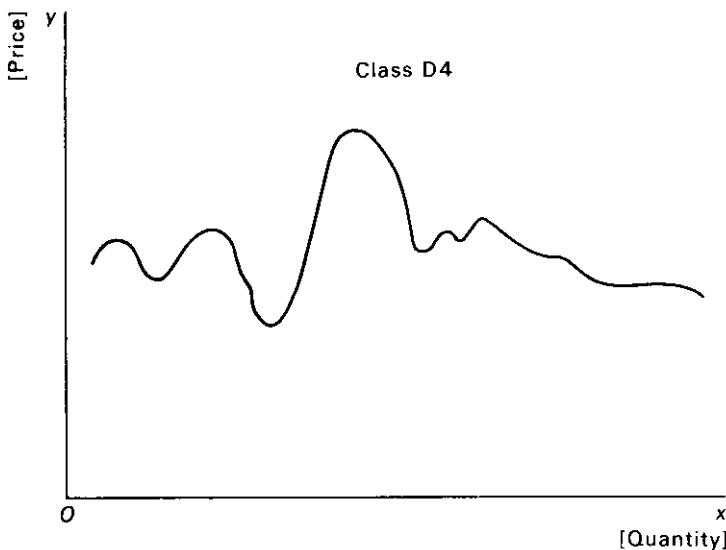


FIG. 10

of the mutual misunderstandings of American and English economists on the subject of raw produce have arisen from their having brought into collision with each other results relating to very long and to comparatively short periods respectively. In particular Ricardo's and Malthus' results have in general reference to periods of the class C, while Carey's refer in general to such periods as those which we have just been considering.¹⁵

¹⁵ [This contrasts the assumption of diminishing returns to agriculture, which was prominent in the writings of the English Classical School, with the American protectionist Carey's view that development in a new country commences on the poorer, easily cleared land and only moves to the richer land as population grows and civilisation develops. These views appear to have been proposed initially in H. C. Carey, *The Past, the Present, and the Future* (Longman, Brown, Green and Longmans, London, 1848). Carey's writings were voluminous, but mention might also be made of H. C. Carey, *Principles of Social Science* (3 volumes; Lippincott, Philadelphia; Trübner, London; Guillaumin, Paris; 1868), especially Vol I, Ch. III, IV and Vol III, Ch. XLIII. Marshall's annotated copy of this work is preserved in the Marshall Library. Marshall recurred to the point on several occasions: see Section II.7 below; Ch. 1 of the *Pure Theory of Domestic Values* (Vol 2, p. 207 below); *Economics of Industry*, p. 24; *Principles I*, pp. 164–5, etc. For Marshall's interview with Carey on a visit to Philadelphia see Vol 2, pp. 92–3 below, and for further details on Carey see J. Dorfman, *The Economic Mind in American Civilization 1606–1865* (Viking, New York, 1946), Vol II, pp. 789–805.]

We have then completed our classification of the periods with reference to which supply and demand curves may be drawn. We have seen that a great variety in the form of the curves is possible: and the question naturally presents itself:— Is there any limit to the possible forms of these curves? The fact that from the nature of the case it is obvious that two positions of stable equilibrium cannot immediately succeed one another suggests that some limitations must exist, and on investigation we find the following:— I: *the supply curve cannot cut more than once the same vertical line but it can cut more than once the same horizontal line.* For, the circumstances of production remaining unchanged, the price at which a given amount can be supplied is absolutely determined. II: *the demand curve cannot cut more than once the same vertical line, and cannot cut more than once the same horizontal line.* For whatever number of persons are willing to buy a commodity at any particular price, a number at least as great will be willing to buy it if the price falls: provided the commodity have not meanwhile been displaced by some new commodity, or owing to a change in fashion or some similar event which as we have already expressly stated would render it necessary to draw a new curve.

Thus cases such as those represented in Figures 11 and 12 are impossible. And the reader will have no difficulty in satisfying himself that independently of all other considerations it follows from the two given restrictions that the points of intersection on either side of a point of stable equilibrium must be points of unstable equilibrium and vice versa.

The reader will also have no difficulty in seeing that the case in which the supply curve at the point of intersection is vertical, is one of stable equilibrium: though it was not included in the previous investigation about stability of equilibrium.

The supply curve will frequently be approximately horizontal in the neighbourhood of the point of intersection i.e. the cost of production remains nearly constant while the amount produced varies between widely distant limits. In such cases it may be said that the price depends on this cost of production provided it be given not only that the demand curve cuts the supply curve, but that the point of intersection

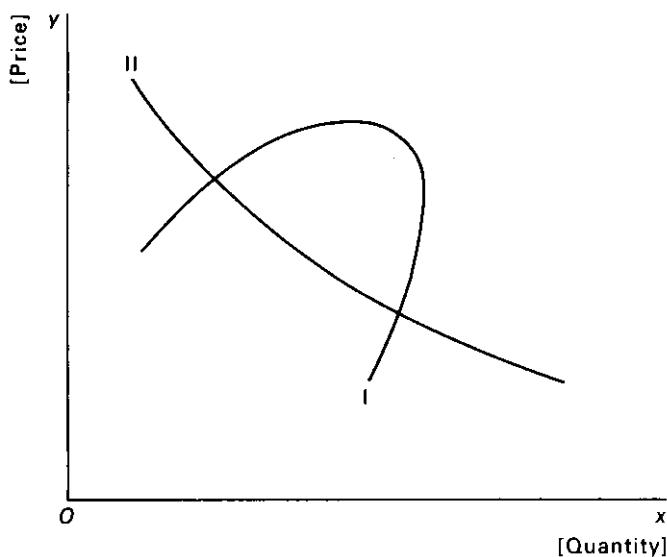


FIG. 11

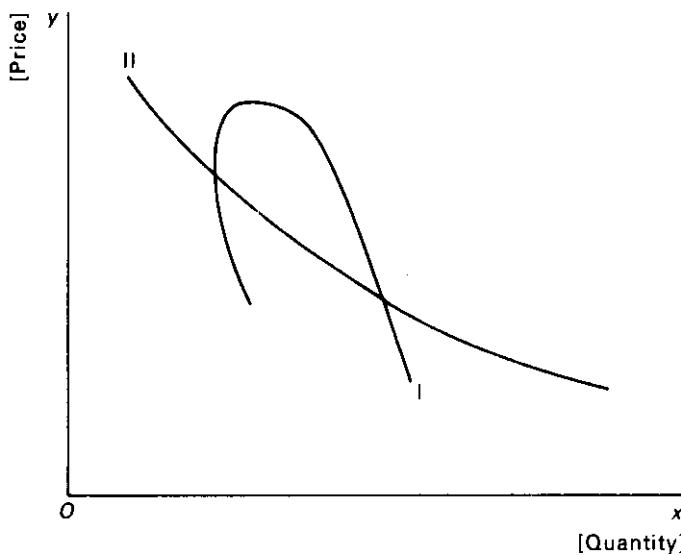


FIG. 12

corresponds to a quantity lying between these limits. (We have already seen the results of omitting explicitly to state this condition).¹⁶

Similarly in ordinary cases, if the point of intersection be given, and consequently the cost of production of that portion which would not have been brought into the market if this point had fallen a little more to the left be known, it may be said that the cost of production thus determined of the dearest portion governs the price of the whole; while the extra profit which some producers obtain is remuneration of special skill or the fruits of a natural or artificial advantage which partakes of the nature of a monopoly.

Hitherto we have neglected that resistance or friction which has to be overcome before capital will move from one employment to another: and have assumed, as is done in some preliminary investigations in mechanics, that in whatever direction there may be a tendency to move, in that direction motion will at once take place. This friction causes the oscillations in production to be smaller and slower than they otherwise would be. It sometimes keeps down prices at the expense of producers and sometimes contributes to that artificial monopoly which occasionally enables them to realise very large profits.

But the effect of this friction in the case which we have been considering is not nearly so great as in that in which, as at *A* in Figure 3, the supply curve while receding from *Oy* approaches *Ox*. Here if a temporary excess of demand succeeds in inducing production on an increased scale, and therefore more cheaply, the first effect will be that great profits will accrue to the producers. Capital, though retarded by friction, will be still further attracted; and when the reaction takes place, the means of producing on a very large scale will be prepared. Capitalists being now able to produce cheaply and being unwilling to leave the trade will sell at a rate which leaves them less than the ordinary profits, and therefore at much less than the equilibrium price. The loss which the producers suffer increases the friction against which increased production will have for the future to contend. The results of a temporary

¹⁶ [This paragraph came from an earlier draft: the parenthesised words seem to have been left undeleted by oversight.]

falling off of demand and of a temporary excess or falling off of supply may be similarly investigated. It will be seen that in a country such as England in which capital is plentiful and bold, and men do not readily confess that they are beaten, the effect of this friction is smaller in keeping up prices and greater in keeping them down than elsewhere.

The only remaining forms of the supply curve at the point of intersection are those in which it is there parallel to Ox but is not a straight line. They are indicated in Figures 13, 14 and 15. They are not practically or theoretically important but the last two of them are not altogether devoid of interest.

There are two questions which have probably already presented themselves to the reader. What is signified by the existence of two points of stable equilibrium on the same pair of curves? And how can the transit from one of them to the other be effected? There are many commodities which, after being confined to the rich for a long time, suddenly come into ordinary use. In particular there are many articles of food which from being regarded as luxuries suddenly become part of the ordinary food of the people. This has been sometimes

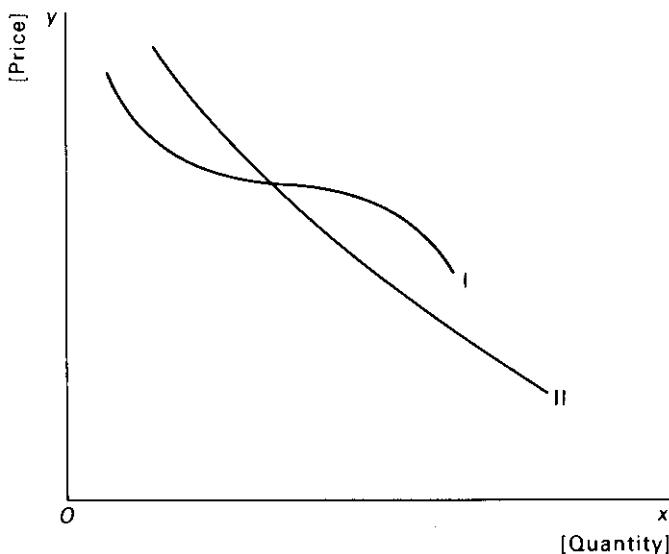


FIG. 13

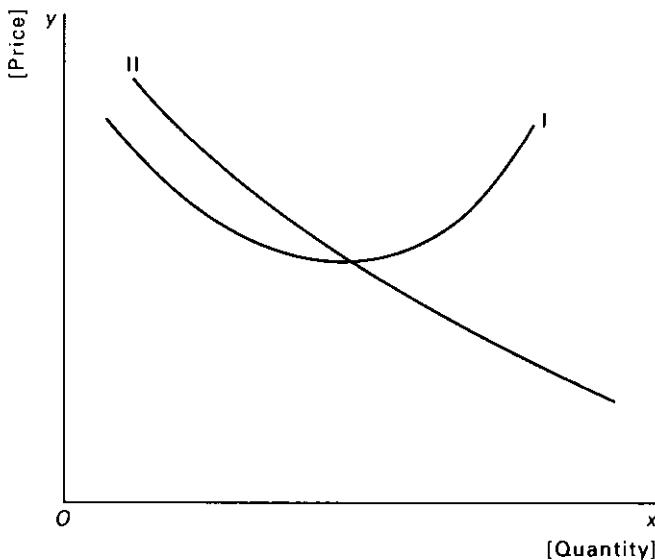


FIG. 14

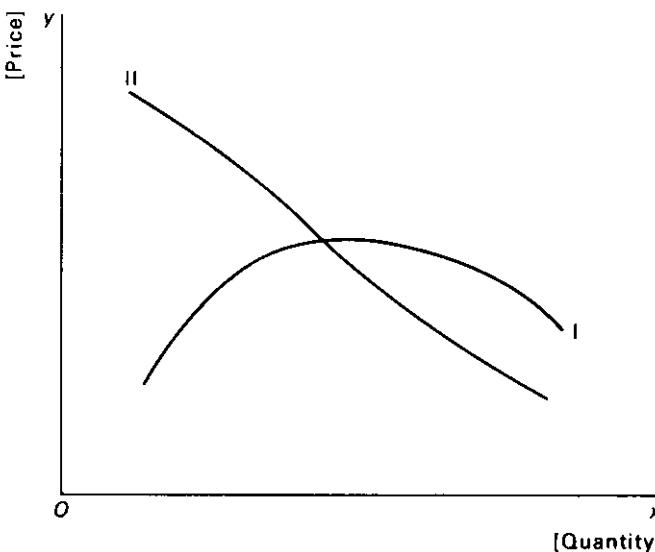


FIG. 15

due to a change in circumstances which would necessitate the drawing of a new curve. But it has very often been for a long time true that the commodity could be produced, or imported, at a price sufficiently low to command a very large sale if that price could by any means be introduced. That is there are possible two prices one high and the other low at each of which an amount can be permanently supplied at the price at which it will be bought: while amounts intermediate to those corresponding to these two prices would be brought into the market either at such a loss as to discourage further production, or after the amount had passed a certain level (in Figure 3 after it had increased from *OG* to *OH*) it would be sold at a profit so great as to attract further capital into the trade and so to force prices further down.

There are various ways in which the transition from an equilibrium point such as *A* in Figure 3 to the next stable one *C* may be effected. Sometimes it may be caused by some accidental disturbance of short duration which does not otherwise affect the general circumstances of supply and demand for the period to which the curves refer. For instance a war or a blight much diminishes for a short time the supply of some particular commodity. The demand for some other commodity which can be substituted for it increases temporarily. The demand curve is raised temporarily, the production of an increased amount becomes profitable. The disturbance soon disappears. The demand curve which had been jerked up into the position of the dotted curve in Figure 3 resumes its old position. But meanwhile the amount produced has got beyond *OH* and permanent equilibrium is found at *C*.¹⁷

But it is more often occasioned by the deliberate enterprise of some individual manufacturer. An amount *OG* of a commodity has been sold at a price *AG* (Figure 3), the commodity having been made by each producer on a small scale. At length one of them observing that great economy would result from production on a large scale makes use of

¹⁷ [The following note, appended to an unnumbered diagram that is equivalent to Figure 3, may conveniently be introduced here.] This may represent the curves for roller skates. A sudden increase in demand due to fashion whisk away the amount somewhere out of the figure: when the fashion goes out and things settle down to their old position equilibrium will be found at *C* probably instead of at *A*.

extra machinery and a more elaborate scheme of division of labour. By selling at a reduced price he obtains new customers from among those who had not bought the commodity before and those who on account of their position or for some other reason have been hitherto supplied by other producers. Meanwhile, as he has probably not reduced his price nearly as low as CK , profits are very great. Other producers are compelled to follow in his steps: competition lowers prices and increases the total amount sold: the profits remain very great, and the influx of fresh capital sustains this movement until amount OK is produced and stable equilibrium is again attained at a price equal to CK .

It has been tacitly assumed that an increase in the economy of labour which results from the production on a large scale depends on an increase in the total amount produced. If capital moved perfectly freely and there were no practical limit to the proportion of the whole trade connection which a firm can obtain this result might often be brought about through the displacement of small manufactories by one or a few large ones. As it is this cannot in general happen without a social change which is by the very definition of the curves excluded. And the extent of the assumption made is that the smaller the total amount produced be, the more difficult it is to start and to keep employed large manufactories: and that this difficulty remains in general tolerably constant for any given set of social conditions. This difficulty may however occasionally be overcome in an unexpected degree, and the curves rendered inaccurate: and this will happen most frequently in those trades in which the final manufacture is not dependent for some of its stages on subsidiary trades in which increased economy of labour is not readily induced without an increase of the total amount demanded.

If the curves instead of referring to commodities of which there are many producers represent such a case as that of a patented article or of a given newspaper the price need not be that corresponding to a point of intersection. Somewhat similar in position to these are wares which are known to proceed from a particular firm of well established reputation. In such case the producer has to fix on a price between DL and AG or between BH and CK [Figure 3] which makes his net

profits as large as possible. The process by which he should determine this may be roughly expressed by means of the present diagram [Figure 3]; but a more satisfactory mode of doing this will be hereafter arrived at when the general question of monopolies is treated of.¹⁸ At present it may be remarked that if the price be between DL and AG , a change in the shape of one of the curves may readily occur which will make it advisable suddenly to jump to a price between BH and CK ; but that the converse case will rarely occur.

If in Figure 3, B were to move up to A the curves would touch one another as at A in Figure 16, and the equilibrium

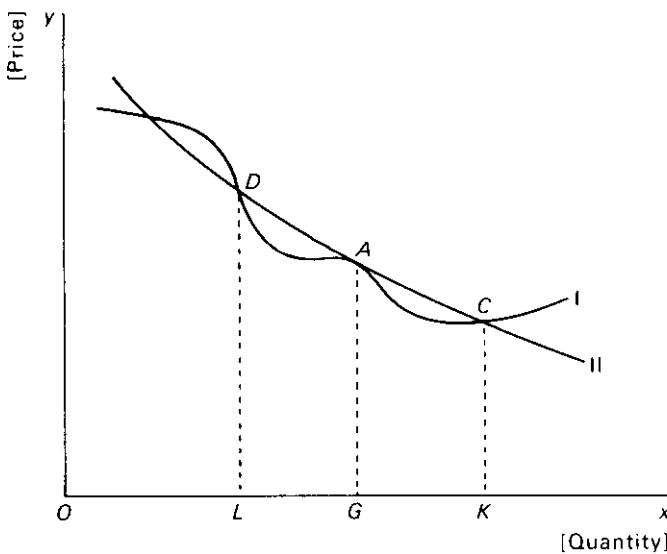


FIG. 16

at A would be stable for displacements in direction AD and unstable for displacements in direction AC : that is the only permanent equilibrium would be found at C . If three of them as A , B and C coincided the curves would as at A in Figure 17 both touch and cut one another: but there would be no

¹⁸ [No manuscript on this topic has survived: but see Items IV.2.1 and IV.4.1 below.]

practical difference between the equilibrium at such a point and an ordinary case of stable equilibrium in which at their intersection the curves are inclined to one another at a small angle; and consequently the force which tends to bring back the price to its equilibrium amount is for small displacements very slight.

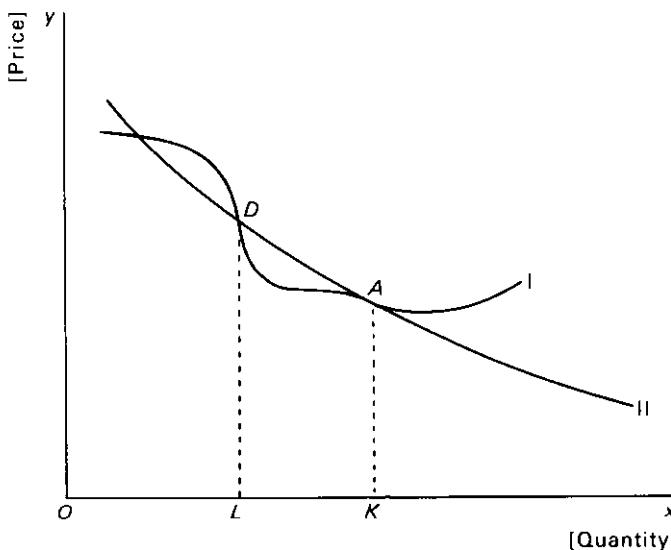


FIG. 17

When the curves absolutely coincide for a certain distance as DA in Figure 18, since at any point within these limits supply and demand will be in equilibrium, there will be here no force tending either to impede or to accelerate changes. Any casual disturbance may alter the price and the amount supplied; and these will remain stationary at the point at which they are left by it. The law of supply and demand is no more superseded in such a case than is that of gravitation in the case of a sphere which lies on a horizontal table in any position in which it is placed. Following this analogy we may conveniently say that the equilibrium between D and A in Figure 18 is *neutral*.

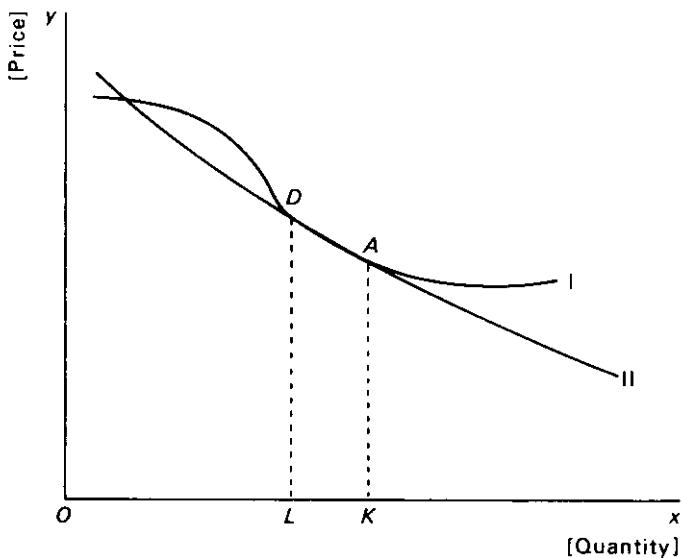


FIG. 18

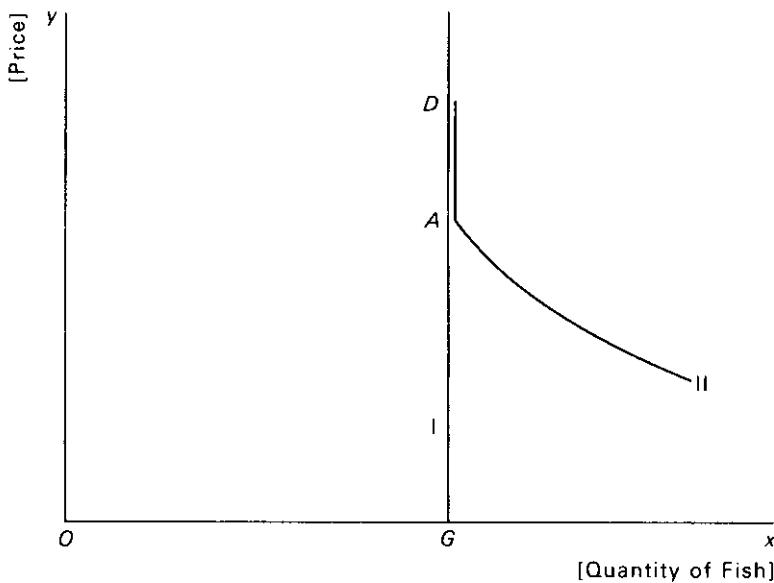


FIG. 19

A special instance of neutral equilibrium is Thornton's fish sale¹⁹ in which a certain amount of fish is to be sold in one lot at whatever price it will fetch, therefore the supply curve [in] Figure 19 is a vertical straight line; while that amount will be bought at any price between AG and DG (18s. and 20s.) and therefore the demand curve is a line which for this distance coincides with the supply curve and stops suddenly at D . Since it has to be sold in one lot and between these prices the demand does not exceed the supply, it follows that there is only one person who is willing to give as much as 18s., and that he is willing to give as much as 20s. Most of the objections which may be brought against the forced and exceptional instance which Thornton has adduced would have been evaded if he had considered the general case which is represented in Figure 18.

It has been said that any alteration in the conditions assumed by the curves must be taken account of by drawing afresh one or both of the curves. The reader is recommended to trace for himself the consequences of the various modifications in them which may thus be rendered necessary. Neglecting the cases in which one of the curves is either vertical or horizontal, we have for stable equilibrium the following results:—if the price at which a given amount can be produced is throughout increased, the equilibrium price will be raised and the amount produced diminished; and vice versa: if the price at which a given amount can be sold is throughout diminished, the equilibrium value of the amount produced and sold will be diminished, while the equilibrium price will be lowered or raised according to whether the supply curve, as it recedes from Oy , recedes from or approaches to Ox ; and vice versa. A tax on the commodity may be regarded either as increasing throughout the price at which a given amount can be produced, or as diminishing throughout the price at which a given amount will be bought. It is an easy but instructive exercise to prove that the same results are

¹⁹ Thornton on Labour [W. T. Thornton, *On Labour* . . . See pp. 47–8 of the first edition or pp. 56–7 of the second. Jevons and Fleeming Jenkin also discussed Thornton's fish market example. W. S. Jevons, *The Theory of Political Economy* (Macmillan, London, 1871) pp. 106–7. W. Fleeming Jenkin, *The Graphic Representation of the Laws of Supply and Demand* . . . No. 9 in a Series of Reprints of Scarce Tracts in Political and Economic Science (London School of Economics, 1931) pp. 84–5.]

arrived at by either method. Of course it depends on the direction of the supply curve whether the price to the consumer is raised by an amount greater or less than that of the tax.

It is possible that at some very remote period a diligent detailed tracing of the curves for an enormous number of different commodities may lead up to approximate generalisations. Should this ever happen the results thus shadowed forth will be at once represented by mathematical curves: and the superiority as regards generality and minuteness of the conclusions obtained by mathematical analysis over those derived from the inspection of diagrams will begin to possess a practical value. Meanwhile the theorist may amuse himself by analysing the results of various arbitrary hypotheses.

In assuming that, when the amount produced of any commodity is known, the price at which it can be produced is known we have implied that if in this production, the production of some other commodity is involved, the circumstances of the supply and demand of this second commodity are known. We proceed by the aid of a diagram to investigate explicitly the mutual relations of two commodities which thus have a 'joint cost of production'. A convenient example is afforded by the hide and carcase of a bullock which as soon as the animal is slaughtered are sold without any further expenditure to different persons. Let then a curve, I in Figure 20, be constructed such that if any point P_1 be taken on it and P_1M_1 be drawn perpendicular to Ox , P_1M_1 will represent the price per head at which OM_1 bullocks can be supplied for sale. It will be assumed that P_1M_1 increases as OM_1 increases. Let a curve, II, be constructed such that if any point P_2 be taken on it and P_2M_2 drawn perpendicular to Ox , P_2M_2 represents the price at which leather dealers will buy OM_2 hides. Let a curve, III, be constructed such that if any point P_3 be taken on it and P_3pM_3 drawn perpendicular to Ox cutting II in p , P_3p represents the price at which meat dealers will buy the carcases of OM_3 bullocks. If the existence of II were neglected, III would represent the demand curve for bullocks. Stable equilibrium is found at A the intersection of I and III: and AG being drawn perpendicular to Ox and cutting II in a ; OG bullocks are slaughtered, graziers receive for each of them the price AG , leather dealers buy OG hides at the price aG and

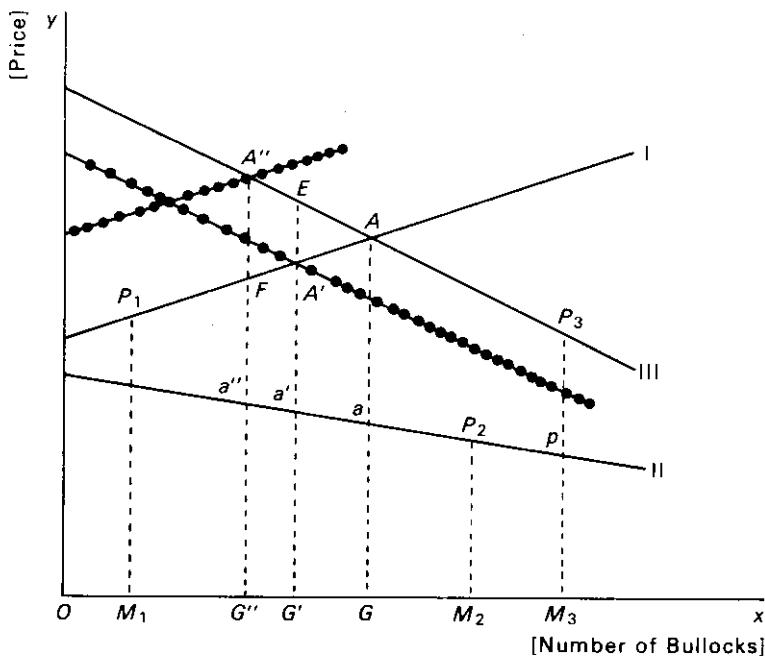


FIG. 20

meat dealers buy OG carcases at the price Aa .²⁰ We may now trace the effect on these equilibrium values of a change in any one of the curves. For instance suppose other things remaining unaltered that the demand for beef is diminished. Instead of III we have a curve lying below it, represented in the figure by a dotted line, and cutting I at a point A' to the left of A . If $A'a'G'$ be drawn perpendicular to Ox and cutting II in a' we find that in the new equilibrium a diminished number OG' of bullocks is slaughtered, the price of each is diminished to $A'G'$, that of hide is increased to $a'G'$ and that of carcases is doubly diminished to $A'a'$. Again suppose that the only change from the original circumstances is that a given number of bullocks can be supplied only at a greater price than before. Instead of I we have a curve lying above it represented in the figure by a dotted line and cutting III at a point A'' to the

²⁰ [This argument is virtually reproduced in *Principles I*, pp. 388–9n. Jevons obtained a similar solution to Mill's 'exceptional case' of joint supply, but only in the second (1879) edition of the *Theory of Political Economy*.]

left of A . If $A''a''G''$ be drawn perpendicular to Ox and cutting II in a'' we find that in the new equilibrium a diminished number OG'' of bullocks is slaughtered, the price of each is increased and the increase is borne partly by those who buy beef and partly by those who buy leather: for, since it is assumed that the demand for both leather and beef increases with the cheapness, $a''G''$ is greater than aG and $A''a''$ is greater than Aa . The former of these two suppositions corresponds to the imposition of a tax on beef equal to $A'E$ on each carcase where E is the point in which $G'A'$ produced meets III: and we see that part of this tax is paid by the purchasers of beef, part by those of leather, while the graziers are able to dispose only of a diminished amount at a diminished price. The latter of the two suppositions corresponds to the imposition of a tax of $A''F$ on each bullock, where F is the point in which $A''G''$ cuts I. The incidence of the tax is of exactly the same character as before; and if the tax $A''F$ had been taken equal to the tax $A'E$ it would have been exactly the same in amount. That is, neglecting its immediate and temporary effects, graziers, buyers of leather and buyers of meat are each affected in just the same manner by a shilling tax on each bullock as they would be by a shilling tax on each carcase: and consequently as they would be by a shilling tax on each hide. This result appears to be important, and, as far as the writer knows it is new. The investigation of other modifications in the forms of the curves is left to the reader, as well as the whole investigation of the case in which I does not recede from Ox as it recedes from Oy .

As another example of the method we will take the case in which the cost of production of a commodity can be conveniently divided into two portions the circumstances of which can be conveniently represented separately. Thus let a curve, II in Figure 21, be constructed such that if any point P_2 be taken on it and P_2M_2 drawn perpendicular to Ox , OM_2 ships of a certain kind can be disposed of at a price P_2M_2 . Let I be constructed such that if any point P_1 be taken on it and P_1M_1 drawn perpendicular to Ox , the hulks of OM_1 ships can be supplied at a price P_1M_1 : and let III be constructed so that if any point P_3 be taken on it and P_3pM_3 be drawn perpendicular to Ox and meeting I in p , the riggings for OM_3 ships can be

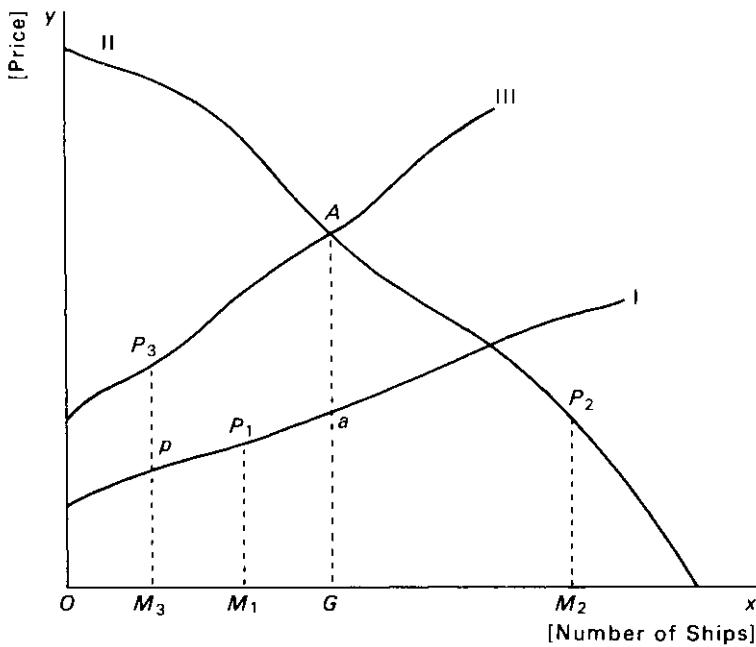


FIG. 21

supplied at a price P_3p each. If I be neglected III will be the supply curve for the ships. Equilibrium will be found at A the point of intersection of III with II if there be only one such point; and if AaG be drawn perpendicular to Ox cutting I in a , OG ships will be in equilibrium sold at a price AG of which Aa will be due to the cost of the rigging, and aG to that of the hulk. As in the previous case the reader may trace the effects on the various circumstances of equilibrium produced by any change in any of the three curves. He will find as before that the effects on all parties concerned will be the same whether a tax of £100 be levied on each ship, or a tax of the same amount on the hulk, or on the rigging of each ship. If however a tax is levied on wood, and the amount levied on the wood of which the hulk is made amount to £100 the supply curve I will be affected in a manner very different from that here supposed; and the above result will be no longer true.²¹

²¹ [This is presumably because of the possibility of substituting iron for wood in the hull or 'hulk'.]

II.2.2 A Note on Joint and Composite Demand

Introduction This undated note, which appears to be of quite early composition, has two parts. I deals graphically with a case of simultaneous joint and composite demand for an input, leather. Leather is demanded jointly with labour in three uses, whose separate demands must be aggregated to obtain the total demand for leather. II then generalises the argument mathematically to the case where many inputs are all jointly demanded by each of many uses. It is about as near as Marshall ever got to formal general-equilibrium analysis.

The arguments are closely related to those in Notes XIV bis, XVII, XVIII, XX and XXI of the Mathematical Appendix to the *Principles*, but are rather more explicit.¹ The treatment is premised on fixed production coefficients, and there is a strong suspicion that Marshall's analysis of the case with variable production coefficients (Notes XVI and XIX) was not developed until the 1880s.² Indeed, Marshall never did succeed in properly integrating the two cases,³ and as Stigler observes the inclusion in the *Principles* of the early approach based on fixed coefficients is something of an anachronism.⁴

Text

I Given At price Q_1N_1 [Figure 1] labour and other materials necessary for working up a square yard of leather into shoes can be bought to the extent corresponding to O_1N_1 yards of leather. At price P_1M_1 per square yard, O_1M_1 yards can be sold in the form of shoes. Figures 2 and 3 represent precisely the same, substituting saddles and portmanteaus respectively for shoes. Assume leather [is] used for nothing but shoes, saddles and portmanteaus.

In Figure 4 take in O_4y any point D . Find in Figures 1, 2 and 3 points P_1 , P_2 and P_3 such that $P_1p_1 = P_2p_2 = P_3p_3 = O_4D$. Draw E , F and G so that $DE = O_1M_1$, $EF = O_2M_2$ and $FG = O_3M_3$. Further let O_4N_4 yards of leather be capable of being produced at price Q_4N_4 . Let [the] locus of G cut [the]

¹ All these Notes date essentially from the first edition of the *Principles*. Consult also Book V, Ch. VI.

² See Item IV.5.2 below.

³ Notes XIV bis and XVIII allow production coefficients to be functions of the scale of output, but this is not the same in any way as permitting input substitution.

⁴ G. J. Stigler, *Production and Distribution Theories: The Formative Period* (Macmillan, New York, 1941) pp. 86–7.

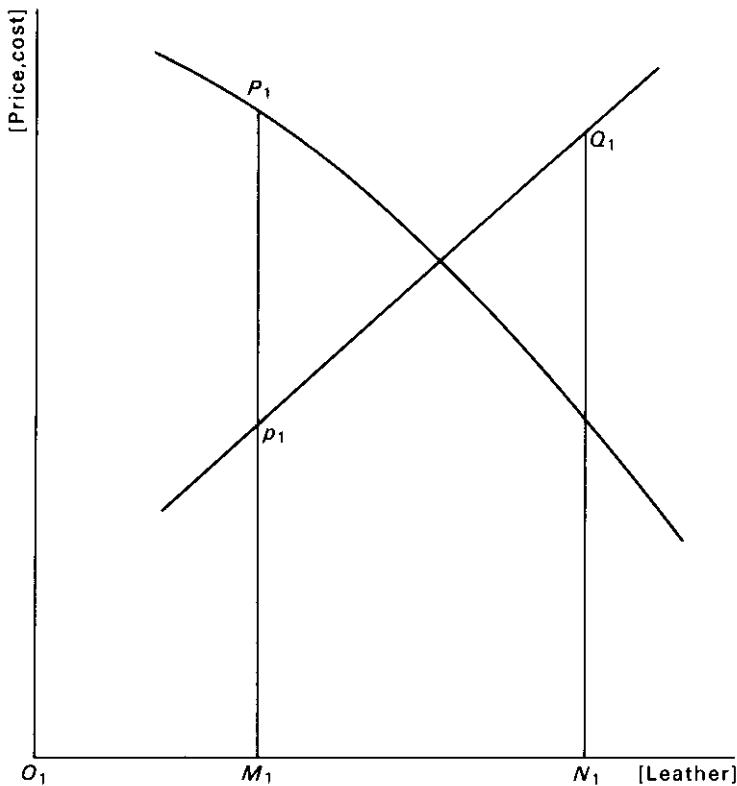


FIG. 1 (Shoes)

locus of Q_4 in R . At price RW leather [of UR yards] is sold: RS to portmanteau makers, ST to saddle makers and TU to shoe makers.

The only things left undetermined are the prices of labour and finished commodities in the various trades. These are given by Figures 1, 2 and 3.

II [A Mathematical Generalisation]

In the manufacture of a unit of the commodity A_1 let the commodities p' , p'' , p''' , etc. enter to the amounts n'_1 , n''_1 , n'''_1 , etc. units respectively where n'_1 , n''_1 , n'''_1 , etc. may be any positive quantities including zero.

x' units of p' can be supplied at price y' per unit when $y' = f(x')$. x'' units of p'' can be supplied at price y'' per unit where $y'' = \phi(x'')$. x''' units of p''' can be supplied at price y'''

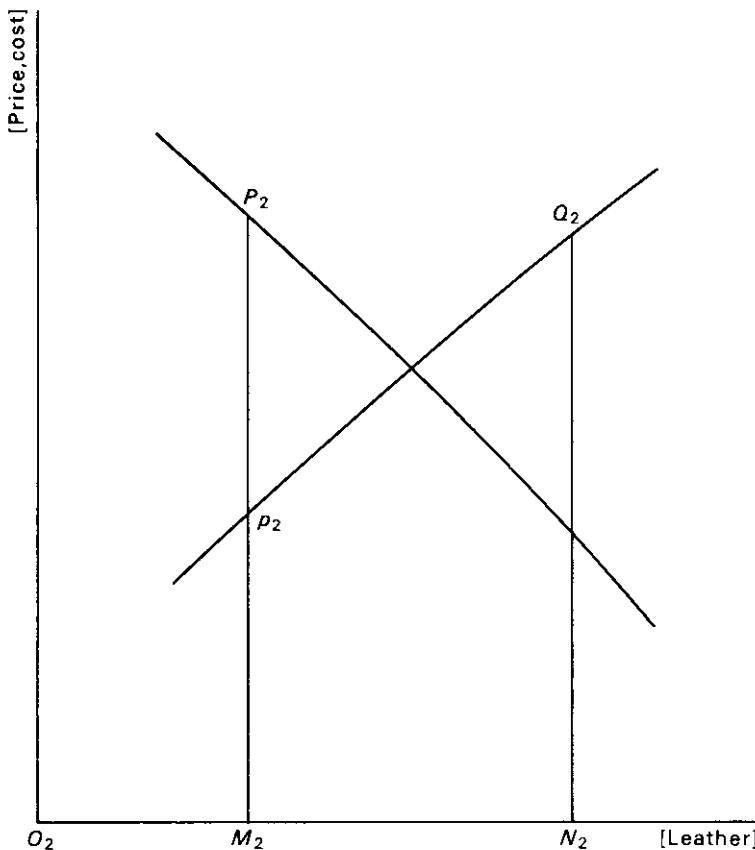


FIG. 2 (Saddles)

per unit where $y''' = \psi(x''')$, and so on. X_1 units of A_1 can be sold at price Y_1 per unit when $Y_1 = F_1(X_1)$.

If there be no other commodity for which p' , p'' , p''' are required; then

$$F_1(X_1) = n'_1 f(n_1 \cdot X_1) + n''_1 \phi(n''_1 \cdot X_1) + n'''_1 \psi(n'''_1 \cdot X_1) + \dots$$

But if there be others such as $A_2, A_3 \dots$ in which these commodities do enter, the same letters with successive suffixes having the same relations to these commodities respectively

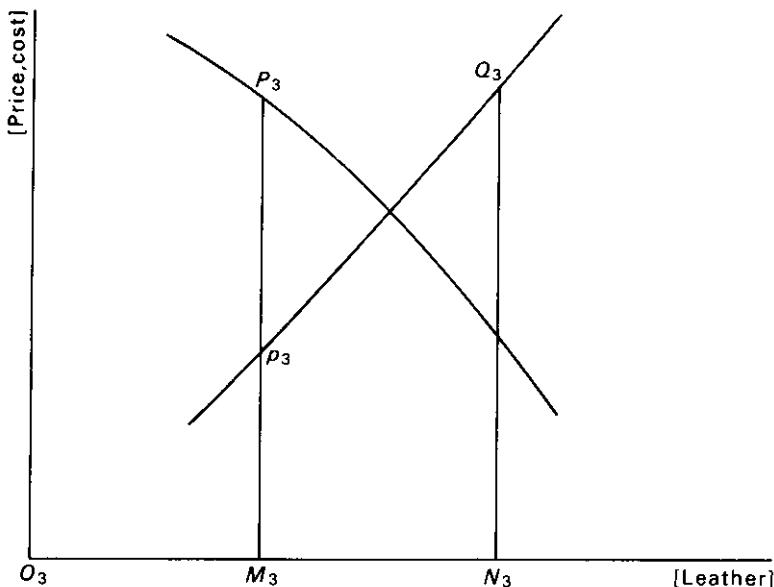


FIG. 3 (Portmanteaus)

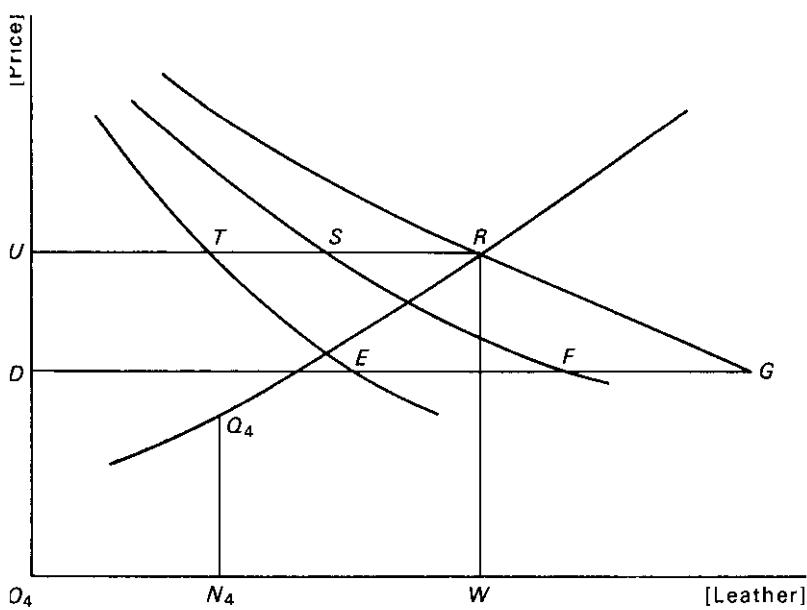


FIG. 4

as $n'_1, n''_1 \dots X_1, Y_1, F_1$ have to A_1 , then

$$F_1(X_1) = n'_1 f(m') + n''_1 \phi(m'') + \dots$$

$$F_2(X_2) = n'_2 f(m') + n''_2 \phi(m'') + \dots \quad [\text{etc.}]$$

define the equilibrium simultaneously when

$$m' = n'_1 X_1 + n'_2 X_2 + n'_3 X_3 \dots$$

$$m'' = n''_1 X_1 + n''_2 X_2 + n''_3 X_3 \dots \quad [\text{etc.}]$$

II.3 Money

This Section includes an early Essay on Money and a brief Mathematical Note on the Value of Money.

II.3.1 *Essay on Money*

Introduction It is well to recall that Marshall's father was a cashier for the Bank of England, so that 'the City' was far from an alien world. Despite this, the present Essay seems to have grown, not from practical concerns, but from the strictly academic discussion of Chs. VIII and IX of Book III of J. S. Mill's *Principles of Political Economy*. In these chapters Mill seeks to expound and reconcile the quantity-theory and cost-of-production approaches to the value of money. Marshall follows him in this, but he goes much beyond Mill in the clear and full statement of the cash-balance version of the quantity theory, which brings the demand for money firmly within the ambit of that 'balancing of advantages which in the ultimate analysis must be found to determine the magnitude of every quantity which rests upon the will of man'.¹ By taking such a step Marshall goes far towards integrating the theory of money with the theory of value. He also introduces an additional complementarity between his monetary and value theories by expressing the value of both individual commodities and money in terms of 'commodities in general'.²

¹ p. 166 below. This, incidentally, is as near as Marshall comes to taking a marginalist position in his early writings.

² See Section I.2 (p. 42 above). The formal skeleton of Marshall's early monetary theory is discussed in the context of the succeeding Mathematical Note (Item II.3.2 below). For an early diagrammatic illustration see Item IV.3.4 below. Relevant passages in Marshall's later works are *Economics of Industry*, pp. 150–1; *Official Papers*, pp. 176–8, 267–8; *Money Credit and Commerce*, Book I, Ch. IV and Appendix C. A full study of Marshall's monetary theory is included in E. Eshag, *From Marshall to Keynes: An Essay in the Monetary Theory of the Cambridge School* (Blackwell, Oxford, 1963).

J. M. Keynes quoted from the Essay in his memoir on Marshall, where he said of it:³

the earliest extant manuscript of Marshall's written about 1871, deals with his treatment of the Quantity Theory. It is a remarkable example of the continuity of his thought from its first beginnings between 1867 and 1877, that the whole of the substance of Book I, chapter iv of his *Money Credit and Commerce* is to be found here, worked out with fair completeness and with much greater strength of exposition and illustration than he could manage fifty years later.

Text The value of all commodities is determined by an equation of supply and demand: this is the ordinary method of expressing the following fact: – for every particular amount of the commodity there is some price at which it can on the average be supplied and there is some price at which each particular amount can on the average be got rid of. The amount which is actually sold on the average is that for which the price at which it can be on the average so supplied is exactly equal to the price at which it can be on the average got rid of. We here have the causes which determine prices expressed in terms of the desires of individuals, thus: – the price at which any given amount can be sold is such that even for those who are the last to be induced to buy and who would not have bought if the price had been higher the desire to obtain it is at least as great as the desire to retain that which they give in change for it; and this price must be such that even for those who are the last to be induced to sell and who would not have sold if the price had been lower the desire to retain it is certainly not greater than the desire to obtain that which they do obtain for it. We have seen that the willingness of a seller to sell at any price depended upon his expectations of selling it at various prices, of his being able to put it to some use himself; that accordingly if we considered the average conditions of a period very long as compared with the time

³ *Memorials*, p. 28. The quotation is given on pp. 29–30. The manuscript, of 23 pages octavo, is inside an envelope postmarked 7 Apr 1922 and inscribed, in what appears to be Marshall's hand, 'Theory of Money MSS. about 1871.'

required for the production of a commodity on a scale sufficiently large, the prices at which those sellers who are only just willing to sell are induced to do it is such as to cover the cost of production of that portion of the commodity which, on the supposition that the given amount is to be produced, is at the greatest expense.¹ But, when we come to the theory of money we are told that its value depends upon its amount together with the rapidity of circulation, and although from this account we should naturally be led to infer the presence of some other regulating conditions – although, on reading an exposition of the theory *in extenso* as it is given for instance in Mill,² we find these conditions distinctly enunciated – we do not find a clear statement of that balancing of advantages which in the ultimate analysis must be found to determine the magnitude of every quantity which rests upon the will of man. If we seek for this we shall find that 'the rapidity of circulation' is not the most convenient thing to be made the basis of our investigations. We shall show that it may be more conveniently deduced from other considerations and indeed, that it may be best applied in illustrating instead of in enunciating. We commence then our investigation independently of it.

There remains nothing of importance to be added to the account of the reasons which have induced mankind to agree upon some common medium of exchange.³ They have thereby enormously diminished two great difficulties; firstly, that of enabling commodities to pass from the hands of those who had more of them than they particularly wanted to the hands of those who had some particular desire for them and, secondly, of simplifying the arrangements of terms of exchange. If we reflect that the benefits which society thus derives can be only made up of the benefits which accrue from these causes to the individual members of it we shall see more clearly than we perhaps should do otherwise what is the nature of the advantage which each individual obtains from keeping on

¹ [This appears to refer to the Essay on Value, Item II.2.1 above.]

² [The reference is presumably to the discussion in J. S. Mill, *Principles of Political Economy*, Book III, Ch. VIII.]

³ [This seems to refer to the discussion of the topic in the Essay on Value, Item II.2.1 above.]

hand a large stock of money.⁴ He hereby retains in his hands what may be called a large ready command over commodities in general. If a man has a horse he may be said to have potentially the command over any other commodities which he might possibly be able to obtain in exchange for the horse but he could not in general obtain for it nearly its full value in those particular commodities which he might happen to want readily, that is [he could not] by direct exchange. If instead of the horse he has the money which is its equivalent he is able to obtain readily the full amount of its value in any kind of commodities which are offered for sale in the markets accessible to him. It is therefore with the object of being able readily to satisfy such of his wants as he cannot easily make provision for a long time beforehand that a person desires to retain in his possession a supply of money. But from that portion of his wealth which each person retains in the form of money he is unable to derive any other advantage; thus, if instead of keeping on hand a large stock of money he diminishes the stock which he so keeps by fifty pounds and invests this amount in a horse, he derives from it the benefit of the excess of the value of the horse's work over the cost of his keep. Thus the greater the portion of a man's wealth which he keeps in the form of a ready command over commodities in general the less the portion which can be employed either to supply his wants or to increase his wealth. This then is the balancing of advantages which each individual has to adjust for himself. If he retains but a very small ready command over commodities he is likely to be put occasionally to a considerable inconvenience; if he retains a very large one he receives no adequate compensation for the inaction to which so much of his wealth is doomed. He has then to settle what is the exact amount which on the average it will answer his purpose to keep in this ready form. Each individual settles this and therefore the whole amount retained in this form by the community is determined by this process on the part of each individual member of it of balancing opposing advantages. Assuming for the time that this ready command over money cannot be exhibited in any other form than that of coin it

⁴ [The meaning of the phrase 'keeping on hand a large stock of money' is considered in the Addendum, to which a reference is given at the present point in the manuscript.]

follows that the⁵ exchange value of the whole amount of coin in the kingdom is just equal to that of the whole amount of commodities over which the members of the community have decided to keep a command in this ready form. Thus with a silver currency if we know the number of ounces of silver in circulation we can determine what the value of one ounce of silver will be in terms of other commodities by dividing the value of [the] above given amount of commodities by the number of ounces. Suppose that on the average each individual in a community choose to keep command over commodities in a ready form to the extent of one tenth of his yearly income. The money, supposed in this case exclusively silver, in the kingdom will be equal in value to one tenth of the annual income of the kingdom. Let their habits alter, each person being willing, for the sake of gain in other ways, to be to a greater extent without the power of having each want satisfied as soon as it arises. Let on the average each person choose to keep command over commodities in a ready form only to the extent of a twentieth part of his income. So much silver as before not being wanted at the old value, it will fall in value. It would accordingly be more used in manufactures while its production from the mines would be checked.

To simplify matters however let us suppose an island having no commercial transactions with foreign lands; let them use as money the shells of a certain extinct fish: the shells are not used except as money: no amount of labour will enable them to find one more shell. (We must of course assume the presence of security and of the commercial habits of civilisation.) If then there be a million such shells, and the income of the country be sixty millions bushels of corn, a shell will be worth on the former hypothesis six bushels. After the change in habits, the value of each shell will diminish, every person preferring commodities to the corresponding amount of shells at the old value. This process will go on until each shell is worth only three bushels. If then each individual has his proportionate number of shells on the average in his possession, he will on the average have possession over commodities to the extent of half what he had before: that is to the extent

⁵ [This is the point where the quotation made by Keynes (*Memorials*, pp. 29-30) commences.]

of one twentieth of his income. He has now what he wants: the shells have on the average for him a value just equal to their market value. There is no longer any tendency for this either to rise or to fall. A permanent equilibrium has been found; permanent, that is, so long as the other economical conditions of the island remain unchanged.

If we were to suppose that there were no intermediate traders between the producer and the consumer, it would then follow that if a man keeps by him on the average in the form of money a tenth part of his yearly income, each coin (or shell) stays with him on the average a tenth part of a year. If then, while no other economical change has taken place in the island, the average rapidity of circulation of shells throughout the island has doubled, this will *indicate* that each man keeps on the average command over commodities in a ready form to only half as great an extent as he did before, and consequently will indicate that the value of each shell is only half what it was before.

The fact that in general goods pass through a great but varying number of hands on their way from the producer to the consumer does not affect the validity of our original investigation. When however we try to establish a connection between 'the rapidity of circulation' and the value of money, it introduces grave complications. Mr Mill is aware of the evil,⁶ but he has not pointed out the remedy. As however this method of regarding the question is thoroughly established in common usage, it is necessary to explain it at length. It is perfectly obvious that the whole of the money given in exchange for commodities is equal in value to the whole of the commodities for which it is given in exchange. If there are a million shells in the island and each shell changes hands fifty times in the course of the year; it is then obvious that the whole of the transactions in which goods are exchanged for shells are together represented in value by fifty million shells.

This should be expressed in more general terms. It will be convenient, on the sole ground of brevity, to use symbols. Let then P represent the value of the whole of the transactions in the course of the year in which goods are exchanged for

⁶ P.E. III ch. viii § 3 later part. [P.E. III refers to Book III of J. S. Mill, *Principles of Political Economy*.]

shells. Let m represent the number of shells in the island, n the average number of times each shell changes hands, v the value of each shell.⁷ Then our statement becomes

$$n \times m \times v \text{ equals } P$$

(where \times stands for ‘multiplied into’) therefore

$$v \text{ equals } \frac{P}{n \times m}.$$

The statement

$$v \text{ equals } \frac{P}{n \times m}$$

if we write in it the above-given signification of the symbols becomes the ordinary statement of the theory of money.

It follows that if P increases, while no other change takes place, v will increase; and that if n increases while no other change takes place v will decrease. In general these two events take place together, being closely connected with each other; it is impossible by observing the changes in P alone, or the changes in n alone to tell whether the value of money has risen or not. The changes in both must be watched and their magnitudes compared. This operation is so difficult as to be really impracticable. Even if this could be done the ultimate causes of the change would not be ascertained. The only practicable method of ascertaining approximately what these changes are is to investigate to what causes they are due and then to watch these causes. If we do this we shall have done all the work which the former mode of treatment of the question requires us to perform, and a great deal besides. While the theory as it is ordinarily given affords us no clue to the difficult question what the causes are. But a glance at the illustration which we gave some time back will show that in general changes in the number of intermediate traders increase both P and n , and do not very appreciably affect v ;

⁷ [It should be noted that value is expressed in terms of goods, so that the usual Fisher equation $MV = PT$ is expressed in Marshall's notation as $mn = (1/v)P$. It is evident that Marshall's P must stand for the volume of transactions despite being ambiguously defined as ‘the value of the whole of the transactions’.]

while changes in the amount of commodities over which men choose to keep a command in a ready form do not in general affect P , but do affect n directly; and thereby affect v .

Thus if we desire to know what determined the variations in the value of silver during any particular century we have to determine the amount of silver in circulation and the amount of commodities over which people cared to keep command in a ready form. It is comparatively easy to point out the social and commercial habits on which this depended. If however we introduce the consideration of the rapidity of circulation we have not only to do this, but to estimate on the one hand what the rapidity of circulation was, and on the other how many sales of each commodity and of each part of it were effected on its way to the consumer. Thus if carriage makers bought the wheels of their carriages instead of making them themselves, the number of transactions involved in making a carriage would be increased and the change would disturb our calculations.

We shall then in future adhere to the method of stating the theory of money which was first given. We return to the simple case of the island, and proceed step by step to introduce the considerations which separate the problem of money as it actually is from that presented to us by our hypothetical case.

First then let us suppose that these shells can be found by dredging, and the total number of them thus increased; retaining the supposition that shells are the only kind of money, and that nothing but shells is used as money. If then as at first supposed there are a million shells and the value of the commodities over which people choose to retain command in a ready form be that of six million bushels of corn, so that each shell is worth six bushels, then people will devote labour and capital to dredging for shells if, on the average, they can get a shell with as much expense of labour and capital as suffice to produce an extra six bushels of corn:⁸ otherwise not.

Were the change above described to take place by which the value of each shell were made to fall to that of three bushels

⁸ [The manuscript reads 'an extra bushel': the error was noted, but not corrected.]

of corn the occupation of dredging might become permanently unprofitable, the market value of shells remaining permanently below their cost of production. If on the other hand owing to an increase in population or to any other cause, or to any combination of causes, the amount of commodities over which people wished to keep a command in a ready form increased, and the value of shells rose, it would become profitable to dredge in deeper and deeper water.

(It may be well here to point out that the cost of production of silver has on the whole diminished as time has gone on in consequence of (i) increased geological knowledge; (ii) improved methods of mining; (iii) increase in the explored portion of the earth's surface; (iv) increase in habits of enterprise and of wandering particularly among the labouring classes; (v) increase in cheapness of travel and transport of ore; (vi) increase in amount of available capital and consequent tendency of people to incur great risks for a low interest; (vii) the growth of the elaborate machinery of the money market enabling people to contribute to the working of a mine who otherwise even if they knew of the mine and its circumstances would have had no easy means of obtaining a share in the undertaking; (viii) (though this has reference more specially to gold, and the influence has been more or less in operation at all times) the tendency of widely circulated reports of a few great prizes to induce people to engage in enterprises which, if all the failures and all the hardships be reckoned, do not give the average remuneration.)

Next, still supposing that nothing except shells is used as money, let us suppose that shells are used for ornament and for other purposes, in fact are regarded as commodities. Knowing how great an amount of commodities people choose to keep a command over in a ready form we know how many shells will be used as money if each shell has some particular value; and knowing how many shells people would be willing to use as commodities if each of them were to be obtained only in exchange for a certain given value, we know what the total number of shells demanded at any given value is; we know also what the number [is] which at that rate can be supplied; and in this as in all other cases there is a tendency for the value to assume that position for which supply and

demand are equal. The question has become now so complicated that we have to speak of tendencies rather than to enunciate numerical results. If the number of shells were suddenly doubled, no other economical change having taken place, the value of shells would fall very much. But we can no longer say it would fall to just one half of its former amount; it would do so if at that value people would use just twice the old number of shells as commodities; if at that value (half the old one) they would use more than twice as many as before, the value would not fall so much (as one half); if at that value they would use less, the value would fall more.

Lastly let us suppose that other things beside shells are used as money, paper or whatnot. The proportions in which people choose to have their money in these various forms will be determined entirely by their convenience. Having determined for instance in what proportions shell-money and paper-money are used, we reckon the paper money as equivalent to the number of shells to which it corresponds in value; and our theory remains intact. The same applies to money consisting of some kind of shell: for at one time one kind of shell only could be the standard; the value of any other shell in terms of the standard, would under a system of free competition be determined as would that of anything else.

As commerce advances, cheques, book credits, promissory bills, bills of exchange real and fictitious, exchequer bills, circular notes and lastly clearing houses are established. The effect of these contrivances is to cause other modes of exchange to be substituted for those into which money enters. They render many kinds of transactions possible which would otherwise have been impossible, they accelerate others; and, being employed only where they are more convenient than payment by cash, they increase the convenience of all transactions into which they enter. They cause the amount of commodities over which persons choose to keep a command in the form of money to diminish: they thus diminish the value of shells or (as we may now say) of gold and silver; thereby setting free more of them to be used as commodities and at the same time diminishing the labour spent in working mines to obtain the means of doing what can in many cases be better done by the avoidance of than by the use of gold and silver.

*Addendum*⁹ It is necessary to explain clearly what is here intended, but imperfectly expressed, by the phrase 'keeping on hand a large stock of money'. It does not matter how much is intended to be hoarded and how much is intended to be spent as occasion may require. A person may so arrange his purchases that they are made just when he comes into possession of the money with which they are to be purchased – whether this money came to him as the payment for his services or in return for things which he has produced and sold.¹⁰ A servant for instance who is paid in addition to food and lodging £12 quarterly may invest £6 of that, buy £6 worth of clothes etc., and be devoid of the means of gratifying any want that may arise till next pay day when he spends £12, or he may keep the whole £12 in his own possession and expend it gradually. Thus he may have at the end of the 1st week £11, the 2nd week £10, the 3rd–7th weeks £9, the 8th–9th weeks £4, the 9th–11th weeks £2, and the 12th week £0. Thus he is supposed to spend £5 in the 8th week, £2 in the 9th week, and £2 in the 12th week. He spends just as much on this plan as the other: but on this plan he loses the interest on £6 and has in place the advantage of being able to buy little things when he wants to. In the former case he does not allow money to stay in his hands any appreciable time. In the latter case he has on the average about £6 in cash with him.

Again, and this case is perhaps better than the other, suppose two farmers A and B in similar circumstances. They both have sheep to sell. A sells his one by one whenever he wants to buy anything: if he happens to want money unexpectedly he must wait till he has sold his sheep: thereby incurring inconvenience and possibly making a bad bargain owing to his being pressed for time. Suppose him in this way to have sold fifty sheep at various times in the months July, August, September while B sold 50 sheep right out in July. B had £150 down which he paid out in various sums as he wanted it. A (after allowing for the cost of the extra keep of the sheep) got rather more than £150 say £151: but he had extra bother, was not able to buy just when he wanted and ran a

⁹ [Interleaved as an afterthought as pp. 5 $\frac{1}{2}$, 5 $\frac{3}{4}$, 5 $\frac{15}{16}$, 5 $\frac{31}{32}$ of the manuscript.]

¹⁰ [The rest of this paragraph and the first ten words of the next are struck through in the manuscript.]

risk even of selling for less than £150 owing to the pressure under which he might be at some particular time. Perhaps the cash A and B had on hand was in this wise [Figure 1]. This may of course be put in the form of numbers.

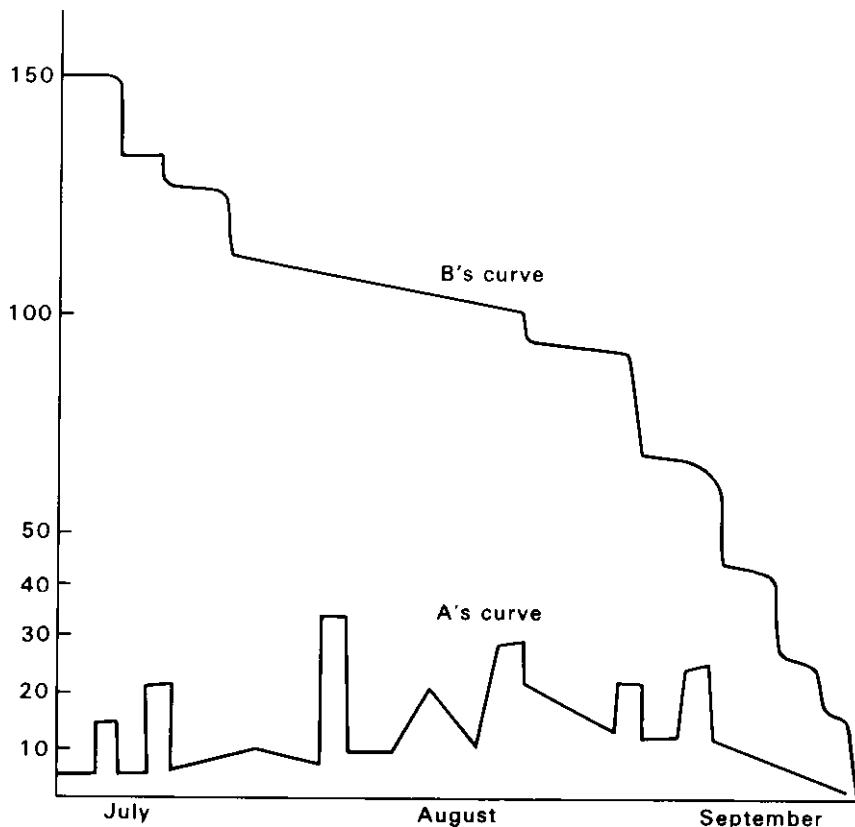


FIG. I

If any man keeps accounts accurately by subtracting his payments up to any day from his receipts up to that day we know the cash he has on hand at the beginning of that day. Add up these sums for each day, divide by the number of days, and we have the amount of cash that he has on hand each day on the average.

The same thing may be looked at in another way. Suppose a man's money income comes in at times beyond his own control say half yearly. Then if he chooses to have but little cash about him he must defer satisfying his wants as far as possible till Xmas and midsummer.

He may indeed meanwhile 'buy on credit': but that is not properly buying. He pays interest (practically at a high rate: but this is not of the essence). The main point is that he has not the advantage that the possession of cash gives of buying exactly what he wants.

II.3.2 A Mathematical Note on the Value of Money

Introduction This Note is extracted from a rough sketch, which seems to have been written by Marshall while he was preparing the Essay on Money (Item II.3.1 above). The Note gives a clear statement of the analytical skeleton underlying the Essay. At any point of time, t , the value of the commodity (shell) money, $y(t)$, is determined as the solution to

$$X(u(t))/y(t) + \psi(u(t), y(t)) = x(t)$$

which is obtained from equations (iii), (iv) and (v) of the Text. Here, $x(t)$ is the stock of money, and $u(t)$ is the national wealth, both being predetermined at t . The function ψ indicates the quantity of the money commodity demanded for non-monetary use. Finally the function X indicates the total amount of command over commodities which individuals choose to hold in monetary form. (A slight disappointment is Marshall's failure to include the interest rate as an additional argument in X .)

Over time, $u(t)$ varies exogenously, and $x(t)$ is increased by new production of the money commodity. The rate of this production, dx/dt , is increased by an increase in the value of money, and decreased by an increase in the cost of production of money in terms of commodities, or (presumably) by an increase in the interest rate. The cost of production of an extra unit of money increases with the stock of money already secured, so that if $u(t)$ remains constant, all variables should converge over time towards stationary levels at which the value of money is just equal to the cost of adding an extra

unit of money to the stock. In this way, the quantity-theory and cost-of-production approaches are synthesised.¹

Text

x = number of shells

y = value of shell in terms of given unit [of commodity]

z = cost of production of shells when there are already x in existence.

$$(i) \quad \frac{dx}{dt} = f(y, z, r, u)$$

where u represents general wealth of community and r rate of interest. Let

$$(ii) \quad u = \phi(t)$$

be general wealth of community;

$$(iii) \quad v = \psi(u, y)$$

be total number of shells used for purposes of ornament; and

$$(iv) \quad \alpha = X(u)$$

be amount of wealth over which community cares to keep command in a ready form. To determine as functions of t

$$\alpha, x, y, z, u, v$$

are added

$$(v) \quad \frac{\alpha}{y} + v = x$$

$$(vi) \quad z = \Phi(x)$$

¹ During such a convergence process, the value of money would be steadily changing, so that its expected future rate of change might reasonably enter as an additional influence on the demand for money. Marshall was certainly aware in the 1880s of the distinction between real and nominal interest rates due to inflation or deflation of prices. See *Economics of Industry*, p. 157, *Memorials*, p. 190.

II.4 Wages

This Section contains an early Essay on Wages and a short note on 'Allotments', which is effectively an exercise in the application of wage theory.

II.4.1 *Essay on Wages*

Introduction Although Marshall lectured in 1869 on 'the analogy of laws of wages and rents',¹ there is little indication of his groping towards a general marginal-productivity doctrine in the present essay, which can hardly have been written before 1870, as it refers to a book published in that year. Marshall is revealed instead as still firmly wedded to a wages-fund approach, with the demand for labour determined by the amount of capital employers are willing to set aside for the support of labour. Rather than von Thünen's, the influences revealed are those of Mill and Thornton, and especially of Mill's recent disavowal of a wages fund that is rigidly predetermined at each point of time.²

The manuscript, of thirty-six pages octavo, appears to be a continuation of the *Essay on Value* (Item II.2.1 above), building on the distinction introduced there between time-periods A, B, C and D. But it is considerably less polished than the earlier essay, and appears to be only a draft. It is possible that a more finished version has been lost, but it seems more likely that Marshall simply abandoned the line of thought revealed here on becoming acquainted with von Thünen's ideas, and so never elaborated the essay.³

The categorisation of market periods is not exactly parallel to that in the *Essay on Value*, and is not made completely clear. So far as can be ascertained, the distinction runs on the following lines:

¹ This is on Foxwell's testimony of 1879. See p. 102 above.

² In J. S. Mill, 'Thornton on Labour', *Fortnightly Review*, Vol 5 n.s. (May, June 1869); *Collected Works*, Vol V, pp. 633–68. Reference might also be made to a cryptic allusion, in some of Marshall's early notes on Adam Smith's *Wealth of Nations*, to 'Malthus' principle about wages being determined by equation of supply and demand for labour'.

³ This would place Marshall's conversion to von Thünen's approach at 1870 or 1871, which seems plausible: he fancied he had read Thünen only in 1869 or 1870 (*Memorials*, p. 413).

- A. The very short period, when individual employers follow the precedent of some prior market price.
- B. Periods sufficiently short for separate labour markets to be isolated from each other by frictions which preclude the movement of labour and *fixed* capital.
- C. Periods during which population is constant and little accumulation of new capital is possible, but movement of labour and fixed capital between occupations and industries is substantially free.
- D. Secular periods during which substantial population change and capital accumulation are admitted.

The treatment of labour markets in B periods emphasises the disadvantages of labour in bargaining, and appears to be considerably influenced by Thornton's ideas. There is a qualified acceptance of the proposition that 'wages are approximately the discounted value of produce', but this seems to involve a technically-fixed average product, which appears after a given gestation lag, rather than a marginal conception of productivity premised on factor substitution.⁴ The demand for labour is thought to be quite inelastic in B markets, presumably because employers cannot quickly adjust their production plans and labour requirements.

The analysis of C periods is both macroeconomic and microeconomic. The macroeconomic aspects are treated first, merging into the discussion of D periods. It is only after D periods have been disposed of, macroeconomic aspects alone being considered, that the exposition returns to the microeconomic case of an individual industry for C periods.

At the risk of suggesting greater precision than exists, the essential arguments will now be outlined, starting with the macroeconomic ones.

In C periods the supply of labour to the economy is inelastic, 'For if a fall in wages . . . induces some men to exist for a time without wages at all, it on the other hand will in some trades

⁴ A closely-related theory was presented by J. Shadwell, 'A Theory of Wages', *Westminster Review*, Vol 97 (Jan 1872) pp. 83–92. (For Jevons's flattering reaction see *Letters and Journal* pp. 270–1.) Shadwell took the rate of interest to be given. In a rough manuscript note entitled 'Wages, Lectures' Marshall writes: 'Supply and demand theory not inconsistent with but necessary in order to explain Shadwell's account wages = value of produce. This already worked out in previous papers.'

cause more constant work by rendering many men unable to take so many holidays...⁵ The demand for labour had 'until recently' been assumed to be determined by an unalterable wages fund. But now three sources of flexibility are noted:

- (a) capitalists' decisions to divert some of their wealth to or from their own enjoyment,
- (b) the conversion of wealth to or from fixed capital,
- (c) the accumulation of new wealth.

Of course, 'for C markets no change of very great magnitude in the amount of capital seeking employment in the form of wages need be contemplated'.⁶

Temporarily excluding new accumulation, the drift of Marshall's argument seems to be as follows. Let K be the total wealth already accumulated (a fixed magnitude) and $E(r)$ the amount of it appropriated to private enjoyment. This amount presumably decreases as the rate of profit, r , increases. Let $F(r)$ be the amount of wealth used as fixed capital. This amount must also decrease as the profit (and interest) rate increases and investment in machinery etc. becomes less attractive.⁷ The 'wages fund' at a given profit rate is now the *residual* $K - E(r) - F(r)$, and determines the average wage rate, w , as $w = (K - E(r) - F(r))/N$, where N is the labour supply, regarded as a fixed magnitude in C periods. But the wage rate thus determined for an arbitrary profit rate will not generally be consistent with that particular profit rate. The problem is one of *simultaneously* determining the rate of profit, the size of the wages fund, and the level of the wage rate. If $r = g(w)$ gives the feasible combinations of wage and profit rates,⁸ the equilibrium wage rate is obtained by simply solving the equation in w defined by

$$Nw - K + E(g(w)) + F(g(w)) = 0 \quad (\alpha)$$

It is interesting to observe that, in the *Economics of Industry*,

⁵ See p. 187 below.

⁶ See p. 190 below.

⁷ For evidence on Marshall's early grasp of the principles governing investment in fixed capital see Item II.6.2 below and also *Memorials*, p. 94 (written in 1872).

⁸ It would perhaps be more satisfactory to write this as $r = G(w, N, F(r))$ where $F(r)$ allows for mechanisation, and N for diminishing returns. However, N is temporarily fixed (and in any case Marshall de-emphasises diminishing returns) so that this equation may be solved to give the assumed $r = g(w)$.

Marshall presented such arguments in the guise of an exposition of the wages-fund approach.⁹

In D periods, the evolution of wages is primarily dependent on the accumulation of wealth and the growth of capital (K and N in equation (α) above now becoming variables). Marshall argues that the rate of accumulation will be relatively insensitive to the wage rate for two reasons. First, the 'economy of high wages' – with a higher wage rate raising the efficiency of labour – means that the profit rate need not be depressed by high wages. Second, accumulation of wealth may anyway be very little influenced by the profit rate to be earned on capital. Marshall also argues that the rates of profit and accumulation corresponding to a given wage rate will not be much influenced by a growth in population, the diminishing returns to land being compensated by increasing returns elsewhere in the economy. (And even if the profit rate were to be depressed by diminishing returns, rent would rise and saving from rent would tend to compensate any loss of saving from profits.)

Thus, the percentage rate of accumulation, and so the percentage rate of growth of the demand for labour,¹⁰ is relatively fixed, independently of the wage rate and population size, as shown in Figure A. However, the percentage rate of growth of population, and so of labour supply, although not much affected by population size, is an increasing function of the wage rate, for familiar Malthusian reasons. This is also

⁹ See *Economics of Industry*, pp. 203–5, particularly the following passage:

... even as explained by its ablest and most careful exponents, it seems to be unsatisfactory; because it rests on the assumption that all wages are paid out of wealth that has already been set by as capital. ... Starting from this basis they shewed that the circumstances of the country determine in what proportion capital is divided into the two parts, Auxiliary and Remuneratory. They called the Remuneratory capital in the country its 'Wages-Fund'; and they argued that no change could increase this Fund, unless it either increased the total amount of capital in the country, or caused the Remuneratory capital to increase at the expense of the Auxiliary (p. 203).

A footnote adds

We have seen that a fall in the rate of interest increases the use of machinery and other fixed capital, and therefore tends to increase Auxiliary capital relatively to Remuneratory. But the exponents of the Wages-Fund Theory seem generally to have overlooked this argument ... (p. 204).

¹⁰ Some further assumptions would be needed to make this correspondence exact, but it serves as a first approximation.

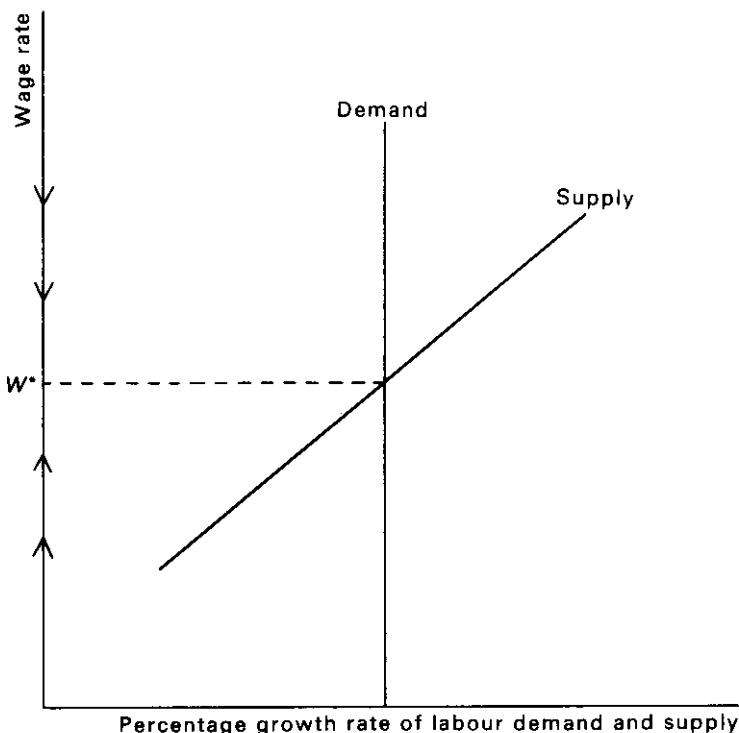


FIG. A

shown in Figure A. Now the wage rate tends to rise or fall as the percentage growth of demand exceeds or falls short of the percentage growth rate of supply. Hence, the economy tends to settle on a *steady-growth state* at wage rate w^* in Figure A. Accumulation and population growth proceed steadily without being choked off by diminishing returns, the percentage growth rate being determined essentially by the willingness to accumulate wealth.¹¹

None of this is stated with any precision in the text, but it is difficult to escape the impression that it is what Marshall was driving at. Apart from being expressed in terms of percentage,

¹¹ The multiple steady-growth equilibria of Figure 4 of the text are obtained by allowing increased thriftiness to accompany higher wages because of some induced social change.

rather than absolute, growth rates, Figure A is essentially the same as Figure 3 of the text. Marshall's conclusion is that 'Average wages . . . are determined by equation between [the] tendency to accumulate capital and [the] tendency to accumulate labour under any given arrangement with regard to the division of produce between them.'¹² Although the correspondence is not exact, there are clear echoes in this of that 'short but profound study of the causes that govern the distribution of the national dividend, given in [Mill's] fourth Book'.¹³

Turning now to the case of an individual industry for C periods, Marshall's argument is again incomplete and in need of interpretation. The industry's wage fund, W_i , is assumed to depend upon the difference between the industry's profit rate, r_i , and the economy's average profit rate, r . Presumably, an increase in the differential $r_i - r$ will induce more wage capital into the industry. Also, an increase in the economy's wages-fund, W , will presumably increase W_i , even at unchanged profitability. Thus,

$$W_i = H_i(W, r_i - r) \quad (\beta)$$

It is simplest to suppose that the industry employs only one kind of labour. Setting aside the complications arising from fixed capital, the profit rate r_i will depend upon the wage rate, w_i , paid to this kind of labour. It will also depend on the industry's output rate, since the more is sold, the lower must the selling price be. Indicating the scale of output by the industry's employment level, N_i , gives

$$r_i = G_i(w_i, N_i) \quad (\gamma)$$

By definition,

$$N_i w_i = W_i \quad (\delta)$$

In the simplest case, the wage rate w_i is given to the industry as $w + \lambda_i$, where w is the average wage for the economy, determined macroeconomically as previously indicated, and the premium λ_i is just such as to induce parents to apprentice their offspring to the industry in view of the special training

¹² See p. 196 below.

¹³ *Principles I*, p. 824.

required and the special advantages offered. In this simplest case, equations (β), (γ) and (δ) may be solved simultaneously for r_i , N_i , W_i , taking r , W and w_i as given. More generally, if labour is not in perfectly elastic supply to the industry, there is a labour-supply equation

$$N_i = S_i(w_i, w) \quad (\varepsilon)$$

and equations (β), (γ), (δ) and (ε) must be solved simultaneously for r_i , N_i , W_i , w_i , taking r , W and w as given. Marshall concludes that the supply functions of capital and labour ‘are the “joint” elements determining the amount of the commodity supplied at any given price. The demand [for the commodity] at any given price is also given. Equilibrium is attained: but a change in the circumstances of any one causes a change in those of the others. No one determines the others.’¹⁴

Summing up generally, Marshall’s treatment of labour supply as revealed in this essay is essentially the same as that appearing in 1879 in the *Economics of Industry*.¹⁵ But the treatment of the demand for labour is quite different, containing few clues to the later version. Here, as in the Fragments on Capital (Section II.6 below), Marshall is still firmly in the toils of the wages-fund preconceptions.

The essay concludes with a discussion of what trades unions can and ought to do. This is not particularly remarkable, showing clear signs of Thornton’s influence. The views expressed should be compared with those in the slightly later Item V.2.2 below, and also with the chapters on trades unions in the *Economics of Industry* (Book III, Chs. V–VII).

Text In considering the circumstances on which the supply of and demand for any ordinary commodity depended it was found convenient to divide them into four classes. In applying this classification to the special case of labour, some alteration in form will be necessary. But it will not be necessary to alter materially the general character and relative positions of the four divisions A, B, C and D.¹

¹⁴ See pp. 195–6 below. Compare also *Memorials*, p. 94 (written in 1872).

¹⁵ See Section I.5 above for a summary.

¹ [This clearly refers to the discussion in the Essay on Value (Item II.2.1 above).]

In class A are considered the arrangements made between an individual labourer and an individual employer. Here the labourer has labour at a particular time and in general labour of a particular kind which he wants to exchange away for command over commodities in general. He is most appropriately called the seller of labour, his employer the buyer of it. The circumstances of the sale are remarkably similar to those of an ordinary commodity in a retail shop, except that the buyer and the seller have exchanged places.

The retail shopman has a much larger supply than he is likely to sell off immediately: and he is able to replenish it at discretion from a larger market. The buyer has in general a strong wish to obtain some particular thing, and the shopman by adapting his price to the wants of his customer might often obtain a very high price. It does not however answer his purpose to do this, and he in general sells at a fixed price, *viz.*, that which rules in a wholesale market plus a certain fixed allowance for retail profits.

The individual employer has a much larger supply of capital than he is likely to expend immediately; and he is able to replenish it at discretion from some loan market. The seller of labour has in general a strong wish to dispose of his labour at a particular time, partly because if he goes to seek another purchaser, part of the time which he has to sell will be lost in so doing. And the employer by adapting his price to the wants of the labourer might very often obtain the labour at a very low price. It does not however answer his purpose in general to do this, and he buys at a rate not far different from one which rules in a larger market.

But insofar as he does make terms with any individual labourer, he has 'the advantage of the initiative', as Thornton says.² He can offer just such low wages as will not be rejected by the labourer, or any wages above this that he pleases. The labourer has not the opportunity, as the seller of any other commodity has, of saying 'This is the price at which I am

² [See W. T. Thornton *On Labour* . . . , pp. 95–6, 100–105, 175–7 of the second (1870) edition (which, as will be seen subsequently, is the edition Marshall seems to have used). The phrase does not appear to be a direct quotation, or at least it is not one that Thornton uses prominently. However, Mill in his review of Thornton (*Fortnightly Review*, May 1869) spoke of the employer as having 'the initiative in fixing price' (*Collected Works*, Vol V, p. 643).]

prepared to sell – the price which will adequately remunerate me. If you do not like to pay it, I will keep the commodity.' Thus in all such bargains the movement if there is any is likely to be against the interests of the workman. But we will pass on to the next class, class B. [Here there are] small markets [and] great friction.

[Suppose a] farmer has ten labourers at £25 per annum. Discounted value of produce due to the eleventh would be £30, yet he will not give this or even £26 because of (i) pressure of other farmers (ii) fear that each other labourer hired by him would obtain £26.

Hence it is not true that [a] labourer's wages are equal [to the] discounted value of produce due to him. But they cannot be very much lower: e.g., if this were £40, wages would by competition of farmers rise above £25.³

Allowing for this, his wages are approximately the discounted value of produce due to him:⁴ but if you raise wages and efficiency you raise this.⁵

Farmers in times of distress agree to raise wages. This shows combination among them. It is a relic of feudal feeling, [but] would be justified on strictly prudential grounds if on no others since farmers as a body, acting in combination, have nearly the same interest in [the] welfare of labourers as masters have in [the] welfare of slaves.

The fact that the farmers fix the price practically tends to make average price lower than it would otherwise be: just as you may make average volume of a hollow partially elastic Indian rubber ball with a hole in it smaller than it otherwise would be by continually pressing it in.

³ [This argument is substantially repeated on p. 199 of the *Economics of Industry*.]

⁴ [A note outlining the concept of wages as discounted value of produce was appended to the manuscript. It may be inserted conveniently here] α = produce to a man's work, $\alpha = w(1+r)$ where r = rate of trading profit but if he lent tools of value c , $\alpha = (c+w)(1+r)$ where α = produce of labour + value of tools (part of man's work being supposed to consist in keeping them in repair) \equiv say $\alpha' + c$

$$[\text{Thus}] \quad w = \frac{\alpha}{1+r} - c = \frac{\alpha'}{1+r} - \frac{cr}{1+r}$$

Now α' being the only portion over which the man has a control, if c is large a variation in r makes a great difference.

⁵ [This presumably refers to the possibility that higher wages may lead, through improved living conditions, to higher efficiency. See Section 1.5 (pp. 79–80 above).]

The case referred to in Class B for commodities shows one side of the influence of trades unions. A strike is a punishment to masters. The demand curve [for labour] really means that such and such is the price which employers will give rather than have the supply diminished, not by the ordinary process of a permanent diminution in supply which sends their capital elsewhere, but by the arbitrary withholding for a time of the whole of their supply. This is much more injurious to them and makes the curve of demand in the immediate neighbourhood of the point of intersection (and it is of course only with this that we are concerned) very steep for cases B.⁶

For class C we include variations in supply of labour of a particular kind and of capital seeking employment in a particular trade or even of that seeking employment in all trades, owing to capitalists deciding to consume some portion of their wealth productively instead of unproductively.

To take the second case first: The supply of labourers is practically constant; and the curve I [Figure 1] is approximately a straight line. For if a fall in wages drives a very small number of labourers into employments where a subsistence can be earned without the help of wages and induces some men to exist for a time without wages at all, it on the other hand will in some trades cause more constant work by rendering many men unable to take so many holidays as before.

And until recently it has been assumed that for such periods the 'wages fund' will be unalterable: that is, that the product obtained by multiplying OM_2 by P_2M_2 [Figure 1] is constant (i.e. that the curve II is a rectangular hyperbola of which Ox and Oy are the asymptotes). The basis on which this doctrine is grounded and the reasons why it is false are distinctly stated by Mill.⁷ It is necessary however to supplement what he says by remarking that the phrase 'the amount of labourer's commodities in a country' is a very vague one. Take for example a brickfield. Are the bricks in it 'labourer's commodities' or not? They may be used in building labourer's cottages, or in enlarging a workshop or factory or in building an ornamental wall round a gentleman's park. We cannot first find

⁶ [The following reminder, perhaps for use in a planned revision, was inserted here.] The question about government regulation of wages.

⁷ *Fortnightly Review*, May 1869 [J. S. Mill, *Collected Works*, Vol V, pp. 633-46].

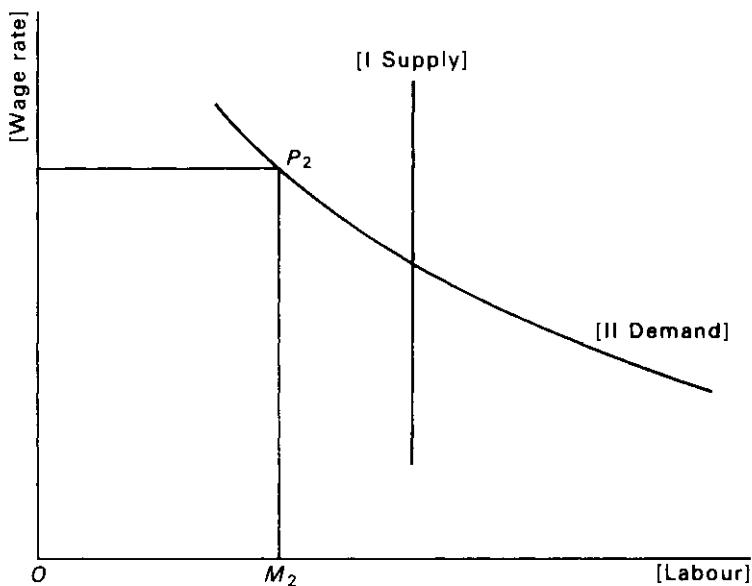


FIG. 1

out what is the amount of labourer's commodities in existence and thence determine what wages must be. But knowing what wages are we can determine roughly what commodities will be devoted to satisfying the wants of labourers. We must then investigate how the possessor of property is determined as to the use he makes of it. Whether he is engaged in any kind of trade or not, he does not in general produce all the various commodities which are consumed by himself and by the persons whom he employs. But practically it is on the average tolerably well known before hand what kinds of things he will wish to buy and in what quantities he will wish to buy them. In the meanwhile he either personally or through the medium of tenant farmers or of some trading company employs his capital in producing or contributing to the production of large amounts of some particular kinds of commodities a command over which he will give away in exchange for those things which he requires. He thus determines as really how large a portion of his wealth shall be devoted to his own immediate consumption, or to producing things which he will consume as soon as they are produced, or to the immediate

consumption of his labourers, or to producing commodities for the future consumption of his labourers, or to producing machines or other forms of fixed capital: all these things he determines as directly as if he personally superintended all these various modes of application of it. We shall then simplify our forms of expression but not in any way alter the real question if we assume that he in every case does this. The question then which he has to decide for himself is of the comparative attractions to himself of the means of immediate consumption, of those of consumption delayed for a short time and of those of consumption delayed for a long time.

The fact that there are at any time some commodities of which the destination is doubtful – whether for the consumption of the capitalist or for that of the labourers – was one on which it was necessary to insist, because the overlooking it formed one of the main sources of the error of the doctrine of the wages fund in its applications to very short periods. But when we are considering tolerably long periods, this consideration becomes practically unimportant. We may suppose that on the average the capitalist has calculated tolerably rightly and caused those commodities to be produced for the consumption of labourers which actually are consumed by labourers. The question then reduced to its ultimate and most simple form is how many of his labourers does he on the average employ in producing commodities which he will himself consume, and how many does he employ in producing capital in the form of labourer's commodities or of machines or other requisites of production: or, to use familiar though somewhat vague phraseology, how many labourers does he employ for productive and how many for unproductive consumption?

Mill and most other political economists have assumed that the tendency to accumulate capital will *ceteris paribus* increase as the rate of profits increases, i.e. as the produce of a smaller amount of past labour has to be given for a given amount of future labour.

Sargent and others have pointed out that this is not always the case.⁸ Notably a man often lays by capital with the object

⁸ [See W. L. Sargent, *Recent Political Economy* (Williams and Norgate, London and Edinburgh; Benjamin Hall, Birmingham; 1867), Ch. IV, Section III.]

of securing to his family an income of a certain amount: and the lower the rate of profits and therefore of interest, the more he will have to save in order to do this. A man also, who wishes after retiring from business to have an income somewhat similar to that which he has enjoyed while in trade, will continue in trade longer, and work till he has saved a larger amount, if the rate of interest be low than if it be high.

It may then be regarded as an open question whether any particular capitalist A will save more rapidly and turn a larger portion of his wealth into capital at a low rate of interest or a high one. But it may be definitely determined how great the inducement to save will be to him at any given rate of interest, so it may for a capitalist B, for a capitalist C, and so on. Thus at any given rate of interest we shall know how much they all together will accumulate. How large a portion of their accumulations will be devoted to providing labourer's commodities depends partly on the efficiency of machinery and on similar circumstances and partly on the rate of interest, as we shall see hereafter.⁹ But under any given social circumstances the rate of accumulation may be said to be known when the rate of interest is known.

Of course for C markets no change of very great magnitude in the amount of capital seeking employment in the form of wages need be contemplated. But the effect of the tendency which can be seen when we consider the C market accumulates itself in long periods and for D markets becomes, as far as directly economical circumstances are concerned, the ruling influence of the progress of the country. It will be advisable before treating the second of the two cases which have to be considered under class C to investigate this accumulated effect under class D.¹⁰

In class D we may adopt either of two modes of exposition.

I. We may enquire what at any given rate of real wages, supposed to retain a uniform average rate during a long period

⁹ See *Capital*: tendency to accumulate. [No trace of any note or essay answering this description has been found.]

¹⁰ [A subsequent note added by Marshall says that the discussion of case D needs 'to be entirely rewritten. The curves simply confuse matters if indeed any meaning attaches to them.']}

say a century, will be the total amount of wage capital accumulated during the century and what therefore will be the total amount in existence at the end of the century: so at any given rate we can calculate the total labouring population at the end of the century: the point of intersection [of the curves in Figure 2]¹¹ will give the actual amounts attained. But this though true is not capable of being supported by simple reasoning. It will therefore be better to adopt the other method, in which we can do what we cannot here, *viz.*, speak of stable equilibrium.

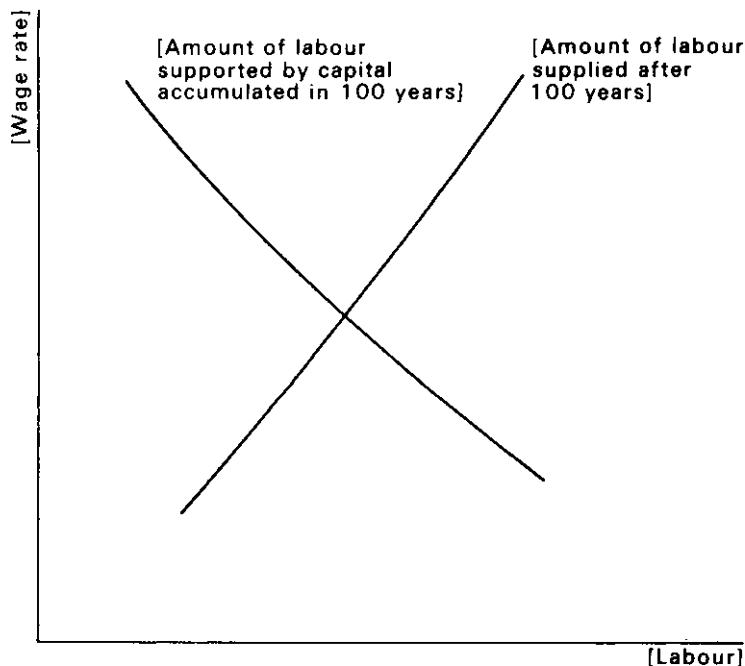


FIG. 2

II. We may enquire what at any given rate of real wages will be during each year of the century (or other period) the accumulation of capital and what that of labour. Here we can

¹¹ [Note that the amount of wage capital must be measured in Figure 2 by the number of workers it will employ at the wage rate in question.]

speak of stable and unstable equilibrium and all the ordinary reasoning applies.

For such purposes a high rate of real wages tends to check accumulation of capital insofar as it lowers profits i.e. diminishes what is left of the produce due to each labourer after deducting his wages. We have already estimated the strength of this tendency.

But it must be pointed out that high real wages for unskilled labour do not, in England at least, mean low profits for D periods: because it is found that unskilled labour is equally costly to the employer in all parts of England approximately; i.e. that provided (within reasonable limits) the rate of wage payments has prevailed for a long time, it does not much matter to the employer what that is.¹² On the other hand high wages may be assumed on the whole to increase population. Insofar as they do this they tend to diminish the amount of raw produce due to each labourer's work and therefore to diminish profits. On the other hand this tends to increase rents: and it is important to remember, what is often forgotten, that rents are a source from which accumulations may be made. An increase in population tends to increase economy in division of labour and in machinery. With regard to raw produce the most important division of labour is international and the most important machinery that of roads, railways, etc.

On the whole, in opposition to McCulloch etc., it may be doubted whether an increase in population has a great tendency to lower amount of produce (taking raw and manufactured together) due to the work of a labourer.¹³ And allowing for increased facilities of accumulation of wealth from rent and from wages and for the fact that at a given rate of profit a large population means a large gross produce, it is very doubtful whether high wages cause any appreciable check to the accumulation of capital. In doubt I should put the demand curve vertical [Figure 3]. The supply curve, even allowing for the fact that education following on high wages

¹² [This again rests on the argument that the receipt of high wages leads to more efficient labour.]

¹³ [The Ricardian assumption of diminishing returns was espoused by J. R. McCulloch in, for example, his *Principles of Political Economy*. Marshall owned a copy of the second edition (Tait, Edinburgh; Curry, Dublin; 1830)].

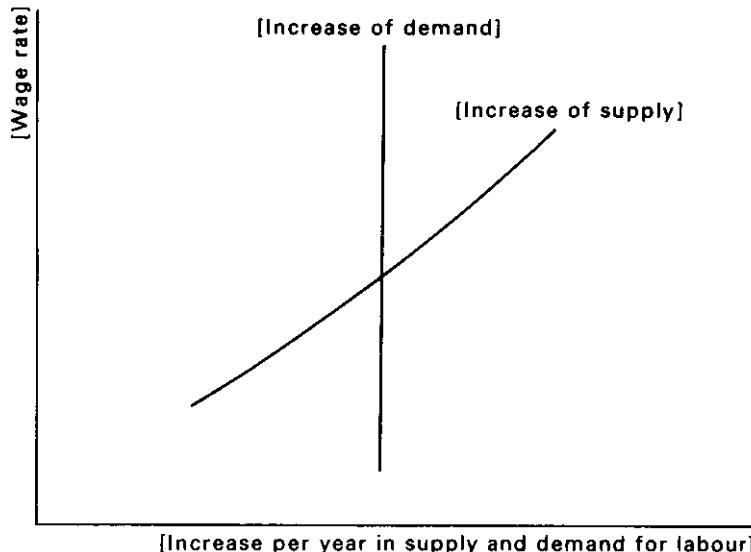


FIG. 3

may cause people to be brought into contact at first, second or third hand with Malthus[ians], must be suppose[d] to rise as it proceeds to the right. We thus get in general stable equilibrium.

There seems to be no reason for supposing that the demand curve could not, under of course exceptional circumstances, turn, give a point of unstable and then further on of [stable] equilibrium [as in Figure 4]. This would correspond to say such a movement as that of Schulze-Delitzsch¹⁴ on a large scale or to sudden success of the system of giving labourers as a bonus a share in the proceeds of the work, or sudden growth of intelligence, etc.¹⁵

We return then to the second case given under class C. For such markets the number of labourers seeking hire is

¹⁴ [Schulze-Delitzsch was a pioneer in German cooperation who founded credit cooperatives into which each artisan shareholder made small payments so as to create a capital. Shareholders were then entitled to borrow at short term as the needs of their craft arose. Presumably, such a scheme encouraged thrift. A description had been given by Thornton (pp. 478–83 of the second edition of *On Labour . . .*).]

¹⁵ The rules about the shapes of the curves [see p. 145 of the Essay on Value, Item II.2.1 above] do not hold for the D case of labour.

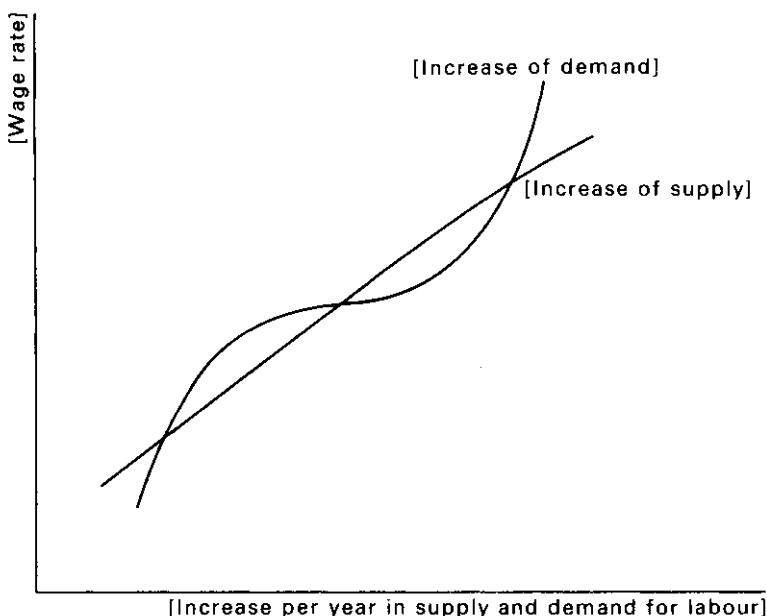


FIG. 4

limited partly by the nature of the trade regulations, partly by the number of persons who are able to comply with those regulations. Save where trade regulations are very effective a slight rise in wages (not shared by other trades) will bring a large supply of labour into the market, withdrawing it not from trades of which the resultant remuneration (allowing for uncertainty, unhealthiness, disagreeableness, etc.) is much less, but from those for which it is much the same and consequently for the entering of which there are about equal natural difficulties to be got over. Mill's division of values into those determined on [the] supposition that there is perfectly free migration of labour and those on [the] supposition that there is none is right as a first approximation.¹⁶

Practically there is great difficulty in migration [between] various trades in the same part of England, and the same trades in various parts of England. For average results various

¹⁶ [See J. S. Mill, *Principles of Political Economy*, Book III.]

trades in the whole of England are to be regarded as in some respects different countries: and it is this to which Leslie really points when he shows that things do not really exchange for one another in the ratio of their labour cost.¹⁷

But insofar as there is free migration, knowledge of the real advantages of each trade, etc., the wages in each employment represent (i) the preparation required for it and (ii) its special advantages.

The number of labourers who receive a technical education involving a given gross amount of expenditure and sacrifice of other kinds on the part of the parents is determined by (i) the number of parents who are able without inconvenience to give it (ii) the custom and habits of parents in that class generally (iii) the strength of parental affection (iv) the estimate by the parents of the advantage to their children of the preparations in question. The total number of skilled labourers of a certain 'rank' (i.e. whose preparation has involved a certain amount of [sacrifice]) may be affected by a variation in any one of these four conditions. We are thus able to see what is the relation between the ratio of the average wages of a skilled labourer of any 'rank' (defined as above) to those of an unskilled, and the ratio of their costs of production.

We have a genuine supply and demand equation: but the number which can 'be supplied at a certain price (i.e. wages)' does not depend on the cost of production in the same direct and immediate way as it does for slaves or other chattels.

The amount of capital ready to employ labour in any trade at any given rate of profits depends upon (i) average rate of profit in all trades (ii) average excess above or falling off from this average rate in this particular trade.¹⁸ The amount of labour ready to be employed in any given trade at any given rate of wages depends roughly on the above considerations. These two are the 'joint' elements determining the amount of

¹⁷ [See T. E. Cliffe Leslie, 'Political Economy and Migration', and 'Political Economy and the Rate of Wages', *Fraser's Magazine*, Vols 77–8 (May and July, 1868). Both are reprinted in idem, *Land Systems and Industrial Economy of Ireland, England and Continental Countries* (Longmans Green, London, 1870). See p. 368 especially. Marshall's copy of this book is substantially annotated.]

¹⁸ [The following words followed, but were deleted: 'owing to skill required by managers, disagreeableness, inaccessibility, or temporarily excessive or deficient supply of employers with the necessary skill etc.]

the commodity supplied at any given price. The demand [for the commodity] at any given price is also given. Equilibrium is attained: but a change in the circumstances of any one causes a change in those of the others. No one determines the others.

So we may see how the wages actually given in any trade are determined and similarly how the wages of labour of any given 'rank' are determined: there may be an oversupply or an undersupply: but there is a tendency to equilibrium. Average wages, or better the unit of wages found in the wages of unskilled labourers in full bodily efficiency, are determined [in D periods] by equation between [the] tendency to accumulate capital and [the] tendency to accumulate labour under any given arrangement with regard to the division of produce between them.

[The final topic is the possibility of wages being influenced by the actions of trades unions. Whether labourers can gain at the expense of employers is the question first considered (points I–III), after which discussion turns to the advantages and disadvantages of restricting entry into a given trade or occupation (point IV).]¹⁹

I. The average rate of profits is discussed under class D. In any particular trade it must be accepted as a fact. No change

¹⁹ [This editorial insertion replaces the following paragraph.]

If *a*, *b* and *c* be the component elements of a commodity of which demand is known: if it be assumed that [the] price at which each of the three can be supplied increases with the amount supplied, and if that price at which product can be got rid of diminishes as the amount to be got rid of increases, it follows that there can be an increase in price obtained for *a* only by I diminishing price of *b*, II diminishing price of *c* for each several amount produced, III increasing demand, IV diminishing supply of *a* at various prices.

It appears that the remaining pages were introduced from another manuscript and imperfectly integrated. However, though the above paragraph does head page 27 of the manuscript, the pagination and style show no break. Consequential changes called for by the deletion are:

- (i) The deletion, from the end of II, of the sentence 'The particular mode in which they operate in this case is to make the supply line for *b* different.'
- (ii) The replacement of the phrase '*a* or *b*' by 'labourers or employers' in the first sentence of III, where the phrase '*c* being known' which followed the word 'increased' is also deleted.
- (iii) The deletion from IV of the sentence 'It will be found that in order that a given check to the supply of labour may produce a great rise in wages it is necessary that the *b* line (and the *c* line) should be steep and also the supply line.]

in the circumstances of any trade, unless a very large one, can affect it appreciably. But each change by which gross profits, i.e. including wages of superintendence, are diminished *tends* to lower this. The point is of no importance here, but evil has arisen from ignoring it.

II. The special profits over and above this made in any particular trade. These may be at the time under consideration (i) more than enough to compensate for skill, risk, disagreeableness, or (ii) not more. If (i) it may be owing to ignorance of outsiders, or it may be to a custom practically making a close combination of employers together with some difficulty about entering the trade owing to local circumstances or to difficulty of obtaining a connection. The former class is more common in manufactures. The latter in agriculture, where the unfortunate farmers screw down the labourers for the benefit of the landlords and really act as their agents on a fixed salary. Owing to circumstances investigated with reference to B markets, such cases are frequent and important. In them, provided the labourers be not open to competition, others being excluded either by artificial regulations or by the fact that no special inducements to outsiders are offered, and provided the labourers have the sinews of war, a strike may obtain a permanent rise in wages. If (ii) a rise in wages will be suicidal (though it may often be obtained if there is much capital sunk in machinery, acquirement of skill or connection) unless when, the supply of capital in the trade having been lessened, the labour can quickly migrate to some other occupation. This can seldom happen, and even then a strike may be blamed on moral grounds.

III. If the demand for the commodity have increased, it is a question of which of the elements [labourers or employers] shall get the main benefit of the increase in price till this has reached again equilibrium. If the labourers do not combine, the tacit combination of a few skilled employers is sure to give them the lion's share. Provided the labourers are safe from competition and they have sinews of war they can in this case also obtain a rise in wages, which if they were below the average may be permanent and if not may never actually disappear, friction henceforth acting with them.

IV. The amount of labour on sale may be limited (i) by short hours of work (ii) by limiting the number of apprentices (iii) if the union have [a] monopoly of skilled labour, or if otherwise the strike can be made complete, by the threat of a strike (iv) by refusal to use machinery and in general short and effective modes of production :

- (i) is often right on all grounds
- (ii) is often right on selfish principles of a narrow type: excluding all morality and not considering that such rules are likely to injure the workman's sons
- (iii) has been really discussed above
- (iv) is almost always wrong morally and in general economically.

To consider (iv) let a new mode of production halve labour etc. required to produce a commodity [see Figure 5]. Let us now take as our unit not one but two commodities. The supply lines are unchanged. To find a point on the new demand line corresponding to P_1 on [the] old take $Om_1 = \frac{1}{2}OM_1$, $m_1p_1 = 2M_1P_1$. There will be a demand for more labour at the old price (or the same at a higher) if the demand line [to the right of R] lies above the rectangular hyperbola through R with Ox, Oy as asymptotes.²⁰

An improvement in modes of production of course benefits the labourer insofar as he is a consumer, and even though trade morality be not yet formulated, it is injurious to a labourer's interests in cases in which the demand line is but little below the rectangular hyperbola to oppose improved modes of production.

Insofar as the interests of the labouring classes are those of the next generation of labourers, apprentice regulations are when very strict clearly wrong. It requires strong opinions on the subject of Malthusianism to justify them at all.

On this head all action on the part of labourers which tends to weaken the position of the masters is to be condemned

²⁰ [Since each labourer after the change is exactly equivalent to two before, employers will find their situation the same if they employ half as many labourers at twice the old wage. Hence, if $y = f(x)$ is the equation of II, the equation of II' must be $y = 2f(2x)$. Let $x = a$ at point R . If $f(x)$ is a rectangular hyperbola, then $f(x) = af(a)/x$ and $2f(2x) = f(x)$ for any $x > 0$. If II, to the right of R , lies above the rectangular hyperbola through R , then $f(x) > af(a)/x$ for all $x > a$, so that $2f(2a) > 2af(a)/2a = f(a)$. Q.E.D.]

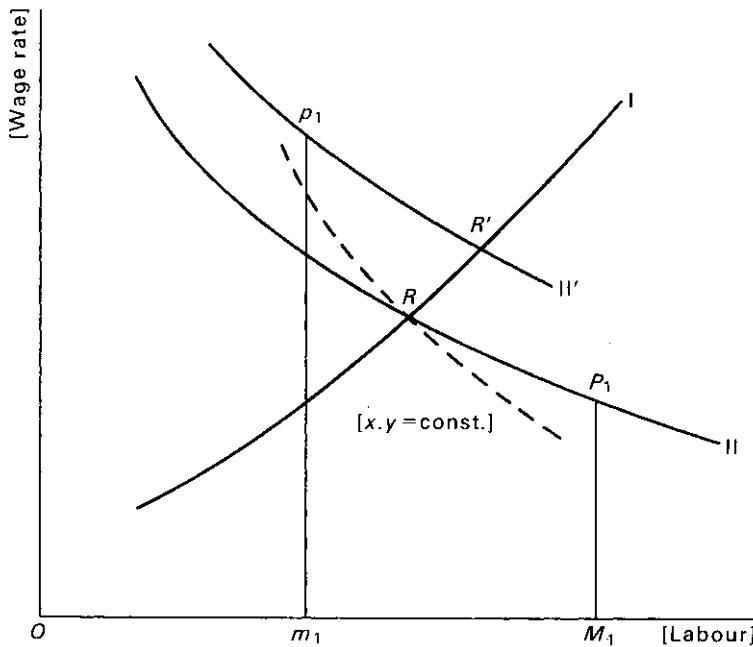


FIG. 5

unless it can be shown to be necessary in the strictest sense. A strike in a temporary depression of the trade should be avoided because insofar as it is effective (which it is often not, being rather a boon to the masters) it tends to increase average wages of superintendence by increasing risk. On the other hand, a strike in temporary expansion of trade may operate as a salutary check to the incursion of too much capital. It is indeed not in general for the interests of the labourers in this particular trade that this should take place, but perhaps for the interest of the world at large. But at such times it is specially easy to start a new centre of the industry either in the same or in another country: or to buy new machinery. On Ethical grounds nothing can be said against strikes in such cases.

When a trade is permanently depressed it is specially hard for the labourers to make an effective combination. But if they can, they may cause capital and labour to migrate to some

other employment, and though transient misery be caused the whole effect is probably not bad.

Rules insisting on round about modes of production are in general to be condemned on economical and almost all on ethical grounds. There is not much use in discussing their direct effects. These include all the bad, but not all the good results of short hours of work. But there is one form in which such rules can scarcely be expunged from the laws of trade societies. If the success of their efforts demands an artificial limitation to their numbers it is necessary that they should prohibit their numbers being surreptitiously increased by the employment of labourers that have not the necessary qualifications. Hence a builder may be often compelled to send a carpenter and a bricklayer to do work that either of them could well do alone. If the carpenters and bricklayers are about equally well paid their doing this is only a special case of insisting on round about modes of production. An agreement between their trades unions might get over this difficulty. Two very important points are here brought out: (i) there is great advantage in having a trades union with which to deal: no such arrangement could be come to without some recognized organ of this kind: (ii) if any trade obtains owing to exceptional circumstances much higher wages than others of the same rank it will have to cause great general discomfort i.e. more than corresponding to its own gains in order to maintain them: for its apprenticeship rules must be harsh and its rules about 'the whole trade for the trade' must in self defence be very strict, and harmful.

As regards all improvements in, and increased facilities of, production, it must be conceded that in the limited market of a special trade they may be injurious to the men. For they may lower the total cost but little, and therefore increase but little the demand for the commodity.²¹ Neglecting ethical considerations, action in opposition to them is prudent provided it does not cause the transference of the industry to some other

²¹ See Thornton p. 340 [The reference here is to the second edition of W. T. Thornton's *On Labour*.... In the first edition, p. 340 is blank. This establishes that these pages cannot have been written before 1870, when the second edition appeared.]

place. This is important with reference to the growth of Liverpool, Manchester, etc.²²

II.4.2 'Allotments'

Introduction Although the following note (a short octavo manuscript of eight pages) is entitled 'Allotments', it in fact deals quite generally with the consequences of opening up to labourers some supplementary source of income. It is only in the final paragraph that the discussion turns to the specific question of 'Allotments' (i.e. small plots of land to be cultivated by workers in their spare time). The note appears to have been written at about the same time as the Essay on Wages (II.4.1 above) and brings out even more clearly Marshall's views as to the limitations on competition in the determination of agricultural wages. Although no reference is made, the note should probably be viewed as an elucidation and extension of Mill's arguments in Bk II, Ch. XII, § 4 of his *Principles of Political Economy*. Here, Mill argues against allotment schemes as a solution to the problem of poverty. Marshall himself touches on allotments in *Principles* Bk VI, Ch. X, § 9.

Text Suppose that labourers could earn £5 a year each by some occupation which did not interfere with their farm work. As far as the immediate present is concerned there would be no alteration in the circumstance of supply and demand: and *insofar as the wages depended upon this* they would remain unaltered. It is notorious however that, mainly owing to their

²² Thornton's conclusions p. 303 *ibid.* are all included in the above account except his vi. [See W. T. Thornton, *On Labour*..., pp. 303–4 of the second edition where Thornton writes:

... we have six [cases] in all, in which it is possible for unionism to bring about a permanent increase in wages. It may do so: 1st, in any trade of which... the employers in the same neighbourhood have virtually a monopoly: 2nd, in any trade for the prosecution of which one country possesses a marked advantage over others: 3rd, in any trade the demand for whose produce happens... to be at the time increasing: 4th, to any trade in which... the increased productiveness of industry places an augmented quantity of produce at the disposal of the masters... : 5th, in all trades whatever, provided the rise take place simultaneously and equally in all trades: and 6th, in any trade in which the scale of business is such, that a greater aggregate profit can be made in it at a low rate than in others at a high rate.

It would appear that Marshall should also have excluded iv (at least).]

incapacity for combination, agricultural labourers do not obtain those wages which it would be possible for them to extort, but those which their masters choose to give. The masters are always practically in combination to some extent; and so much greater are their resources than those of the men that even if the latter could be induced to enter on a contest, they would unless supported by external aid infallibly be beaten. Knowing this the masters do to a certain extent regard the labourers as persons permanently attached to their neighbourhood who in general must accept such terms as are offered to them. Thus in some cases farmers will spontaneously agree to raise wages, on the ground that it is not consistent with their feelings of humanity, and even to some extent with their interests, that the nominal wages of those who already have scarcely enough food should remain unaltered while the price of provisions has, owing to circumstances perhaps local, or temporary, increased. They cannot on the one hand bring to bear the extreme pressure which in some directions can be put upon serfs, nor on the other hand consistently with their pecuniary interest feed them as well as they could if they were slaves, for the two reasons that the combination among themselves is not perfect and that the labourers have in the last resource the power of leaving the district. Otherwise they could.

If they could do this, the effect of the above supposed change would be that they would be able, and would find it advantageous, to lower the wages of their men by £5 a year supposing the men were all able to avail themselves of the change. If not, and custom obliged them to give the same wages to all their labourers they might adopt an intermediate course; they might lower wages by say £2.

The labourer who made use of the new occupation would be able to bring up his family in greater comfort than before, with less average mortality and with less chance of coming upon the parish. The labourer who did not make use of it would be liable to the opposite effects. The average resultant effect might involve no change, population not being affected, but nearly the whole of [the] net benefit of the improvement going into the pockets of the farmer, or rather of the land-owner.

Wherever we find farmers complaining that they cannot get labourers enough at the price which they are ready to offer we may be sure that in some real though incomplete sense there is a market for labour. Let us then work out the ulterior effects of such a change on the assumption that there is perfectly free competition in a perfectly open market, and that there is no disturbing cause to modify the operation of the law of supply and demand. The immediate effect we have already stated. Labourers would have no inducement to flood the market with an increased amount of labour. Farmers would have no inducement to be contented with a smaller amount of labour than before: whatever number it was remunerative to them to employ at a given wage before, that number it will be remunerative for them to employ at that wage now. Wages remain unchanged. Those who avail themselves of the new occupation obtain £5 a year more than before; the rest their old wages. The standard of comfort may be raised, particularly if the change is sudden; but, if not, an increased population will ere long begin to tell upon one side of the equation of supply and demand. On the ordinary extreme hypothesis with regard to population, wages in the next generation will be lower than they would otherwise have been, perhaps (as was supposed in the previous case) by the amount of £2. After this population would be supported to more than their proper share by those who made use of the improvement and to less than their proper share by the others; but might remain on the whole stationary.

As a matter of fact wages are determined partly by the will of the farmers [and] partly by the law of supply and demand. The real result is therefore intermediate between those obtained for the two extreme assumptions. Farmers would in some cases be able to lower wages to some extent at once. But in general the full effect of the change would not be felt till a generation had nearly passed. After this time wages would probably have fallen, or have been prevented from rising considerably; but certainly not to the full extent of £5. The total amount of production in the world would have been increased; the resulting gain would go mainly to the capitalist class in particular the farmers (or rather the landlords); but the labouring class as a whole would even ultimately be

benefited; i.e. either the old number would be maintained at a higher average standard of comfort, or an increased number at the old average standard. But in consequence of the improvement, those who did not avail themselves of it would undoubtedly be in a worse condition than they otherwise would have been, though it is not certain how much worse.

The important difference between the cultivation of allotments and the introduction of the above improvements, is that in general, particularly in the case of the agricultural labourer, it would diminish his efficiency as a hired workman. The right method of taking account of the work of his wife and children seems to be to reckon their wages separately. In the long run, particularly as workmen's trains become more common, allotments are likely to be chiefly made use of by those who can make the best use of them, but that will be mainly by people whose wages are every day regulated more accurately by the law of supply and demand.

The important considerations omitted are:

- (i) the moral effect on the man of not being entirely dependent on weekly wages,
- (ii) the effect in giving him in the summer evenings and on slack days in winter an attraction to rival that of the public house,
- (iii) the effect on the family-feeling due to keeping his wife and children mainly at home (this applies with peculiar force to gardens): *per contra* in some cases the tendency to shirk work onto his wife and children,
- (iv) a point of but small importance now, a tendency not to deteriorate their condition but to prevent any very rapid improvement of it – the effect in absorbing the spare hours, at all events in summer, which are being wrested from the factory work ostensibly to give the mechanician time for self cultivation. Still much may be done in winter.

II.5 Profits

This Section contains a single essay on the earnings of management.

II.5.1 'The Wages of Superintendence'

Introduction This essay, an undated octavo manuscript of twenty-three pages, shows Marshall formulating his conception of insurance against the personal risks as to a borrower's probity as an element of profit.¹ The treatment is more primitive than that of the *Economics of Industry*, and this, together with the style and appearance, makes it unlikely that the essay was written after the early 1870s.

The essay starts by requiring the wages of superintendence to be classified either wholly as wages, or wholly as profits, and considers the conditions under which one or the other classification is more appropriate. But what emerges from the discussion, as Marshall recognises, is that the earnings of management normally contain elements of both wages and profits.

Employers working with their own capital receive a profit on it which includes the equivalent of that insurance against personal risk which must be paid to the lender by those working with borrowed capital. Marshall suggests here that the presence of this extra element goes some way towards helping to explain the high incomes earned by many business men who start with the advantage of inherited wealth.

What he fails to do is to disentangle this explanation from another one, also hinted, emphasising the frictions and barriers keeping out the competition of those who must work on borrowed capital, so that in many industries the owner of independent wealth 'is not likely to be driven hard by the competition of those working on borrowed capital'.² This was doubtless realistic in the early 1870s, when limited liability on a wide scale was still a recent development. By the time the *Economics of Industry* was written, the frictions and barriers were already assumed to be largely inoperative: 'A man who has business power and a little capital can get more capital'.³

¹ See *Economics of Industry*, Book II, Ch. XII, especially pp. 135–6; also *Principles I*, pp. 590, 602–3. The account of personal risks given in the essay is briefly paraphrased in these later sources. In his 1887 note in reply to F. A. Walker, Marshall gave an alternative characterisation of the allowance for personal risk as 'the supply price of the bringing together of [business] ability with the capital required to give it scope' (*Principles II*, p. 672).

² p. 210 below.

³ *Economics of Industry*, p. 118, where Marshall cites both Bagehot and Walker in support.

Indeed, Marshall then thought that ‘men trading with borrowed capital seem likely to displace to a great extent those trading with their own’.⁴ His explanation was that the leisure and ease of life attainable by the independently wealthy as rentiers would more than counterbalance the higher return they could obtain through the work and worry of using their own wealth in business.

Text In dividing the net produce of any process of production into the portions of profits and wages it is often a question under which head to place ‘the wages of superintendence’. The question must be decided according to the convenience of each particular case. No hard and fast line can be drawn with regard to it. But some general remarks may be made.

When the employer does not hold in the social scale a place very widely distant from that of the employed, and when his work is mainly somewhat of a routine kind, the wages of superintendence will in general be most conveniently reckoned with other wages: and the net produce will be divided into interest on capital, insurance, and wages, including wages of superintendence.

On the other hand the net produce will be most conveniently divided into trading profits on capital (including wages of superintendence), insurance, and wages of labourers in cases in which the employer is of totally different social rank from the employed; particularly, when as often happens, his knowledge and skill are not technical and special but consist rather of those requisites which are necessary for organising on a large scale. Such a man can pass lightly from one employment to another and thus differs in almost all important matters from a skilled labourer. Practically the supply of any kind of skilled labour is at anytime limited: and on an extraordinary demand for it occurring this demand can be equated to the supply only by a very great rise in price. But the labour of such an employer is rapidly transferable from one kind of production to another, just as, with some exceptions, his capital is: and therefore the remuneration for the labour is more conveniently classed under the head of ‘trading profits on capital’ than under that of wages.

⁴ *Economics of Industry*, p. 136.

The above distinction lies on the surface: but it will be found that it is supported by considerations of a somewhat more abstruse character.

A wealthy man may employ his capital in production himself; or he may lend it to others to be so employed. To the latter course he is urged by a large number of considerations of personal comfort, direct and indirect. In general nothing but the prospect of gains considerably larger than the interest which he would obtain for his money by this plan will induce him to adopt the former course. And as a large number of wealthy men do adopt this course we are led to expect that the difference between the returns to his capital which he would get in the two methods is much greater than the wages which would have to be paid to a person of equal business ability, but compelled to work for his livelihood, as a remuneration for doing the work that he does. And on investigation we shall find a reason for its being greater.

A manufacturer employing his own capital in production has only one risk to guard against, the risk that his operations will not be successful. But a man who borrows money in order to carry on the same process of production has to pay the person who lent it a rate of interest sufficient to compensate him for the risk of losing it not only, as in the previous case, in consequence of the failure of the best endeavours of the manager of the business, but also in consequence of his negligence, or of his undue extravagance, or even of some more open form of dishonesty on his part. In short such a man has to pay insurance not only for such sources of failure as are inseparable from the business, but also for errors which the lender may have made in forming his judgement with reference to the [borrower's] business capabilities (including various kinds of mental faculties, technical knowledge, trade connections, steadiness of purpose and strength of will, power of sustained work and liking for it, health and probable duration of life, habits of economy and forethought, power of getting on well with those with whom he is brought into contact, whether workmen or traders etc.) and to his honesty of character. And here the word honesty must be used, as above indicated, in a very extensive sense. A man who has a large business is always regarded as a wealthy man until he

fails. He lives in general in somewhat grand style and has all the present advantages of real wealth. If he should have a suspicion that his business is not a really profitable one, he ought to probe the matter thoroughly. But it requires a vigorously active, and unfortunately somewhat rare, form of honesty to do this thoroughly accurately. So many things have to be set off one against another, the calculations are so complicated, that for undergoing the necessary labour a very strong inducement is required: and there is every possible opportunity for laying unconsciously too much stress on some facts and too little on others, and thereby without any conscious dishonesty arriving at results which correspond more closely with the desires of the investigator than with the actual state of the case. If the whole of the capital with which he is trading had been his own, his interest in retiring from any undertaking that is really unprofitable would be so direct and so palpable that unless he be very weak minded his desire to arrive at the truth would prevail over every other impulse. But as it is, if he convinces himself that the business is unprofitable, the only course open to him as an honorable man will be perhaps to pass through the bankruptcy court and become for the time at least a pauper. It cannot be a matter of wonder that many people under such circumstances carry on for a long time a losing business without knowing that it is a losing business, when if the whole or the greater part of the capital employed had been their own they would have found out that it was a losing business: and, even if they are forced to confess to themselves a suspicion that the business is a losing one, they are led by the urgency of their desires to delude themselves into looking forward to a favourable reaction that will more than make up for their losses with a confidence of anticipation, which, though scarcely to be classed with direct moral dishonesty, partakes strongly of what has aptly been called 'intellectual dishonesty'.

It is however to direct dishonesty, though not in general dishonesty which can be legally proved, that the most extensive bankruptcies are in general due. If a man knows that by continuing in a certain course he may realise a large gain, but is very much more likely to incur an equally large loss,

he will often argue that the gain if it comes will rest almost entirely with him, the loss will pass almost entirely to those who have advanced money to him. Some men would as soon fail for £100,000 as for £1000: and knowing that whatever capital of their own was invested in the concern had been already lost would be ready to pursue any course which holds out the faintest hope of ultimate success without caring to consider the damage which may be inflicted on their creditors through its failure. Even where the fraudulence of such conduct can be legally proved the creditors obtain some satisfaction but no compensation for their loss.

The only safeguard against all these various dangers which the lender of money has lies in his personal knowledge of the man to whom he lends it. And this, slight as it is, is seldom forthcoming. Hence it is that bankers and other professional money dealers derive their positions as intermediaries between buyers and sellers: they borrow from those to whom they are known, either personally or by general reputation, and lend to those with the state of whose affairs it is their business to make themselves acquainted.

The manufacturer trading on his own capital after allowing for interest on it at the ordinary rate and insurance against the risks inseparable from the trade is enable[d] to retain for himself not only an adequate remuneration for his personal labour but that very large amount which his competitor trading on borrowed capital has to pay as insurance for these additional risks – ‘personal risks’, as opposed to trade risks proper they may be called – which we have enumerated. That portion of their profits which after allowing for trade risks is in excess of the ordinary interest for capital may then be divided into two shares. Firstly that which they both retain, which is the direct reward of their labour, and that which when convenient may fairly be classed for all purposes with other wages of labour: and secondly that which is retained only in the former case but which in the latter has to be passed on to those who supplied the capital. This second portion is in general classed under ‘wages of superintendence’ and is often the most important part of it. But it has very little in common with other kinds of wages; it resembles much more the extra profit due to improved modes

of production. It introduces a clear gain into one method of production as compared with another, just as the invention of the safety valve introduced a clear gain into processes of production in which steam engines were employed. This portion of the ‘wages of superintendence’ has indeed to be paid by the consumer in either case, but in the latter case it is as much lost and destroyed without benefit to anybody whatever as was the capital necessary to replace exploded steam engines before the invention of the safety valve.⁵

And in general it is when this portion of the ‘wages of superintendence’ is most important that it will be found convenient, if we are to treat wages of superintendence as a whole, to class them with profits instead of with wages. And it will be seen that this division corresponds very closely with that which we gave at the commencement of the discussion.

A man then who has capital and who is willing to superintend the employment of it himself is able to obtain a very high remuneration for it and if the business in which he engages be a disagreeable one, and one in which he is not likely to be driven hard by the competition of those working on borrowed capital, the extra remuneration may be so great as to be quite disproportionate to the extra wages which would be due to the mere disagreeableness of the employment. In general the extra remuneration, which a highly skilled and educated man must be paid if he does disagreeable work over that which would suffice if his work were agreeable, is much greater than the extra remuneration of an ordinary man in a similar case. But as it is wholly due to the faculties of the man it is all properly designated wages. But when this extraordinary remuneration is due to the fact, not that he is a man possessing uncommon qualities, but that he is one of a limited number who possess the wealth necessary for a particular occupation and are yet willing to do disagreeable work; when it is due more to what the man has than to what he is, it is more appropriate and in general more convenient to class it with profits than with wages.

⁵ [This seems, inappropriately, to confound a transfer from consumers to lenders with a using up of real resources.]

The following numerical illustration will show how it is that such extra profits are realised. It is probable that in general butchers and bakers trade mainly on their own capital and that they are men of somewhat similar abilities and their trades subject to about the same amount of risk. Regarded therefore as mere wages the remuneration of the butcher and baker on a large scale, owing to the alleged disagreeableness of the butcher's occupation, ought not to differ much from that between the remuneration of the butcher and the baker on a small scale. But, subject to certain limitations, the butchers on a large and on a small scale will buy at the same price and sell at the same price and therefore have the same rate of trade profits, approximately, say 30 per cent. So will the bakers: let it be for them 20 per cent. Let there be a butcher and a baker each trading on a capital of £5000: their incomes will be £1500 and £1000 respectively: the difference being £500. And let there be a butcher and baker each trading on a capital of £500. Their incomes will be £150 and £100 respectively: the difference being £50. In such a case it appears better to say the butcher on a large scale receives high trade profits, than that he receives high wages. It may be said that owing to considerations such as those brought forward by Adam Smith in his chapter on the profits of stock in different employments,⁶ the rate of trade profits of the tradesman on a small scale must in general be larger than those of the tradesman on a large scale in the similar trade. This may be admitted as weakening but not as destroying the force of the above illustration.

Before leaving the subject it is worth while to say a few words on the bankruptcy laws. They no doubt often shelter those who have dishonestly speculated with the capital of their creditors. This is an evil, to some extent inseparable from them. But whatever faults they have in detail their general principle must be maintained. Columbus speculated: had he perished he would have been the chief loser: nay; had records of his adventure been retained the world might even have gained in spite of his failure. As it is, the whole world has shared in the fruits of his success.

⁶[*Wealth of Nations*, Book I, Ch. X.]

Every new adventurer who endeavours to strike out a new line of trade or a new method of production starts on an enterprise in some way similar to that of Columbus. If he succeeds, he pioneers the way for others, and derives but a very small portion of the whole benefit which accrues to the world from his discovery. If he fails, the world has profited by his experience: but under the old laws for debt, he would languish the rest of his days in a dungeon. Such a treatment if not absolutely necessary is ungrateful, unjust, and impolitic – impolitic because it deters others from pursuing a similar course, and because it deprives the world of the aid of a man who if free would be likely to renew his old undertaking, avoiding his old errors.

The purposes of the patent laws are in many respects the same as those of the bankruptcy laws: but the harm done by them probably bears a much greater proportion to the good than is the case of the bankruptcy laws.

II.6 Capital

This Section contains a pair of notes on J. S. Mill's propositions on capital, and a collection of four short fragments on fixed capital.

II.6.1 Two Notes on Mill's Propositions on Capital

Introduction Of J. S. Mill's four 'Fundamental Propositions Respecting Capital',¹ the first and fourth ('That industry is limited by capital', and 'Demand for commodities is not demand for labour') remain the most obscure and controversial. Marshall's interpretation is given in the following notes. The one on the first proposition is brief, but the note on the fourth proposition is a careful critical dissection, similar in many ways to that undertaken by G. H. Darwin in his 1873 article '*Commodities versus Labour*'.² Marshall shows himself thoroughly at home in expounding and criticising Mill, but the most noticeable feature of his treatment is its willingness to accept Mill's general framework. A summary of the arguments of each note is incorporated in

¹ J. S. Mill, *Principles of Political Economy*, Book I, Ch. V.

² *Contemporary Review*, Vol 22 (Oct 1873) pp. 689–98.

Appendix J of Marshall's *Principles* on 'The doctrine of the wages-fund'.³

The notes appear to have been written on separate occasions, the octavo manuscripts (of two and thirteen pages) being incorporated among other notes on previous authors, all of which appear to have been written at an early stage of Marshall's economic studies.⁴ Their date of composition must remain uncertain, but anything much after 1870 seems improbable.

Text

1 [On Mill's Proposition I on Capital]

Industry is limited by capital. This does not mean that when it is known how much capital there is in a country, it is known how many labourers can find the means of support there. If all capital consisted of labourers' necessaries this would be true. It would also be true if the ratio of the amount of capital – whether circulating or fixed – which was required in order to set a labourer to work were fixed. But, as Mill says, industry never comes up to the limit of the greatest amount which the capital in the country could support if the whole of it, or even as much of it as is practically possible, were

³ *Principles I*, pp. 822–9, *Principles II*, pp. 821–2. See also, *Economics of Industry*, Book I, Ch. III on 'Capital'. It is of interest to note that this chapter of the *Economics of Industry* remains strictly within the Millian framework except for discovering the following loophole.

If the efficiency of labour were to be doubled by a magician's wand, while the material capital in the country were unchanged there would be a great immediate rise in the real wages of labour . . . The stores of capital already in existence would be distributed among the labourers more rapidly than they would otherwise have been; and the increased efficiency of work would speedily replenish the diminished stores. The fact is that increase in the efficiency of labour would really lead to an increase in the supply of capital.

He then observes that 'The overstrained interpretation of the proposition – Industry is limited by Capital – has caused many errors' noting that these 'chiefly appeared in various forms of what has been called the "Wages fund theory"' (*Economics of Industry*, pp. 16–17.) Marshall noted the implications of this loophole for the wages-fund theory in Book III, Ch. VI, § 4 of the *Economics of Industry* and then proceeded to drive through it the 'coach and horses' of the marginal-productivity theory of distribution. The loophole was widened and strengthened in the 1885 paper on 'Theories and Facts about Wages' and in the 1888 reply to Macvane (see *Principles II*, pp. 598–614, 822–7).

⁴ See Section IV.2 below for further extracts from these notes.

pressed into the service of providing labourers with the means of support.⁵ What is meant by the proposition is that unless it can be shown that a certain change increases the total amount of capital in a country or diminishes the amount which is occupied in other ways than as wage capital, the change cannot increase the means of supporting industry. For instance it is a fallacy to assert that industry can be promoted (directly) by creating an artificial demand for a commodity, through the prohibition of its importation, through wanton destruction of it or in any parallel way.

2 [On Mill's Proposition IV on Capital: Demand for Commodities is not Demand for Labour]

The only effective demand for labour is that which is accompanied by capital to support it. An extra demand for labour can be made by a person who applies to the support of labour wealth that would otherwise have not been so employed as for instance when the owner of hounds causes them to be destroyed and the meat which he would have given to them to assist in supporting extra labour.

But such cases are rare and unimportant. The only other mode in which an extra demand for labour can be made is by causing capital to be produced instead of non-capital i.e. [instead] of commodities of which the sole benefit consists in the pleasure which they directly afford. The object of Mill's fourth proposition is to protest against the mistake that demand for labour can arise in any other way. Thus it is a mistake to think that it can arise from the destruction of anything; the capital which is employed in replacing the thing must be withdrawn from some other occupation.

Again the adoption of a mode of production of anything in which an unnecessarily great expense is incurred does not increase the demand for labour. It simply occasions the withdrawal from some other occupation of a capital which would have employed the same amount of labour as is occupied in this production. In this as in the former case (of which it may indeed be regarded as a special instance) the whole number of labourers employed is not increased, and if as will

⁵ [*Principles of Political Economy*, Book I, Ch. V, § 2.]

in general be to some extent the case the capital has been withdrawn from an employment in which it would have increased the funds available for the support of labour, there will in the future be less demand for labour than there otherwise would have been.

In the same way again any person who spends money extravagantly in one place can do so only by withdrawing from some other place capital which would otherwise have employed labourers there. If he withdraws capital from supporting productive labour and applies it to supporting unproductive: if for instance he withdraws capital from a coal mine and expends it in luxuries, he causes the demand for labour to be less in the future than it otherwise would have been. In all these cases the increased demand for labour 'which people see' as a result of increased expenditure in one place is accompanied by an equal falling off which they probably 'do not see' of the demand in another place. It is extremely important that it should be pointed out as it is in Mill's fourth proposition 'that man does good to labourers not by what he consumes himself but by what he does not consume'.⁶

But he speaks of 'demand for commodities' and does not appear to state distinctly what he means by the phrase. He regards demand for labour as implying effective demand i.e. demand which supplies the means for carrying on the labour. But he does not regard 'demand for commodities' as implying the supply of capital by which they are produced. He does not mean that the person who causes the demand for commodities orders them to be made and pays for them at once. If he did this the capital which he handed on to the manufacturer would at once be devoted to employing labourers in just the same way as if he superintended himself the production to which it was devoted. The manufacturer would act merely as his foreman and paymaster, and in this sense the term 'demand for commodities' is convertible with the term 'demand for labour'.

⁶ [J. S. Mill, *Principles of Political Economy*, Book I, Ch. V, § 9, p. 83. The correct quotation is: 'that a person does good to labourers, not by what he consumes on himself, but solely by what he does not so consume'. This illustrates Marshall's loose style of quotation which will from now on be corrected without notice unless the discrepancies are significant.]

There is another sense in which the term 'demand for commodities' may be employed. It may mean the buying the commodities which the manufacturer has made for the general market without reference to any particular order, and which he offers for sale. Mill admits that if the commodity would not have otherwise been sold i.e. if there had not been an implied though indirect order for it, the manufacturer's wealth which was before locked up in the commodity would be converted by the sale into capital with which he could employ labour. If the phrase be used in this sense he admits that demand for commodities would cause demand for labour. He points out very rightly that in this case the value of the commodity is transferred to the manufacturer and at once increases the stock of capital with which he is able to employ labour. Mill must therefore refer only to the case in which the consumer orders the thing to be made but does not supply the capital with which it is to be made. We will then investigate this case. To fix the ideas we shall make an assumption which will not alter the real nature of the problem, viz. that the whole process of manufacture is conducted in one establishment and occupies say a year. Suppose that the consumer gives the order for the commodity on 1 January, 1870. He does not thereby enable the manufacturer to employ during 1870 more labourers than he could otherwise have employed. This the manufacturer can do only by borrowing i.e. subtracting from some other employment. He does not by demanding the commodities in this way cause any additional demand for labour. Demand for commodities is not in this sense demand for labour. But when this is pointed out there is a very great tendency to overlook the all important fact that the [buyer's] capital which was to pay for the commodities would not be withdrawn from its occupation till the end of 1870. We say withdrawn from some other occupation for of course it is not lying idle; if he is not employing it himself he has lent or invested it; that is he has made it over to someone else to employ it for him.

If however instead of ordering the commodity he had hired labourers to dig a trench he would have had to withdraw the corresponding capital from some other employment at the beginning of 1870 and *thereby have diminished in one*

direction the number of labourers employed during the year as much as he increased it in another.

~ This then is the last remaining interpretation of the phrase 'demand for commodities' and with this as with the others the labourers have been shown to have no interest in the question *per se* whether the consumer demands commodities or labour.

If however as an *incidental* consequence of the change in his mode of expenditure from hiring labour himself to buying commodities he abstains from consumption for any time and causes the labour which would have been devoted to satisfying his own pleasure to be meanwhile employed in creating the means of further production, then by this temporary abstinence he benefits labourers. The assumption that he does so abstain is a perfectly gratuitous one and not in any way connected with the change in question.

We proceed to a detailed analysis of Mr Mill's position in which we shall show that in investigating this change he tacitly assumes such an abstinence and such a productive employment of the corresponding capital during his abstinence.

To begin with it may be remarked that when he supposes 'a fund ready to be laid out in buying velvet, but no capital to establish the manufacture'⁷ he shows only that velvet makers will not be employed. The fund will not be wasted, it will be employed in some other form.

But to pass to the main illustration a person who had been in the habit of hiring labourers to dig trenches orders velvet [on 1 January 1870 to be delivered 31 December 1870]. Thus in 1869 he had hired navvies, and in 1870 he hires none. 'They go without the necessaries' but he has the velvet.⁸ Granted: but had he continued his old course he would have had to withdraw from some other mode of employment the capital to pay the labourers their weekly wages during the year 1870. As it is he allows it to remain in some other employment during the year. Of course it does not lie idle. And as he is not supposed to increase his total expenditure this employment must be productive i.e. one in which the capital is replaced by the end of the time. During the year it has

⁷ [Ibid., p. 79.]

⁸ [Ibid., p. 81.]

employed, not perhaps navvies, but other labourers just as much as if he had hired labourers himself. And at the end of the year it has reproduced itself and supplies the capital which he then withdraws and with which he pays for the velvet. (We are indeed able to indicate how it would in general be employed during the year. He has thrown on the loan market capital which on the other supposition he would not have left there: the velvet maker in consequence of the extra order wants to borrow extra capital. And the general result would be that indirectly this capital would supply the wages of the velvet makers.)

Mill next takes the same case with the change in the reverse direction. 'The consumer has been accustomed to buy velvet {i.e. he has paid at the end of 1868 for the velvet made in 1868, at the end of 1869 for the velvet made in 1869}, but resolves to discontinue that expense, and to employ the same annual sum in hiring bricklayers'.⁹

But when is he to hire them? He may determine to employ them, but the point is he *cannot* employ in 1870 without withdrawing from some employment, in which but for the change it would have supported labour, the capital necessary for it. Mill does not mean him to do this; for this would of course throw out of employment exactly as many labourers as it furnished employment to. But he assumes probably unconsciously that during 1870 he has no velvet made for him and no ditch dug for him; that he abstains altogether from unproductive consumption during the year and that at the end of the year 1870 instead of paying for velvet made to his order during the year he devotes the capital which he then receives to employing bricklayers or navvies during 1871.

Supposing him to have done this it is perfectly true that in 1871 there will be a double fund seeking employment: the velvet maker if he employed his own capital will have his capital free for some other purpose as Mill points out:¹⁰ and if he had borrowed it he will have returned it to its owner to be used, or lent to someone else. And besides this there will be a fund from which the consumer in question can pay navvies or bricklayers. With this assumption the labourers

⁹ [Ibid., p. 81. The interpolation in { . } is Marshall's.]

¹⁰ [Ibid., p. 82.]

have gained by the change. But they have only gained because of his abstinence from unproductive consumption during 1870. If Mill had confined himself to stating that whenever a person for any reason whatever abstains for a period from unproductive expenditure: if the capital which would have been devoted to providing the means for it is employed productively, the labourers benefit thereby, he would have stated only what is strictly true, and what is rescued from being a truism only by being continually ignored even by intelligent people. It is indeed this position which he has distinctly stated.¹¹ And he goes on to lay down a perfectly accurate illustration. If at any time say the end of 1870 a man buys workmen's necessaries instead of velvet (it being understood that in either case the things he so buys are made according to order) he benefits workmen thereby. In the case supposed 'I have... postponed my consumption, and have turned over part of my share of the present produce of the community to the labourers.'¹²

This is perfectly right. The question whether Mill ever meant anything other than this is perhaps an open one. But it is certain that he has laid himself open to serious misunderstandings which it was necessary to correct. And if he had this meaning always clearly in his mind it is difficult to account for the following passage. In the fourth proposition it was shown

that funds expended unproductively have no tendency to raise or keep up wages, unless when expended in the direct purchase of labour. If the Government took a tax of a shilling a week from every labourer, and laid it all out in hiring labourers for military service, public works, or the like, it would, no doubt, indemnify the labourers as a class for all that the tax took from them.¹³

It would not so indemnify them for if they had kept it they might have employed it in hiring one another and thereby have obtained the proceeds of the work which as it is the Government obtains and probably consumes on military

¹¹ [Ibid., p. 83-4.]

¹² [Ibid., p. 84. The stress is Marshall's.]

¹³ [Ibid., p. 829.]

works. If they had done this they would obviously have been better off than on the other arrangement. And if they chose to consume it at once this shows that they preferred to do so to having their enjoyments delayed.

II.6.2 *Four Fragments on Fixed Capital*

Introduction These fragments also show Marshall working very much within the framework inherited from Mill and the classical school. The line of thought flows directly from Mill's chapter 'On circulating and fixed capital',¹ where the seeds of Fragments 1 and 2 obviously lie. Fragment 2, which is rough and has been condensed, is incorporated mainly because it gives the background for Fragment 3. Fragments 3 and 4 are of some interest in showing Marshall's early grasp of the principles governing investment in fixed assets. Fragment 4, in particular, gives a general and valid method of deciding whether a given project should be undertaken at various levels of the interest rate.

Precise dating is again impossible, but any date of composition much after 1870 seems unlikely.²

Text

1 [Fixed and circulating capital]

The distinction between fixed and circulating capital becomes prominent when [the following are considered]

- I The rapidity with which the supply of any commodity can accommodate itself to changes in demand is discussed. One of the conditions on which this depends is the rapidity with which capital can be applied to or withdrawn from the production of the commodity: or as is sometimes said on [the] comparative amount of fixed and circulating capital employed in it. In this, as in many analogous cases, the distinction between fixed and circulating capital has to be made somewhat arbitrarily and two things which differ from one another with reference to this point very widely will both be

¹ J. S. Mill, *Principles of Political Economy*, Book I, Ch. VI.

² All the octavo manuscript fragments appear to be of similar vintage.

called fixed capital, while one of them may differ not very widely from something which is classed under circulating capital. For instance if it were proposed to give up the old work of a cotton factory and apply the building to some new purpose for which steam was not wanted, it would from this point of view be a matter of great importance whether the steam engines were movable, or were built into the building. So in the case of a farm, it would be of great importance from this point of view whether fixed capital sunk in a farm were in the form of drainage or of farm buildings of such a character that they could readily be applied to some other purpose. A definition framed to express this particular distinction would be different from one framed for case II.

- II It is considered how, the amount of capital employed being unchanged, the character of the things produced being unchanged, and the efficiency of the modes of production being unchanged, labourers are interested in the form which the capital employed assumes. In this connection it is said that the greater the circulating capital the better for the labourer. But he is concerned only in that portion of the circulating capital which is employed as wages. For him there is no distinction between the capital employed in producing the iron for a steam engine and that employed in producing the food of a horse who is to work for as many years as the steam engine would. Fixed capital in the shape of cottages is very important to him.
- III We say that the produce of any manufacture must replace the circulating capital consumed in making it, but not that of the fixed capital used.

The fact is that we cannot attempt to give a precise definition of fixed capital which shall always hold. We must regard it as a convenient abbreviation for some longer expression which must be supplied from the context. This is a disadvantage which can only be got over by the adoption of a more copious terminology. As a suggestion we might invent a word 'wage-capital' to denote that capital which is to be expended in

wages. We should then no longer say 'labourers are injured by the growth of fixed capital at the expense of circulating.' We may divide capital into 'movable' and 'immovable' as it can or cannot easily be applied to some different process of production to that for which it was originally intended. We thus leave only the third application of the phrase fixed capital and for this Mill's definition³ does well enough.

2 [Machinery: Note I]

It is indifferent to labourers whether a form of production be adopted which involves the use of £1,000,000 worth of additional machines or the locking up of that £1,000,000 in the form of tools, implements etc. which wear out in a year. There is no truth in the belief sometimes held that [labour is harmed by] the conversion of circulating into fixed capital, when it means the substitution of a machine lasting for ever for implements required to be replaced for each process of production (on the supposition that the capital employed on either plan is the same).

[This is illustrated by an example (very much like Fragment 3) showing that, with total capital constant over time, wage capital (i.e. the wages fund) must be the same, whether a fixed amount per period takes the form of machines or less durable implements. In either case, the wage capital per period is less than it would be with a completely-manual process of production, for which all the capital is wage capital.]

If the introduction of the machine is really an improvement [over the manual process] we have to add an extra sum [to the return to the capitalist in each year]. If additions to the wealth of the capitalist cause him to add a finite fraction of such additions to his capital, while of these additions a finite fraction takes the form of wage capital, it is only a question of time when the fund subtracted from labourers' sustenance will be replaced. If profits do not rise, prices fall, and the labourers gain as consumers. Of course, a mean course would be pursued.

³ [Mill, loc. cit., pp. 91–2 defines circulating capital as that which 'fulfils the whole of its office... by a single use' whereas capital 'which exists in... durable shapes, and the return to which is spread over a period of corresponding duration, is called Fixed Capital'.]

3 [Machinery: Note 2]

Let a man employ a labourers: produce is $a(1+r)w$ [and] arw equals his profit which he consumes.

Let him make a machine (M) which lasts for ever with e labourers in (say) 1870. He has then at the end of 1870 $(a-e)(1+r)w + M$. He consumes arw and has therefore $(a-1+r \cdot e)w + M$ for '71.

In '71 he employs $(a-1+r \cdot e)$ labourers and the machine: in order that the machine may just be remunerative it is necessary that the produce then arising be

$$(a - \overline{1+r} \cdot e)w + arw = (a - e)\overline{1+r} \cdot w.$$

But now assume that the machine only lasts one year: then its produce (together with the work of $(a - \overline{1+r} \cdot e)$ men) must be $a(1+r)w$; i.e. $\overline{1+r} \cdot ew$ more than before.

If the machine lasts n years it must in '71 produce $(a-1+r \cdot e)w + arw + xw$ where

$$xw\{\overline{1+r}^{n-1} + \overline{1+r}^{n-2} + \dots + 1\} = xw \cdot \frac{\overline{1+r}^n - 1}{r} = (1+r)ew$$

4 [Machinery: Note 3]

Besides that portion of his capital out of which he intends to pay his private expenditure a capitalist has the means ($\equiv 400 \cdot a$) of employing 400 workmen, the produce of whose work he intends to accumulate. If r , $(1/5, 1/4)$ be the rate of profit he will at the end of two years have

$$400a(1+r)^2$$

i.e.

$$400a + 800ar + 400ar^2, \quad (576a, 625a)$$

Shall he during the first year occupy 40 men one year on making a machine which will employ 20 men to work it during the next year, will be worn out in that one year, and will give produce b (say $85a$)? If so he will have at the end of the first year the machine together with

$$360a(1+r), \quad (432a, 450a)$$

At the end of the second he will have⁴

$$(360ar + 340a)(1+r) + b, \quad (494.4a + b, 537.5a + b)$$

and making the machine will have been a gain if

$$340a + 700ar + 360ar^2 + b$$

be greater than

$$400a + 800ar + 400ar^2$$

i.e. if b be greater than

$$60a + 100ar + 40ar^2, \quad (81.75a, 87.5a)$$

Thus the greater r be, the greater must be [the] advantages in production of machinery to induce the capitalist to employ it.

II.7 Rent

Marshall's early rent theory was a separate strand in his thought, and is sufficiently detailed and comprehensive to justify the attempt to re-expound it systematically. Accordingly, the present Section differs from the others of this Part in having as its first Item a restatement of Marshall in modern dress, rather than a reproduction of his writing. Doing this has the advantage of obviating general editorial commentary in the later subsections, which contain, respectively, a treatment of 'Improvements in the Arts of Production ...,' an early Essay on Rent, and a discussion of 'Tithes'. The manuscript on 'Improvements ...' may be dated tentatively at 1869, the others probably a year or two later. The most comprehensive manuscript is that on 'Tithes', but the others go further on certain points.

II.7.1. *An Exposition of Marshall's Early Rent Theory*

Marshall's formulation runs in terms of producing the homogeneous commodity 'corn' by applying a variable number of homogeneous 'doses' of combined labour and capital to a given area of land. The simplest conception of a dose imagines that labour (including the cultivator's own labour), seed, etc.,

⁴ [This result can be seen more readily by writing it as $\{360a(1+r) - 20a\}(1+r) + b$.]

have to be applied in fixed proportions at the beginning of the harvest period. Assume that money is of fixed purchasing power or, in line with Marshall's early treatment of value, that prices are expressed in terms of 'commodities in general'.¹ The prices of the inputs and the application scale representing a dose being given, the outlay required to purchase a dose is thus determined. This outlay may be referred to as a 'dose of capital', investment being involved because of the need to wait till harvest time before any output appears. Each such dose of capital will be just 'remunerative' if it earns the going rate of interest or profit over the period of investment.

For expositional purposes, assume that a dose involves applying one unit of labour, and that the harvest period is a full year. Then if w is the given wage rate, and r the given interest rate, the outlay required to purchase a dose is w and the least value which must be returned at harvest time to justify the application of the dose is $w(1+r)$. In this simple case, the number of doses applied equals the number of workers used, but, more generally, the relation is one of proportionality, not equality, and involves the joint application of other inputs besides labour.²

Let the marginal yield to the x_i th dose on piece of land i be $y_i = f_i(x_i)$ and let y_i always decrease as x_i increases. If p , the price of corn, is given, the most profitable number of doses, \bar{x}_i , is defined by the marginal condition

$$pf_i(\bar{x}_i) \equiv w(1+r).$$

Then, the monetary surplus, S_i , defined as the value of the harvest less the amount necessary to repay with interest the capital invested, is $pY_i - \bar{x}_i w(1+r)$ (where Y_i is the total output of the piece of land i) or equivalently

$$S_i = p \left[\int_0^{\bar{x}_i} f_i(x_i) dx_i - \bar{x}_i f_i(\bar{x}_i) \right]$$

¹ See Item II.2.1 above.

² In the early Item IV.3.1 below, where Marshall develops this approach, he defines $w(1+r)$ rather than w as the 'lot' of capital. In the *Principles*, too, he seems to suggest that a dose of capital should include the interest chargeable to it. (See *Principles I*, p. 171, *Principles II*, p. 285; but, to contrary effect, see *Principles I*, p. 154, and also *Economics of Industry*, p. 81.) Introducing the required interest does deal more simply with cases where all inputs are not applied at the same date.

This surplus represents the competitive *money rent*, since free competition for the land by landlords and cultivators would drive rent to this level. (Of course, the rent remains notional for an owner-occupier.) The *corn rent* is the expression in square brackets. It depends only upon the technical properties summarised in $f_i(x_i)$ and the number of doses, \bar{x}_i , applied. Economic variables influence the corn rent only by helping to determine \bar{x}_i . Finally, *labour rent* may be obtained, if desired, by dividing money rent by the wage rate w , to express the surplus by its purchasing power over labour.

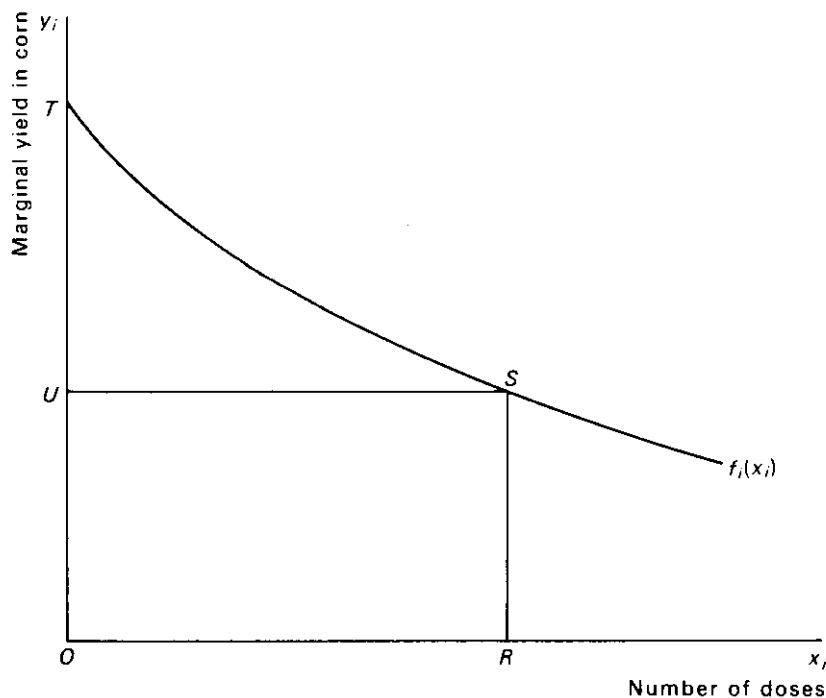


FIG. 1

The argument is illustrated in Figure 1. If OU is set equal to the predetermined value $w(1+r)/p$, the value of \bar{x}_i is given by OR , while $f_i(\bar{x}_i)$ is given by SR , total production Y_i by the area $OTSR$, and *corn rent* by the area UTS .

For fixed values of w and r , the total production, Y_i , from land i , and the number of doses, \bar{x}_i , applied to it, can both be regarded as functions of the price of corn, each increasing as p increases (and OU becomes shorter in Figure 1). Write these functions as $Y_i = Y_i(p)$, $\bar{x}_i = \bar{x}_i(p)$. Moving now to the aggregate situation, in which account is taken of all corn-producing land, aggregate production is $Y(p) = \sum_i Y_i(p)$ and the aggregate number of doses applied is $\bar{x}(p) = \sum_i \bar{x}_i(p)$. Observe that this implies an optimal allocation of the aggregate doses among the various pieces of land, and that $Y(p)$ and $\bar{x}(p)$ are both functions of p which must also increase as p increases. It is thus possible to synthesise an aggregate marginal-return schedule, $y = f(x)$, which will have the general properties of Figure 1 and will satisfy the identity

$$\int_0^{\bar{x}(p)} f(x) dx \equiv Y(p) \quad \text{for } p > 0.$$

The reader may readily establish that $f(\bar{x}(p)) = f_i(\bar{x}_i(p))$, for all i , and hence that $f(\bar{x}(p)) = w(1+r)/p$, so that the analogy of $f(x)$ to $f_i(x_i)$ is exact.

On the aggregate level, p cannot generally be taken as given, even if it is permissible to treat w and r as exogenous.³ It is necessary, instead, to determine simultaneously both the price of corn and the quantity produced. In a closed economy, for periods sufficiently short to take population as approximately constant, the aggregate demand for corn may be represented as a function, $D(p)$, of its price.⁴ The price of corn is determined in such circumstances by solving the equation $Y(p) = D(p)$. If corn can be supplied from abroad, according to the supply curve $S(p)$, the price-determining equation

³ A treatment of w and r as exogenous is arguable, since agriculture would normally be a sufficiently large sector for changes in the aggregate number of doses applied to affect the rest of the economy appreciably. Stigler might be taken as criticising Marshall on these grounds, but also seems to overlook that the price of corn is to be determined endogenously. (See G. J. Stigler, *Production and Distribution Theories: The Formative Period* (Macmillan, New York, 1941), pp. 90–91, footnote, where Appendix L of Marshall's *Principles* (especially *Principles I*, p. 835) is criticised.) Generalising to allow w and r to depend on the number of doses used in agriculture would create no essential difficulty.

⁴ See Item IV.4.6 below for Marshall's somewhat later mathematical statement of this.

becomes $Y(p) + S(p) = D(p)$. Shifts in the domestic supply function will have little influence on price or consumption if the foreign supply is elastic.

An improvement in cultivation which replaces every $f_i(x_i)$ by $\alpha f_i(x_i)$, with $\alpha > 1$ a common multiple, will replace the aggregate $f(x)$ by $\alpha f(x)$ and lead to a fall in price and a reduction in the intensity of cultivation of the different pieces of land.⁵ A tithe, which extracts a tenth of each cultivator's production, is equivalent to a 'negative' improvement with $\alpha = 9/10 < 1$, except for one difference. The exception lies in the fact that the recipients of the tithe are assumed by Marshall to return all their receipts to the market supply, thus converting the tithe into its equivalent in commodities other than corn. On Mill's assumption that an unchanged amount of corn is demanded, a tithe will therefore not change the cultivation of any piece of land and will raise the price of corn in the ratio 10:9. Money rent will be unaffected since the money value of production after paying the tithe is the same as before the tithe was imposed, while the cost of each dose is unaffected by the tithe.

In long periods, the level of population will be influenced by the price of corn. With w and r fixed (though the assumption can now only be justified for expositional simplicity)⁶ population growth will be induced as the price of corn falls. In the strong Malthusian case, population will be declining or growing as the price of corn exceeds or falls short of some critical level, p^* . Thus, even in a closed economy, if the period is sufficiently long for the population to adjust fully to any change in the circumstances of cultivation, the price of corn must always return to a fixed level, p^* . Marshall uses this assumption on occasion, but the bulk of his exposition deals with periods in which population is approximately constant.

The full details just expounded will not, of course, all be found in Marshall's own treatment, but there is nothing which is not at least hinted. On one point he goes further by

⁵ This is an improvement 'of the second kind' on Mill's classification: see Item II.7.2 below.

⁶ The reader should be able to see how a more general formulation could be developed, and that it is the ratio w/p which will be crucial in determining the standard of living of workers.

allowing the marginal return to a dose to increase with the intensity of cultivation over some intervals, arguing however that such 'bending back' is unlikely to be displayed by the aggregate curve. His discussion is somewhat obscured by the fact that investment in fairly long-lived improvements to the land, such as drainage, is often part and parcel of a higher intensity of cultivation.

An essentially similar exposition of rent was given in the *Economics of Industry*. The early theory also appears in the *Principles* – most noticeably in Book IV, Ch. III and Appendix L – where it sits rather uncomfortably with the quite different treatment of rent pervading Book V, a treatment which integrates rent much more closely into the general theory of value and distribution.⁷

The major sources for Marshall's early rent theory seem to be the writings of Mill, Ricardo and Carey. In this context, it is worth observing that Mill himself had outlined Carey's objections to the Ricardian rent theory to the effect that historically the least fertile ground was the first cultivated.⁸ For some relevant notes by Marshall on his readings of earlier writers see Items IV.2.3 to 6 below. For what is probably a very early attempt by Marshall at the formulation of his rent theory see Item IV.3.1.

II.7.2 'Improvements in the Arts of Production, Labour and Capital being Stationary'

Introduction This small-scale exercise criticises Mill's discussion of the effects of sudden improvements in agricultural technique in periods sufficiently short for population and capital to be taken as constant.¹ Mill considers two cases. An improvement of the first kind consists 'in a mere saving of labour' enabling food to be produced 'at less cost, but not on a smaller surface of land than before'. An improvement of the second kind enables 'land to produce, not only the same corn

⁷ Compare *Economics of Industry*, Book I, Ch. IV, and especially Book II, Ch. III; *Principles I*, especially pp. 153–65, 632–3, 833–4. For a suggestive extension of the early theory see Item IV.4.6 below.

⁸ See *Principles of Political Economy*, Book I, Ch. XII, § 3 (Book II, Ch. XVI, § 5 in the pre-1865 editions).

¹ J. S. Mill, *Principles of Political Economy*, Book IV, Ch. III, § 4, which is the source of the following quotations (from pp. 724–5).

with one-tenth less labour, but a tenth more corn with the same labour'. Marshall interprets the first case as one where the marginal-yield function $f_i(x_i)$ on each piece of land is replaced by $f_i(\alpha x_i)$ with $\alpha > 1$ a factor common to all land. He interprets the second case as one where each $f_i(x_i)$ is replaced by $\alpha f_i(x_i)$.² He accepts throughout Mill's assumption that a fixed quantity of corn is demanded and takes $\alpha = \frac{4}{3}$.

The propositions established are as follows.

(i) Improvement of first kind :

- (α) the production from each piece of land is unaffected, so that all corn rents remain unchanged,
- (β) the price of corn falls to three-fourths of its old level, as do all money and labour rents.

(ii) Improvements of the second kind :

- (α) the distribution of output over the various pieces of land will change: some pieces of land may produce more than before, and some may go completely out of cultivation,
- (β) corn rents, individually and in aggregate, may rise or fall,
- (γ) the price of corn must fall to less than three-fourths of its old level,
- (δ) money and labour rents must fall on all pieces of land, and in aggregate.

Although the proofs are not always pellucid, the reader should have little difficulty in establishing that Marshall's results are in fact correct. Some of the arguments, including the numerical illustration, are repeated in Appendix L of the *Principles*, where Marshall displays, by Mill's example, that

² Although a point of limited interest, it is arguable that Marshall misconstrued Mill. Let $F_i(x_i)$ be the total production from piece of land i before the improvement, and $G_i(x_i)$ that after. Mill's second type of improvement requires $G_i(x_i) \equiv (11/10)F_i(x_i)$ and also $G_i\{(9/10)x_i\} \equiv F_i(x_i)$, implying $(10/11)G_i(x_i) \equiv G_i\{(9/10)x_i\}$. Assuming that the difference between $9/10$ and $10/11$ was not meant to be significant, this implies output strictly proportional to the input doses. This would deny the existence of diminishing returns unless an upper limit \hat{x}_i to the number of doses applicable to land i were assumed. The inference to which this argument leads is that Mill worked with the special case $F_i(x_i) = \min [b_i x_i, b_i \hat{x}_i]$, which is certainly what he appears to assume in his numerical example.

'there is a class of economic problems which cannot be safely treated by anyone of less genius than Ricardo without the aid of some apparatus, either of mathematics or of diagrams'³ The arguments are also noted in Book II, Ch. III of the *Economics of Industry*.

The manuscript, of eleven pages octavo, is undated, but there is a strong suspicion that it dates from 1869. For it was in this year that the consideration of 'improvements in cultivation decided me to adopt curves as an engine.'⁴ The general appearance of the manuscript and the crudity of its conception and style certainly make such a dating plausible.

Text Mill considers two cases.⁵ In the first, three fourths of the capital (including throughout labour under capital) will produce as much as the old capital did. Thus taking the doses throughout all equal, after on the new plan thirty doses have been applied, additional capital can be applied so as to produce four thirds as much extra produce as on the old would have been due to an equal [incremental] amount of capital applied after forty such doses have been applied. Thus if to one farm it was before the change profitable to apply 8000 doses, and to another 12,000; they will each produce the old amount when on the new plan 6000 and 9000 respectively are applied. And since before the change the produce due to the 8000th on the first was equal to that due to the 12,000th on the second; after the change the produce due to the 6000th on the first will be equal to that due to the 9000th on the latter. Assuming (with Mill) that the same total produce is demanded after the alteration in its labour value as before, equilibrium is attained when each farm produces the same amount as it did before: since if this be done the returns to the last capital employed by any two farmers will be equal. This is the reason why no land will go out of cultivation.

For Mill's supposition must not be taken to mean that if under the new plan more than three fourths the old capital were applied to any given land, the amount in excess of this

³ *Principles I*, p. 836. Marshall also discusses in that appendix Ricardo's analysis of improvements in cultivation.

⁴ See Section I.2 above (p. 41).

⁵ Compare Mill, *Political Economy*, IV, Ch. III, § 4.

three fourths would have no returns at all. It would have returns: but it would have less than sufficient to remunerate it at the new value of corn. This point must be proved: not assumed. Mill's language, to say the least, is open to attack.

Since on each land three fourths the old capital will be expended and four thirds as much corn will be required to replace [each unit of] the capital with profits, the gross amount of corn required to replace the capital with profits will be the same as before: therefore the corn rent from each land will be the same as before. The labour rent is of course diminished by one fourth.

The reasoning in this case is so simple that perhaps less labour is required for following without, than with, a diagram. But for completeness it is well to give one (which may be omitted at option).

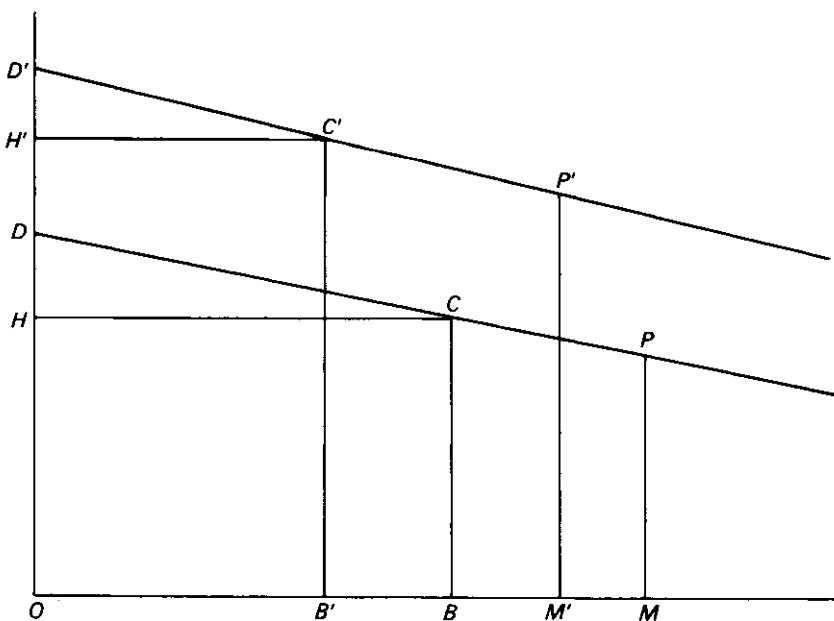


FIG. 1

[In Figure 1] DC is for any land the gross produce line, defined as usual,⁶ DHC the rent. MP is the produce due to a

⁶ [This allusion remains obscure.]

dose at a point M anywhere along the line OB . If then $OM' = \frac{3}{4}OM$, and $M'P' = \frac{4}{3}MP$, $M'P'$ will be the produce due to the dose of capital, applied under the new plan, corresponding to P' . In this way by taking a number of positions of M along OB we get a number of positions of P' which together form the new produce line. OB' being $\frac{3}{4}OB$, the gross produce $D'OB'C' =$ gross produce $DOBC$. $B'C' = \frac{4}{3}BC$. Cultivation ceases at B . $H'B' = HB$ [i.e. $H'OB'C' = HOBC$] and corn rent $D'H'C =$ corn rent DHC .

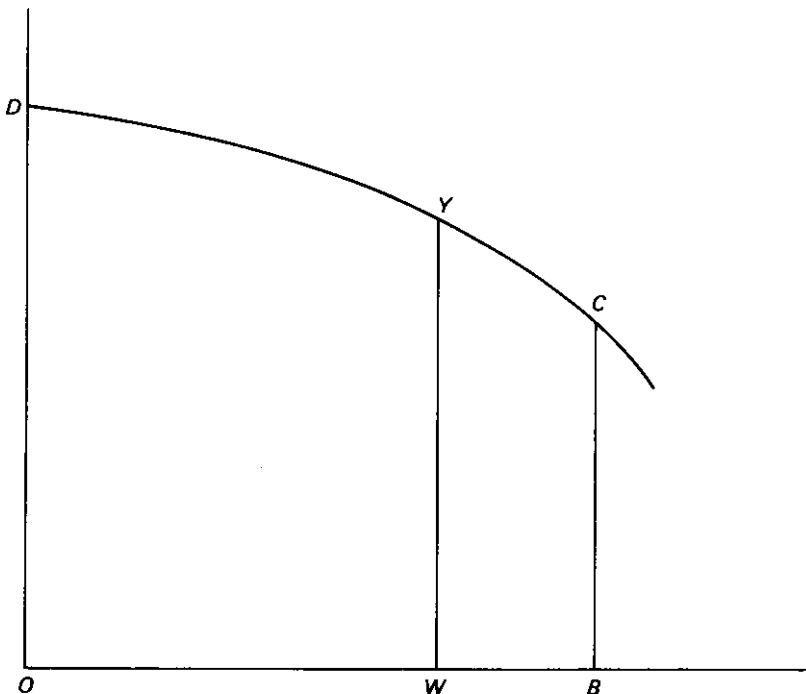


FIG. 2

In Mill's second case the produce due to each dose of capital is four thirds as much as it was before. But in any ordinary case [as shown in Figure 2] the produce $OWYD$ due to the application of an amount of capital OW which is three fourths of OB will be greater than three fourths of

*OBCD.*⁷ If then under the new plan three fourths of the old capital were applied to each farm the gross produce would be much more than under the old plan. But it does not follow that on no land will there be employed as much as three fourths of the old capital. On some lands more than three fourths will be applied; and on others much less.

To take a simple illustration. Suppose in a country all the land fell into one of three classes represented by [Figures 4, 5 and 6], *DC* being in each case the old produce line and *D'C'* the new one. The total produce would be the same as before the change when the returns to the last capital employed have risen in the ratio *OH'* to *OH* (in this case a greater ratio than that of four to three).

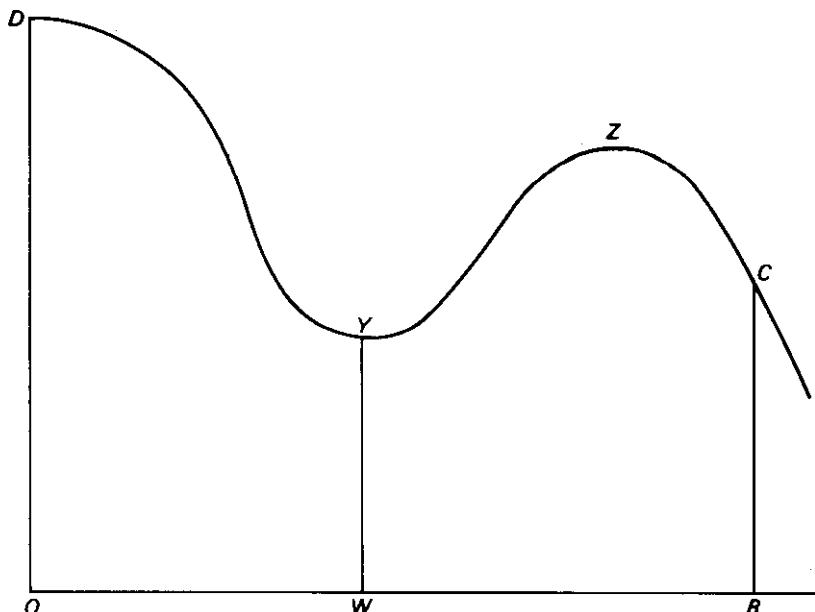


FIG. 3

⁷ We may for obvious reasons omit the exceptional cases in which the curve bends back. They are specially unimportant when we are considering a diminution in the amount of capital employed, because the improvement to which the loop *YZC* [in Figure 3] is due is often of a somewhat permanent nature.

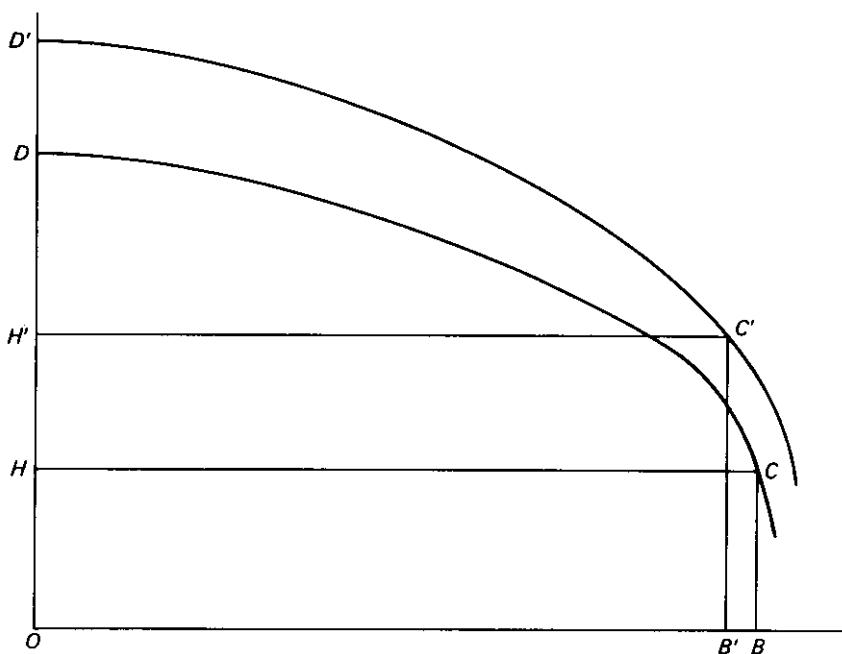


FIG. 4

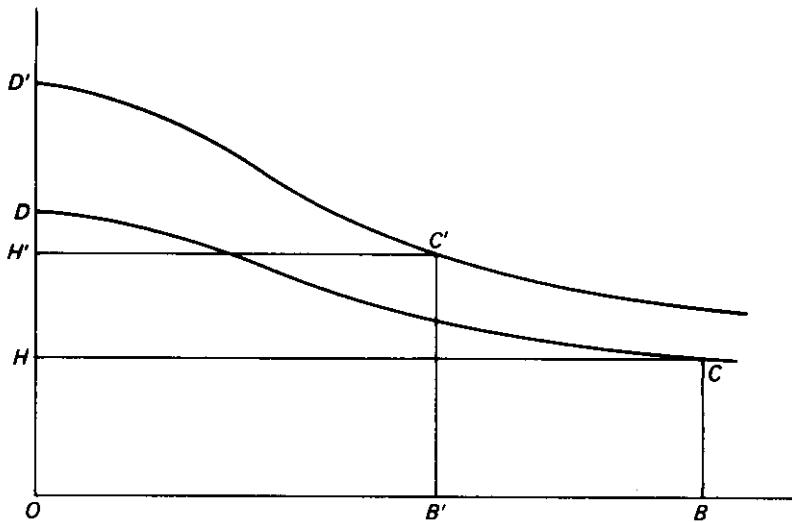


FIG. 5

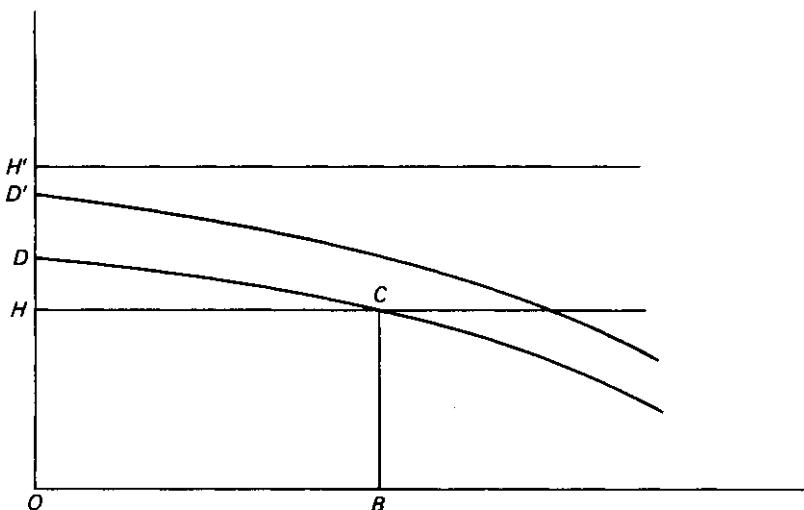


FIG. 6

In [Figure 4] but very little less capital is applied than formerly, the gross produce raised is very much larger than it was; and the corn rent is considerably increased. In [Figure 5] only about half as much capital is employed as before; and thus the gross produce and the corn rent are very much diminished; while [in Figure 6 the land] goes out of cultivation altogether.

Mill does not deny that the corn rent may rise on particular lands: what he says is that if the total produce raised in a country be unchanged, the total rents paid to all the landlords in the country estimated in raw produce cannot rise. This is however incorrect.

Let Figure [7] represent the circumstances of the whole country in the same way as similar curves have before represented the circumstances of particular pieces of land. That is, let OB represent the total capital applied under the old circumstances, $OBCD$ the total gross produce, and DHC the total net produce or rent. $D'C'$ is the new gross produce line such that every point on it is at a distance from OB equal to four thirds of the distance of the corresponding point on DC from OB . Production will be carried on till an amount

$OB'C'D'$ has been raised just equal to $OB\bar{C}D$ (i.e. $RB'BC = DRC'D$). The new total rent $D'H'C'$ is exactly $\frac{4}{3}DKR$: it may or may not be less than DHC . If RS is small so that DKR is nearly as large as DHC , then $D'H'C'$ is greater than DHC . That is, the total corn rent of the country has been increased. If RS is large the total corn rent has been diminished.

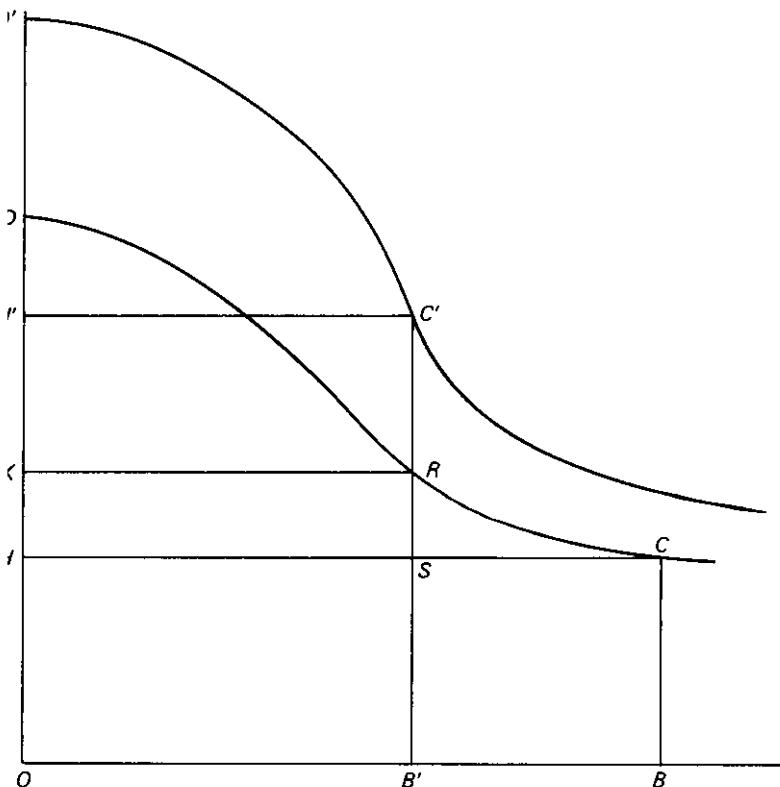


FIG. 7

RS is small if there is a large amount of capital employed on the cultivation of land in the country the gross returns to which are not much more than remunerative i.e. not much more proportionally than those to the capital which is applied to land under the most disadvantageous circumstances.

In a country of which this is true, and there are probably many such, even the immediate effect of an improvement in the arts of production will be to increase the total corn rents of the country. Thus [on] the most prominent point on which the Ricardian theory of rent gives results different from those of Adam Smith, the Ricardians are wrong. But Smith is not right. He says the landlords must [always] gain.⁸

The returns to the last capital employed must however have increased in a ratio greater than four to three. For the produce curve for the whole country cannot practically 'bend backwards' or even be a horizontal straight line. Therefore $B'R$ [Figure 7] is greater than BC , and $B'C'$ must be greater than $\frac{4}{3}BC$. Therefore corn must have fallen to less than three fourths of its old value when expressed in terms of capital, or as Mill says when expressed in terms of money.⁹

But $D'H'C'$ is less than $\frac{4}{3}DHC$.¹⁰ The new total corn rent is less than four thirds of the old: therefore the new total money rent is less than the old total money rent. And this is not only true for [Figure 7] which represents the circumstances of the whole country (or which is the same thing of a farm in every respect of an average character) but for any particular farm represented by [Figure 4]. In fact there is only one condition which [Figure 7] must satisfy from which [Figure 4] is free and that is that $RB'BC = D'DRC'$. And this condition does not affect the particular point under discussion.

Exceptions may be taken on numerous grounds to the numerical illustration which Mill has given in place of a proof of his proposition. It will suffice to give his figures and put below them in each case figures in brackets which satisfy his conditions and lead to a different result.

There are three kinds of land which return to the same given amount of capital the following numbers of bushels

⁸ [See *Wealth of Nations*, Book I, Ch. XI, p. 73, also *Principles of Political Economy and Taxation*, Ch. II, pp. 79–84. Also see Item IV.2.3 below. In Appendix L of the *Principles*, Marshall conceded that Ricardo's analysis of improvements was correct on its assumptions, which differed slightly but critically from Mill's (*Principles* I, pp. 834–6).]

⁹ Even though profits may have risen and therefore the labourer may not get as large a share as before of the produce due to his labour, it might be better to express it in terms of labour.

¹⁰ [$D'H'C' = \frac{4}{3}DKR$ but $DKR < DHC$, therefore $D'H'C' < \frac{4}{3}DHC$.]

respectively

100 (115)	80 (65)	60 (60)	gross produce	240 (240)
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Rents are

40 (55)	20 (5)	0 (0)	total	60 (60)
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After the change they produce respectively

133 $\frac{1}{3}$ (153 $\frac{1}{3}$)	106 $\frac{2}{3}$ (86 $\frac{2}{3}$)	0 0	total	240 (240)
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Rents are

26 $\frac{2}{3}$ (66 $\frac{2}{3}$)	0 0	0 0	total rent	26 $\frac{2}{3}$ (66 $\frac{2}{3}$)
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One set of figures makes corn rents sink. Another no more arbitrary, though perhaps not representing a case which so frequently occurs, makes them rise.

II.7.3 Essay on Rent

Introduction This essay contains many of the ideas reproduced in Book IV, Ch. III of Marshall's *Principles*. It also comes near to formulating his subsequent idea of demand elasticity, and concludes with an interesting discussion of the proposition that 'Rent does not enter into price'.

The first three pages of the twenty-three page octavo manuscript are unfortunately missing, but Figure 1 can fortunately be reconstructed from Figure 8, and little of substance seems to be lost. The manuscript is undated, but is similar in style and appearance to the *Essay on Value* (Item II.2.1 above). A composition date of 1870 or 1871 would seem probable.

Text The above results [illustrated in Figure 1, which relates to a single farm]¹ of course represent average results: the amount of rent to be paid will be calculated practically so that the tenant should on the average retain enough to replace

¹ [As explained in the Introduction, the first three pages of the manuscript are missing.]

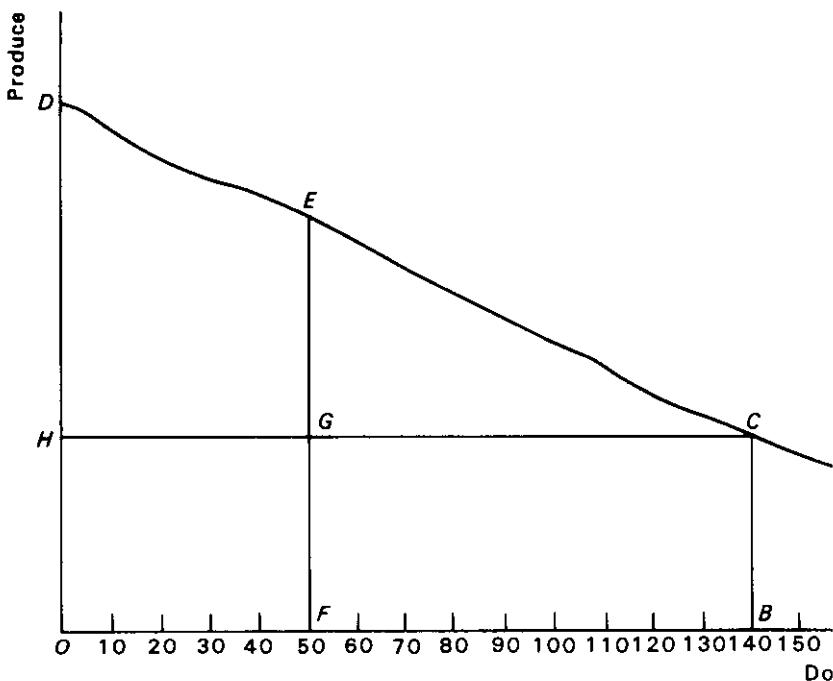


FIG. I

his capital with interest and profit. In some years the portion he retains will do more than this, in others less. But FE representing the *average* produce² due to the fifty-first dose, the rent will be accurately represented by the above calculation. In the same way the number 140 represents the *average* amount of capital which it is profitable to expend on the farm.

No difficulty is introduced by the consideration that some of the capital applied is not consumed in the course of a year. But only the remaining value of such an improvement at the end of the year must be reckoned in estimating the extra produce due to it.

There is indeed one difficulty which is not solved here and cannot be solved without a complete theory of value. The

² [Properly, the average over time of the increment of output due to the fifty-first dose.]

amount of the produce being given what is to decide how large a portion of this will be equal in value to the capital employed together with interest and profits?

With regard to the shape of the line *DEC*. All that we know about it for certain is that, in a given state of the arts of cultivation and a given state of population and the other conditions of social life, there is a given limit after which it will approach so near to *OB* that the produce indicated by drawing a line from a point on it perpendicular to *OB* would be insufficient to replace with interest and profits the corresponding dose of capital. In general moreover though its shape may be very irregular it will approach *OB* continually. This will not however always be the case: for it is possible that a considerable increase in the amount of capital employed may render possible an extremely lucrative improvement. And thus the curve may take such a form as that [in Figure 2]. The most remarkable results however will be obtained when such an

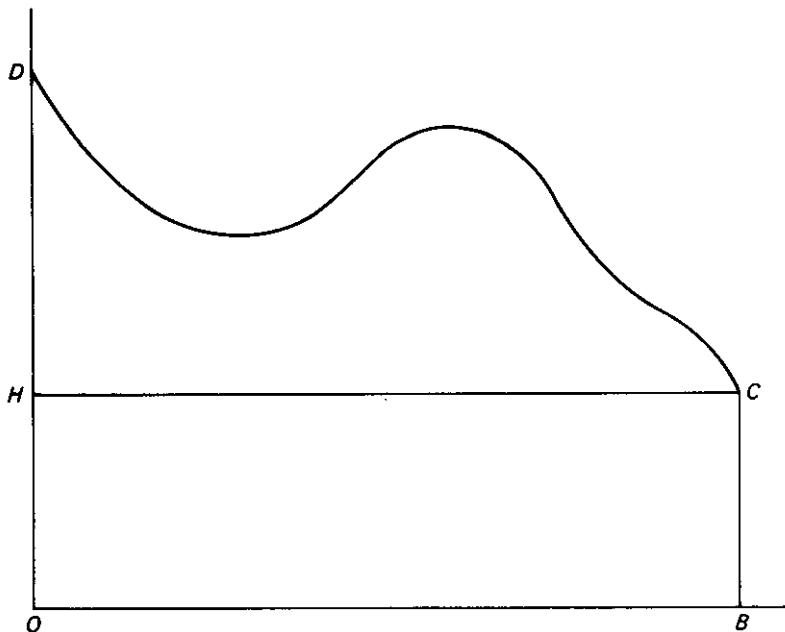


FIG. 2

improvement is capable of being applied if there be employed an amount of capital greater than OB [Figure 2]. It thus may happen that the line DC after passing C may lie below the straight line HC produced for some distance and afterwards rise again, cut it at K , lie above it for some distance and then sink again and cut it finally at L [as in Figure 3]. Let KM

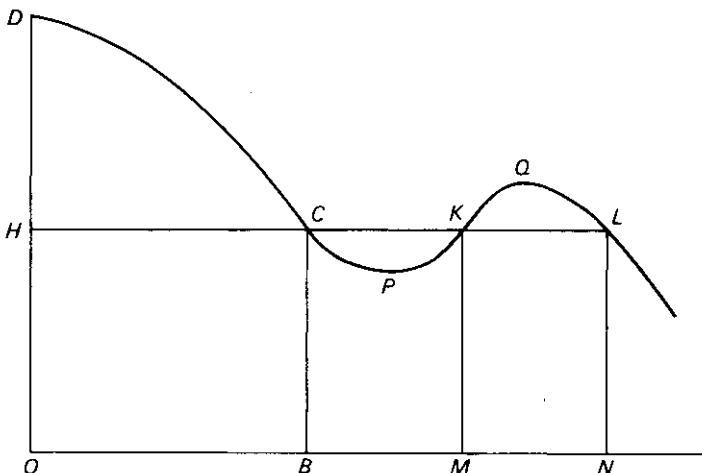


FIG. 3

and LN [Figure 3] be drawn perpendicular to OB produced. Then if an amount ON of capital be applied, the produce due to the share of capital BM will fall short of the amount required to replace it with interest and profit by the amount CPK : while that due to MN will exceed the amount required by the amount KQL . If then KQL be greater than CPK it will be profitable to employ the capital BN ; otherwise not.

In the former case the difference between KQL and CPK must ultimately be added to the rent paid to the landlord. For a considerable time however this portion of the rent might be retained by the farmer who had the enterprise to apply the additional capital because it might be difficult to find another tenant with the same enterprise who would submit to harder conditions. But the extra profit of high farming is sure in the long run to go to the landlord.

We may here obtain an illustration of the position so important in many new countries that the productiveness of any given land is a relative term so that of two farms the one which is able only to pay the lower rent of the two under a low system of farming will pay the higher under a high system. This case is represented by [Figures 4 and 5] where all the letters have the same signification as in [Figure 3].

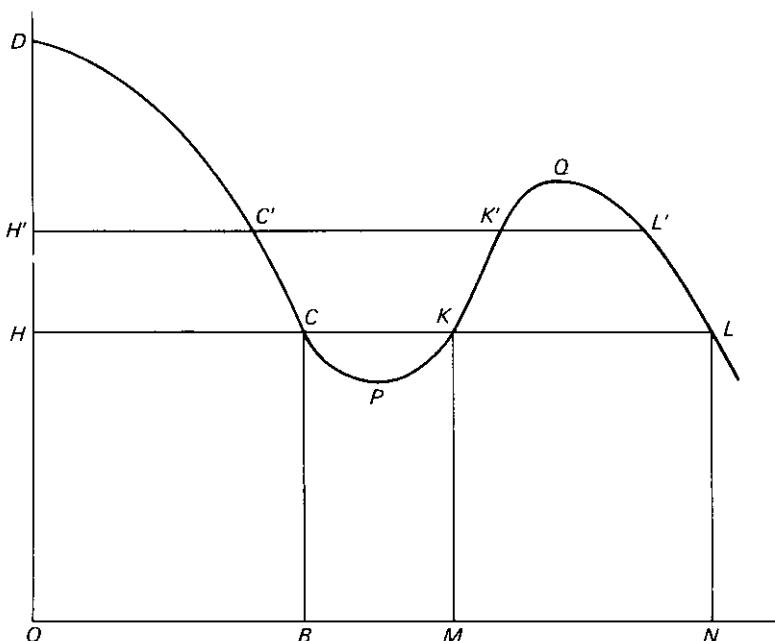


FIG. 4

[Figure 4] represents [the case] of marshy land which requires draining as compared with dry land [Figure 5] which is not capable of any sudden improvement.

But in new countries there very often exists sufficient enterprise for the undertaking of any improvement which will be ultimately remunerative. And thus even more important than these changes in the relative value of different farms are those which are due to a change in price of agricultural produce.

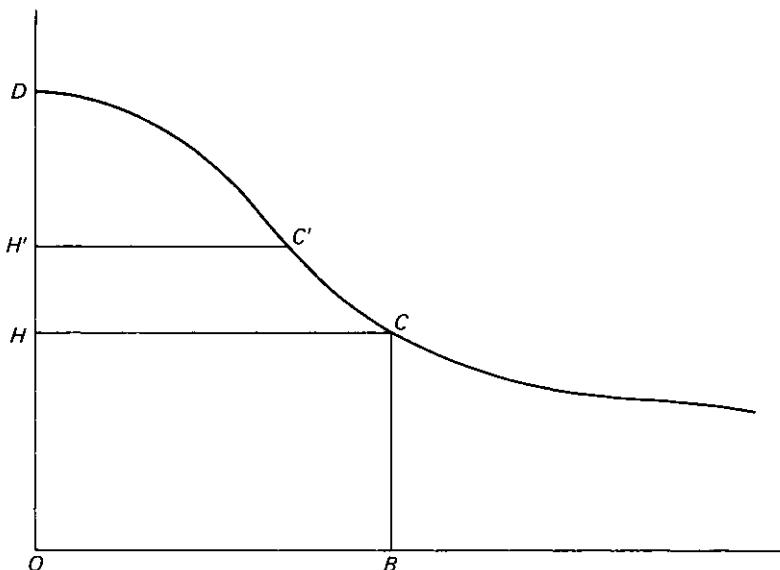


FIG. 5

We have a simple instance of this in Figures [6 and 7]. If the price of agricultural produce were such that an amount OH' were in each case required to replace with profits and interest the corresponding dose of capital the rent paid would be $DH'C'$ in each case: whereas if the price rose so that the amount OH would suffice, the rents would be DHC in each case. That is in the former case the land represented by Figure [7] would be the more valuable: in the latter that represented by Figure [6].

Again referring back to Figures [4] and [5] if the price had been such that an amount OH' was required to replace with profits and interest the corresponding dose of capital, it would not have been profitable to introduce the special improvement contemplated because the portion $C'PK'$ would have been greater than the portion $K'QL'$. The high farming would not have answered until the price had risen (that is OH' diminished) sufficiently to make $C'PK'$ equal to $K'QL'$: after this the rent payable for the farm represented in Figure [4] would gain on and soon pass that of the farm

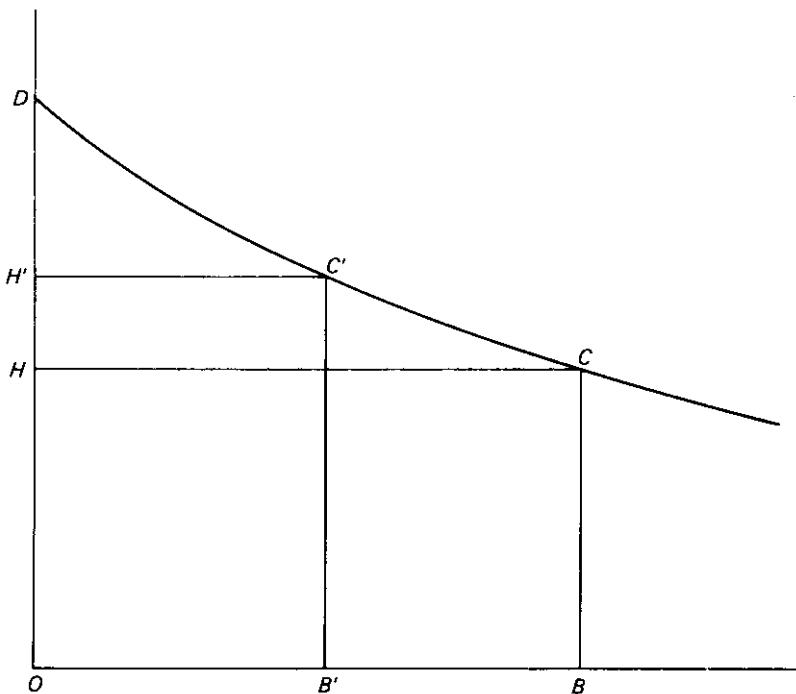


FIG. 6

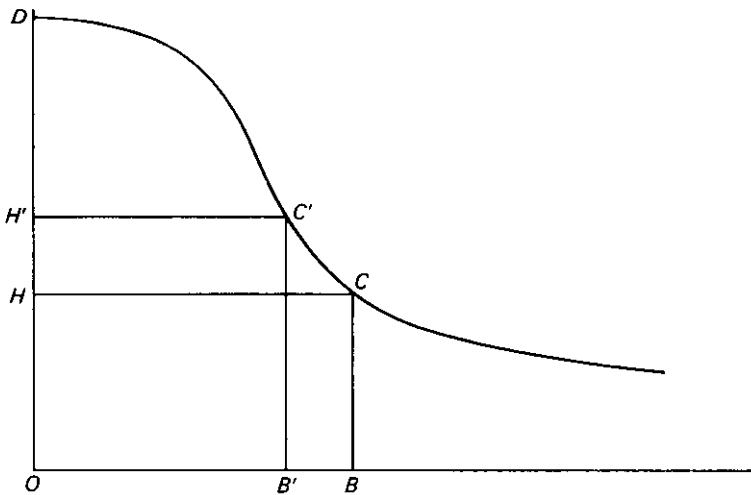


FIG. 7

represented by Figure [5]. The reverse would happen if the price of agricultural produce sank. That is, for lands which will give very good returns to very good farming but very bad returns to bad farming, the rents will very rapidly decline and perhaps before long vanish.

It will be seen that in our present account we have given an explanation of all the facts which Carey brings forward:³ while the dispute about the existence of lands in any country that actually do pay no rent is avoided: and no temptation occurs to adopt the awkward phraseology used by McCulloch and others⁴ about land paying rent because inferior land has been taken into cultivation.

We will now examine the consequences of a fall in the price of agricultural produce consequent on an improvement in the methods of production applicable equally to all cases. To fix the ideas let us suppose the produce doubled in all cases.⁵ Thus for the farm represented in Figure 1 we must take instead of *FE* a line twice as long and so throughout (Figure [8]). But as the price has fallen, a larger amount of produce will be required to replace each dose of capital with interest and profits. If the price is exactly half what it was before, twice as much as before will be required for this purpose: i.e. an amount equal to that represented by *FG* in Figure [8] where *FG* bears the same proportion to *FE* in Figure [8] as it does in Figure 1: and thus exactly the same amount of capital is employed as before. Thus *GE* in Figure [8] is twice as great as in Figure 1. That is the rent *DHC* in Figure [8] represents exactly twice as much produce as in Figure 1: that is, since the price has fallen one half, exactly the same money value.

If however the price had fallen so that agricultural produce sold for only one third as much as before: then instead of the line *HGC* in Figure [8] we should have the line *H'G'C'* where $F'G = \frac{3}{2}FG$. The rent would be now *DH'C'* [and the value of each unit] would be only two thirds of that in the previous case.

³ [For references etc. see the footnote on p. 144 above.]

⁴ [For example, see J. R. McCulloch, *Principles of Political Economy* (Second edition; Longmans, Rees, Orme Brown and Green, London; Tait, Edinburgh; Curry, Dublin; 1830) p. 434.]

⁵ [It is clear from the subsequent discussion that Marshall assumes here an improvement of the 'second kind', according to Item II.7.2 above, in which the marginal return function $f_i(x_i)$ for every piece of land is replaced by $2f_i(x_i)$.]

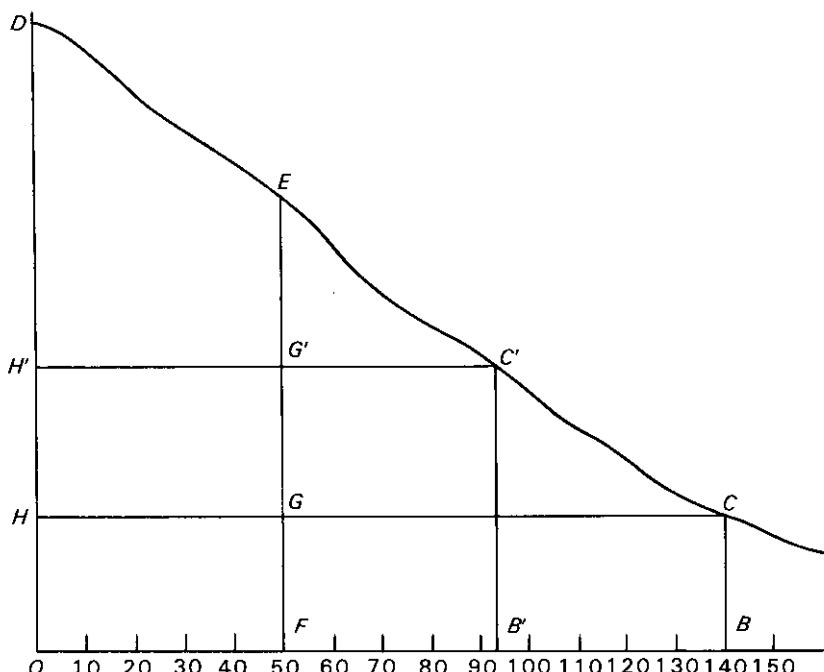


FIG. 8

That is the consequence of the improvement would have been a very great diminution in the money value of the rent.

If we took a case in which OD were not very much greater than OH so that H' fell above D [as in Figure 9] the result would be that the land would go out of cultivation altogether. And indeed in considering the case Ricardo⁶ does not speak of any other means by which the supply would be reduced than that of some land being forced out of cultivation. But as we have seen in Figure [8] the amount of capital employed on each farm would in general be diminished. Thus in this special case the produce raised would be $OB'C'D$. If at the price under consideration (i.e. one third of the original price) the amount $OB'C'D$ and corresponding amounts for all other farms can find a market, the equilibrium will be found. If not the price

⁶ [D. Ricardo, *Principles of Political Economy and Taxation*, Ch. II.]

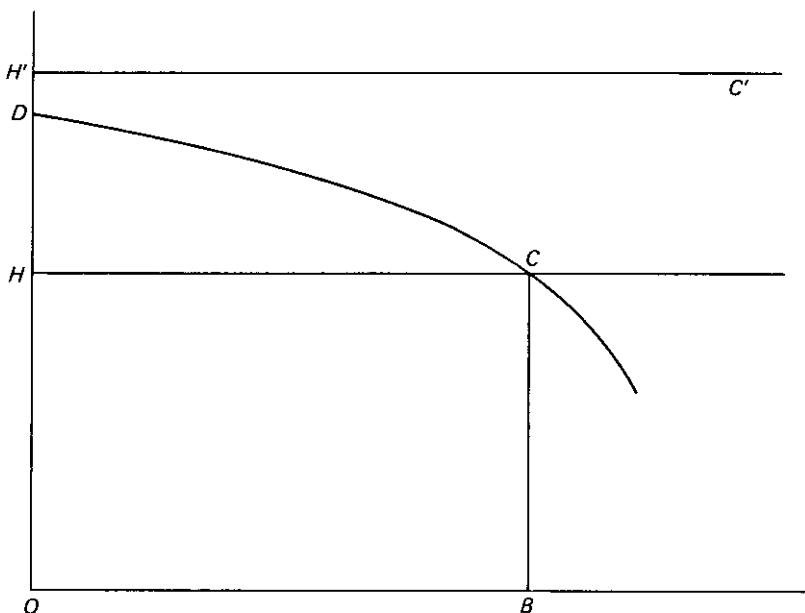


FIG. 9

must go on sinking; and the amount $OB'C'D$ and the corresponding amounts for other farms must go on diminishing until this equilibrium has been found.

The conclusion then to which we come is that if twice the amount consumed before the improvement can be taken off at half the old price the money rent of every farmer remains unchanged. If the price sinks below this less than twice as much as before will be produced and the amount will diminish until equilibrium is reached: the rent will fall in every case, but most in those cases in which the line CD after leaving C rises most rapidly. This will in general be the immediate result of any sudden improvement on a great scale.

If more than double the old quantity can be sold at more than half the old price, money rents will all rise: and of course most rapidly in those cases in which DC produced after leaving C sinks least rapidly.

The ultimate effect of every improvement is that in general population increases until an amount of agricultural produce

however much increased may be taken off at a price at all events not much lower than the old one: and consequently the ultimate effect of every such improvement is to enrich the landlords.

The sentence 'Rent does not enter into price' is often misunderstood. To illustrate its meaning; it may be well to examine a case in which it is not true. It rests on Ricardo's theory, which applies only to the case of countries in which, the land being in the hands of many owners, each landowner can obtain as rent for his land only the surplus which will remain from the gross produce when all expenses of cultivation are deducted, the value of the produce being determined, not arbitrarily by him, but by the general circumstances of the country. It can only be such that buyers at that value will be found for all the produce which can be grown on the whole land in the country, subject only to the condition that those portions of it which are raised at the greatest expense have their cost of production just equal to this value.

This theory is not true if the whole land in the country be in the hands of the government. Suppose by an arbitrary act the government were to assume to itself the whole of the land in America; and to say no land shall be let at all for less than a bushel of corn as rent for each acre. Land shall be let as before by free competition, but this price is the minimum price. Much land which is now rented would not be rented at all: the value of raw produce would rise. It would be now profitable to apply more capital and labour than before to the cultivation of those lands which were retained. The rise in value of raw produce would enable some lands which had paid a lower rent than one bushel of corn an acre to pay it now (even though the value of this bushel itself had risen). The value of raw produce would still be determined by the equation of supply and demand: but the circumstances which determined the amount supplied at a given value would have been altered. On account of this arbitrary edict of the government with regard to rent the value of raw produce will have been changed: it would have risen more if the government had put two bushels instead of one in its edict, less if the government had put half a bushel. It is not true on this supposition then that 'rent does not enter as an element into value'.

It would still remain true that the rent paid on any farm was the difference between the gross produce raised and that which would have been raised had the returns to all the capital employed been only the same, proportionally, as those to the last capital which the farmer finds it worthwhile to apply, that capital the returns to which are of value only just sufficient to replace it with profits. The difference between this case and the ordinary case lies in the circumstances which determine how much produce will be of sufficient value to replace with profits a certain amount of capital.

To repeat: – In the ordinary case the value of raw produce is determined by supply and demand, the circumstances which determine supply being the physical condition of the country, the state of the arts of cultivation etc. The value of raw produce is determined, and with it rent is determined by the operation of natural causes. In the present case one of the circumstances that determine rent is fixed arbitrarily by authority. This arbitrary decision affects, through its operation on rent, the extent of land in cultivation, thereby alters one of the elements which determine supply, and thereby alters the value of raw produce.⁷

II.7.4 ‘Tithes’

Introduction This short note on tithes is a concise and elegant statement of the rent theory, as applied to the analysis of tithes which extract from the cultivator a tenth of his production. Marshall handles the problem with considerable generality, including a discussion of international trade in ‘corn’. He goes much beyond Mill’s treatment of tithes in *Principles of Political Economy*, Book V, Ch. IV, §§ 3, 4, which seems to be the starting place. Marshall uses some of the notation of the Essay on Value (Item II.2.1 above) which suggests that composition might have been as late as 1872, but otherwise the appearance and style are similar to that of the other early essays.

⁷ Let RF [in Figure 10] be the supply curve for raw produce assuming that the amount ($P_1 M_1$) due to any particular dose is independent of the number of succeeding doses applied. On this hypothesis FRT is gross rent.

[This addendum to the manuscript was probably added at a later date.]

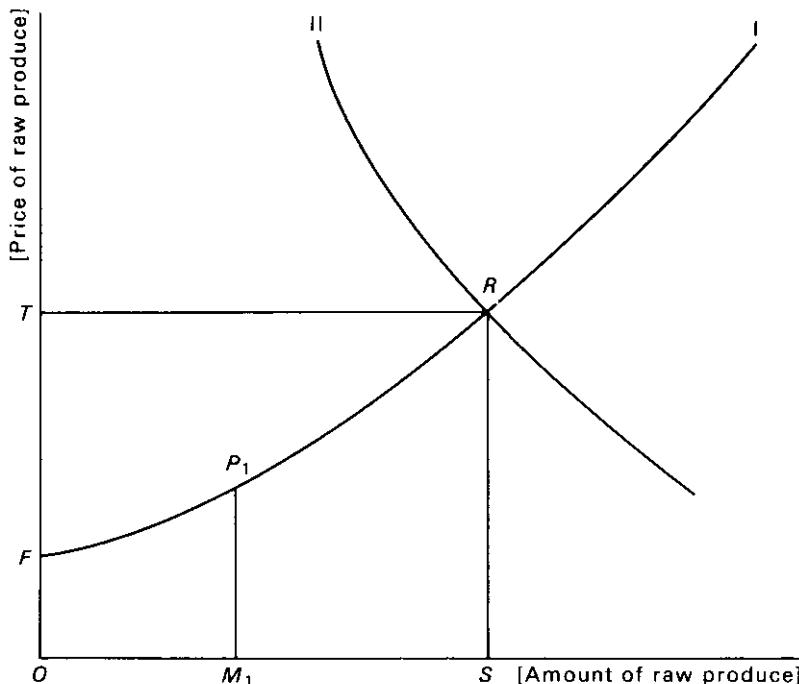


FIG. 10

The octavo manuscript of eight pages is followed by four pages of diagrams, some using red ink. But all references to the colours of the curves have been deleted from the Text in favour of a more conventional labelling.

Text Tithes do not fall on the landlord, except in so far as he is a consumer, provided each of the following assumptions be rigidly true:

- (i) that the amount of raw produce raised in the country for which a market can be found is fixed absolutely i.e. so as to be independent of the price or rather of the labour value at which it is offered for sale¹
- (ii) that there is perfectly free competition.

¹ [This is Mill's assumption : J. S. Mill, *Principles of Political Economy*, p. 841.]

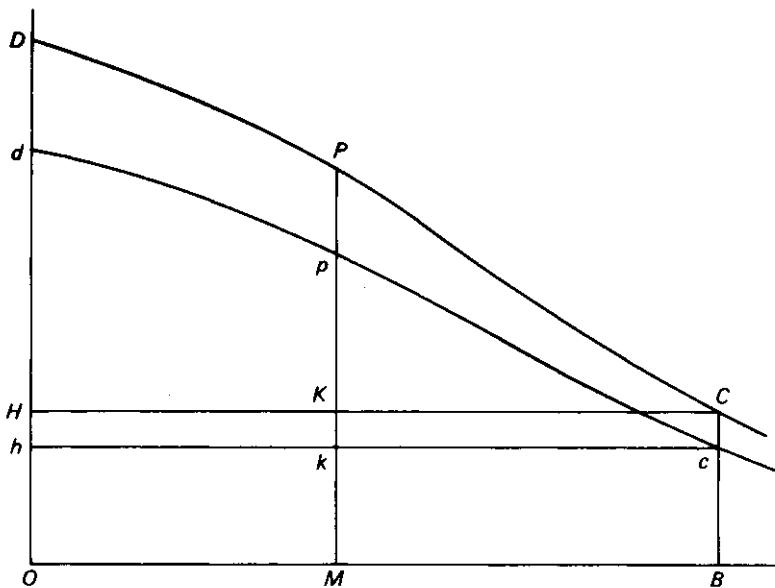


FIG. 1

On these assumptions if the ordinate PM to the line $[DC]$ (Figure 1) represents the total produce due to the dose of capital corresponding to M , and pM be the corresponding ordinate to the line $[dc]$, the line $[dc]$ will include all the produce which after paying the tithe the farmer retains to divide between himself and the landlord.²

The last dose of capital he applied used to give him as return BC raw produce, say corn: it now gives him Bc corn on the supposition that he raises the same gross produce after the imposition of the tithe as before. And on the supposition that the same gross produce as before is required in the market, he will do this. For the returns to the last dose applied by every other farmer before the change were (supposition (ii)) BC . If then each farmer raises the same gross produce after as before the change, the returns to the last dose applied by each are Bc . If some raised more and others less than before, the

² [Observe that the ordinate pM is nine tenths of the ordinate PM for every possible position of M .]

returns to the last dose applied by some will be less than Bc and that to the last dose applied by others will be more than Bc : and this is inconsistent with supposition (ii). To this fact it is due that the labour value of corn will rise in the exact ratio of 10 to 9. Mill has not brought this out sufficiently clearly. (It may be remarked that from this point of view there is an analogy between the removal of tithes and an improvement in production of 'the first kind'.³ The analogy may be worked out so as to present the two questions as different forms of the same case. But the interpretation becomes intricate.)⁴

Since Mp is $\frac{9}{10}MP$ (Figure 1) and Mk is $\frac{9}{10}MK$ therefore pk is $\frac{9}{10}PK$. And since this is true for every position of M , the area dhc is $\frac{9}{10}$ area DHC . But since the labour value of corn has risen so that Bc just repays the application of a dose of capital, $OBch$ will just repay the farmer for his whole expenditure. Therefore dhc represents the corn which he has to pay as rent (supposition (ii)). And the value of corn having risen in the ratio 10 to 9 and the corn rent having fallen in the ratio of 9 to 10, the real value (or as Mill says, the money value) of the rent is unchanged.

Supposition (i) is however not rigidly true even of a country which, for any reason, cannot afford to import corn. Even in such a country consumption will be checked by a great rise in the value of corn. Let equilibrium be again attained when the value of corn has risen in the ratio BC to fg (where fg is greater than Bc and less than BC [as shown in Figure 2]). Corn rent is now deg , which is less than dhc ; and since the value of corn has not risen so much as on the former hypothesis the real rent is diminished on each of two separate accounts.

The supposition made by the Physiocrats and after them by Adam Smith and Ricardo, viz. that labourers are just on the limit of subsistence, so that through its action on population the imposition of the tithes will check consumption although

³ Mill IV, Ch. III, § 4. (In Mill's second case the total amount raised on each particular farm is unaffected by the change.)

⁴ [For reasons indicated in II.7.1 above, the analogy between tithes and improvements is not exact. In fact, so far as the individual cultivator is concerned a tithe is like a negative improvement of the second kind (see Item II.7.2 above). It resembles an improvement of the first kind only in leaving unchanged the cultivation of all land.]

returns to the last dose of capital are the same as before⁵ – this supposition gives us for corn rent dHQ [Figure 2] which is less than $\frac{9}{10}$ the old corn rent, with corn of the same value as before. On this supposition a tithe is rightly called a rent charge. The landlord loses not only more than a tenth of his rent but even more than the amount gained by the government.

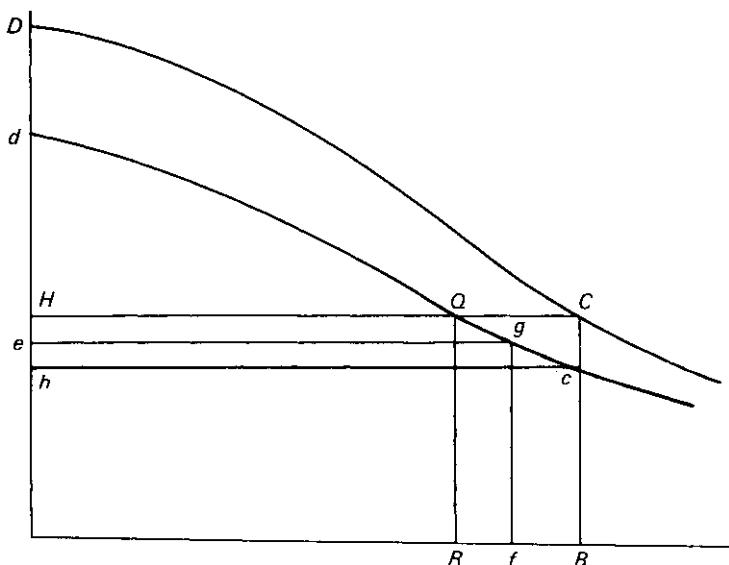


FIG. 2

If we assume that the country can import corn, a rise in the value of corn brings a large amount of foreign corn into the market: so that long before its value has risen in the ratio of 10 to 9 the demand is met by an increased amount of foreign together with a diminished amount of home grown corn. This corresponds to the case in which the corn rent is deg [Figure 2]. The greater the amount of foreign corn which can be imported in consequence of a small rise in its value, the nearer will f be to R . If any rise in price however small could

⁵ Note that it is here implied that the rate of profits is unaltered.

cause the importation of an unlimited supply of foreign corn, its value would not be appreciably affected by the tithe: cultivation would cease at R : farmer, labourer and consumer would be unaffected: the landlord alone would suffer, and he would lose more than the full amount of the tithe. On this supposition also a tithe is rightly called a rent charge.

If then there were a tithe in England now and it were removed, the value of corn would fall, but not in the ratio of 9 to 10, but in the ratio of, perhaps, $9\frac{1}{2}$ to 10. At this rate the farmer, having to pay no tithe, would be able to cultivate further than he can now, the fall in the price would stimulate consumption and check importation and so equilibrium would again be found.

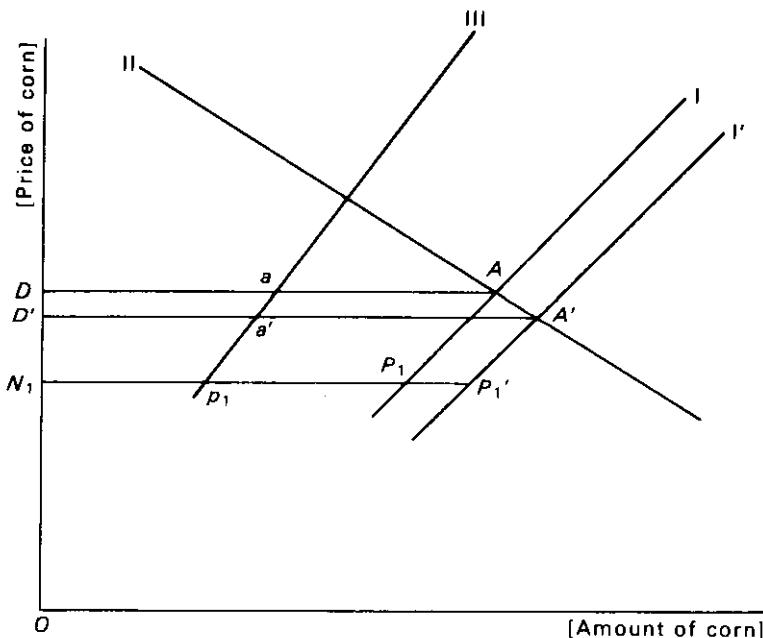


FIG. 3

It may be well to illustrate this by a figure (Figure 3). I and II are the supply and demand line for corn in the English market. But the amount $P_1 N_1$ which will be supplied at a certain given price ON_1 is divided into the portions $P_1 p_1$ and $p_1 N_1$, the

former being the amount grown at home and the latter being that which it would be profitable to import at that price. By giving N_1 all possible positions along Oy we make p_1 move along a curve III, which may be called the 'Foreign-corn, supply-curve', and any small portion of which may of course be regarded as approximating a straight line. In equilibrium, Da corn is imported and aA is produced at home at price OD . Now let tithes be taken off: at price ON_1 , an amount $p_1P'_1$ greater than p_1P_1 (but not in general greater in the ratio of 10 to 9) can be produced at home at the price ON_1 . So for all positions of N_1 , and we thus get as the new total supply line the line [I'] lying to the right of I. Equilibrium is found at A' . Price has fallen to OD' : the gross amount consumed has increased to $D'A'$: the amount produced at home has increased to $a'A'$: the amount imported has diminished to $D'a'$. These four results (as regards increase or decrease) depend on the assumptions which are obviously true (i) that demand increases or at least does not fall off with a lowering in the price (ii) that the amount which it is profitable to import

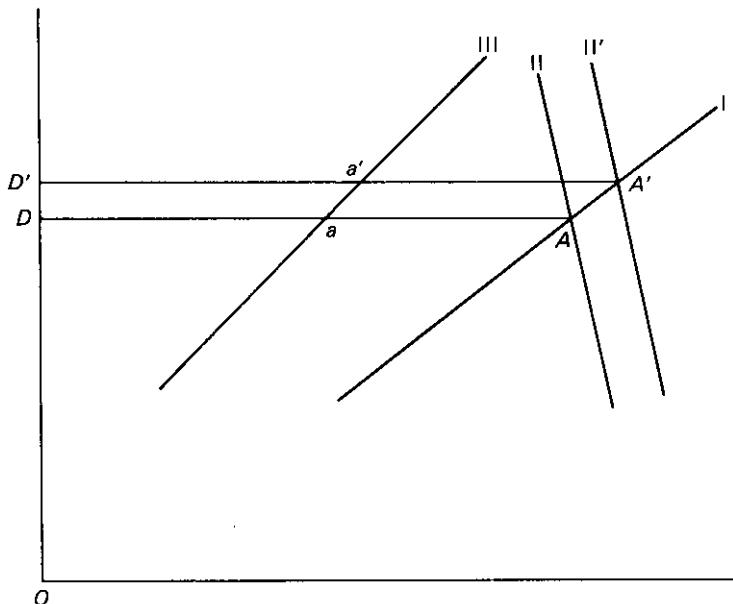


FIG. 4

diminishes with a fall in the price (iii) that the amount which it is profitable to produce at home diminishes with a fall in the price.

It is obvious that if the countries from which we can import are large compared with ours a small increase in the price would affect much the amount of corn imported. Hence III must slope very much to the right. If it however be true that a large rise in the price is necessary in order to cause a considerable increase in the amount of corn grown on the average at home, I must be nearly parallel to III. Should then the demand for corn increase much owing to the growth of population (or any other cause), the rise in price would be checked mainly by the importation of increased supplies; not to any great extent by an increase in the amount produced at home. This may be illustrated by two figures ([Figures] 4 and 5), in each of which an increase in demand causes an alteration

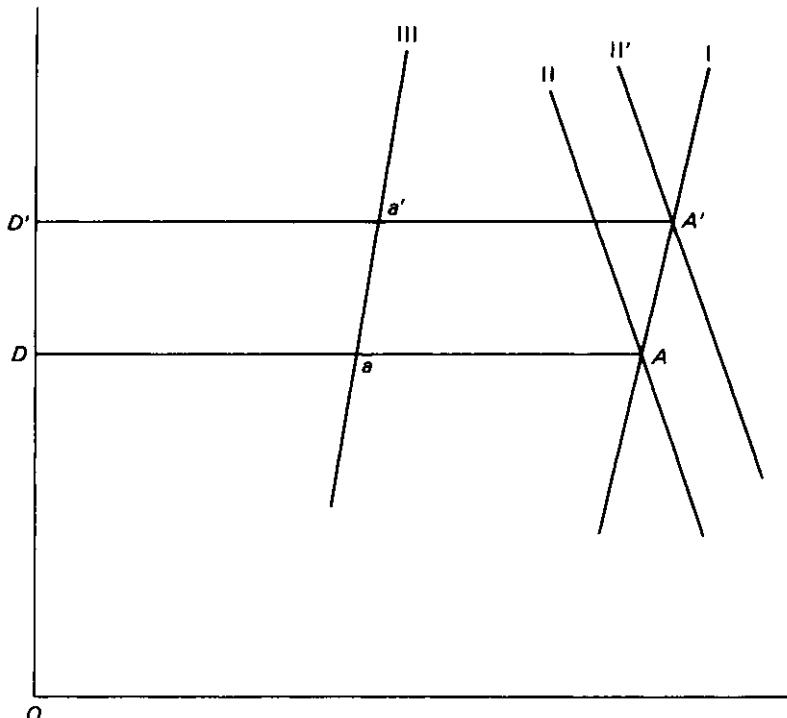


FIG. 5

of the same kind in the position of II, making it move to the position [II'] on the right. In Figure 4 the amount of imported corn varies rapidly with the price and the rise in price is but small: Figure 5 shows what would happen if the supply of imported corn could not be much increased except by a great increase in price: if in short foreign corn were in the same position as home produced corn. In this case the rise in price would be great. We thus get to see what is meant by the statement that the price of corn in the English market is mainly decided (or as is more loosely said 'is governed by') the price in the markets of the countries from which we import.⁶

This is more strikingly true if we consider changes in the price during one year. The harvest being gathered it is very nearly true that there is a certain amount of home grown corn to be sold independently of the price. If we could not import corn the difference between a good harvest and a bad harvest

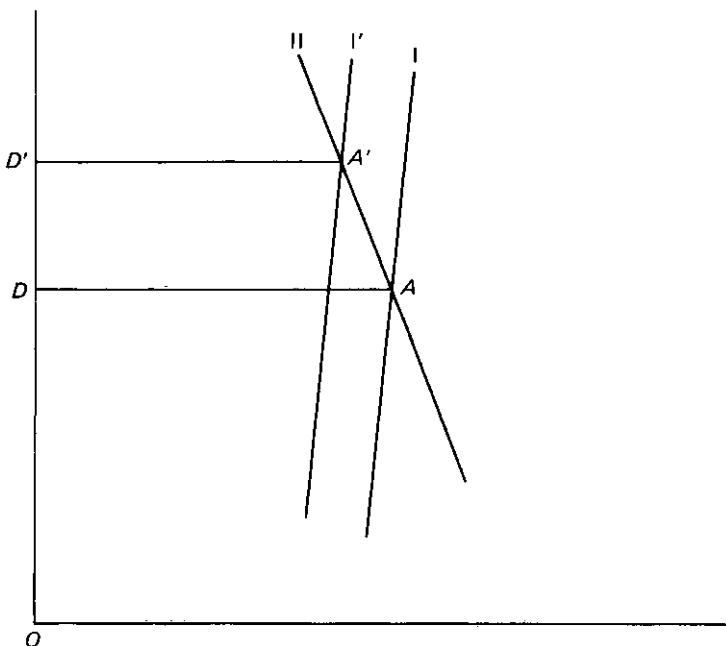


FIG. 6

⁶ Note that in both figures the inclination of I to III is slight.

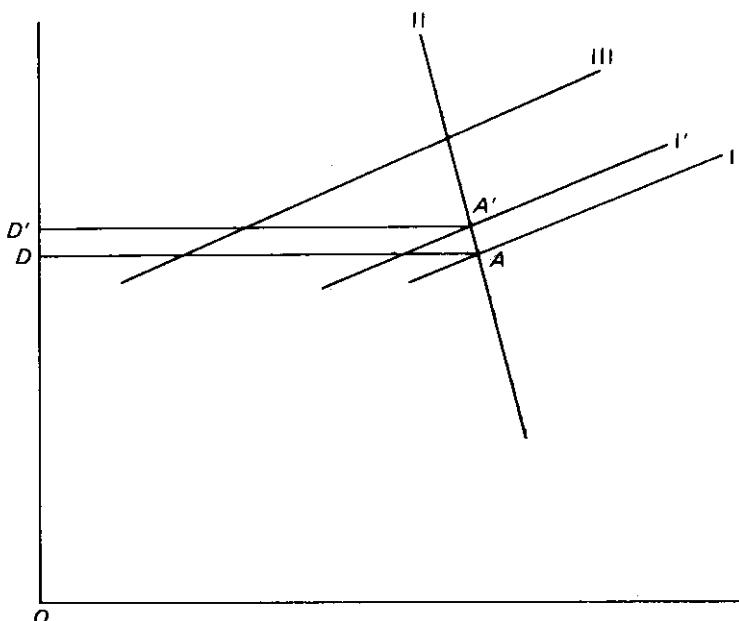


FIG. 7

would be represented by the difference between [I and I'] in Figure 6. The demand curve being, as it always is for corn, very steep, the difference between the prices under the two circumstances would be very great. As it is, the case is represented in Figure 7, where for a given year the difference between a good and bad harvest is only that I takes one or other position parallel to III. And in this case, the horizontal difference between [I and I'] remaining the same, the difference in price is very much less. This is what is meant by saying that since the repeal of the Corn Laws the price of corn has not fluctuated much from year to year, because it has been *ruled by* the markets in other parts of the world. Of course if there has been a bad harvest in one part of the world, we can import from some other.

In countries in which there is not free competition with regard to farming, rents may enter into price. By so doing they affect the price here. But even in this case it is not advisable to say that rents 'enter into price'; for the price of corn here is

still equal on the average to the cost of production ‘on the margin of cultivation here’. But this margin would be moved by a change in Russian land laws.

II.8 International Trade

This Section contains three items: an early Essay on International Trade, a brief note on the ‘Total Utility of Foreign Trade’, and a treatment of ‘Absenteeism’ – an application of trade theory to the question of absentee landlords.

II.8.1 *Essay on International Trade*

Introduction This essay seems to complete the set of early essays emanating from the Essay on Value (Item II.2.1 above). It also appears to comprise an early version of the *Pure Theory of Foreign Trade*, containing in rough form all the essential ideas of the fuller version.¹ Marshall dated his work on ‘the diagrammatic treatment of Mill’s problem of international values’ as occurring between 1870 and 1874, while the composition of the international trade volume which included the *Pure Theory of Foreign Trade* was attributed to 1874 to 1877.² This would suggest a composition date for the present essay between 1872 and 1874.

Despite occasional flawed passages, the Essay has a lucid economy, unmatched even by the *Pure Theory*. Its two most noteworthy features are the concept of ‘guidance by the rate’ – an early attempt at classifying the responsiveness of demand – and the clearly expressed awareness of the limited

¹ An expanded version of the *Pure Theory of Foreign Trade* is reproduced in Section III.5, below. Similar ideas are also found in Part I, Ch. VI, §§ 2, 3 of Marshall’s international-trade volume, reproduced in Section III.3, below.

² There remains some obscurity. The 1870–4 date was conveyed to Clark in 1908 (*Memorials*, p. 416). Marshall told R. Lieben in June 1906 that ‘My curves of the [international-trade] class were first used by me in lectures in 1872 or 3 when Mr. Cunynghame was a student here’ (Marshall Library, Marshall 1: 27). He told Cunynghame in 1904 that the Trade Volume was written between 1874 and 1877 (*Memorials*, p. 449) and in 1900 told Seligman that work on the book commenced in 1873 (Vol 2, p. 3 below). The footnote to the preface to the first edition of the *Principles* put the date of composition of the Trade Volume as 1875 to 1877 (*Principles II*, p. 8). Finally, *Money Credit and Commerce* (p. 330n.) speaks of ‘a volume on International Trade, on which a good deal of work was done chiefly between 1869 and 1873’. The one firm fact is that Macmillan and Co. had the manuscript of the Trade Volume in June 1877 (see Section I.4 above).

applicability of the theoretical arguments on tariffs. Many years later, in 1904, Marshall told Cunynghame

... in recent years, I have gradually gone away from the fundamental hypothesis on which the [international-trade] curves are based. They lead to the result that a great part of an import duty will probably fall on the export nation ... And on inquiry I found I had fallen into a trap. I had followed Mill in taking a yard of cloth as *representative* of England's exports But then I had glided, as he had done, unconsciously into regarding the demand for imports in general as having a similar character to that for a single commodity. And I now think that is illegitimate, and vitiates a great part of my curves.³

The Marshall of the present essay is already alert to such pitfalls.

The octavo manuscript is of forty pages, plus four pages of diagrams (one shared with an addendum). Unfortunately, two sets of three pages each have been removed from the manuscript, requiring brief interpolations, but this loss does not detract seriously from the overall effect. The only intellectual influence clearly discernible is that of Mill.

Text The subject of international values which we next approach is one in which, perhaps more than any other, the inadequacy of the ordinary methods of analysis has manifested itself; and one in which, in spite of the great advances made by Mill, the theory wholly fails to meet the requirements which are made of it. In interpreting into the language of diagrams the questions which are here raised, we are confronted at the outset with a slight difficulty. But when we have got over this, we shall find that, not only all Mill's investigations, but many others may be expressed with great facility by means of diagrams.

We shall start by following Mill in assuming that the cloth which England exports to Germany is always an exact equivalent [in exchange to the linen which Germany exports to England. Measuring amounts of cloth along Ox and linen

³ *Memorials*, pp. 449–50.

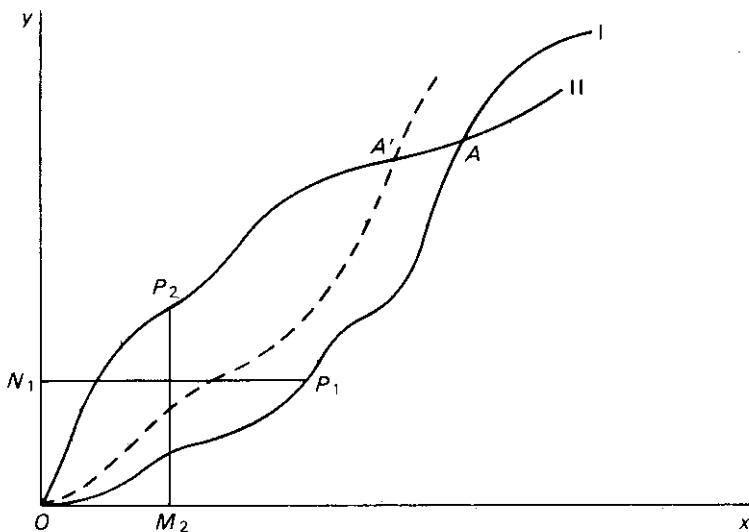


FIG. 1

along Oy in Figure 1, the curve I indicates the amounts of cloth England will be willing to exchange for various amounts of linen. Similarly, curve II denotes the amounts of linen that Germany will be willing to exchange for various amounts of cloth.^{1]}

The only general condition as to the shape of the curves is derived from the fact that no diminution in the cost of production which is directly due to a change in the amount produced, i.e. no diminution which can occur without rendering the curves invalid, can reach so far as to enable an increased amount to be produced at a diminished gross cost. Hence, when the amount of cloth produced in England for exportation to Germany is known, the gross cost of production is known. Hence if the amount of linen which is imported to England is

¹ [This interpolation has been supplied by conjecture to give the minimum required for continuity. Since Figure 1 is preserved, the main doubt concerns the 'slight difficulty' mentioned in the first paragraph. A likely clue to this can be obtained from the later treatment at the corresponding point in the *Pure Theory of Foreign Trade* (Vol 2, pp. 129–31 below). The reference to Mill is presumably to *Principles*, Bk. III, Ch. XVII, XVIII and Bk. V, Ch. IV, § 6. These sections of Mill largely reproduce arguments from his earlier *Unsettled Questions of Political Economy* (reproduced in his *Collected Works*, Vol IV, pp. 232–61).]

known, and consequently the expense to which England will go in buying it is known, the amount of cloth which she will sell for it is absolutely determined. But if the supply of linen imported to England be increased it may be possible to dispose of it only at a rate diminished in proportion to this increase or even only at a lower rate. Thus there may be more than one amount of linen which England is just willing to buy at a given total expense and therefore for a given amount of cloth. (In other words the curve I cannot cut more than once the same horizontal line, but may cut more than once the same vertical line. So the curve II cannot cut more than once the same vertical line, but may cut more than once the same horizontal line.) Hence we may speak of any point P as being to the right or left of I according as the intersection of I with a horizontal line through P lies left or right of P : and we may speak of P as being above or below II according as the intersection of II with a vertical line through P lies below or above P . If, PM being drawn perpendicular to Ox , OM represents the amount of cloth and PM the amount of linen which actually are bartered for one another at any given time, we may for brevity call P the *exchange-point* at that time. It is obvious that the greater be the angle which OP makes with Ox the more favourable will be the exchange to England.

The universal law to which the motion of the exchange-point is subject is that, if it be to the right of I, it will, in the absence of disturbing causes or as soon as these have ceased, tend, as far as the horizontal portion of its motion is concerned, to move to the left; and vice versa: and that if above II it will tend, as far as the vertical portion of its motion is concerned, to fall; and vice versa. If for instance, [in] Figure 2, PM cut II in a point m below P , OM cloth can only be sold in Germany for an amount which will just cover the expense of mM linen: consequently the trade of those German manufacturers who produce linen for exportation to England will be unprofitable, and the amount of linen so produced will tend to diminish; i.e. the vertical portion of P 's motion will be downwards. Similarly for the other cases.

From this law it follows that if the exchange-point be not on either of the curves it will tend to move towards both of them: and that, as soon as it reaches one of them, it will

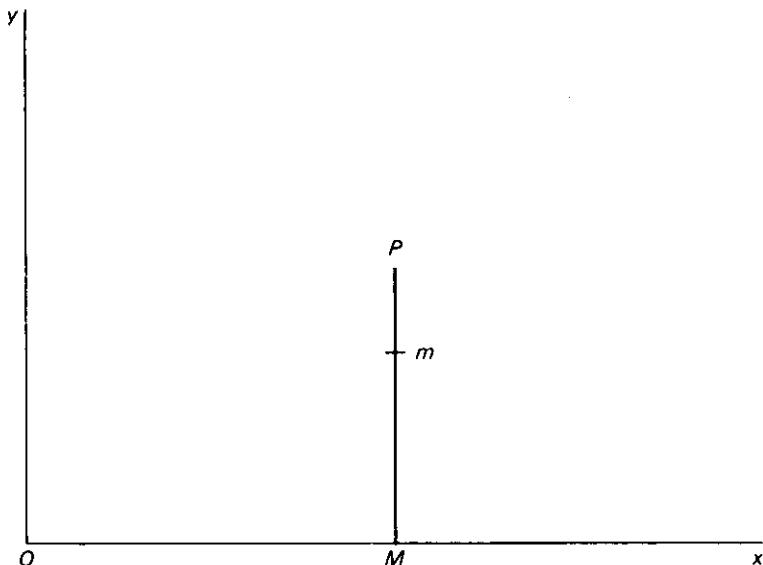


FIG. 2

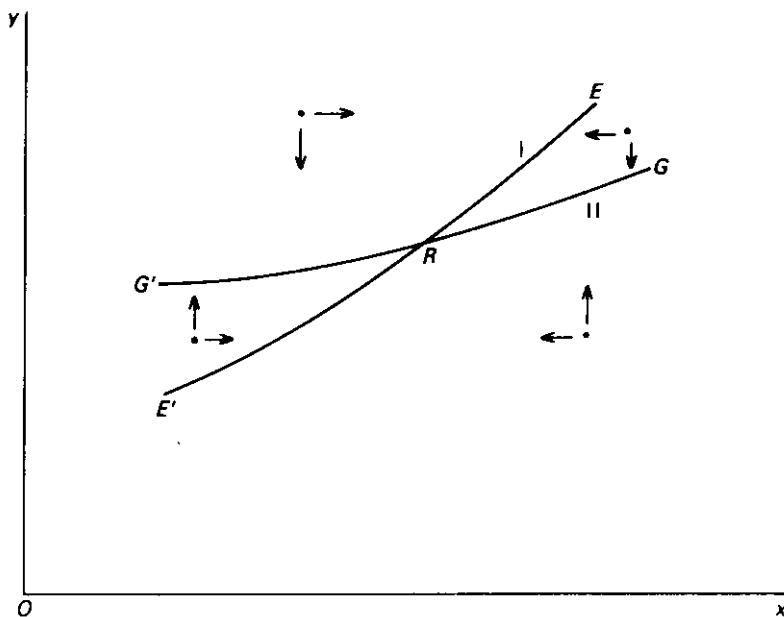


FIG. 3

tend to move along it till it arrives at a point of intersection. But in thus moving towards one point of intersection it may be moving away from another: and, as before, we may term the equilibrium at a point of intersection *stable* or *unstable* according as the exchange-point if displaced from the equilibrium position will tend to return to it or not.² The simplest mode of determining to which of these classes the equilibrium belongs in any particular case is to draw arrowheads to indicate the directions in which the exchange-point will tend to move from various positions to which it may be displaced. Thus if in the neighbourhood of the point of intersection I and II have the positions *ERE'* and *GRG'* respectively in Figure [3], and the points marked in each of the four divisions *GRE'*, *E'RG'*, *G'RE*, *ERG* represent possible positions of the exchange-point, the directions in which it would tend to move from each of these positions will be indicated by the corresponding arrows. Thus it is seen that the equilibrium at *R* is stable.

In this way it may be proved that the equilibrium is stable in all cases except those in which in the neighbourhood of the point of intersection both the curves as they recede from *Oy* recede also from *Ox*, but II recedes from *Ox* more rapidly than I does; and except those cases in which in the neighbourhood of the point of intersection both the curves as they recede from *Oy* approach *Ox*, but II approaches *Ox* more rapidly than I does. Thus the equilibria at *B* in Figures [4] and [5] are unstable (for a full explanation see [the next paragraph]) and those at *A* and *C* are stable. The reader should satisfy himself of these results not only in the manner of which we have given an example but by direct reasoning. For instance in the somewhat intricate case of Figure [5] if we suppose the exchange-point to be jerked in consequence of any disturbance to a point *P* within the loop *BC*, we find that after the termination of the disturbance the sale of *OM* cloth in Germany can be continued only at so low a rate that less than *PM* linen will be given for it: thus the manufacture of linen for exportation will be unprofitable and the amount so produced will further decrease. On the other hand *PM* linen will be disposed of in England at so high a rate as to cover the

² [This could well refer to the Essay on Value (Item II.2.1 above).]

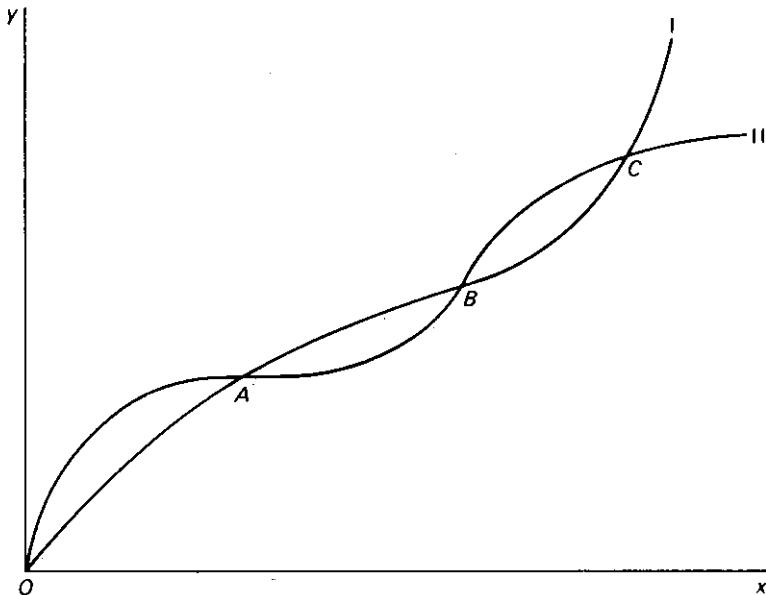


FIG. 4

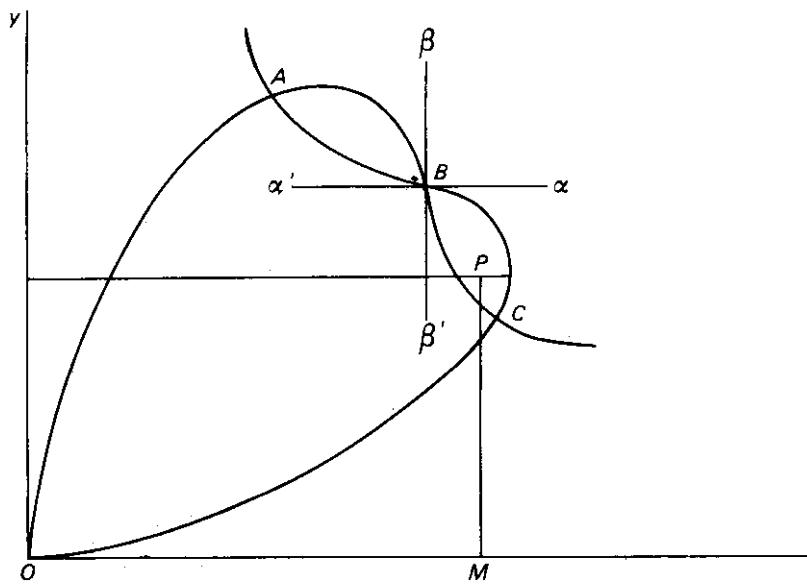


FIG. 5

expenses of more than OM cloth: thus the manufacture of cloth will be exceptionally profitable, and the amount produced will increase. Hence the exchange-point will move to C . The validity of this reasoning of course depends on the truth of the fundamental law that I cannot cut the same horizontal line twice, and that II cannot cut the same vertical line twice. From the same law may be deduced the result, which is of course otherwise obvious, that points of intersection corresponding to stable and unstable equilibria alternate.

It may be remarked that if through B [Figure 5] a horizontal line $\alpha B \alpha'$ and a vertical line $\beta B \beta'$ be drawn as in the figure, then if the exchange point be displaced to a position within the quadrant $\alpha B \beta'$ it will move to C ; if to a position within the quadrant $\alpha' B \beta$ it will move to A ; if to a position within either of the quadrants $\alpha' B \beta'$, $\alpha B \beta$ it will move to A or C according as it happens to strike one of the curves above or below B ; or it is even theoretically possible that it might strike B itself. This last possibility is worthy of note: but as the chance of the exchange point hitting B is infinitesimal, and as, if it did, it would in general pass through B , and, if not, leave B on the occasion of the next disturbance, we need not drop the term unstable as applied to the equilibrium at B . A precisely corresponding case might occur with regard to unstable equilibrium in mechanics. A similar investigation applies to the case represented in Figure [4].

If cloth be a commodity such that the cost of its production always increases or at least does not diminish as the amount produced increases, then, P_1 [Figure 6] being a point on I, every point on I to the right of P_1 must lie above OP_1 : since England will not take an increased amount of linen at an increased real cost per yard to herself. Hence for such commodities unstable equilibrium of the kind represented in Figure [4] is impossible, but not that in Figure [5]. The more rapidly the cost of production increases in consequence of an increase in the amount exported, the more nearly vertical *ceteris paribus* will the curve be.

Let Op_1 [Figure 6] be a straight line lying above OP_1 and making a given angle with it. Then wherever p_1 be on the line, the rate of exchange will be altered to a given extent in favour of England if, instead of $P_1 M_1$ linen being exchanged for OM_1

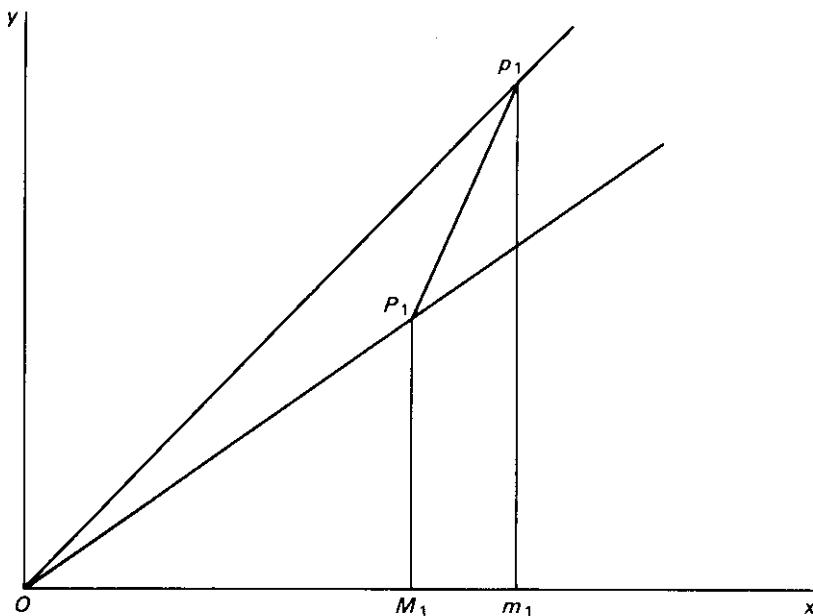


FIG. 6

of cloth, there be paid p_1m_1 linen for Om_1 cloth, when p_1m_1 is drawn perpendicular to Ox . The extra amount of linen which in consequence of this given change England will be willing to take will be measured by the difference between p_1m_1 and P_1M_1 . This difference will be very great when the angle Op_1P_1 is very small; as this angle increases the difference will diminish until it vanishes, after which as the angle further increases it will obtain increasing negative values. If Op_1 be taken very near to OP_1 the amount of this difference will afford a measure of England's tendency to make an increase in her purchases in consequence of an increased advantage to her in the rate of exchange. We here adopt the ordinary convention that a diminution in the amount may be regarded as a negative increase, i.e. that the further p_1 is below P_1 the less the increase is. By drawing Op_1 below OP_1 a result similar to the above may be obtained with regard to England's tendency to make a diminution (i.e. a negative increase) in her purchases in consequence of a diminished (i.e. negatively

increased) advantage to her in the rate of exchange. Thus these two tendencies may be combined under one name and shortly called '*England's guidance by the rate*'. The tendency has a negative value when, while the angle p_1Ox is greater than the angle P_1Ox , p_1 lies below P_1 :³ we may then say that England is '*guided backwards by the rate*': or that its guidance has a negative value. Thus our results may be expressed by saying that the more England is guided by the rate, the smaller will be the angle which, at the corresponding point P_1 , that portion of the tangent to the curve which lies below OP_1 or OP_1 produced makes with OP_1 .

We proceed to investigate the effects of taxation on international trade. In doing so we shall consider each commodity to be delivered in the country to which it is sent only when all charges on it on account of taxation and carriage are already paid. The enquiry will be thus simplified and will moreover serve for all other circumstances by which the cost of production is raised or lowered throughout; i.e. for all quantities exported whether large or small. It is not of importance whether the tax on cloth be levied by England or Germany provided it be remembered that an *excise* tax in England will probably affect the demand for cloth at home, and thus, by altering the resources at the disposal of manufacturers for exportation to Germany, indirectly render necessary a preliminary alteration in the shape of I. The imposition then of a tax on cloth will not affect the shape of II.⁴ But the sale of a given amount of linen in England will in consequence of the tax cover the expense of the delivery in Germany of only a diminished amount of cloth. If the tax be levied in kind, this diminution will be throughout in proportion to the tax levied. In this case if we draw for every point P_1 in I (Figure 7) P_1N_1 perpendicular to Oy and take in it a point p_1 , such that P_1p_1 is to P_1N_1 in the ratio of the tax levied, the curve thus obtained,

³ [This would be the case at point A in Figure 4, for example.]

⁴ [Recall that the figures record quantities delivered after tax and transport, so that the German curve II will be unaffected even when the German government imposes an import duty on cloth. However, it is of interest to observe that Marshall in 1872 accused Jevons of tacitly assuming (as Marshall does here) 'that the government levies the tax [on imports] in kind, and destroys it, or, at all events, consumes it in such a way as not to interfere with the demand there would otherwise have been . . .', *Memorials*, p. 98.]

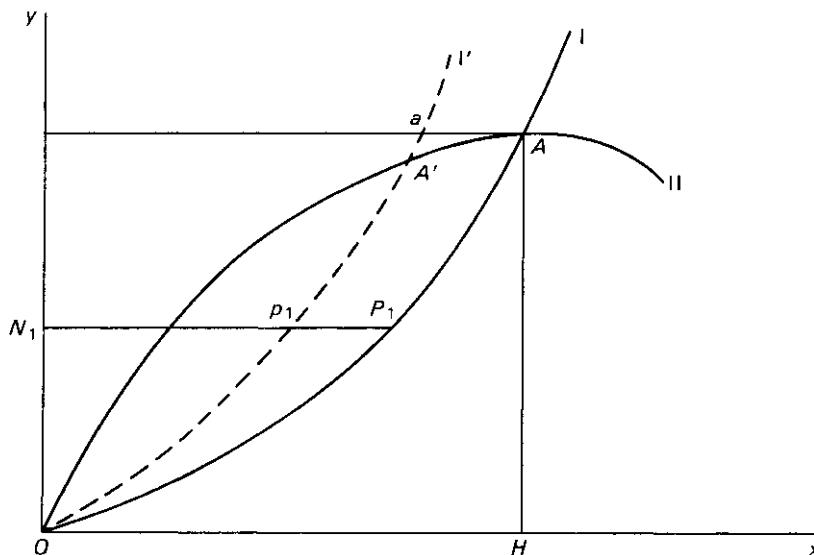


FIG. 7

the dotted line in the figure, will represent the new form of I. Let a be the point on it, corresponding to the point A on I and let A' be the point of its intersection with II. We shall at present suppose that the tax is so small that no considerable error is introduced by assuming it as above to be levied in kind and by regarding the short lines AA' and aA' as straight. We shall moreover at present follow Mill in estimating the incidence of the tax on either country solely by the alteration in the rate of exchange, instead of with reference partly to the rate and partly to the amounts exchanged. The position of A' will then be the more favourable to England the greater be the angle $A' Ox$. And we have found that England's 'guidance by the rate' is measured by the smallness of the angle made with AO by that portion of the tangent to I at A which lies below OA or OA produced; and consequently by the smallness of the angle made with aO by that portion of the tangent to the dotted line at a which lies below Oa or Oa produced. And similarly Germany's dependence on the rate may be measured by the smallness of the angle made with AO by that portion of the tangent to II at A which lies to the left of OA or OA produced.

Let us then trace the effects of various degrees of 'guidance by the rate' on the part of Germany corresponding to a given degree of 'guidance by the rate' on the part of England as represented by the fact that aA' has some given position lying within the angle OaA (Figures 8 and 9). In the extreme case in which AA' lies along AO Germany declines to make any change in the rate and England has to pay the whole of the tax. As AA' moves towards Aa , i.e. Germany's 'guidance by the rate' decreases, the rate becomes less favourable to Germany until when it coincides with Aa Germany gets for the same amount of linen as before an amount of cloth diminished by the full amount of the tax; i.e. she pays the whole of the tax. As the angle OAA' still further increases Germany gets her cloth at a still less favourable rate until A' again lies on OA .⁵

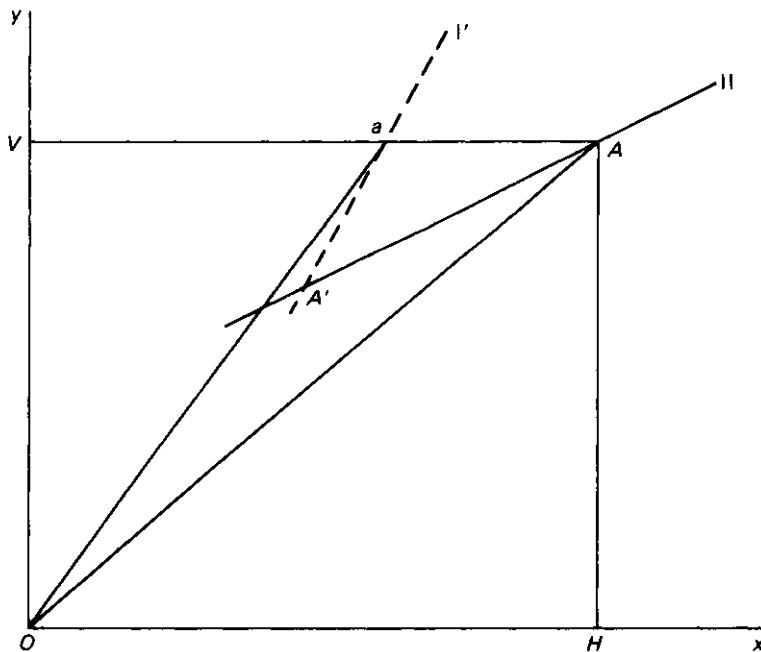


FIG. 8

⁵ [A pencil note indicates that the next two paragraphs and the long footnotes 7 and 8 'must be entirely rewritten'.]

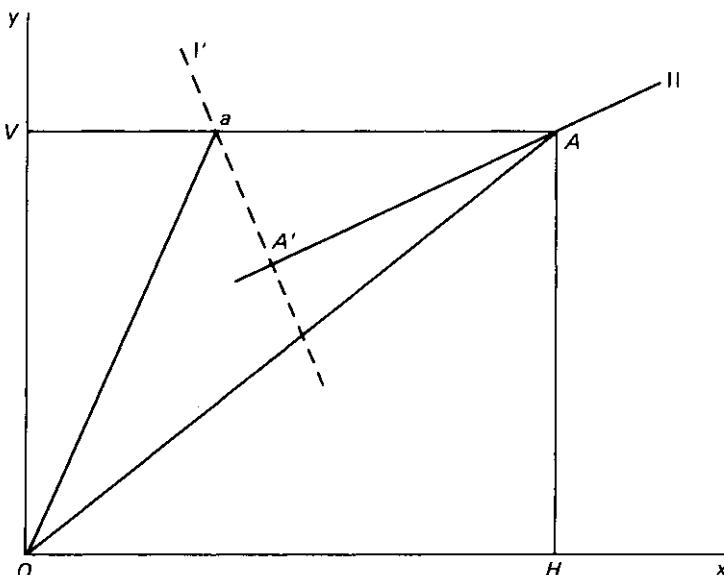


FIG. 9

From our fundamental rule with regard to the shape of the curves it follows that, if the portions of the curves AA' and aA' are straight, A' cannot lie to the right of A , A being a point of stable equilibrium. (We shall see that this is capable of extension.)⁶ There is thus a discontinuity in the positions of the line AA' : but it at length obtains a possible position within the angle OAH : and henceforward it is again true that as AA' sweeps further round the rate becomes more favourable to England.⁷

⁶ [See Addendum below.]

⁷ The circumstances under which A' can lie within the angle OAH are rare and not important. But some explanation with reference to them cannot be avoided. It has already been pointed out that II can only lie in the angle OAH if the cost of production of linen increases rapidly as its amount diminishes. In this case the rate of exchange after the imposition of the tax is indeed extremely unfavourable to England: so that England not only pays the whole tax before the delivery of the goods but even then sells them at a less favourable rate than before. Nevertheless, though the rate is nominally altered in favour of Germany, the trade is really less advantageous to her than before. The fact that she is contented with a diminished amount of cloth proves that the expense to her of a yard of linen when she makes only a small amount of it is sufficiently increased to make the real cost to her of each yard of cloth greater than before. An illustration of a shape of the curves which would render the above conditions possible while the equilibrium at A was stable is given in Figure 10.

The general result then at which we arrive, bearing in mind the discontinuity, is that as Germany's 'guidance by the rate' decreases the rate becomes more favourable to England. In this is included Mill's result⁸ and it must be clearly noted that his investigations have no meaning unless it be assumed that AA' and aA' are straight, or at all events that AA' does not pass through the horizontal and aA' does not pass through the vertical.

In the same way if we take any given position of AA' within the angle OAV to indicate a particular given value of Germany's 'guidance by the rate', and trace the effects of various degrees of England's 'guidance by the rate' as indicated by various positions of aA' we shall find that the less England is 'guided by the rate' (i.e. the greater the angle which that part of aA' which lies below Oa or Oa produced makes with Oa) the more favourable⁹ will be the new rate of exchange for England, provided that, in the neighbourhood of A , II lies within the angle OAV [as in Figures 8 and 9]; but that the reverse of this is true in the exceptional case in which II lies within the angle OAH [as in figure 10].

If a tax had been taken off cloth, or if a general diminution had been effected in its cost of production or of transport, it would be only necessary to change the positions of a and A in [the] figures: and as the above results are symmetrical with regard to these two points they will apply without any

⁸ He has not here pointed out that if as the amount of cloth produced decreases its cost of production increases so fast that England will buy a diminished amount of linen only at a more favourable rate to herself i.e. if aA' lies in the angle OaV [as in Figure 11] the reverse result will be true and that then the less Germany is 'guided by the rate' (i.e. the less Germany's demand falls off from an unfavourable rate) the more favourable to Germany the rate will be, while to England the apparent cost of its linen estimated in cloth will increase but its real cost will decrease.

[Marshall left space for the interpolation of a quotation from, or paraphrasing of, Mill's argument giving the reference 'Pol. Econ. 365'. This can only refer to the People's Edition of the *Principles of Political Economy* (Longmans, Green, Reader and Dyer, London, first issued 1865) which is virtually a transcription of the sixth (1865) edition. Page 365 covers the latter parts of Book III, Ch. XVIII, § 8, dealing with international values. But a much more appropriate reference would be Book V, Ch. IV, § 6 on the effects of taxation on international values. This largely reproduces arguments from Mill's earlier *Essays on Some Unsettled Questions of Political Economy* (Collected Works, Vol V, where see especially pp. 245–51).]

⁹ ['Less favourable' appears to be required to make this sentence comprehensible.]

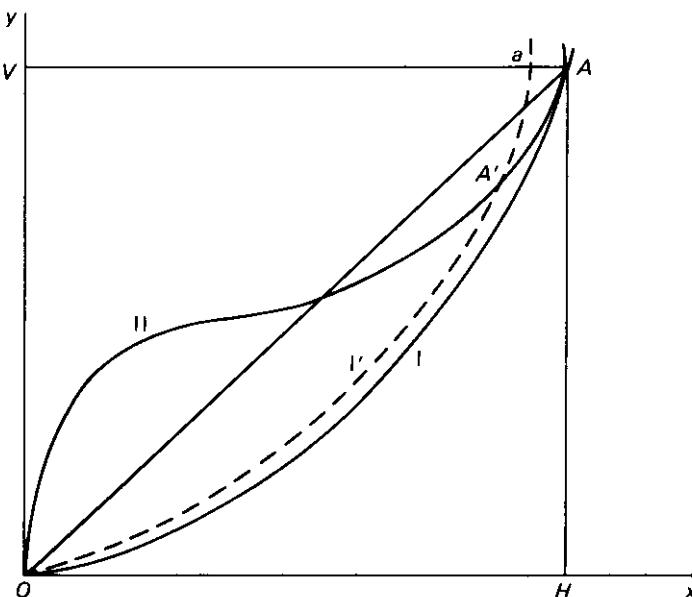


FIG. 10

alteration to this case; and will thus include the results which Mill has obtained.¹⁰

It should be remarked that from the shape of the curves it is obvious that for small values of the line aA the line AA' cannot in general have extremely large values; i.e. that if AA' and aA' are nearly parallel they will not represent approximately the real positions of the curves for any great distance. The cases in which the curves touch one another present no difficulty and are not important: there apply to them remarks very similar to those made with reference to value in the home market.¹¹

If the change which necessitated the new curve had been due to a tax levied in any other way than that which we have, or to any other change in the circumstances of supply or demand, then as soon as the shape of the new curve had been determined, there would apply reasonings similar to the

¹⁰ [A later note indicates (accurately) that this paragraph 'wants explanation'. The reference is presumably to Mill's discussion of the effect of improvements on international values in Book III, Ch. XVIII, § 5 of his *Principles of Political Economy*.]

¹¹ [Again, the reference is probably to the Essay on Value (Item II.2.1 above).]

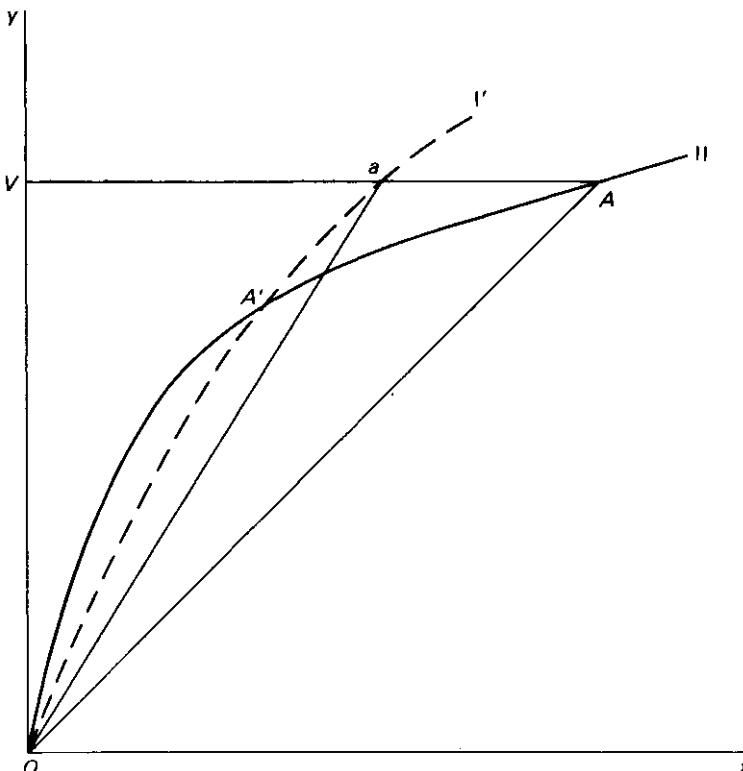


FIG. 11

above and in general with the same result:¹² but not always. For instance in the case which we have taken, if in the neighbourhood of A , I lies within the angle OAV [Figure 11] then in the neighbourhood of a the dotted line $[I']$ must lie within the angle OaV ; but in other cases this need not be true. In particular a case might occur in which A being a point of stable equilibrium, the first intersection A' of the dotted line and II was a point of unstable equilibrium.

Recurring to the first form of the figure [Figure 1?] we see that if A' lies above A , England gets more linen after the imposition of the tax than before; and that if also OA' lies above Oa she gets it at a rate which even after allowing for the tax

¹² [The rest of this paragraph was subsequently deleted.]

which she has to pay before delivering it is cheaper than before. Thus by imposing an export duty on cloth she would not only get the tax paid in but she would derive a positive benefit from it with reference both to the amount of linen which she bought and to the exchange rate. The necessary conditions in order that A' may have this position are firstly that if an amount of cloth somewhat less than OH be sold in Germany it can be disposed of at a price which will cover the expense of production of an amount of linen greater than AH ; and secondly that an amount of linen greater than AH can be disposed of in England only at a price less than sufficient to cover the expense of production of an amount of cloth increased in the same proportion. These conditions are quite possible; and if England could get linen only from Germany and nothing but linen from Germany; while Germany could get cloth only from England and nothing but cloth from England they would not be improbable.¹³ This result is not recognized by many free-traders. It is to be regretted that many of the popular arguments in favour of free trade are of so loose a character that they lead to sweeping conclusions, in which the conditions necessary to render them true are not introduced.

The reader is now in a position to perceive that though it has been convenient for the sake of brevity and clearness to consider these portions AA' and aA' of II and the dotted curve [I'] respectively to be straight lines, it is not necessary to do so; and that it is not even requisite to consider the tax to be a small one, although if AA' and aA' were large enough to be of a very irregular shape the reasoning would become extremely cumbrous in expression.

[It is possible that]¹⁴ Germany instead of quietly submitting to buy her cloth at a greatly increased cost would soon

¹³ We must indeed bear in mind that if the tax be very large and be not levied in kind and the cost of production of cloth varies very rapidly as the amount produced changes, the dotted curve [I'] will not represent with even approximate accuracy the new circumstances of the trade.

¹⁴ [The first four words of this sentence have been supplied to preserve continuity. There is a gap of three pages (about 400 words) in the manuscript. Surviving deletions make it clear that some of this gap dealt with an elaboration of the previous sentence, especially in connection with multiple equilibria. It seems possible that Marshall became dissatisfied with this discussion and deleted the pages which contained it, losing continuity in the process.]

learn to make it herself or to import it from some other source. And, what is of less importance, she could to some extent prevent the depreciation of linen in England by offering besides it other goods of her own in exchange for cloth and even orders for goods on other countries. Neglecting however the difficulty of collecting the tax, putting aside all ethical considerations, it may be admitted that most countries could probably find some commodities from an export duty on which they would besides obtaining the tax derive considerable financial advantages. Such is perhaps the case of English coal.¹⁵

The case of a tax on imports differs in important respects from that of a tax on exports. Let us suppose the tax on cloth to have been imposed by Germany and observe how it affects her. We find that if OA' lies above Oa the rate of exchange is so unfavourable to her that she loses in her trade more than she gains by the whole of her tax. In the ordinary case in which OA' lies between OA and Oa she loses less and manages to make England pay some part of the tax: while the only case in which she appears to gain more than the whole tax is that in which A' lies within the angle OAH [as in Figure 10]. As we have seen this case is extremely exceptional and is only possible when the enormously increased rate of the cost of production of a small quantity of linen renders the cloth really extremely expensive to Germany. Still, if we neglect the injury arising to Germany from obtaining a smaller amount of cloth than before and measure the effect of the tax simply by the rate of exchange we find that in general some part of the burden of the tax will be shifted on to England. But the fact that trade is not carried on only between two countries and only with respect to two commodities introduces much more serious modifications into this result before it can be applied to practice than into the corresponding result with regard to export duties. For a country has often a special desire to buy some particular commodity and can often only obtain it conveniently from one country: but she seldom has a special wish to sell any

¹⁵ Marshall, in a letter to *The Times* of 22 Apr 1901, again broached the possibility that England might gain from an export tax on coal, observing 'It is now five and twenty years since I first thought of writing to advocate an export duty on coal' (*Memorials*, p. 322). This presumably refers to the discussion in the abandoned trade volume (see Vol 2, pp. 67-8 below).]

particular commodity and is not in general compelled to sell it in any particular market. If Germany puts a tax on cloth, England will discontinue exporting it to Germany until its price is sufficient to pay the expense of its production together with the tax, and it will succeed in doing this by some round-about method which is not taken account of in drawing the curves, being inconsistent with the fundamental assumption on which they are based that the linen and the cloth exactly exchange against one another. England might manage to dispense with some other commodity which it had obtained from Germany, by making it itself or buying it elsewhere or doing without it: or it might induce Germany to take some other commodity of its own than cloth in exchange for the linen: or lastly there might be some other country, as Russia, which could either induce Germany to take an increased amount of its commodities or by diminishing its importation for her own use of linen or of some other commodity from Germany thereby obtain some linen from Germany which it could sell to England either directly or by means of an order on Germany. No peculiar complications are introduced by the fact that one of the materials of international trade is gold either coined or uncoined.

Even though Germany may resist an increase in the amount of commodities other than cloth that are imported to her, she is almost certain to be vulnerable in some of her exports. There can scarcely be a country which is not on the point of being undersold with regard to her exports to some one country. And this is the reason why, if we have only regard to the rate of exchange, a country can seldom evade the full penalty of imposing a tax on its imports. In addition to this the loss which a country sustains from a diminution in the amount of its imports must be estimated: a method of doing this will be given further on.¹⁶ Meanwhile it must be remembered that as far as the rate of exchange alone is concerned it is frequently more difficult for a country to shift onto the shoulders of others part of the burden of a tax which she imposes on her imports than of one which she imposes on her

¹⁶ [See Item II.8.2 below.]

exports, and consequently of those portions of excise taxes which ultimately fall on goods that are exported.¹⁷

[*Addendum*]¹⁸ It may be proved that whatever shape consistent with the fundamental conditions the curves may have, the first point of intersection of II and [I'] to the left of *A* must be a point of stable equilibrium while the first point of intersection to the right of *A* must be a point of unstable equilibrium: but that the exchange point which immediately after the imposition of the tax is at *a* cannot move to any point of equilibrium which lies to the right of *A* but must move to one which [lies] to the left of *A*. Sometimes the only one which lies to the left of *A* will be at 0.

II.8.2 ‘Total Utility of Foreign Trade’

Introduction The short note which follows appears to be of early date and seems to be as near as Marshall ever got to the analysis of the gains from trade promised in the preceding essay (Item II.8.1). It is essentially identical to the discussion of the ‘net or surplus benefit from trade’ which appears in *Money Credit and Commerce*,¹ to which reference should be made for further explanation. Essentially, what Marshall does is to derive from England’s offer curve (*OQA* in Figure 1 of the Text) the implied demand curve *A’Q’U* (with axes inverted from his usual convention). This demand curve expresses England’s demand for linen as a function of the cloth:linen exchange ratio. The gain from trade is then defined as the area under this demand curve for all exchange ratios in excess of that ruling in equilibrium (viz. *OL* cloth for *OH* linen). This is strictly appropriate only if the marginal utility of cloth is

¹⁷ [It appears that a discussion of bounties was to continue the manuscript.]

¹⁸ [This addendum of five pages octavo and four figures appears to have been an integral part of the manuscript as it continues with the numbering of figures and Figures 13 and 14 appear on the same page as Figure 11. However, only the first page is given here, the cumbersome geometric proof being omitted. For a similar result see Proposition XIV of the *Pure Theory of Foreign Trade* and the ensuing discussion (Vol 2, pp. 177–80 below).]

¹ *Money Credit and Commerce*, pp. 338–40. Marshall’s analysis is considered in H. G. Johnson and J. Bhagwati, ‘Notes on Some Controversies in the Theory of International Trade’, *Economic Journal*, Vol 70 (Mar 1960) pp. 74–93, where reference will be found to earlier discussion.

constant, for which Marshall's assumption of a constant production cost for cloth is hardly sufficient.

In his 1872 review of Jevons, Marshall remarked that

In estimating ... the benefit of foreign trade, we must pay attention to the total utility of what we obtain by it, as much as to its final utility, which alone is indicated by the rate of exchange. [Jevons's] attack on Mill on this point is worth reading, though it is in parts open to criticism.²

Nevertheless, it is essentially Jevons's solution that is adopted here, though, as usual, Marshall prefers an operational if imprecise formulation in terms of demand to Jevon's non-operational if precise formulation in terms of utility.

When he came to write his early volume on International Trade, Marshall proceeded to include the curves on domestic value 'in order to get at consumers' surplus' because 'I found all methods of representing the "total benefit" of foreign trade by their special curves very troublesome.'³

The manuscript is of two pages octavo, but only the first is reproduced here, the second simply contrasting the effects of various alternative shapes for the offer curve.

Text A is [the] exchange point [in Figure 1, where OQA is England's curve]. On the assumption that the cost of production of cloth is independent of the amount produced, if lines be drawn through [the origin] to cut a fixed line HK parallel to Ox (thus e.g. OQq to cut it in q) and Q' on the same vertical line as q and the same horizontal line as Q , Hq represents utility to nation of an extra yard of linen when they had got NQ , HK in the same measure [i.e. utility] of what they actually pay for it, therefore Kq of what they gain on it. Therefore their gross gain by the traffic is represented by area $A'L'U$. This holds if the unit of measurement be labour of average labourer. [If] y , x [be the] coordinates of [any] point on the old curve $x = f(y)$ [and] y' , x' [be the coordinates] of corresponding point on [the] new [then] $x' = cx/y = cf(y')/y'$.

² *Memorials*, p. 95.

³ *Memorials*, p. 449 (quoted more fully on pp. 63–4 above).

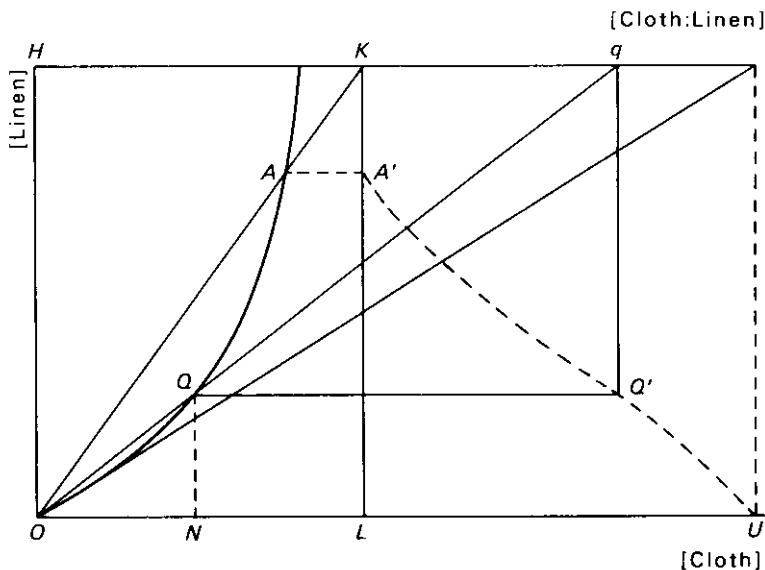


FIG. I

II.8.3 'Absenteeism'

Introduction The topic of absentee landlords was a staple of nineteenth-century economic discussion in Britain, deriving its relevance mainly from the Irish question.¹ Marshall's essay on the topic is primarily a straightforward application of his newly-refined international-trade theory. His discussion is leisurely and full of quaint observations, but this does not hide the analytical skeleton required to deal with the case in which labour and capital are assumed to be immobile between places. The discussion is suggestive of his likely approach in the missing early chapters of the abandoned Trade Volume.

The manuscript of thirteen pages octavo, with four pages of miscellaneous addenda (only one of which is included here) is similar in appearance to the other early material, and the added reference to the views of 'Miss Paley' suggests composition between 1872 and 1875. The crudity of style and conception favours the earlier of these dates.

¹ On this see R. D. C. Black, *Economic Thought and the Irish Question, 1817–1870* (Cambridge Press, 1960) Ch. III.

Text All discussions on absenteeism recognise that the nature of the question to be solved depends upon the ease or difficulty with which capital and labour can follow the migration of the landlord. In no case is the difficulty insuperable, in no case can it be done with perfect ease. Yet in this, as in most other complicated practical questions, it will be advisable first to discuss separately the consequences which are to be deduced from each extreme hypothesis; and then for any particular concrete case which may occur to combine in proper proportions the results of our two abstract sets of reasonings.

Let us then firstly assume that the landlords of a certain district remove to another district to which capital and labour can and do follow them with perfect ease.¹ The results arising in this case are mainly due to the changes in the distribution of population which are hereby brought about. Agricultural districts are left to bucolic simplicity without the social advantages and disadvantages, and without the economic advantages, of a highly developed civilisation. It is not possible even on this simple hypothesis to lay down any conclusions as universally valid. In a country in which there are not many manufacturers and almost all property is real, the country may on the whole gain by a leisured class congregating together in certain towns: and this the more if, through the peculiarities of its language or for any other reason, the progress of its civilisation is mainly independent of that of other countries. Thus it is possible that the rural districts might with advantage be sacrificed somewhat to the towns in Turkey or Japan. It may be a question whether Australian landlords do not do well by congregating in Australian cities: there can be no question but that they injure Australia deeply by returning to England, inasmuch as thereby they not only diminish the amount of capital and labour which migrates to Australia but also render it almost impossible for her to have an indigenous and therefore vigorous and progressive civilisation.

The economical disadvantages under which a purely bucolic population labours are: bad modes of communication

¹ When Australian landlords come to England, labour and capital perhaps cannot follow them easily; but labour and capital which, if the landlords had stayed out there, might have been attracted to them can very easily stay where it is.

with reference to such things as roads, post offices, telegraphs, railway stations etc.; scantiness and in general badness of shops at which they can buy; ditto of markets in which they can sell; and limitation in the number of employments to which access is open – causing for instance a weakly intelligent man who could have been a good valet to become a bad ploughman.

On the supposition that labour and capital can migrate freely these disadvantages will ultimately have to be allowed for in the wages of labour both manual and that of superintendence: and will thus ultimately fall mainly on the landlords and not on the people whom they have left behind. Yet it is important to point them out: firstly, because some of them may not fall even ultimately entirely on the landlords; secondly, because the share of the burden which any individual landlord bears has not in general a fixed proportion to the damage which he has done; thirdly because the injury which they inflict on themselves must often be included in that which they inflict on their country; and, though it may be said that they are the best judges of what is injurious to themselves, it must be answered that they may not, probably do not, allow sufficiently for the *indirect* effects of their absenteeism on their revenue: moreover taking an average of such cases as can be readily observed the pleasures of a resident are more likely to contribute to the moral and economical wellbeing of the classes below him than are those of an absentee – e.g. his charity is more likely to be discriminating; and also his severity.²

When the resident owner of a heavily mortgaged estate sells it to another who holds it as an absentee, the increase in absenteeism is in some directions more nominal than real, since the total exports from that district had to exceed the imports by nearly the full value of the rent before the change. The absentee may be a wealthy man who has not the wish, and knows that it is not even [in] his interest, unnecessarily to plague his tenants; who is willing to allow compensation for

² In speaking of the scantiness and badness of the shops at which a bucolic population can invest its wages in commodities, reference should have been made to medical men etc., and to those establishments, theatres, concert houses, reading rooms and even churches in which it is possible to provide cheaply for the ease of some provided there are others whose admission fees paid directly or indirectly will support the main expenses of the working.

improvements, and who is in the habit of waiting long for good returns to the investment of capital. It may be stated on the high authority of Campbell³ ‘The Celts certainly are amenable to personal influences; they have some disposition to reverence; they like to see their landlord; a discreet resident landlord, who respects their customs and prejudices, may much influence them for good. But the next best thing to a good resident landlord seems to be a reasonable absentee landlord who interferes very little.... In short they [the tenants] prefer King Log to King Stork.’

No attention has hitherto been paid to changes in the relative values of different commodities or to changes in the rates of interchange. The free migration of labour and capital tends to make such changes very slight: the same people will in general be employed in the same kinds of labour after the introduction of absenteeism as before, but in different places; and an investigation of the slight changes which would occur is by our hypothesis deprived of a scientific basis: no universally valid conclusions can be arrived at.

When however we take the second case in which it is assumed that labour and capital cannot follow the migrations of the landlords, we find a considerable number of people compelled to change their occupations while others carry on their old occupations under less favourable conditions. If the growth of absenteeism be rapid, local tradesmen, domestic servants etc. will suffer grievously for a time. But the tendency for them to seek a new employment for some at least of their capital and labour sets in at once: and the popular charges against absenteeism even when long established on the count of inflicting a hardship on local shopkeepers must be admitted to be a gross exaggeration. The real sufferers ultimately are the consumers in the neighbourhood who have access only to inferior shops. Losses of advantages derived from specialised skill, personal connections and position are inseparable from any change. They must be pointed out separately so that they may not complicate our account of its broader and more important effects.

³ *Irish Land*, pp. 60–1 [G. Campbell, *The Irish Land*, privately printed (Trübner, London; Hodges, Foster and Co., Dublin; 1869)].

These latter effects in the case before us are, insofar as they are economical, due to the permanent employment of the inhabitants of the district in question on work which, taking into account the trade with other districts, is less lucrative than that on which they would otherwise have been engaged. It remains to investigate these.

Every district produces some commodities for home consumption, it exports others and imports others. For economy of language it will be convenient to name these three classes A, B, and C respectively. A resident landlord consumes some of both A and C. An absentee is in the position of a person who exclusively consumes C, or almost exclusively: for in his new home he may consume some produce of his old home. No resident could spend the whole of his income on C, because he must spend some portion of it on paying for personal services. But the *direct* economical effects of the absenteeism of one landlord are in every respect the same as those due to a change in habits whereby several residents, whether landlords or not, substitute the consumption of C for the consumption of A. Much benefit will be derived from bearing this constantly in mind.

The theory of international values establishes that (save under circumstances so exceptional that they need not be considered here) if a district's demand for C increases it will have to pay for them at a rate of exchange less favourable to itself: i.e. the value of commodities of the class C will rise relatively to those of class B. But commodities of class B will have to be produced in greater quantities than before; therefore, in general, their cost of production will rise. While those of class A which do not also belong to class B will be in less demand and their cost of production will therefore fall. The result then is that as compared with commodities of the class A, those of class B rise in value and those of class C rise in a ratio greater than that in which commodities in class B rise. Hence, *other things equal*, the change in question presses most heavily upon those who are the chief consumers of imported goods, and next upon those who mainly consume such home-produced goods as under the particular circumstances of the district are suitable for exportation. If the district exports only manufactured goods, and imports only

articles of luxury, the change will press almost exclusively upon the wealthy classes; if it imports food the change will press very heavily upon the working classes. If it exports raw produce the largely increased amount which it will be required to raise can in general be produced only at a great increase in cost: and on this account the labourers will really suffer more perhaps than if it had imported raw produce and paid for it with manufactured: and this in spite of the fact that '*other things equal*', as said above, the opposite results will arise. We can now see what truth there is in the statement, made by Senior and others,⁴ that absenteeism cannot be injurious to the labourers of a country which does not export raw produce.

We have hitherto proceeded on the assumption that it is distinctly marked out for the district what are the things which she shall export and what the things which she shall import. But we must recognise that this is seldom or never the case so completely that a considerable rise in the value of goods of class C and a considerable increase in the cost of production of those of class B will not cause the district to produce at home some commodities which it had previously imported, and to produce for exportation some things which it had previously made only for home consumption. This consideration does not alter the direction of the effects above investigated in any case. But it considerably modifies their intensity in some cases – notably in that in which the increase in the amount of raw produce exported was supposed very much to increase its cost of production; for unless the circumstances were very peculiar there would in this case be a considerable increase in manufactures both for home consumption and for export.⁵

It must further be borne in mind that when, in any of the above cases, the effect of the change is to increase the amount of manufactured commodities produced in a district, the cost of production of the exports may diminish; and that consequently in spite of the rate of exchange being altered to the disadvantage of the district, the real effect of the change may in an extreme case be to benefit her. This is one of those

⁴ [See R. D. C. Black, *Economic Thought and The Irish Question*, p. 76.]

⁵ The case of a new country in which an increase in the amount of raw produce exported has not a marked tendency to raise its cost of production is not in point.

paradoxes in the complete theory of international values of which the chief value is to prevent the proposition of which it is the contradictory from being assumed to be universally and absolutely true.

What the absentee landlord receives is the value of the amount of the raw produce in his rent. Supposing this amount to remain unchanged, we must, in estimating the injury done to the district by having the rate of exchange with other districts altered to its disadvantage, recollect that the share of this injury which corresponds to the value of his rent falls upon the landlord.

But if the district be already in full cultivation, if it export raw produce, and the inhabitants are neither inclined to leave it nor to adopt any other kind of production, the absenteeism of the landlords will raise their corn rents. This result will appear less startling if we recollect that the class of landlords by consuming themselves a large amount of raw produce, for instance by keeping a large number of riding horses, can raise their corn rents: but while in this last case the rise in the value of the real rent is greater than that in the amount of corn rent, in the preceding case the value of each quarter of corn to the landlord depends upon the amount of the necessities and conveniences of life which it will purchase for him in his new abode.

It is not necessary to introduce any correction, modification or extension into the above investigations in consequence of the fact that one of the commodities which may pass from district to district is gold. If in such investigations the word 'price' be once introduced, it is necessary to stop at each step in order to consider whether the changes contemplated have not increased or diminished the currency in circulation, and so caused a general rise or fall in prices. But if we do not introduce the word 'price' we need no special attention whatever to the existence of gold. It is simply a commodity which may always be conveniently given up to a certain extent in discharge of an abnormal increase in indebtedness. Thus it has been pointed out that if a district has an increased demand for imports, she will try to export some goods which she did not export before. One of the first of these will be gold; but the amount to which she can export it is, in general, only

slight: afterwards she must be dependent on things of which she can produce a continual supply. Exactly the same thing applies on a more limited scale to such things as diamonds, ivory, etc. If ivory were exported from England to France its value would rapidly rise here and rapidly fall there. The value of the gold in a country is much greater than that of the ivory in it: but this is only a difference in degree; and allowing for this the value of all commodities may be estimated and expressed in all investigations such as the above in terms of ivory just as well as they may be in terms of gold. ‘Price’ does not always mean the same thing as ‘value in terms of gold’ because a seignorage may be charged; but the complications which this fact introduces though intricate are in general trivial, and attention is seldom paid to them. ‘Favourable and unfavourable exchanges’ correspond to transitional phenomena. They are usually represented with reference to ounces of gold, but might just as well be represented with reference to chests of tea.

In the above investigations ‘districts’ have been spoken of instead of ‘countries’. ‘Country’ has an intelligible signification politically. Economically two places are said to be in different countries if capital and labour do not migrate freely between them; and in the same country if they do so migrate with absolute freedom. Hence strictly speaking no two places are in the same country and no two places are in different countries. Thus there are strong reasons for using the word ‘district’ besides that of seeking to avoid a collision between the political and economical significations of the word ‘country’. Economically some portions of Canada have more intimate relations with some portions of the United States than most of Ireland has with most of England, perhaps even than Yorkshire has with Devonshire:⁶ far more intimate than those which any portion of Canada has with any portion of the Cape of Good Hope.

The political definition of a country is important even in economical questions with reference to government action of all kinds – notably taxation. Thus if an Irish landlord’s

⁶ It must be recollect that there is a trade though perhaps mainly an indirect one between Devonshire and Yorkshire to which the theory of international values has some application.

estates were taxed more heavily if he were resident than if he were non-resident, it would be of some importance to enquire whether he lived in Dublin, in London, or in Paris.

The social effects of absenteeism are the same in character (in general) on the supposition that labour does not migrate freely as on the supposition that it does: but they are much greater in extent and intensity.⁷

⁷ [The following notes were an addendum to the manuscript.]

- (a) Miss Paley lays stress on the question whether their foreign associations cause absentees to invest such savings as they make, abroad rather than at home.
- (b) Where absenteeism means only habits of travel, absentees are educated and may bring home with them new notions on things in general but specially may tend to lower 'the cost of production of culture' in their native country.

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