ALFRED MARSHALL
Economist 1842–1924

Peter Groenewegen
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Economist 1842–1924

Peter Groenewegen
Great Thinkers in Economics Series

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Alfred Marshall

Economist 1842–1924

Peter Groenewegen

Emeritus Professor of Economics, University of Sydney, Australia
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Preface

This book on Marshall draws heavily on material contained in my biography of him published by Edward Elgar in 1995 under the title *A Soaring Eagle. Alfred Marshall 1842–1924*. Most of the biographical material in this study of Marshall as a major British economist derives from the research carried out for the earlier volume. However, the present book is not to be taken simply as a condensed version of the 1995 biography. Two features of the new work differentiate these products. The first is that the new book emphasises Marshall’s work as an economist to a far greater extent than the 1995 biography by carefully outlining Marshall’s economic ideas in considerable detail. Secondly, the new book is able to draw on the ten years of new Marshall research by a growing number of Marshall scholars. Of these, the publication in 1996 of John Whitaker’s three volume edition of Marshall’s correspondence is particularly noted, as is that of the *Elgar Companion to Marshall* published ten years later in 2006.

As part of a series on Great Thinkers in Economics, the emphasis of this book has to be on Marshall the economist. This allows not only an overview of the host of important things Marshall said as an economist over the five decades from the late 1860s which he devoted to studying economics but also gives an opportunity to appreciate the continuing relevance of so many crucial aspects of his economics. In short, emphasis in the book is on Marshall’s economic method and ideas as developed by him over half a century in his various books and articles and on the manner in which these were passed on to the many pupils whom he had taught himself, who then in turn passed it on to their pupils. The book, therefore, also has something to say on the economic school Marshall created by not only presenting major aspects of the nature of Marshall’s economics, but also by addressing the manner in which it was gradually diffused over various parts of the world.

One further comparative comment can be made on this Marshall book and its 1995 predecessor. In this book, footnotes have been completely, and deliberately, avoided. All references are provided in the text by the Harvard method.

This preface also provides an opportunity to thank the general editor of the series, Tony Thirlwall, for his careful copy-editing of the first draft, to the benefit of my style and some of the other contents as well.
It is hoped that this book will be of interest not only to historians of economics but that it will be read especially by Marshall’s true heirs, the current practitioners of economics who wish to learn more about their subject’s origins and about a person who shaped its foundations. They may then also learn that economics even if over a century old, as is the case of most of Marshall’s economics, may still have important things to teach to contemporary practitioners. If this book encourages readers to go back to Marshall’s works, and thereby learn more to appreciate his many contributions, I will be more than well pleased as its author.

*Sydney, May 2007*
Introduction: Alfred Marshall, a Giant Among Economists

‘It is probably well within the truth to assert that the authority of Marshall has been for several decades, and still remains, supreme among the economists of the English speaking world’ (Davenport 1935, p. 1). Such praise begins Henry Davenport’s 1935 book, *The Economics of Alfred Marshall*, despite his highly critical attitude to Marshallian economics. Sixty years later, Milton Friedman, a great admirer of Marshall’s microeconomics, argued that Marshall’s great book, *Principles of Economics*, ‘dominated the teaching of price theory...until well into the twentieth century’ (Friedman 1996, 2004, p. 139).

Cambridge economists in England likewise declared their Marshallian loyalties unambiguously when discussing the longevity of Marshall’s *Principles*. Denis Robertson, in the introduction to his *Lectures on Economic Principles*, while acknowledging that Marshall’s work was over sixty years old, also admitted that ‘every time I look at it I am astonished again at its freshness and wisdom’ (Robertson 1963, p. 12). In 1952, Marshall’s nephew, Claude Guillebaud, argued that Marshall’s *Principles* could not be neglected by honours students, because of its qualities in forging tools for understanding actual problems, its strong association with dynamics and forces of change and its unwillingness to drive theory to its logical conclusions when this meant losing touch with reality. Moreover, Guillebaud claimed the general student perspective on Marshall’s book to be that ‘there was nothing to unlearn’ (Guillebaud 1952, 1982, II 186–7). When in the second half of the 1950s, I started studying economics at the University of Sydney, Marshall’s *Principles*, although not a textbook, stayed on as recommended reading for the terms devoted to price theory, distribution theory and the theory of the firm in first and second years (1957, 1958).
It may also be noted that Marshall’s *Principles* remained in print for the whole period since its first edition in 1890, achieving paperback status (and a resetting of the type, which changed its pagination) in the early 1960s. Both the centenary of the *Principles* in 1990 and earlier its fiftieth anniversary in 1940 were celebrated on what was virtually a world scale. Anniversaries of Marshall’s other books received far more modest recognition. Emphasis on the importance of the *Principles* should, however, never imply that Marshall was the author of only one book.

1.1 Marshall’s work as an economist

Over Marshall’s long life as an economist, which began in the mid-1860s to end shortly before his death in 1924 (hence lasting over half a century), he produced much other work. This included three books in addition to the *Principles* (that is, *Industry and Trade* in 1919, *Money, Credit and Commerce* in 1923 and *Economics of Industry* written jointly with his wife in 1879), over forty articles and chapters in books, together with a substantial amount of evidence to official inquiries (enough to fill two volumes when this official material was reprinted by the Royal Economic Society in 1926 and 1996). In addition, Marshall was an assiduous teacher of economics. He taught the subject at Cambridge for over three decades and taught it at Bristol and Oxford for eight years. Hence Marshall’s teaching experience in economics from the late 1860s until his retirement as Cambridge Professor in 1908 spanned more than forty years.

Marshall’s teaching generated a major product. This was the Marshallian School of Economics, created from the many pupils whom he taught over the decades on both a formal and an informal basis. The two most eminent members of that school were undoubtedly John Maynard Keynes and Arthur Cecil Pigou. The list also includes Arthur Berry, Arthur Bowley, Sidney Chapman, Henry Cunynghame, Charles Fay, Arthur Flux, Walter Layton, D.H. MacGregor, H.O. Meredith and Charles Sanger. Indirectly, because as students after Marshall’s retirement they were trained by his ‘pupils’; Claude Guillebaud, Hubert Henderson, Frank Lavington, Denis Robertson, P. Sargent Florence and Gerard Shove have to be included as important Cambridge Marshallians. Moreover, as Stigler (1990, p. 11) noted, the Marshallian message had crossed the Atlantic very effectively to influence major American economists such as Taussig, Knight and Viner, and many others as well. Marshall’s economics also has its contemporary followers in continental Europe even though its sway there was never on the scale on which his
economics dominated the profession in the English-speaking world for many decades.

1.2 Marshall’s specific contributions to economics

Marshall’s specific contributions to the subject are difficult to summarise in a few paragraphs. However, the impact of his message for later generations of economists continues to evolve and new, significant contributions are recognised as a consequence. In his centenary assessment of the *Principles*, Stigler (1990, pp. 5–12) listed four major and several minor contributions by Marshall which influenced the economic analysis of succeeding generations of economists. The first (and foremost?) was ‘making time itself a major factor in the theory of value’, with special reference to supply and its elasticity as characterised by the market period, the short period and the long run. Such emphasis on the importance of time in economic analysis facilitated the introduction of new short period concepts in Marshall’s work, of which a prominent and enduring example was the notion of ‘quasi rent’. Secondly, Marshall contributed the doctrine of internal and external economies thereby permitting a reconciliation of competition with increasing returns, and enriching both the literature of welfare economics and that of production economics and price theory. Thirdly, Marshall gave prominence to the theory of the firm and may be said to have formally initiated that research programme both in his *Principles of Economics* and in the subsequent *Industry and Trade*. His emphasis on the firm also enhanced the meaning of an industry without which the economic notion of the firm would be relatively meaningless. Fourthly, Marshall’s discussion and elaboration of the concept of consumer surplus, despite his later reservations on that score recorded by his nephew (see Guillebaud 1971, p. 6), did much to advance the development of welfare economics as a separate branch of economic theory. Marshall likewise contributed much to the theory of human capital, considerably developed the theory of the demand for money via his elaboration of the Cambridge cash balance equation and greatly enhanced exposition of the theory of international trade with his development of the offer curve (reciprocal demand) technique in diagrammatic form. Interestingly, Stigler also gave much praise to Marshall’s undoubted influence on delaying ‘the excessive growth of formalism in economics’ by ‘at least a generation’. Finally, Marshall popularised the use of analytical tools such as elasticity, substitution, inferior goods, even if he himself had not been responsible for their introduction.
Other economists emphasise the novelty of different important elements in Marshall’s economic contributions. Thus Becattini (for example 2003, pp. 21–2) highlights Marshall’s contribution to the notion of industrial districts as part of his theory of production, a notion Becattini himself did much to develop in the context of his native Tuscany (see Bellandi 2003). Another innovative feature of Marshall’s economics which has gained much attention over the years is its ‘dynamics’ in terms of the type of adaptive growth so characteristic of biological evolution (see Schumpeter 1941, 1982; Groenewegen 2001, pp. 49–62 for an overview). Further on the methodological front, Marshall’s careful blending of theory and fact and his almost obsession to be fully cognisant of the industrial changes which were taking place in his contemporary environment have been seen as practices greatly deserving of imitation by contemporary economists (Loasby 1989, chapter 4; O’Brien 1990).

Schumpeter’s (1941) praise of Marshall the economic historian pointed to his appreciation of the fact that Marshall considered many economic problems from a historical perspective and in their appropriate historical context, of special importance in Schumpeter’s view because it prevented the establishment of an institutionalist tradition in British economics. Schumpeter (1941) also stressed the affinity between Marshall’s economics and the development of the theory of imperfect competition not long after his death. Among other things, this is evident in Marshall’s refusal to accept perfect competition as a realistic notion of market structure, unlike the practice of his leading contemporaries among United States’ economists such as J.B. Clark.

Marshall’s *Principles* also greatly contributed to the popularisation of using diagrams to illustrate economic arguments, even if Marshall coyly kept them in his footnotes and out of the text. The Marshallian supply and demand cross, the mainstay of much preliminary micro-economics, is now so well established that its originator, Alfred Marshall, is rarely acknowledged by its many users. Earlier, often horrendously complicated or inelegant diagrams of market price determination (those of Cournot and von Mangoldt are good examples) are now, fortunately, largely forgotten. The subtle handling of mathematics in Marshall’s economics, which banished all equations to an appendix, also facilitated the acceptance of such analysis in economic discourse. It also demonstrated how essentially mathematical economic reasoning could be presented unobtrusively. Marshall’s deliberate approach in his writings of hiding the services of mathematics, did, however, produce a text whose precise meaning was not always easy to follow. For later
generations of readers, it thereby made Marshall’s *Principles* an even more difficult book to master.

### 1.3 Marshall’s major books

Marshall’s definition of economics as presented in the *Principles* is also noteworthy. Economics was a form of reasoning able to facilitate the study of man in the ordinary business of life. This statement has at least two major implications. First, it suggests economics is a set of tools to assist analysis, an engine for the discovery of truth, rather than a number of formal conclusions. Secondly, economics inquires ‘of how [man] gets his income and how he uses it’. National income and individual income are therefore at the centre of the analysis, though the usefulness of the competitive price system in both allocating productive resources and in distributing their output, in Marshall’s view made Book V on value the most important segment of the *Principles*. However, its more general outline of contents highlights the role of wants (and demand) in Book III, production (and supply) in Book IV, then value (supply and demand) in Book V and distribution (also supply and demand) in Book VI. Book V’s high status is therefore also explained by its central position in the *Principles*: it integrates the contents of the previous two books and lays the foundations for the final book. The first two books of the *Principles* were both introductory. In turn, they gave ‘a provisional overview’ of the subject, partly historically contemplated (Book I) and raised some methodological and definitional issues in a preliminary way (Book II).

For the first five editions of the *Principles*, the book was still presented as the first volume of an intended two. The proposed contents of this second volume were described by Marshall in 1887 as matching in form the six books of the first. In volume II, Book VII was intended to cover foreign trade. Money and banking came in Book VIII, trade fluctuations in Book IX, taxation in Book X, collectivism (which probably would have included discussion of all government activities) was to constitute Book XI and ‘aims for the future’ fell to Book XII. As is well known, the second volume of the *Principles* never eventuated (see Whitaker 1990), largely because Marshall spent far too much of his time during the 1890s in revising the first volume (its second edition appeared in 1891, the third in 1895 and a fourth in 1898). For the fifth edition much of the contents was re-ordered, partly by removing material from the text to a series of appendices. Clear indications of the fact that the book had been originally conceived as a first volume, disappeared with the
sixth and subsequent editions of the Principles. Part of the proposed subject matter of the originally planned second volume was put in what Marshall described as ‘companion volumes’ to the Principles. However, by the time its eventually definitive eighth edition had appeared in 1920, the Principles itself had become a self-standing volume of foundations, in which the major propositions of the subject were outlined in considerable detail.

The first of these companion volumes to the Principles appeared in 1919 under the title, Industry and Trade. Its preface described the book as ‘a study of industry and trade; with special reference to the technical evolution of industry, and its influences on the conditions of man’s life and work’. The book was divided into three major parts, followed by no less than sixteen appendices addressing historical matters and methodological issues. Unlike the Principles, Industry and Trade contains no diagrams and no mathematical appendices. However, its contents admirably demonstrated Marshall’s ability to blend analysis with fact, including historical fact. Delay in its publication was partly explained by Marshall’s usual slowness in writing and frequent changes of mind on the nature of the book he wished to construct. Moreover, he desired the book to be as up-to-date an account as possible, which implied constant revision and updating, including the need to comment at least on the industrial future of post-First World War Britain prior to the book’s publication in 1919.

Book I of Industry and Trade dealt specifically with the impact of particular features of national development on contemporary patterns of industry and trade. It showed how geographical factors influenced industrial concentration, innovation and technical progress, as assisted by scientific research, education, transport and communications, natural characteristics including government policy and the very topical impact of war. Needless to say, this was a comparative exercise involving the study of the world’s four major industrial countries, the United States, Great Britain, Germany and France, to better enable the highlighting of differences and similarities in their industrial development.

War, for the purpose of Marshall’s discussion in Book I, included past wars (such as the 1870 Franco-Prussian war) as well as the First World War which had just ended. As part of the discussion, Marshall also ventured to predict great futures for Russia and China, and even future industrial greatness for India. The evolutionist perspective ever present in his economic work made him conclude that ‘there is no sure ground for thinking that industrial leadership will remain always with the same
[white] races, or in the same climates, as in recent times; nor even that its general character will remain unaltered’ (Marshall 1919, p. 162).

Book II addressed contemporary problems in business organisation, in particular the massive growth of large-scale industry. This was a long-standing issue for Marshall, one which he never tried to evade or suppress, because the growing presence of increasing returns raised a major economic problem of how this beneficial tendency in business organisation could be reconciled with maintaining a competitive economy. The presence of increasing returns was in fact the major subject of Book II, factually supplementing at length much of the theoretical discussion given to this subject in Book IV of the Principles on production. Book II of Industry and Trade therefore illuminated a very significant problem in Marshall’s economics since it also supplemented the production-centred discussion of the Principles by examining the rapidly growing impact of large-scale industry on marketing costs. Moreover, the benefits of this industrial development on productivity and output enabled optimistic conclusions to be reached on the impact of economic progress on the elimination of poverty and on rising living standards for all.

Book II is noteworthy because it presented the firm as a marketing agency as well as its role as producer. It therefore provided much discussion of retailing, including developments in non-price competition of branded goods, trade marks and advertising. The book also discussed new forms of business organisation, the advantages and disadvantages of joint-stock companies, the American scientific management movement, with factual evidence, particularly in the case of Germany, largely drawn from the decade preceding the First World War. Marshall’s discussion of marketing and of various forms of non-price competition further illustrates how far Marshall’s economics was removed from the assumption of perfect competition.

The third book of Industry and Trade dealt with monopoly and monopolistic markets. Here Marshall indicated that this subject did not necessarily imply the absence of competition. ‘The fiercest and cruellest forms of competition can be found in non-free markets, in which a giant firm was striving for a monopoly position’ (Marshall 1919, pp. 395–6). Successive chapters looked at competition and monopoly in the transport industry (chapters 3–6), trusts and cartels in the United States (chapters 7–8) and in Germany (chapters 9–10). Various British practices in industrial combinations are then compared with the more developed organisational forms in the United States and Germany (chapters 11–13). The final chapter of Industry and Trade discussed the implications of
Alfred Marshall

these developments for the ‘manual labour classes’ in particular. Among other things, Marshall looked here at the impact of more widely diffused education, steadily increasing degrees of mechanisation in production, the impact of trade unionism and the influence of the war on increased cooperation and goodwill between employers and employees, especially in the context of fixing conditions of employment. In this chapter, Marshall also discussed ways by which the control of industry could be diffused, before examining some recent suggestions to this effect. These included the formation of national guilds as elaborated by G.D.H. Cole and various other possibilities for the future, including reviewing the industrial functions of modern government. Its final paragraph emphasised the enormous benefits for society from ‘the progress and dissemination of sound education’, further advances which required ‘reasonable conditions of life’ for all segments of society (Marshall 1919, p. 672). For Marshall, economic development had to entail social and economic progress for all groups in society. Mary Paley Marshall, his partner for many years, later described *Industry and Trade* as Marshall’s ‘last constructive work’ and an enormous success. The book remains worthy of study for its insights on business practice in general, as well as for the specific period it covers.

Between 1919 and 1922 Marshall ‘constructed’ a second companion volume, published in 1923 as *Money, Credit and Commerce*. As implied in the comment of Marshall’s wife just quoted, it cannot be described as ‘new work’. It was in fact largely a pastiche of old work (some going back to the late 1860s) selected by Mary Paley from her husband’s published and unpublished material. This is at least part of the explanation why it appeared so relatively quickly in the space of three years. Its less than four hundred pages (hence a small book by Marshall’s previous standards) were divided into four parts: ‘Money’, ‘Business Credit’, ‘International Trade’ and ‘Fluctuations of Industry and Credit’. In addition, there were nine appendices.

The six chapters of Book I dealt with the functions of money, the measurement of general purchasing power and variations therein by index numbers, the national requirement for currency or the demand for money, followed by a discussion of metallic currencies, especially gold and silver. Book II developed topics in business credit in its four chapters. These in turn were devoted to developments of modern capital markets, joint stock capital and the leading agents in the capital market, that is, the banks and the stock exchange. Book III on international trade is by far the longest book, containing no less than twelve chapters. Some of these reproduced left-over material from *Industry and Trade* such as
its first two chapters setting out the nature and benefits of international trade. Britain’s trade was examined in chapter 3, the balance of trade was discussed in chapter 4, the foreign exchanges and the bill of exchange in chapter 5, the offer curve (reciprocal demand) analysis of trade, the terms of trade and the impact of taxes on trade in chapters 6–11, while the interdependence of trade and national currency was the topic for chapter 12. There were also four chapters in Book IV dealing with fluctuations in trade, industry and credit. The first two discussed the causes of unemployment, including financial crises, the other two related the money market and its activities to fluctuations of industry. In these chapters, Marshall also offered some suggestions for decreasing fluctuations in employment without sacrificing the possibilities for progress from changes in technique which were mainly labour-saving. The final paragraph in the text of Money, Credit and Commerce (1923, p. 263) even repeated the benefits of education and the need to enhance both the living standards and the moral standard of life for all members of society. Its contents, however, can only hint at what could have been achieved if Marshall had developed aspects of his monetary and trade economics during his full maturity as economist in the 1880s and 1890s.

A further companion volume to the Principles had been planned by Marshall as a way of completing the subject matter he had intended to cover in his plan for volume II set out in 1887. The two completed companion volumes whose contents have just been outlined encompassed the subject matter of Books VII, VIII and IX of the project as set out by him in 1887, dealing respectively as we saw with international trade, money and banking, and trade fluctuations. (They covered of course much more on business organisation and its developments in industrial nations from the second half of the nineteenth century.) A final book on progress would cover, as Marshall projected in the early 1920s, material on public finance and ‘aims for the future’, the designated subject matter of the final three books planned for the second volume in 1887. This book, as already indicated, never appeared and, given the virtual disappearance of Marshall’s writing powers by the time of the 1923 volume, could never have appeared in fact. However, had it appeared at a time when Marshall possessed the intellectual strength to compose such a volume, it would have been an exceedingly interesting book (for a discussion see Groenewegen 2005, pp. 30–6, 42–3, which links its draft tables of contents in various ways to Marshall’s views on social philosophy and politics).
1.4 Marshall’s Official Papers and his two smaller books

Something should also be said in the introduction on Marshall’s official papers, his evidence to various Royal Commissions and government committees, including his participation as a member of the Labour Commission. In 1926 and 1996, the Royal Economic Society published volumes of Marshall’s Official Papers, the first edited by Maynard Keynes, the second by myself as a supplement to the Keynes volume. These two volumes reproduce much material of relevance to Marshall’s theoretical position on money, credit, business fluctuations and international trade, as well as on public finance (the incidence of taxation), on education in Wales and Monmouthshire, and from the final report of the Labour Commission. Some of the monetary evidence, broadly conceived, had been reprinted by Mary Paley in Money, Credit and Commerce because it so coherently explained Marshall’s more advanced views on monetary theory and policy. In particular, if Marshall’s views on the determination of the price level, its effects on international trade and business activity and his perspectives on business fluctuations had been published during the 1880s and 1890s in a more accessible medium than government reports or if Marshall himself had then systematically developed these views into a monetary treatise, his international reputation as a major monetary economist would have been considerably enhanced during his life time (cf. Eshag 1963; Laidler 1990). Similarly, the paper Marshall had prepared on British fiscal policy in international trade (published in 1908) provided a detailed account of his views on appropriate trade policy in the changing world of the new twentieth century. This paper comprehensively argued that protective tariffs needed to play a greater role in trade policy, given the disadvantages from the outmoded technical state of some British industry, combined with the steady rise in international competitiveness from Germany and the United States. Two versions of this paper survive, which were respectively reprinted in the two volumes of Official Papers mentioned at the start of the paragraph.

The material from the Labour Commission reprinted in Groenewegen (1996) included extracts from its fifth and final report attributable to Marshall, from a selection of his questioning of individual witnesses, as well as material on trade unions and labour disputes. These dealt respectively with the value of trade unions to society, as well as to their members, and the causes of unemployment or, to use the language of the report, ‘the irregularity of employment’. The last was associated by Marshall (as its presumed author) with trade and business fluctuations and with the various influences thereon. These influences ranged
from fluctuations in international trade through changing demands for British exports, changes in domestic demand from changes in fashions and on seasonal factors and their impact on demand via the income effects of fluctuations in harvest yields, as well as the impact of technical change and innovation, particularly on unskilled labour. This text therefore supplements the brief discussion of these matters in the Principles, in Industry and Trade and in Money, Credit and Commerce (which did not reproduce material from the Final Report of the Labour Commission). In short, Marshall’s Official Papers are a rich source illuminating specific aspects of his economics, particularly those not fully developed in the pages of his three major books.

In addition, Marshall published two smaller books, both confusingly using the phrase ‘economics of industry’ in their title. The first of these, simply called The Economics of Industry, had been written jointly with his wife, and went through two editions in 1879 and 1881. It was designed as a text for adult education students. Its contents were divided into three parts. The first dealt with the factors of production and other aspects of traditional production theory, anticipating in its contents much material later elaborated in Book IV of the Principles. Book II dealt with ‘normal value’, not only as applied to goods but also to factors services, hence providing a theory of distribution. The last dwelt extensively on determining the incomes of skilled and unskilled labour, of business power and the earnings of management, and of interest as the reward for using capital. Its final chapter linked normal values to market values, the subject matter of its third and final part. Book III commenced with analysing the effects on market value from changes in the purchasing power of money. It then discussed those from market fluctuations as influenced by the competitive process, custom and habit of the community, monopolies and combinations. These topics prepared the way for five chapters devoted to trade unions and the associated topics of conciliation and arbitration and cooperation. Some of the material in Book III, such as the trade cycle model in its chapter 1, was never re-worked by Marshall, so that the book remains an important source for specific topics in Marshall’s thought.

In 1892, the Economics of Industry was, however, replaced by another ‘little’ book, entitled The Elements of the Economics of Industry, a replacement accompanied by Marshall’s active suppression of the earlier joint work with his wife (see Groenewegen 1995, pp. 251–3). The Elements was in fact little more than a condensed and simplified version of the Principles. It followed the basic structure of the Principles, but had no mathematical appendix, contained very few diagrams, reduced the
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textual appendices to four and preserved the historical chapters in the text of Book I. Many of the more difficult chapters, especially in Book V, were also removed. As the preface indicated, it was a version of the Principles intended for beginners, achieved largely by removing all the more difficult subjects broached in the larger book. The Elements did add a chapter on trade unions, a topic, Marshall regretfully admitted, not really satisfactorily treated in the text of his Principles.

The summaries of Marshall’s major work provided on the previous pages of this section, are an overview of, and guide to, the places where various parts of his economics can be found. The riches of much of that content also explain the high esteem in which Marshall’s economics continues to be held, a topic on which something was already said in the opening section of this chapter. The above material also hints at an overview of the contents of this book in its subsequent nine chapters. Such an overview also indicates that this book is intended to blend facts about Marshall’s long life with the development of his economics. In this way, it tries to present the appropriate picture of Alfred Marshall as one of the most eminent British thinkers on economic problems and analysis.

1.5 The book in outline

The contents of the book can be summarised as follows. Chapter 2 examines Marshall’s childhood, family and formal education up to and including his success as ‘second wrangler’ (second in the first class honours list) in the Cambridge Mathematical Tripos in 1865. Marshall’s ‘postgraduate’ studies in the Moral Sciences (philosophy, psychology, ethics, economics) and his gradual specialisation on economics are looked at in Chapter 3. Its contents are designed to cover the decade as a St John’s College Fellow from 1866, which ended with his marriage to Mary Paley in 1877. Marshall’s period away from Cambridge (1877–84) during the early years of his married life is discussed in Chapter 4. It therefore covers his period as Professor of Political Economy and College Principal at Bristol University College, his European travels while on sick leave from Bristol University, including his stay in Palermo (Sicily) where he started work on the Principles and ends with his four terms as teacher of economics at Balliol College, Oxford. In addition, the chapter reviews aspects of the contents of The Economics of Industry completed with his wife in 1879 and of the privately printed chapters on The Pure Theory of International Trade and of Domestic Value based on theoretical work completed at Cambridge during the late 1860s and early 1870s.
Chapter 5 is devoted to both his tasks as Professor at Cambridge (1884–1908) and his role as adviser to governments (as examined in Section 1.4 in connection with his *Official Papers*) which coincided with his professorship. It thereby gives an overview of Marshall’s important contributions to monetary theory, pure and applied, and his activities in teaching Political Economy and the introduction in Cambridge of the Economics and Political Science Tripos in 1903. The writing of the *Principles* and its subsequent revisions are discussed in Chapter 6. This chapter also includes a more detailed discussion of its more novel features, combined with a reader’s guide to its structure. Marshall’s political and social thought, including his ‘youthful tendency to socialism’; his changing attitudes to the role of women, including their education; and his practice of occasionally engaging in advocacy and controversy are discussed in Chapter 7. Marshall’s first decade in retirement spent in writing *Industry and Trade*, and an analysis of its contents, are the subject matter of Chapter 8. This discussion partly addresses the association of this book with the *Principles* as one of its ‘companion volumes’, even though it is devoted to topics which were never explicitly mentioned when the contents of volume II of the *Principles* was first outlined in 1887. In Chapter 9, Marshall’s final years in the 1920s are discussed, including the preparation of his *Money, Credit and Commerce* and the outlines drafted for a final book ‘on progress’. The last chapter (Chapter 10) reviews Marshall’s economic legacy in terms of both the impact of his work and that of the economic school he created at Cambridge especially that nurtured after the introduction of the Economics and Political Tripos in 1903. Chapter 10 thereby acts as a concluding chapter evaluating the importance of the man and his work.

### 1.6 Marshall’s great eminence demonstrated

To round off this introduction, some appreciations of Marshall’s life and work by a few individual ‘students’ of his economics can be briefly quoted. The first of these deals with Marshall as lecturer, the second indicates the tremendous importance of his *Principles* as a treatise of economics comparable to that of Adam Smith, the third comments on his legacy and is written by a person who, as his prize ‘pupil’ in economics, was particularly appropriate for assessing this part of his heritage. Here they are in turn, without any further comment:

[Marshall] had a singular power of illustration. His mind was stored with facts, though they never came out except in their subsidiary
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place. He dived into the remote past, or drew on recent statistics, on letters in the papers, on some play then being performed, on his own observation. He was never out of touch with life. His range of information and his habit of simple, concrete and apt illustration recalled the ‘Wealth of Nations’. Who would forget the malignant form of competition illustrated from the old Mathematical Tripos, or the lady who put aside her dresses till the fashions came round again, or the widow buying the name plate, ‘John Smith, Dentist’, at an auction, on the ground that you never knew what might happen? Humour played an important part in his lectures. He had good stories, and no one enjoyed their fun more than himself. He sometimes brought notes, though I doubt if he ever followed them, and even when he announced beforehand the topics of a lecture, he would often depart altogether from them, pursuing some new train of thought that had suddenly suggested itself to him.


The publication of this book [the Principles of Economics] is a scientific event of the first magnitude. Announcement was made some time ago that Professor Marshall was preparing an extensive treatise on the Principles of Economics, and students were prepared to find it a well-thought out and scholarly work. But it is safe to say that very few anticipated a work of such scope, of such fresh interest, of such exhaustive information, of such breadth and thoroughness of method as this proves to be in fact. To call it the greatest systematic work since Mill is to speak far within the truth, for the only other book to which it can be compared is ‘The Wealth of Nations’. It does for political economy in the last decade of the nineteenth century what Smith did in the last quarter of the eighteenth...It gathers and sifts the store of economic knowledge. It reconstructs the whole body of doctrine on broader grounds and in that new spirit, at once more liberal and more severely scientific, than has characterised every department of thought in these later years. It so marks the close of one scientific period and the beginning of another that in future advanced discussion must start from Marshall as hitherto from Mill.

(Frank Giddings (1891) in Groenewegen (1998) Vol. II, p. 71)

It is through his pupils, even more than his writings that Marshall is the father of economic science as it exists in England today [i.e. 1924]. So long ago as 1888, Professor Foxwell [another of Marshall’s students] was able to write: ‘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’. To-day, through pupils and the pupils of pupils, his dominion is almost complete.


With such testamurs, what more can be said on Marshall’s eminence as a British economist.
Family, Childhood and Education (1842–65)

Alfred Marshall was born on Tuesday, 26 July 1842, at his parents’ house, 66 Charlotte Row, Bermondsey, in the County of Surrey. He was the second child in the family of William Marshall and Rebecca Marshall née Oliver. William Marshall and Rebecca Oliver were married two years previously on 13 May 1840 at the Parish Church of South Camberwell. Alfred Marshall’s older brother, Charles William, was born within eleven months of that marriage on 13 April 1841. Alfred’s younger sisters, Agnes and Mabel Louisa, were born in 1845 and 1850 respectively, and his younger brother Walter, the last child of the family, in 1853.

At the time of Alfred Marshall’s birth, his father was employed as a clerk in the Bank of England’s clerical office, at an annual salary of £140, a position he had already held by then for a period of twelve years. Over the subsequent decades, his father rose gradually through the ranks of the bank. When he retired in 1877, he was employed in the cashier’s section with an annual salary of £510, enabling his retirement with a sizable pension. In fact, William Marshall’s income proved sufficient for providing the younger sons, Alfred and Walter, with a good school education. However, this still required considerable financial sacrifice on their parents’ part together with the equally essential financial assistance from scholarships.

On the record, William Marshall appears to have been a strict disciplinarian, who lived up to the old adage, ‘spare the rod and spoil the child’. He was also a highly religious man within the established Church of England, with a strong evangelical bent. William Marshall’s private hobbies veered in a literary direction. He was the author of several religious tracts, including an evangelical epic in a type of old Saxon English, with strong protestant and puritan contents. Despite his firmly held views on stern discipline, Alfred Marshall later described his father
in a letter to Foxwell as ‘an unselfish and well-intentioned man’. For example, a footnote in *Money, Credit and Commerce* (Marshall 1923, p. 264 and n. 4) indicates that his father had taken him frequently to the British Museum for both amusement and instruction. As mentioned later in this chapter, William Marshall eventually allowed his son to study mathematics at Cambridge instead of studying under an endowment at Oxford which for virtually every successful student secured a living as a Church of England clergyman. Such a career choice on Alfred’s part would have fitted better with his father’s career preference for him.

Marshall’s mother came from more humble circumstances than her husband. Her ancestry numbered several butchers on her father’s side, and even an agricultural labourer. At the time of her wedding in 1840 she was an orphan, and the youngest child in a family of seven. It was possibly her considerable beauty, as apparent from photographs of her in later life, which provided an important reason for her marriage to William Marshall.

Alfred Marshall was particularly fond of his mother, as shown in the letters he wrote to her from the United States in 1875 (discussed more fully in Chapter 3), and in his later remarks in letters to friends and colleagues such as Herbert Foxwell. For example, Marshall’s letters from America frequently included items of special interest to his mother and sisters. These varied from laundry price lists and descriptions of church services to the relative freedom of young women in Canada, the deletion of the woman’s promise to obey from the Unitarian marriage service, the lack of virtue of Nevada women and details of excursions with the young ladies to whom he had been introduced. Alfred Marshall also kept various things from his trip in which his mother would have been interested: copies of magazines including an issue of *Harpers* especially purchased for her, an order of service from a Boston church service he had attended and some slides of Niagara Falls. Rebecca Marshall apparently saved her children quite frequently from father William’s rod and from severe corporal punishment. Her last years were plagued by ill health and she died in 1878, aged only 62. Alfred Marshall, by then Professor of Political Economy at Bristol University College (see Chapter 4), apparently often acted as her nurse during these final years.

Marshall’s association in later life with his brothers and sisters does not appear to have been very close. His older brother, Charles William, had spent considerable time in India, returning to England in 1895. His three children from his marriage to Lucy Guillebaud – Edith Agnes, William and Arthur Raymond – featured only very occasionally in
Alfred Marshall’s later life. Younger brother Walter, who followed him both to Merchant Taylors’ School and to Cambridge, died in South Africa from tuberculosis without taking his degree. Sister Agnes died in India without ever marrying. His other sister, Mabel Louisa, married the Reverend Guillebaud, whose sister was married to Charles William. Their children, twins Claude and Walter, and youngest son Cyril, probably featured more in Alfred Marshall’s life (Guillebaud 1971). Moreover, Claude Guillebaud edited the variorum edition of his uncle’s Principles of Economics, published in its two volumes in 1961. It was a task to which he devoted a substantial part of his life. The twins Claude and Walter, it may also be noted here, when at Cambridge studied at St John’s College at Marshall’s insistence, and not at Trinity, the traditional college of the Guillebaud family.

Two other relatives of Alfred Marshall deserve mention because of their roles in his later life. One is his father’s brother, Uncle Charles Henry, who made his fortune in Australia. He lent Alfred Marshall the money to enable him to study mathematics at St John’s College, Cambridge (discussed in Section 2.2). Moreover, on his death in 1874, he left his nephew a legacy which Alfred Marshall spent, very wisely on his own account, on a trip to the United States and Canada in 1875. The other important relative in Marshall’s life was his father’s only sister, Aunt Louisa. She, Alfred Marshall later recalled, regularly ‘saved his life’ by enabling him to spend his long summer vacations at her farm in Devon. There he could use the boat, the gun and the pony she apparently had given him, so that in the autumn he returned ‘brown and well’. Interestingly, her name was included on Marshall’s list of persons to be sent complimentary copies of Elements of the Economics of Industry, the précis of his Principles he published in 1892.

2.1 Childhood and school (1842–61)

These formative years of the young Alfred Marshall coincided with improvements in the financial circumstances of his family. They allowed a gradual move from Bermondsey, first to the better neighbourhood of Sydenham and then to the middle-class splendour of Larkhill Rise, Clapham in 1850. From there, the young Marshall travelled to the city, probably in the company of his father on his way to work at the Bank of England, where he attended Merchant Taylors’ School from early 1852. Little is known about Marshall’s early childhood and schooling. He attended a ‘dame school’ as a small boy and later a private educational establishment of which there were then many in London. Entry
into Merchant Taylors’ School required knowledge of elementary Latin grammar as well as of the major facts of scripture history and of the Church Catechism. Marshall probably entered the first form of this eminent public school in January 1852, aged nine. He had been nominated for admission through Bonamy Dobree, a member of the School Court and a Bank of England Director. This was a valuable gift since, as mentioned previously, the school gave considerable access to scholarships at Oxford. Alfred Marshall’s life at school would have been made particularly difficult because of his relatively poor background, and one of his former school friends later recalled that Marshall had been invariably badly dressed at school.

Hours of school were 9.15 to 1.00 and 2.00 to 3.45 on Mondays to Fridays, with a half-day on Saturday morning. There were four weeks of Christmas holidays and six weeks of summer vacation. Classes for the two hundred and fifty boys annually enrolled in the school’s six forms were held in a large, noisy schoolroom. Important for the future prospects of Alfred Marshall, in 1850 the headmaster (the Rev. James Hessey) appointed a second wrangler (that is, second in the first class honours list in Mathematics at Cambridge) as its mathematics teacher. This appointment gave the school a deserved reputation for very high-quality mathematics teaching in the 1850s and 1860s. Hessey as the headmaster also reformed many of the school’s archaic practices. His reforms included providing students with desks to work at and separate classrooms for third and fourth forms. Despite its good provision for mathematics teaching, the school mainly provided the traditional classical education. Latin and Greek studies occupied the morning in the junior forms, French was added from fourth year and Hebrew in the final year. Afternoons were initially reserved for Arithmetic and Writing, later for Mathematics and Technical Drawing. History and Geography were combined with the morning’s language teaching, and scripture classes were held on Monday mornings.

Little is known about Marshall’s actual experience as a schoolboy at Merchant Taylors’. What is known is that he was a brilliant student. He won the school’s chief mathematics prize in 1861, and earlier secured mathematics prizes in 1857 as well as very high rankings in the 1859 and 1860 examinations. In 1854, he won a special prize for coming second in Latin grammar and in 1861 shared a special essay prize offered by the headmaster. The overall quality of his school performance is indicated by the fact he became third monitor, that is, third in the school’s order of merit. This achievement conferred special privileges, including training in the art of public speaking.
What is known about Alfred Marshall’s few friendships at school is also of interest. Two of his friends were Sidney Hall, later an artist, and H.D. Traill. Traill was first monitor in 1861 and won no less than eight major prizes. He became a well-known journalist with the *Telegraph* newspaper. An interesting anecdote about Traill’s friendship with Marshall is that they were spotted by the headmaster, to his great astonishment, at the monitors’ table studying J.S. Mill’s *System of Logic* together. Combined with his strong taste for mathematics, such interest in Mill’s work on scientific method, revealed a marked inclination towards scientific study on Marshall’s part. This would have further nurtured his decided disinterest in continuing his studies by taking classics at Oxford. Airey, the Cambridge second wrangler and head mathematics master at the school, would have assisted in pushing his gifted student towards Cambridge mathematical studies. Marshall’s growing enthusiasm for this option is visible in the fact that he had entered for, and won, the Parkin Exhibition. This scholarship, valued at £50 a year, provided financial assistance for four years study of mathematics at St John’s College, Cambridge. Classical studies were a low priority for Marshall at school and later in life he often ‘preached’ about the waste of time such classical studies entailed.

The six years at Merchant Taylors’ School did therefore not steer Marshall towards St John’s College, Oxford and the potential for a clerical living if offered. As he later put it, his goal became St John’s College, Cambridge, to study mathematics and the natural sciences. He seemed eminently suited for such a choice at this stage on the basis of his school results. The Parkin Exhibition he had won enabled that shift in the direction to be financially achievable though, as already mentioned, additional finance had to be secured through the loan from Uncle Charles.

2.2 Undergraduate at St John’s College, Cambridge (1861–65)

On 10 June 1861 Alfred Marshall was admitted to St John’s College, Cambridge, as ‘a pensioner’, that is, an ordinary student paying for everything without exemptions. The certificate for admission was provided by the Rev. Hessey as Headmaster of Merchant Taylors’ School. Marshall’s life as an undergraduate student at Cambridge was to last three and a half years, from the middle of 1861 when he had just turned nineteen, to early 1865, the year during which he turned twenty-three.
The Cambridge that Marshall entered was an elite institution, the preserve of the children of the educated professional classes, that is, those well off without necessarily being rich and endowed with a good public school education of the type Marshall himself had received. Given the cost of a university education, this could not have been otherwise. Marshall met these costs from the £50 per annum provided by the Parkin Exhibition and from the generous loan he had received from Uncle Charles. After graduation, it took him several years of teaching mathematics to repay this loan. His college, one of the newer colleges in Cambridge, was considered to be the home of ‘wranglers’ and, therefore, particularly suitable for a person eager to specialize in mathematics and natural sciences by entering for the Mathematical Tripos. As a student, Marshall was given Room E6 in the third court of the college, overlooking the river and the ‘backs’. Marshall’s assigned tutor was the Rev. Hadley, the 1856 senior wrangler and winner of the Smith Prize for mathematics.

During his undergraduate years at college, Alfred Marshall continued to achieve the good scholastic performance which he had shown at school. The record as preserved in the pages of the St John’s College journal, *The Eagle*, listed Marshall as first in the class of mathematics students after his examinations in 1862; as second in 1863 and once again as first in the class in 1864. As second wrangler, he was also the first of his college in the actual Tripos examinations of 1865, though beaten to the position of senior (that is, first) wrangler by Robert Strutt, later Lord Rayleigh, who came from Trinity College.

The syllabus for the Tripos during the early 1860s is of interest in the context of Marshall the mathematical economist. It was officially summarised in the following manner. The elementary material generally taught in first year covered Euclid Book I to VI, Book XI Propositions I to XXI, Book XII Propositions I and II. It also included arithmetic, the elementary parts of algebra including, among other things, the binomial theorem and the principles of logarithms; elementary plane trigonometry, the elementary part of conic sections and of statics and dynamics, both treated without the differential calculus, the first, second and third sections of Newton’s *Principia* and the elementary parts of Optics and of Astronomy. The mathematics syllabus at Merchant Taylors’ which Marshall had completed indicates that much of this preliminary work at the university had been covered by Marshall at school. In this sense, the school’s appointment of Airey as mathematics master paid handsome dividends for young Alfred Marshall because of the advantage his
training had given him over potential rivals in the Tripos competition within the college and university.

More difficult mathematical studies followed in his second year. Potential honours students often started on this work during the long vacation but whether Marshall did this is not known. Lectures and tutorial work included the differential and integral calculus, differential equations, statics, dynamics of a particle, the first three sections of Newton’s *Principia* (also covered in first year) and a part of the geometry of three dimensions. These topics were examined in most colleges in the mathematical part of the second Michaelmas examination. During the subsequent long vacation, honours students were expected to read with their private tutor and to have absorbed the theory of equations, differential and integral calculus, as well as the elements of mechanics. The Michaelmas term of second year was devoted to statics and differential equations, and its Lent term to Newton, the dynamics of a particle, the easier parts of the geometry of three dimensions, together with the more elementary parts of the dynamics of a rigid body. Easter term was generally taken up with revision. College examinations tested the degree to which the student had absorbed these aspects of the syllabus.

The third year long vacation was usually devoted to studying the geometry of three dimensions, finite differences, rigid dynamics, formal optics and hydrostatics. Spherical and physical astronomy were generally studied in the third year’s Michaelmas term; theories of sound and light in the Lent term with revision of the third year reading programme occupying the Easter term. The recommended book list for the third year indicates that university work by this stage had progressed well beyond what had been taught at school. The third long vacation and third year lectures (given by Stokes during Marshall’s undergraduate period) were based on them. They had to be supplemented by work on hydrostatics, finite differences and the theory of light. However, coaches often advised their students not to attend Stokes’ physics classes because their content related too little to the Tripos syllabus on which the examinations were based. Given both his need, and desire, to excel in the Tripos examinations, Marshall may therefore not have attended them.

A few implications of this syllabus should be noted. First of all, it required the services of an independent tutor, paid for by the student. Marshall used E.J. Routh as his private tutor, the tutor used by most students seeking high mathematics honours and apparently used by every 1865 wrangler. Secondly, the honours syllabus required continuous application and study; the long vacation and shorter term vacations were assumed to be sacrificed to reading and revision with
the student’s private tutor. College distractions such as participation in college sport or university debating, meritorious though they were in the overall pattern of university education, had to be curtailed if not totally avoided by budding Tripos examinees. Too little is known about Marshall’s practice as an undergraduate to be certain as to how he balanced leisure with study in his attempt to get the maximum benefit from his days as student (see Cook 2005).

A little more can be said on the importance of his choice of study method. Adopting the right approach to study methods by students was an important part of the character-building role assigned to the Tripos by its ‘modern’ originators. *The Student Guide to the University of Cambridge 1862* (p. 98) indicated:

The mathematical student must be content to work slowly at first. The difficulties of his subject will vanish before patient and continued application; but it is by patient and continued application only that he can hope to attain success, as it is only by such application that he will deserve it. If he accustoms himself to bypass difficulties, without combating and conquering them, he will find them continually starting up to check his progress. He should therefore never hesitate to confess to his college or private tutor an inability to understand any demonstration which may be put before him if he feels such an inability.

In his biographical memoir of Marshall, Keynes (1924, 1972, p. 165) quoted a now well-known account by Marshall on the manner in which he implemented this advice and developed a method of working to ensure that he never overstrained himself in mental or physical activity:

> An epoch in my life occurred when I was, I think, about seventeen years old. I was in Regent Street, and saw a workman standing idle before a shop window: but his face indicated alert energy, so I stood still and watched. He was preparing to sketch on the window of a shop guiding lines for a short statement of the business concerned, which was to be shown by white letters fixed to glass. Each stroke of arm and hand needed to be made with a single free sweep, so as to give a graceful result; it occupied perhaps two seconds of keen excitement. He stayed still for a few minutes after each stroke, that his pulse might grow quiet. If he had saved the ten minutes thus lost, his employers would have been injured more than the value
of his wages for a whole day. That set up a train of thought which led me to the resolve never to use my mind when it was not fresh, and to regard the intervals between successive strains as sacred to absolute repose. When I went to Cambridge and became full master of myself, I resolved never to read a mathematical book for more than a quarter of an hour at a time without a break. I had some light literature always by my side, and in the breaks I read through more than once nearly the whole of Shakespeare, Boswell’s *Life of Johnson*, the *Agamemnon* of Æschylus (the only Greek play I could read without effort), a great part of Lucretius and so on. Of course I often got excited by my mathematics, and read for half an hour or more without stopping: but that meant that my mind was intense, and no harm was done.

Marshall needed to practice similar skills to avoid the exhaustion from sitting the Tripos examinations whose sixteen three hour papers had to be completed at the rate of two a day (9.00–12.00 and 2.00–4.00) over eight days. The first three days were followed by a break of ten days and then a further five days of examinations. In 1865, Marshall sat the first six preliminary papers from Tuesday, 3 January to Thursday, 5 January; he took the other ten, more advanced papers during the week commencing Monday, 16 January and ending at 4.00 pm on Friday, 20 January. His relief when it was all over must have been very great and it would be nice to know what he did that Friday evening and the rest of the weekend.

How Marshall learned of his results, second wrangler after Rayleigh of Trinity, is also not known. For example, he may have heard them in the crowd at Senate House on the morning of 27 January, perhaps even in the company of members of his family who had come up for the day on this important occasion; or he may have heard them from Johnians (that is, members of St John’s College) among his moderators. In any case, Mary Paley Marshall recalled for Keynes that one of his examiners had told him that ‘his answers to his bookwork were as troublesome to work over as those to the problem papers’. Marshall’s failure to enter the Smith Prize examinations probably indicates that he felt more comfortable with book work than with original mathematical research, the skill the Smith Prize papers especially examined. The low pecuniary value of the prize possibly may supply another reason why Marshall did not attempt these examinations.

More generally, what does this Tripos result indicate about Marshall’s gifts as a mathematician? As Whitaker (1965, I pp. 3–4) neatly put
it in the following quotation, these implications are not necessarily straightforward:

Although a love for mathematics had brought Marshall to Cambridge...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. But this must surely be more colourful than correct. Despite an early penchant for Euclid, there is from the first an awkwardness and hesitance 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 with the highest total of marks ever recorded, later became Lord of Appeal in Ordinary. 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 sake the natural bent of his own mind, may have become exaggerated.

Be that as it may, Marshall’s result did secure him an academic career at Cambridge. High wranglers were invariably elected as College Fellows, and Marshall’s own college did so on 6 November 1865. In between, he served as temporary mathematics master at Clifton College, filling in for its permanent master, Charles Cay, who was unable to perform his duties due to illness. As shown in Chapter 3, Marshall’s College Fellowship enabled him to make a number of friends who considerably influenced his eventual choice of career as academic economist. Marshall’s academic success at school and university enabled him to choose that future career in a leisurely manner.
It also enabled him to repay the debts to relatives he had incurred to achieve these scholarly goals, in particular his mathematical studies at Cambridge.

Although Marshall may have been disappointed with his results, coming second was not something he was used to given his results in school and college examinations, the position of second wrangler at Cambridge gave him the freedom to pursue his intellectual interests in whatever direction he fancied. His mathematical studies in the end assisted his choice of subject later in life, teaching and writing on economics. The undergraduate experience and training, not to mention its official results, were therefore indispensable to the young Marshall’s future career.

Cook (2005) has also stressed the character-building aspects of the Mathematics Tripos experience. Among these was participation in sport and recreational activities. They balanced the hard work involved in studying for the Tripos. Again, the extent to which Marshall participated in the extra-curricular activities open to Cambridge undergraduates is not clear. Mary Paley recalled to Walter Scott in 1924 that rowing had been a favourite pastime for the young Marshall when at college, but that after 1862 his leisure activities as student concentrated on the traditional, and inexpensive, Cambridge pastime of long walks in the nearby countryside. Cricket was also an interest of the young Marshall, but nothing survives in the St John’s College records to show that Marshall was actively engaged in this sport as an undergraduate. An interest in chess was also recalled as a leisure activity by Marshall, but this was never actively pursued because of the severe headaches induced by playing chess.

However, on his own account, Marshall carefully balanced concentrated mathematical study as an undergraduate with planned leisure activities consisting of light reading from Shakespeare, Boswell’s life of Johnson and the *Agamemnon*. This is the import of the story of the sign writer observed in Regent Street at the age of seventeen, that is, when he was on the threshold of his university undergraduate experience in 1861–62. A quarter of an hour of mathematics reading was followed by less demanding reading. When Marshall ‘got excited’ by his mathematics, he did read for half an hour or more without stopping for his customary break. Balance was therefore a crucial part of the young Marshall’s early education, a quality he never lost, generally speaking, and one on which he wrote later in his *Principles of Economics* as a key element in resource allocation, including allocating that valuable resource of time.
In this way, the young Alfred Marshall prepared himself for his future vocation. This vocation was not found in the mathematics he had loved so much as a school boy and had worked on so diligently as a Cambridge undergraduate when preparing for the Tripos. Both the discipline imparted and the knowledge gained from his early education were valuable assets when that search for a vocation was eventually concluded by his informed choice of economics teaching and research. Making his final career choice involved Marshall in a prolonged period of postgraduate studies in the Moral Sciences, of which economics was then a part.
Biographical fragments imparted to friends and students in later life and recollections from his wife inform on the activities Marshall engaged in during the years immediately following his completion of the Mathematical Tripos in 1865. These years involved a short period as acting mathematics master at Clifton College, a newly established public school, during which Marshall made friendships opening new doors for him at Cambridge. Henry Sidgwick, a Fellow at Trinity and an external examiner at the school, was one of these new friends. He probably introduced Marshall in turn to Clifford and Moulton who, as Mary Paley recorded, were his two greatest friends when he became a Fellow at St John’s. Another Johnian, called Moss, was part of a group of seven young Fellows at St John’s who met regularly together for Shakespeare readings. In addition, Marshall joined the Eranus Society in these years. This was a discussion group including Sidgwick, Venn, Fawcett and Clifford among its members, the first three of them teachers at Cambridge in the Moral Sciences. It brought Marshall thereby in close contact with persons involved in the disciplines he himself began to study on completion of the Mathematics Tripos. Two years later, in 1867, Marshall joined the Grote Club, another Cambridge discussion society concentrating on philosophical subjects and named after the Cambridge Professor of Moral Philosophy who had started it. Within a few years of completing his mathematics honours studies, Marshall had thrown himself fully into the study of philosophy and of some of the social sciences.

In lectures given in November 1905, Marshall told his class about his own early university education. These remarks were recorded by Walter Layton, one of his students, who later taught economics at Cambridge for some years, before becoming a major ‘press baron’ and occasional
economic adviser to the British Government. His extant lecture notes reported that ‘Marshall intended to work at Maths and Physics under Stokes, [that instead he] got into metaphysics as the key to human life. [He was] up at five in the morning to read Kant’s *Critique of Pure Reason*. Got into Ethics. As [a way of solving practical problems] got to Economics. Returned to Ethics to find what were not Metaphysics or Economics [problems]. Found one set: How far is a man bound to express opinions when he knows that what others hold to [be] good for them to believe [is] untrue.’ Keynes also attended these lectures, and in his later memoir of Marshall (Keynes 1924, 1972, p. 171) recorded similar sentiments written at much greater length by Marshall in a draft preface for his 1923 book, *Money, Credit and Commerce*. These so succinctly summarise the events in Marshall’s life during the second half of the 1860s, that they can be quoted in full:

About the year 1867 (while fully occupied with teaching mathematics at Cambridge) Mansel’s Bampton Lectures came into my hands and caused me to think that man’s own possibilities were the most important subject for his studies. So I gave myself for a time to the study of Metaphysics; but soon passed to what seemed to be the more progressive study of Psychology. Its fascinating inquiries into the possibilities of the higher and more rapid development of human faculties brought me into touch with the question: how far do the conditions of life of the British (and other) working classes generally suffice for fullness of life? Older and wiser men told me that the resources of production do not suffice for affording to the great body of the people the leisure and the opportunity to study; and then told me that I needed to study Political Economy. I followed their advice, and regarded myself as a wanderer in a dry land of facts; looking forward to a speedy return to the luxuriance of pure thought. But the more I studied economic science, the smaller appeared the knowledge which I had of it, in proportion to the knowledge that I needed and now, at the end of nearly a half century of exclusive study of it, I am conscious of more ignorance of it than I was at the beginning of the study.

Other accounts drawn from the mature Marshall in the early parts of the twentieth century confirm this picture of a gradual progress through the ‘mental sciences’ (psychology) and philosophy in the late 1860s. A letter to James Ward (23 September 1900, in Whitaker 1996, II pp. 285–6), then Cambridge Professor of Psychology and Marshall’s colleague in the
Moral Sciences, provides yet another account of Marshall’s intellectual progress:

I would not have you think me indifferent to mental science. About as much of my time since I came to Cambridge in 1861 has been given to it as to mathematics. My zeal for economics would never have got me out of bed at five o’clock in the morning, to make my own coffee and work for three hours before breakfast and pupils in mathematics; but philosophy did that, till I became ill and my right foot swelled to double its normal size. That was in 1867. Soon after, I drifted away from metaphysics towards psychology. 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. But I always said till about 1871 that my home was in Mental Science. Gradually, however, the increasing urgency of economic studies as a means towards human well-being grew upon me. About 1871–72, I told myself the time had come at which I must decide whether to give myself 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 in wealth as to the quality of life: and I settled down to it.

To this account, Mary Paley added a few pertinent details in 1924 for the benefit of Keynes and the obituary memoir of Marshall he was writing for the *Economic Journal*. These included a trip to Dresden in 1868 for German lessons, needed to be able to read Kant in the original; the strong influence on his thought of Hegel’s *Philosophy of History*; his shift from philosophy to psychology and only then to economics ‘because he was told that Economics would show him how far his aims were realizable’. Bateson, then Master of St John’s, in 1868 secured him his college lectureship in the Moral Sciences’ and ‘he gradually settled down to Economics, though for a time he gave short courses in other branches of the Moral Sciences, e.g. ‘on Logic and on Bentham’.

Chapter 3 reviews Marshall’s gradual move to economics during the 1860s and 1870s, looking in turn at his philosophical studies and his early work on economics. It should be recalled that Marshall’s first decade at Cambridge was later described as the ‘fighting sixties’, when reform of church, universities and parliamentary government were high on the agenda and the conflict between science and religion sharpened considerably. Subsequently, Marshall himself recalled these years as the
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golden age of the Moral Sciences Tripos when some of the best young minds in the university were attracted to its studies.

3.1 Marshall at Clifton College and as Fellow at St John’s

After taking his degree in January 1865, Marshall taught for a while at Clifton College as its temporary mathematics master. As already indicated, this produced valuable friendships for Marshall. Another new friendship was with its headmaster, John Percival, a teacher in the Mathew Arnold tradition who zealously advanced the best interests of the boys through a progressive education and reforming syllabus. Percival strongly supported women’s education at the universities, a reform close to the young Marshall’s heart. He also introduced Marshall more fully to discussions of social issues and possibly shared his love of classical economics with Marshall. Marshall also encountered future Moral Sciences colleagues at Clifton, that is Sidgwick and Mozley. Another important friend gained through Clifton was Dakyns, a Cambridge Classics graduate, who instructed Marshall in philosophical speculation, Comtist secular religion and sociology, the arts, the joys of foreign travel, as well as problems of faith and theology. The last possibly induced the gradual erosion of Marshall’s faith which began at this time, even though Marshall had no qualms in reaffirming his faith on becoming a Fellow at St John’s. Finally, his teacher’s salary at Clifton, together with income from giving tutorials to mathematics students, helped pay the bills until his election as Fellow of St John’s in November 1865.

Apart from requiring affirmation of Marshall’s membership of the Church of England, a pledge Marshall then could still easily give, his College Fellowship provided important privileges. It gave him new college accommodation in keeping with his enhanced status in rooms in New Court, close to the college ‘cloisters’ and to the ‘wilderness’ where Marshall retired for his private meditation. Above all, the fellowship gave Marshall a regular stipend, rising from £210 tax free in 1865 to £300 in 1872, substantial sums for those years. Together with income from mathematics coaching, this allowed him to repay by 1867 the substantial debt he had incurred with Uncle Charles to finance his undergraduate studies.

Fellows also had board at college, paid for from a weekly allowance for this purpose. They had few duties, unless they held a college teaching or administrative position. Marshall was appointed as college lecturer in the Moral Sciences from 1868 and was elected college steward in 1877,
not long before he had to resign his Fellowship on marriage to Mary Paley that year. Marshall appears to have made few friends at St John’s, remaining somewhat of a recluse. However, as Mary Paley told Keynes in 1924, ‘he enjoyed the devotion of his gyps and college servants [because] he treated them like human beings and talked to them about things he was interested in’. Later Marshall recalled friendship with other college lecturers in the Moral Sciences, J.R. Mayor and J.B. Pearson, while he was also on good terms with W.H.H. Hudson and T.G. Bonney. New friends were also made inside the university, but outside the college, through his participation in various university discussion societies and clubs.

3.2 Membership of Cambridge clubs and gradual loss of faith

Marshall initially joined the Shakespeare reading club with fellow Johnians. During the 1860s he also joined the Grote Club, a philosophical discussion society to which he was admitted in 1867, and the Eranus Society, an inter-disciplinary debating society founded by three future bishops, Westcott, Lightfoot and Gort. During the 1870s, Marshall was also involved in the Cambridge Reform Club, to which he presented a paper in 1873 on ‘The Future of the Working Classes’ (published in the St John’s College journal, *The Eagle*). For the Cambridge Philosophical Society, he gave a paper on ‘The Graphic Representation by and of a Series of Hyperbolas of Some Economic Problems Having Reference to Monopoly’ in which his student, Henry Cunynghame, assisted by demonstrating a machine for constructing such rectangular hyperbolas. By then, of course, Marshall was well into economics and the contents of these papers are summarised (in Section 3.7).

Of these societies, Marshall’s membership of the Grote Club was the more important for his philosophical education. In 1900, a memoir on the club Marshall prepared for Sidgwick’s biographers recorded the following about his experiences there:

> When I was admitted in 1867, the active members were Professor F.D. Maurice (Grote’s successor), Sidgwick, Venn, J.R. Mozley and J.B. Pearson…After 1867 or 1868 the club languished a little: but new vigour was soon imparted to it by the advent of W.K. Clifford and J.F. Moulton. For a year or two Sidgwick, Mozley, Clifford, Moulton and myself were the active members; and we all attended regularly. Clifford and Moulton had at that time read but little philosophy; so they kept quiet for the first half hour of the discussion; and listened
eagerly to what others, and especially Sidgwick said. Then they let their tongues loose; and the pace was tremendous. If I might have verbatim reports of a dozen of the best conversations I have heard, I should chose two or three from among those evenings in which Sidgwick and Clifford were the chief speakers. Another would certainly be a conversation at tea before a Grote Club meeting of which I have unfortunately no record (I think it was early in 1868), in which practically no one spoke but Maurice and Sidgwick. Sidgwick devoted himself to drawing out Maurice’s recollections of English social and political life in the thirties, forties and fifties. Maurice’s face shone out bright, with its singular holy radiance, as he responded to Sidgwick’s inquiries and suggestions; and we others said afterwards that we owed all the delight of that evening to him. No one else among us knew enough to keep on again and again arousing the warm latent energy of the old man: for he always looked tired, and would relapse into silence after two or three minutes’ talk, however eager it had been, unless stimulated by some one who knew how to strike the right chord.

A.S. and E.M.S. (1906, p. 135)

As printed in the Sidgwick memoir, an interesting autobiographical remark is omitted from Marshall’s account. This mentioned that by 1869 or 1870, ‘I had got to know some philosophy whereas in 1867 I was quite a beginner. (I had only begun to read it seriously towards the end of 1865, and had been teaching mathematics all the while.) Clifford and Moulton were still beginners.’ However, by 1867 Marshall was confident enough to present a paper, an action repeated on at least three further occasions. At the same time, he gained enormously from the discussion of papers by others and from the more general discussion over dinner, after the formal discussion of the evening’s paper. Topics ranged from reform of the franchise to mesmerism as practiced by Comte and to plagiarism within the Old Testament. Marshall’s philosophical papers and philosophical studies from these years are discussed in Section 3.3.

What is known about Marshall’s loss of religious faith can also be mentioned briefly here, since it is closely related to his general philosophical studies at this time. The process of losing his faith appears to have been a gradual one, stimulated by his reading and slowly dissolving into agnosticism. A catalyst in this process was Marshall’s reading of Mansel’s Bampton Lectures, devoted to the limitations of religious thought and examining the theory of knowledge more generally for
comparison with the knowledge of God embodied in religious faith and divine revelation. Marshall, already fully cognisant of notions of truth as exemplified in mathematical theorems, in the syllogistic reasoning of Mill’s *System of Logic* and in the evangelical tracts he must have read at home as a youngster, appears to have found it relatively easy to drop the uncertain foundations of Christian belief. By the 1870s, correspondence with Foxwell (4, 7 February 1875, in Whitaker 1996, I pp. 32–5) revealed that such theological matters no longer meant much to him. Marshall, it should be added, never rejected religion as social and moral instructions. In fact, he appears to have endorsed the value of religion more strongly as he grew older, in sharp contrast to his complete rejection of theology which he considered to be useless prattle.

3.3 Philosophical inquiry including four philosophical papers

Extant notebooks indicate the type of reading Marshall was doing from the mid-1860s and reveal other aspects of what he later called his period of philosophical studies. Outcomes from these studies in the form of the four papers he presented to the Grote Club indicate more about their nature, while weaknesses in them suggest reasons why Marshall eventually dropped these psychological studies within a broad philosophical framework to concentrate on economics. Works cited in these papers further illustrate the nature and extent of Marshall’s reading. They were first published in Raffaelli (1994) with a detailed introduction, to which the interested reader is referred. All that can be presented in this chapter is the barest of outlines.

Marshall’s papers were designed to illuminate some major intellectual conflicts on aspects of functioning of the mind and on both the role of consciousness and self-consciousness as an original intuition of the mind in the ascertainment of facts. The last dealt specifically with the question, ‘What can I know?’ by examining the role of the logician in satisfying the requirements of both ‘the practical man of science’ and the psychologist. Its contents are not easily summarised. However, they provide a rationale for Marshall’s continuing interest in mental processes, a compromise conclusion on systematising a department of knowledge and a criticism of the metaphysician *qua* psychologist. They also demonstrate the enormous importance Marshall then attached to Kant’s thought, because this continued to be fundamental for Marshall to settle the claims of the associationists and the intuitionists in explaining mental processes.
Marshall’s first philosophical paper, ‘The Law of Parcimony’, critically reviewed Sir William Hamilton’s characterisation of this law ‘for the interpretation of consciousness’ where only what is ultimate and simple can be assumed to be a fact of consciousness. Marshall interpreted the purely phenomenal form of this law by way of classifying sequences of such phenomena, which, if they were similar, ought to be classified together. This was simply an application of Occam’s razor in Marshall’s view. The law of parcimony, however, only applied to homogeneous observations, permitting its application to biology but not to psychology where sensations were too distinct and separate. Marshall’s restatement of the law of parcimony also enabled legitimising the fruitful use of analogy, of which he considered Darwin’s work in *The Origin of Species* to be a fruitful example. However, these fruits were not easily transferable to the mental science of psychology, demonstrating Marshall’s initial cautious attitude to the application of evolutionary doctrines to the social sciences.

Marshall’s second philosophical paper confronted self-consciousness by examining Ferrier’s first ‘proposition’. This stated that ‘along with whatever any intelligence knows, it must, as the ground or condition of its knowledge, have some knowledge itself’. Marshall’s topic in this paper once again treated an aspect of the debate between idealists and associationists as well as that between Mill and Bain within the associationists camp, arising from their different emphases on the physiological and the psychological (Bain) as against the philosophical (Mill). In the paper, Marshall conceded there was some truth in both Bain’s and Ferrier’s positions in what they confirmed, but not in what they denied. This type judgment later became characteristic for Marshall in deciding similar issues in his economics.

Marshall’s third paper, ‘Ye Machine’, is generally considered to be the most important of Marshall’s four philosophical papers. Marshall himself described it as a prelude ‘to a general theory of psychology … capable of being developed into a true one’. Its contents were a direct continuation of the argument presented in the second paper, since it elaborated those parts of Bain’s theory which Marshall considered to be correct, in which he attempted to use them for constructing a mechanism of the mind. Marshall’s argument relied on associationist and evolutionist neuropsychology and neurophysiology, so evident in Bain’s work (and in that of William Carpenter’s mental philosophy which Marshall had also been reading), and in Grote’s concept of the ‘physical’. The paper is particularly significant because of its implications for Marshall’s subsequent intellectual development.
‘Ye Machine’ purported to shed light on the mechanical impact of the nature of sensations, ideas and actions; the inter-relationship between repetitive action and memory; reasoning, deliberation and volition; all issues relevant to the understanding of decision-making. Ideas are the province of the brain, actions of the body. The explanatory circuit (‘ye machine’) assessed these body–mind relationships, exploring them in some depth and in connection with other possible characteristics of a machine. Brain (ideas) and body (actions) are represented by the machine’s wheels connected with bands (the nervous system) or some other type of motor (electricity, magnetism). Pleasurable and painful ideas and actions of the machine are distinguishable by the type of motion they cause.

Marshall also introduced expectations of actions to the analysis, as well as more complex, simultaneous actions akin to those of a chess automaton and the calculating automaton proposed by Charles Babbage. Liberal education and its effects are discussed towards the end of the paper. They give the machine access to language, communications, arithmetical operations and geometry. Creative activity such as painting is, however, beyond the grasp of such machines. The paper also suggests the potential for moral education via sympathy and systematic experience, remarking on the formation of character in this context. These views on character resemble some later thoughts on this subject in Marshall’s Principles.

Overall, the paper shows Marshall’s gradual commitment to associationist and evolutionist psychology. However, development of the paper’s contents required skills in psychological research from Marshall which he simply did not possess. Continuation of this type of psychological research would therefore have been very difficult indeed for him. This lack of psychological research skills on Marshall’s part, if he had indeed recognised such a deficiency in his skills, may have influenced his departure from this field of study for that of economics. Not long after completing his four philosophical papers, Marshall began writing exploratory papers on concepts at the heart of economics, such as rent, capital, money, value, wage and distribution theory. Reasons for this shift to economics are briefly explored in the next section.

3.4 From philosophy to economics

An interest in practical ethics, probably involving issues relating to working-class improvement, induced Marshall’s interests towards studying economics. This, in any case, is the basis of the accounts he
gave of this part of his life, often in the years immediately following his retirement from the Cambridge Political Economy Chair in 1908. The starting point for this interest can be roughly dated as 1866, only because in that year his tour of Scotland and its cities and of the industrial north of England, included inspections of some of its slums and working-class districts. More significantly, Marshall appears to have bought his copy of the 1865 people’s edition of Mill’s *Principles of Political Economy*, almost certainly the first major book on economics he studied, around this time, and definitely before 1867.

As mentioned in the introduction to this chapter, the initial interest in economics was aroused by his desire to assist, as actively as possible, human welfare, particularly that of members of the working class. This aim was partly a consequence of his psychological studies, concerned as it was with the possibilities of the higher and more rapid development of human faculties, and reflected in the potential for improving the experience of ‘ye machine’ through education, including moral education. This was part of the study of character, underlying the strong distinction Marshall made between improvements in standard of living and in standard of life. The first of these simply referred to improvements in material welfare as indicated by the quantity of goods at the command of an individual or household, the second implied more elevated use of these additional material resources. Some of his views on these matters may have derived from his ‘youthful tendency to socialism’, recalled in the preface of his 1919 book, *Industry and Trade*, as discussed more fully in later sections of this chapter.

Unfortunately, it is difficult to state authoritatively who initially advised Marshall to study economics. He later recalled, in the draft preface to *Money, Credit and Commerce* previously quoted, that ‘older and wiser men’ had proffered this advice if he wanted to devote himself actively to improving opportunities for the working class. Five of Marshall’s friends and acquaintances from the second half of the 1860s are potentially capable of filling this role. They include Percival, the Headmaster of Clifton College; Pearson, the St John’s Lecturer in the Moral Sciences; Maurice, the ‘older statesman’ of the Grote Club and eminent moral philosopher; Fawcett, the Professor of Political Economy and Liberal Member of Parliament; and Sidgwick, also a Lecturer in the Moral Sciences. All were older than Marshall, and with respect to the issue at hand, certainly wiser at this stage. Sidgwick, however, seems to be the most likely person to fit the role of the friend who advised Marshall to study economics in this context. By then, Sidgwick had read widely in the Moral Sciences, including economics. Marshall himself
recalled in August 1900 at a memorial meeting for the recently deceased Sidgwick that in the old days of the decade following 1867, he saw himself as ‘wholly [Sidgwick’s] pupil’ in the Moral Sciences, and at this time he meant ‘more to me than all the rest of the University’. Even taking into account the customary exaggerations on memorial occasions designed to honour the deceased, these words are strong praise from Marshall about a person with whom his former friendship had greatly, and publicly, deteriorated over the decade before his death (see Groenewegen 1995, pp. 663–70). However, irrespective of who it actually was who encouraged Marshall’s economic studies in the second half of the 1860s, Marshall did commence these studies at this time, almost certainly beginning with a close reading of John Stuart Mill’s *Principles of Political Economy*.

### 3.5 Alfred Marshall and the Political Economy of John Stuart Mill

Marshall’s personal copy of Mill’s *Principles* is preserved in the Cambridge University Library. This copy was a special version of the 1865 people’s edition, in which each page of text was followed by a blank page, to facilitate taking notes or writing comments by its readers. Marshall used this facility extensively, making many remarks, including a few diagrams and even a little algebra. Marshall later fully acknowledged his careful early study of Mill in correspondence with the American economist J.B. Clark and others, when commenting to them on the early influences on his economic studies.

Marshall’s annotations of Mill’s book are most dense in its final three books, but there are also some significant annotations in the two earlier books. In Book I, for example, Marshall showed interest in Mill’s ‘four propositions on capital’ and his views on cooperation and, most extensively, in Mill’s views on large-scale and small-scale production. In Book II, passages on early forms of socialism and Owenite schemes are most heavily annotated, as is Mill’s chapter on profit. This is perhaps one sign of that ‘youthful tendency to socialism’ he mentioned in the 1919 preface to *Industry and Trade*.

Mill’s Book III on value was the most heavily annotated by Marshall. One of his comments gives an algebraic formulation of the quantity theory of money, the sole algebraic annotation in the book in Marshall’s hand. Other parts of the monetary theory, including the discussion of crises and depression, were heavily annotated, as was the chapter on international values (Book III, chapter XVIII) or that on price
determination in international trade. These annotations suggest that Marshall’s interest in social questions about the poor and the working class may also have been associated with the unemployment and hardship occasioned by the May 1866 crisis, of which the signs would have been particularly visible during his trip that summer to Scotland and to England’s industrial north.

Marshall also heavily annotated Book IV on distribution. These annotations include diagrammatic illustrations of the theory of rent (reproduced in Groenewegen 1995, p. 147). Chapters on the falling rate of profit and its impact, on the stationary state and on the ‘probable future of the labouring classes’ likewise attracted Marshall’s intensive attention as shown by the many comments he made on them. The chapters on taxation in Book V were extensively annotated, but most of these comments appear to derive from the early 1870s when Marshall was actively writing and lecturing on this topic. Some material, surprisingly, is left unannotated. A striking example is the chapter on the wage fund doctrine (Book II, chapter XI), even though this was later heavily criticised by Marshall as a totally unsatisfactory theory.

Marshall also showed considerable interest in Mill’s views on methodology, as expressed in his Principles, in Essay V of Mill’s Essays on Some Unsettled Questions and in his System of Logic. In particular, Marshall noted Mill’s views that the laws of Political Economy like those of all of the Moral Sciences were to be formulated by the a priori method, while the a posteriori method was reserved for their verification. To assist abstract reasoning in Political Economy, its laws according to Mill had to be formulated in terms of a self-seeking, wealth-maximising homo œconomicus, an abstraction which Marshall later criticised severely in his own Principles of Economics (Marshall 1961, I pp. 26–7). Finally, Marshall’s study of Mill’s System of Logic caused him to differentiate between the historical relative parts of the science associated especially with the theory of distribution, where laws varied according to time and place and the universally applicable general laws of Political Economy. Reading Mill would also have made Marshall more aware of the dichotomy between the mechanical nature and the human aspects of the subject, visible in Mill’s strong plea for establishing a science of ethology as a general science of character for which the empirical method was particularly appropriate.

Although Marshall later criticised Mill, many of Mill’s views on Political Economy absorbed by the young Marshall were never forgotten or rejected. After all, Mill’s Principles focused on the human problem when discussing Political Economy, blended theory with fact and
stressed the historical relativity of much of the subject matter. Mill’s most original chapters, moreover, particularly fascinated the young Marshall. These included Mill’s position of the laws of returns, on the role of reciprocal demand in international trade, on joint products and joint costs and on the dynamic theory of distribution in Book IV as opposed to the static distribution theory of Book II. Mill undoubtedly was a major influence on the development of Marshall’s economics, particularly in the early stages.

3.6 Other early influences on Marshall’s economics

Marshall’s annotations in his copy of Mill occasionally drew attention to some of his other economics reading at this time. The McCulloch edition of Smith’s *Wealth of Nations* was another economics book studied early, as was the first volume of Marx’s *Capital*, first published in 1867 when it was purchased by Marshall, and Sargent’s *Recent Political Economy*, another early favourite of Marshall. In addition, Marshall’s initial economic studies included the text of Ricardo’s *Works* as edited by McCulloch, giving him access to most of Ricardo’s monetary writings as well as to his *Principles of Political Economy and Taxation* in the third edition.

More interesting early reading came from non-English sources. Marshall at an early stage appears to have read Cournot’s *Mathematical Investigations in the Theory of Wealth*, the 1838 first edition of which he purchased before 1870. It was important in enabling him to formulate from the very beginning a declining demand function in terms of price without appeal to diminishing marginal utility. Cournot’s use of the mathematical method in economic argument would have been equally inspiring to the recent second wrangler. Another foreign authority for Marshall was von Thünen’s *The Isolated State*. This permitted independent discovery of the marginal method by Marshall, as well as giving him early access to a version of the marginal productivity theory of distribution. However, it was von Thünen’s love of facts in economic inquiry that particularly endeared him to Marshall.

Von Thünen was not the only German authority of economics whom Marshall was reading in this formative period, if his reading of Marx’s *Capital* is ignored. By the early 1870s Marshall’s economic studies included works by Hermann, Rau, Roscher and von Mangoldt. The last used sophisticated diagrams of supply and demand functions to illustrate the determination of specific market prices. These demand functions were explicitly associated with utility theory, while shifts in the
functions were explained by population growth, changes in tastes and by the impact of economic development on income and wealth. However, Marshall did not learn his diagrammatic techniques from this source. The copy he owned of von Mangoldt’s *Volkswirtschaftslehre* omitted the diagrammatic and mathematical material of its first edition. However, Marshall’s copy of Rau’s *Volkswirtschaftslehre* did have a diagrammatic treatment of supply and demand functions, with price on the vertical axis and quantity on the horizontal axis, a form of presenting such diagrams for which Marshall later became famous. In short, Marshall’s early economics education benefited not only from his serious study of the major English classics (Smith, Ricardo and especially J.S. Mill) but from what were then less well-known European writers who guided him in mathematical economics (Cournot) and encouraged the use of diagrams in his economic analysis.

### 3.7 Early teaching and writing in economics

In the letter to Ward quoted in the introduction to this chapter, Marshall claimed that he remained strongly interested in the mental sciences (what is now called, psychology) until the early 1870s and that it was not until 1871–72 that he finally decided to concentrate on economics. By then, on the evidence of his surviving papers, economics had well and truly replaced psychology as a topic for his writing, while Political Economy, together with Logic and Ethics, was the key part of his college teaching from 1868. As suggested in Section 3.3, no further ‘philosophical papers’ were presented after 1869, and the first extant paper on economics, a discussion of aspects of rent theory, may well have been written as early as 1869, that is, in the same year when the extant written evidence points to Marshall’s abandonment of psychology as his major area of study. None of this can be concluded with complete certainty since the dating of both the philosophical papers and the early economic manuscripts can only be approximate on the internal evidence of their contents. Frequently, Marshall himself was not certain of the precise time of their writing when he examined some of them again during the late 1880s and after. Here Marshall’s early economic writings can be only briefly reviewed for the years up to 1877, the year by which his economic apprenticeship was well and truly over and his importance as an original economic thinker was increasingly being recognised.

To support the contention of Section 3.5 that Mill’s economics was the major inspiration for the young Marshall, it can be noted that his early Political Economy teaching concentrated on Mill in both its advanced
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and elementary segments. Mary Paley Marshall (1948, p. 20) confirmed that when she took his classes in 1873–74, ‘Mill was the mainstay, with Adam Smith and Ricardo and Malthus in the background.’ Unfortunately, little is known of the contents of Marshall’s college lectures, apart from a questionnaire Marshall completed in 1872 for Bateson, his ‘employer’ as Master of St John’s, and a few recollections of some of his students from this period, in particular, Foxwell and Cunynghame. In addition, a set of his lectures to women in 1873–74 has been preserved (Raffaelli et al. 1995, pp. 85–155).

Marshall’s first extant economic manuscript deals with the impact of improvements on rent. It is an example of Marshall’s conscious decision ‘to adopt curves as an engine of analysis’ (Whitaker 1975, I p. 231), while its contents draw on Mill’s Principles of Political Economy (Book IV, chapter III, §4), the section in Marshall’s copy of the book where diagrams first appeared in his annotations. In fact, the text of this short paper follows these annotations closely and it is little more than a formal restatement of Mill’s position on the topic. As noted earlier, it was probably written in 1869. The second extant economic paper, written no later than 1870, discussed Mill’s four propositions on capital, another topic which Marshall had annotated heavily in his copy of Mill’s book. The most interesting part of these remarks relates to Mill’s proposition that demand for commodities is not demand for labour, a proposition only queried by Marshall on the ground that Mill did not satisfactorily explain the meaning of ‘demand for commodities’. Marshall’s suggests that successful commodity sales by producers imply a return of capital to these producers and hence an opportunity to employ labour. However, this remark did not lead Marshall to deny the validity of Say’s Law. For him, as for Mill, capital (or savings) could never be idle, as was equally the case when governments spent the proceeds of a tax on labour in hiring labour for military service or for public works or for any other government activity (Whitaker 1975, I pp. 214–20).

An essay on money, not long before his eightieth birthday dated at ‘about 1871’, was very likely the third of his early economic writings which has survived. It is a pure commentary on Mill’s Principles (Book III, chapter VIII) and, once again, a chapter which Marshall had heavily annotated in his personal copy. The paper is important because it initiated the Cambridge tradition in emphasising the demand for money (cash balances) as a major topic in monetary theory, hence bringing it firmly within the theory of value. Furthermore, as Keynes (1924, 1972, p. 190) noted, the whole of Book I chapter IV of Money, Credit and Commerce can be found within the 1871 paper. Interestingly, Whitaker’s
edition of the early writings (1975, I pp. 176–7) follows the reproduction of this paper with a mathematical note on the value of money, seemingly a preparatory piece for the final version of the 1871 essay on money. This suggests that Marshall’s practice of hiding the mathematics used for the initial analysis in the more final versions of his economic theorising, a strategy mentioned in a letter to Bowley (27 February 1906, in Whitaker 1996, III pp. 130–1) commenced at a very early stage in his career. As shown later in this section, Marshall’s 1872 book review of Jevons’s *The Theory of Political Economy* advised Jevons to do the same.

Marshall’s essay on value, also written *circa* 1871, broke new ground if only because it was not directly inspired by its specific treatment in Mill’s *Principles*. The text in fact starts with a comment on Smith’s statement of the paradox of value. This is followed by a reference to Turgot’s (1769) analysis of barter (read in the 1844 Daire edition of Turgot’s works which Marshall had bought early on) to explain a very topical illustration of the practice, that is, David Livingstone’s (1813–73) bartering muskets for ivory in Africa. It then criticises Mill’s view on supply and demand as a ratio of what to Marshall were very heterogeneous things (Whitaker 1975, I pp. 125–9). Supply and demand diagrams are introduced at this stage, initially exhibiting the now well-known Marshallian cross, with the price/quantity axes placed in the manner Marshall was prone to present them in all his theoretical work. The essay also contains interesting perspectives on the laws of returns in relation to value, and introduces the basics of Marshall’s time period analysis (in terms of market, short and long periods). In the paper, demand is treated simply as a diminishing function of price without any reference to utility (Jevons’s *Theory of Political Economy* had clearly not yet been published), a matter for which some acknowledgement to Cournot (1838) would have been appropriate, since this, together with Marshall’s definition of market and his short discussion of monopoly in the paper, show clear indebtedness to Cournot’s work on Marshall’s part. Marshall’s early paper on value therefore foreshadowed many essentials of his mature presentation of the subject in his *Principles of Economics*.

Marshall’s other early papers discussed labour and wages, as well as profits in relation to risk and other factors. They contained no direct, or indirect reference for that matter, to von Thünen’s work, despite the fact that Marshall later claimed in correspondence that he had first read this work in the early 1870s, when these papers were written. In fact, these two papers are largely Millian in the way they treat the two topics. A paper on joint and composite demand and supply largely anticipates the treatment of the subject in Marshall’s *Principles*, particularly as presented
in the relevant parts of its Mathematical Appendix (that is, sections XIV bis, XVII, XVIII, XX and XXI). The last paper is therefore easier to date as closer to 1874 than to 1870. A long manuscript on international trade, a draft for a work Marshall intended to publish as a ‘Book on the Theory of Foreign Trade and other Portions of Economic Science bearing on the Principle of Laissez-Faire’ (Whitaker 1975, II pp. 3–116) turned Mill’s analysis of international trade in terms of reciprocal demand (offer) curves into geometry as well as analysing the gains from trade in terms of utility as a proxy for welfare. A mathematical notebook dating from the early 1870s presents much material relevant to tax analysis, partly in terms of its welfare consequences reflected in its effects on producers’ and consumers’ surpluses. These fragments are particularly important because they contain so much of Marshall’s extant tax analysis, a topic only very rarely treated systematically in his mature writings (for a detailed discussion, see Groenewegen, 1990).

Marshall’s early economic writings are particularly striking because they show how much of his analytical framework existed in its essentials by the middle of the 1870s. These writings also reveal the early benefit he reaped from non-English authors such as Cournot, and possibly from German authors like Rau. Explicit marginal content in these writings is rare prior to 1871, the year Jevons published his Theory of Political Economy, thereby highlighting the still very ‘classical flavour’ of Marshall’s economics. Most of the problems studied in these papers are still largely drawn from Mill’s Principles of Political Economy, and occasionally from Adam Smith, Ricardo and Thornton. The distribution theory especially is still largely classical, much of it derived from Mill and showing no real trace of a marginal productivity doctrine. Finally, Marshall’s early economic writings were highly theoretical, based frequently on prior rigorous mathematical analysis, which was eliminated in the more polished final treatments of individual topics which have been preserved. Moreover, the material was, generally speaking, devoid of much realistic and factual content; and all this work, it must be explicitly noted, remained unpublishable at this stage.

However, Marshall did publish a number of essays on economic topics during the 1870s, starting with his April 1872 review of Jevons’ Theory of Political Economy for the Academy. This characterised the main purpose of the book as seeking to substitute the view that ‘value depends entirely upon utility’ for Mill’s theory of value. Marshall called this a difference in form and claimed in addition that Jevons thereby treated value as a problem to be solved first ‘absolutely and independently’, and wages only afterwards. Jevons’ view that the rate of interest was
determined by the relative productiveness of time was likewise criticised on the general equilibrium ground that the interest rate both affects and is affected by the duration of productive processes. Marshall condescendingly described Jevons’ book as an ‘original treatment of a few minor points’, presented in a ‘vigorous style’. Marshall also commented on the significance for economic analysis of Jevons’s marginalism by pointing to the analytical importance of the difference between total and marginal utility (but using Jevons’s term, ‘final degree of utility’ in this context). More critically, Marshall stressed the fact that Jevons occasionally forgot that ratios were only meaningful when expressing this relationship for homogeneous quantities; that his criticism of the classical economists was not always justified; and that Jevons could have greatly improved the book by omitting the mathematics in his arguments (which all had first been expressed in words in any case) but to keep the diagrams (Marshall 1872, 1997, pp. 1–7). A detailed discussion of Marshall’s subsequent relations with Jevons, including an assessment of his general admiration for Jevons’s economics is described in Groenewegen (1995, pp. 158–63).

In 1873, Marshall published a brief note on the graphic representation of some economic problems relating to monopoly with the aid of a series of regular hyperbolas. As indicated earlier, Marshall had presented this to the Cambridge Philosophical Society drawing attention in his contribution to the machine for drawing such regular hyperbolas invented by his economics student, Henry Cunynghame. The paper illustrated the proof for establishing the price, $x$, to maximise profit (that is, $F(x) - f(x)$ is a maximum, where $F(x)$ is the demand, and $f(x)$ is the supply function) for a monopolist with the aid of these regular hyperbolas. As Marshall showed in his *Principles* (1961, pp. 479–80 and n. 1) these indicated the price $x$ which maximised monopoly profit at the point where the difference between demand and supply price (plotted as curve $QQ'$) touched one of the rectangular hyperbolas. The resulting profit maximising price was clearly that at which the gradients of the supply and demand functions were equal or, to use the modern terminology (not developed in this context by Marshall), where marginal revenue equalled marginal cost. As Marshall also indicated, this proof had been first presented 35 years before (that is, in 1838 by Cournot) but Marshall implied that his new proof using rectangular hyperbolas or equal revenue curves was superior. For that reason, it was the one included in his *Principles*, as already indicated.

Marshall’s 1873 address to the Cambridge Reform Club on the future of the working classes was published in the St John’s college journal, *The
Eagle. It examined the question which had brought Marshall initially to economics, as to whether resources would ever be sufficient to improve the conditions of the working class. The paper’s starting point is Mill’s chapter on ‘The Futurity of the Labouring Classes’ added to the third edition of his Principles in 1853 as Book IV, chapter VII. Marshall’s address defined the nature of the working classes in terms of character, analysed the effect of work on character and then looked at the remedial influence of education, as well as the more economic issues of the economy of high wages and shorter work hours and its effects on productivity, the economic benefit of investment in human capital and the rationale for shift work as a form of industrial reorganisation which raised productivity. Most of these topics can also be found in Marshall’s Principles. This early aim of Marshall’s economic studies with respect to the improvement of the labour force can therefore be said to have stayed with him for the rest of his life, another indication of the enormous consistency in Marshall’s economic thinking over the decades.

A second substantial article, on Mill’s theory of value, appeared in the Fortnightly Review of April 1876. It defended Mill’s theory of value against its contemporary critics (Cairnes, Thornton and Jevons) and gave clear expression to Marshall’s strong belief that there was considerable continuity between Mill’s Political Economy, that of the other classical economists and more modern work on economics including Marshall’s own. Marshall also praised the organisation of Mill’s economics in which production preceded distribution, and then value, thereby stressing the efforts and sacrifices required for production and rewarded through distribution. Appropriate measurement was considered essential, and the availability of the measuring rod of money gave Political Economy one of its greatest strengths. Such thoughts were firmly embedded in Mill’s theory of supply and demand and, despite contemporary criticism, they remained sound. Mill’s theory needed only to be clarified in order to be used as the foundation of a true and useful theory of value. Marshall’s article thereby provided both cogent praise and a strong defence of the economic work of J.S. Mill, presenting him as his real master in the reconstruction of Political Economy on modern lines.

A few other, more minor items, were published by Marshall in 1874. The November issue of the Academy carried a short review of Jevons’ ‘The Mathematical Theory of Political Economy’ in which Marshall took the opportunity once again to praise Jevons for his originality, criticised his lack of precision in economic argument and condemned him, together with Cairnes, as an unfair critic of Mill. Given the item reviewed, Marshall reiterated his views on the value of mathematical
economics. Earlier that year, Marshall contributed two articles to the *Bee-Hive*, a leading periodical of the labour movement. There he set out what he considered to be the strength and limitations of the laws of Political Economy. Their usefulness, Marshall claimed, arose from their ability to provide a ‘highly-organised machinery’ for analysing certain economic questions of relevance to the working class, for which it had a distinct advantage over ethics and moral judgments. Moreover, its tools of analysis enabled it to defeat popular economic fallacies, as abundantly illustrated by its history over the seventeenth, eighteenth and early nineteenth centuries. These articles are of interest since they are another manifestation of Marshall’s youthful socialist tendencies, moreover they point to what Marshall later described as his ‘full fresh enthusiasm for the historical study of economics’ (Marshall to Price, 19 August 1892, in Whitaker 1996, II pp. 80–1) during the years up to 1874. This took the form of Marshall’s study of the history of economic thought, in particular the period before Adam Smith, as well as study of economic history, partly under the influence of Hegel’s *Philosophy of History*, a work which he greatly admired. This period of quite intense historical study lasted up to 1874, though Marshall maintained an interest in economic history as a source of facts for the whole of his life. However, from the middle of the 1870s, he gladly left teaching of the history of economic thought to his student and colleague, Herbert Foxwell.

3.8 Travel, engagement, marriage and departure from Cambridge (1877)

Before drawing this chapter to a close, some remarks need to be made about Marshall travels during these years, his engagement to Mary Paley Marshall and their subsequent marriage, together with its more immediate implications for their life and work in Cambridge.

In connection with his travels, Marshall’s tour to Scotland and the north of England has already been mentioned on several occasions. From 1867, he commenced his mountain climbing trips to Europe, part of which he also used for writing and studying. Thus in 1867 Marshall went to Switzerland, in 1868 to Dresden and Salzkammergut, in 1869 to Berlin and West Tirol, in 1870 to East Tirol, in 1871 to St Moritz, in 1872 to Aussee and East Tirol, in 1873 again to St Moritz, in 1874 to Wales and in 1875 to the United States. The 1875 trip was made possible by a legacy he had received on the death of his Uncle Charles. Marshall always regarded this trip as particularly useful because it enabled him to appreciate the enormous potential of the American economy and
thereby to understand its future industrial might. During 1876 he again visited Switzerland and in 1877 Cornwall, accompanied by his new bride.

As already stated, Marshall used these trips for more than relaxation. In a preserved summary statement of these travels, Marshall himself indicated that they were used for concentrated study and research and, particularly from the 1880s, for inspections of local industry and living conditions of workers. For the period under consideration, Marshall’s trips provided time for concentrated study on philosophy in 1866 and 1867; on curves, and Political Economy more generally, in 1868 and 1869; on foreign trade curves in 1870; on history from 1871 to 1873; on foreign trade from 1874 to 1876; and for starting to write the Economics of Industry with his new wife, in 1877. A detailed discussion of these travels and their purpose is provided in Groenewegen (1995, pp. 189–203).

Marshall’s companion on his 1877 summer vacation marks the major change which marriage brought in his life. He had first met his bride-to-be, Mary Paley, as a young student desirous to attempt university study in 1872. Marshall persuaded her to complete the Moral Sciences Tripos, so that, as one of her teachers, they could be in frequent contact with each other. He must have helped her greatly with her studies, particularly during the sitting of the Tripos examinations in December 1874. Its successful completion could, however, not be rewarded with graduation since women at that stage were not given degrees at Cambridge. Mary Paley’s return home on completion of her studies meant that they could no longer see each other frequently. Hence in May 1876 they became engaged, to marry fifteen months later in August 1877. Their honeymoon was spent in Cornwall. A major implication for Marshall from his changed marital status was his departure from Cambridge. College regulations then in force meant that on marriage, members of a college had to resign their Fellowships and any other college positions, in Marshall’s case that of college lecturer. Marriage therefore made Marshall briefly unemployed. However, after contemplating, and rejecting, several unrealistic alternatives, Marshall successfully applied for the chair in Political Economy and the position of Principal at the new Bristol University College. Married life therefore altered Marshall’s circumstances considerably.
During the seven year period 1879–84, Marshall spent five years in Bristol, one year of extended sick leave in Europe and one year at Oxford. At the end of 1884, the death of Henry Fawcett, and Marshall’s successful application to replace him as Professor of Political Economy, enabled him to return to Cambridge. Although these years away from Cambridge constituted a period of exile for the Marshalls away from many of their friends, they were nevertheless fruitful and enjoyable. This is despite the fact that the first four years in Bristol were spoiled for Alfred Marshall by the heavy administrative load that his college position as Principal entailed and, from 1879, by the illness (a stone in the kidney) which allowed them to escape Bristol for a year to Palermo and, more generally, Europe. Their sojourn in Sicily was later described by Mary Paley Marshall as one of the happiest periods in their lives, largely because Alfred Marshall was free to work while she relaxed in that colourful city with her painting. The period of leave in Sicily and Europe was followed by a further year at Bristol as Professor of Political Economy only (hence without the arduors of academic administration for which Marshall clearly was totally unsuitable). In the academic year, 1883–84 Marshall was Fellow of Balliol College and Lecturer in Political Economy at Oxford.

These years also produced Marshall’s first two publications in book form. Both appeared in 1879. The first was a small, but difficult textbook, published jointly with his wife, entitled the Economics of Industry; the second a privately printed volume devoted to the pure theory of international trade and domestic value. The theoretical volume was partly an attempt, suggested and implemented by Henry Sidgwick, to safeguard the originality of much of Marshall’s economic analysis by means of ‘curves’. The text went through a second edition in 1881 and
over its lifetime sold a very respectable number of copies. Marshall also published five articles on economic subjects during his years in Bristol, including three critical lectures he gave there on the economics of Henry George.

This chapter examines Marshall’s period at Bristol as Principal and as Professor of Political Economy at its University College; his year of ‘sick leave’ spent partly in Palermo where he started work on his *Principles of Economics* and his year at Oxford as Lecturer and Fellow of Balliol College at the invitation of friend, Benjamin Jowett. It then looks in detail at his published economics, in particular the *Economics of Industry* and the volume on the pure theory of foreign trade and of domestic value.

### 4.1 Principal and Professor of Political Economy at Bristol University College (1877–81, 1882–83)

Pro rata with its renumeration, £500 as Principal and £200 as Professor of Political Economy, Marshall’s duties at the new Bristol University College were largely administrative. No clerk (or secretary) had been appointed to assist Marshall with this work until his first year in office was nearly over (May 1878). Moreover, the duties were diverse and very time-consuming. During term, he wrote to Foxwell (27 May 1878, in Whitaker 1996, I pp. 95–6), that he had no time to think about economics apart from his few hours in the actual lecture room. Illness in February 1879 made his administrative duties even more onerous, particularly when that illness dragged on for the greater part of the year. An attempt in 1879 to return to Cambridge proved unsuccessful. Freedom from administration in fact only arrived when Marshall was able to resign his position as Principal in 1881 when a willing replacement was found in William Ramsay, the newly appointed Professor of Chemistry. Details of Marshall’s period as Principal with respect to his administration can be found in Groenewegen (1995, pp. 275–84).

Detailed information about Marshall’s lectures at Bristol is also available, largely in the form of course outlines and textbook lists published in the Bristol University College *Calendars* for the period. A set of 1879–80 lecture notes on the economic influence of government has also been preserved. These in turn provided for the discussion of the functions of government in a historical framework, the impact of private property on government, the implications for taxation from security and equality, Adam Smith’s four canons of taxation, free trade and differential commodity taxes and the advantages of an expenditure tax
over an income tax because of its favourable consequences for thrift. They also examined the proposition that taxes levied on goods produced under conditions of diminishing returns were, generally speaking, superior to taxes on goods produced under conditions of constant or increasing returns because of their less detrimental impact on welfare as measured by consumers’ surplus. As shown in Section 4.5, this tax theorem had been fully elaborated in his pure theory of domestic value published in 1879.

Marshall’s elementary class at Bristol continued to be based on the economics of J.S. Mill, as it had been at Cambridge. Marshall also lectured on money and banking, on foreign trade and on a new topic close to his heart, economic progress. The first of these sets of lectures looked initially at the nature, functions and value of money, followed by a discussion of banking and other financial institutions (including the stock exchange), credit and prices, commercial fluctuations in theory and practice, bank reform and bimetallism. Marshall’s foreign trade course discussed the benefits of trade, the balance of trade, the foreign exchanges, the nature and appropriateness of British trade, the influence of trade on people, differences in the effects of trade on old and on new countries and a review of the American argument in favour of protection.

The lectures on progress developed one of Marshall’s favourite topics. They started with an overview of the nature and results of economic progress; to continue with its influence on prices, on wages and on the rate of interest; then turned to disadvantages in the form of speculation, trade combinations, monopolies and ‘rings’ on the stock exchange, to conclude with an assessment of both the validity and the limitations of the self-interest principle in the use of resources. For 1881–82, Marshall proposed, but in the end did not give, a course on wage theory and its application, likewise concluding with comments on the limitations of the principle of laissez-faire. Other topics in the applied part related to guilds and trade unions, conciliation and arbitration of labour disputes, socialism, property and land tenure, poor relief, education, national recreation, the Factory Acts and government enterprise. The wide scope of these lectures, even if influenced by the type of audience Marshall was attracting at Bristol (adult evening students and interested citizens), shows the width of the canvas of issues for the illustration of which Marshall’s theory and applied economics lectures were largely designed.

In addition, Marshall gave some interesting public lectures at Bristol, the texts of which were sometimes published. First were his two ‘inaugural’ lectures given in 1877. These dealt respectively with the ‘Aims and Methods of Economic Study’ and with ‘Some Aspects of Industrial
Life’. The first reflected on the limitations of economics relative to the natural sciences, the misuse to which some of its laws were put by certain people, but then indicated it was nevertheless a ‘useful science’, able to assist society in improving itself. The lecture also touched upon work and its beneficial effects on character, and that Political Economy’s methods essentially followed those of the successful sciences involving as they did the collection and classification of facts, formulating laws based on them and critically applying these laws to seek solutions to economic problems. The lecture on industrial life gave an overview of the development of Political Economy which stressed its various biases and praised the contribution its study could make together with education in general, towards training the leaders of tomorrow, including those in business. Somewhat later, Marshall gave a public lecture on ‘The Economic Condition of America’ in which he once again discussed the impact of work, but also of immigration, on national character. As well, the lecture addressed the potential detrimental consequences of excessive capital inflow into a new country. In 1879, Marshall presented a lecture on water as an element of national wealth. This emphasised the importance of nature’s gifts in economics and the problems involved in defining and classifying such items of national wealth.

In 1883, in his final year in Bristol, Marshall gave three public lectures on Henry George and the contents of his famous book, *Progress and Poverty*. Marshall first queried the proposition that wealth and want necessarily increased together, then discussed the causes of poverty within the framework of developments in work and wages, stressing here the growing importance of skills and education. He then reviewed remedies for poverty and asked rhetorically whether land nationalisation could provide the answer to the problem of poverty, as George had suggested in his book. Marshall’s response suggested that poverty required far more extensive remedies and that land rent in any case was insufficient to defray the expenses of government. Marshall’s public lectures further displayed the wide social canvas on which he presented his discipline to the citizens of Bristol during his period as Professor of Political Economy at its University College.

4.2 A year in Sicily and Europe (1881–82)

As previously indicated, the year’s trip to Sicily and Europe was made on doctor’s advice. This suggested complete rest as the best cure for the kidney stone with which Marshall had been diagnosed in 1879. The Marshalls chose Sicily for the first five months of their leave because
of its climate, the quality of its water and its low cost. They found it a charming place, with its Saracen influences in customs and architecture and its bright colours, preserved in Mary’s paintings. It was also a place for some economic observation. Palermo life, Marshall wrote in *Money, Credit and Commerce* (1923, pp. 242–3), was based on a ‘remarkable localization of industry’ which concentrated specific industries, crafts and workshops into their own individual streets and alleyways. Palermo was also still remarkably medieval, particularly with respect to employment. Marshall recalled this in 1923, while some of these aspects of Palermo life had earlier been conveyed by him in official evidence (*Official Papers*, pp. 92–3) and in the pages of the *Principles* (1920, p. 688 and n. 1).

This was not the only association between the *Principles* and Palermo. The five months spent there were not all holiday. Marshall had taken a box of books on his travels, which weighed more than 350 kilograms (7 cwt) and wrote to Foxwell from Palermo (10 October 1881, in *Whitaker 1996, I* pp. 146–8) that his work on ‘curves’ (that is, his theory) was progressing well, even though what he was writing did not place these curves in eminent positions. Serious work on the *Principles* was in fact started at Palermo, and Marshall later recalled that its Book III on wants, demand and consumers’ surplus was largely thought out and written up on their sunny Palermo roof. The task had been preceded by a thorough re-reading of Cournot’s *Mathematical Principles of the Theory of Wealth*, thereby once again highlighting the importance of this book in Marshall’s economics. From Sicily the Marshalls proceeded to short stays in Capri, Rome and Venice, finishing the year with a more prolonged sojourn in Bavaria and the Rhine area.

As a year of leave, 1881–82 played therefore a very important role in Marshall’s life. It restored his health to a significant degree; it enabled him to recover from the problems of the year of university administration at Bristol and it allowed him to make useful progress in the writing of his magnum opus, the *Principles of Economics*. That book, as shown more fully in Chapter 6, had been started in Bristol before then, but little progress could be made on it there, for reasons already explained. Its construction had to await the free time first afforded in Sicily and the calmer life of the university teacher with not a great deal of administration, which followed this pleasant and productive year of leave in 1881–82.

### 4.3 Economics Lecturer at Balliol College, Oxford (1883–84)

Although Marshall spent a further year at Bristol after returning from Europe, this was still less than what the Bristol University community
Alfred Marshall had expected. The death of William Toynbee, the popular Political Economy tutor at Oxford and Fellow of Balliol College, enabled Marshall to apply for this vacant teaching position and to accept appointment when his application proved successful. He thereby filled an important gap in the teaching of Balliol College which for some time had mixed its economics education with liberal reform policy for social and moral improvement as a type of practical ethics. The Marshalls’ year at Oxford was very enjoyable. It reunited them with their old friend Benjamin Jowett, a person whom they had first encountered at Bristol as a member of its University College Council, and the rich social life to which he introduced them. Moreover, it gave Marshall a large number of well-motivated students, as well as a handsome salary of £200 per annum. For the Marshalls, these aspects of Oxford life made it a vast improvement over Bristol.

The greater part of Marshall’s Oxford teaching was to Indian Civil Service students. The course outline prepared by him, however, resembled that used previously at Bristol. It involved three courses of lectures. The first was a general course over three terms covering production, rent and value in the first term; distribution, money and foreign trade in the second term; and economic progress as well as the functions of government in the third term. Secondly, Marshall provided a separate lecture course on economic theory in the first term only; and, thirdly, he taught the advanced economics course during the second term. Much of the syllabus remained based on Mill’s economics from the *Principles of Political Economy*, modified and expanded by Marshall’s additions and corrections. His lectures were considered to be highly successful. He later recalled attracting at least three good students in Oxford (L.L. Price, E.C.K. Gonner and F.C. Harrison), and developed the ‘at homes’ for his students which became so marked a feature of his later Cambridge teaching (discussed in Chapter 5).

The year at Oxford produced only one publication for Marshall. This was his address on ‘Where to House the London Poor’, published in the February 1884 issue of the *Contemporary Review*. It called for an improving environment when developing such housing, with plenty of open space and fresh air, perhaps initiating the Garden City Movement in which Marshall later became actively involved. As suggested by its title, the paper specifically addressed London problems. This required some preliminary analysis of the peculiar features of London’s labour market. These included the special strengths required of its workers, the higher wages paid in London, the migratory aspects of the London population reflected in departures for the new world.
from large numbers born in London and their replacement by new arrivals from the country. Such arrivals, Marshall stressed, were by no means confined to domestic workers, a category of employment which did not dominate labour immigration into London, contrary to popular beliefs. Schemes to improve London’s housing for the poor implied raising their self-respect, providing decent employment opportunities for new workers and better public transport to enable them to move easily and cheaply between places of work and out-of-London accommodation, which was both cheaper and of better quality. Last but not least, it required improvements in social provision for the poor through both public and private charities working in cooperation.

Marshall’s sojourn at Oxford proved to be short. In November 1884 the death of Henry Fawcett created an opportunity to apply for the vacant Political Economy chair and a return to Cambridge. This departure from Oxford was, however, not without regret and their year at Oxford was invariably recalled by them with much pleasure.

4.4 A short book for beginners: *The Economics of Industry* (1879, 1881)

In October 1879 Macmillan published a slim, olive green volume entitled *The Economics of Industry* written by Alfred and Mary Paley Marshall. It presented an ‘outline’ of the theory of value, wages and profits along the lines of Mill’s *Principles of Political Economy*. Mill’s economics, the authors claimed, was essentially correct as far as it went, provided it was suitably interpreted. Only on distribution theory did the book depart extensively from Mill’s work, resulting, as Stigler (1941, p. 344) put it, in the first presentation of the marginal productivity theory since the time of Longfield and Butt. The book sold well, over 15,000 copies had been purchased when Marshall suppressed it in 1892, on publication of *The Elements of the Economics of Industry* as an abridgement of his *Principles of Economics*. A second edition appeared in 1881, a third edition was contemplated in 1885, an unauthorised Russian translation appeared in 1886. Macmillan had originally commissioned the book from Mary Paley before she was married to Alfred Marshall. After their engagement and even more after their marriage, its writing was increasingly taken over by him. This led to the insertion of much difficult material and forced many revisions over its three-year construction period. However, in its first and second parts particularly, many traces of its original author’s style remain visible. The success of the
book was such that a second volume was planned on the economics of finance but this, unfortunately, never materialised.

*The Economics of Industry* contained three parts. The first dealt with the ‘agents of production, land, labour and capital’, and their growth. The second part treated ‘normal value’ in a supply and demand framework, where supply was discussed in terms of aggregate production costs, that is, rent, wages, profit and interest. The third part addressed the subject of ‘market value’ and introduced the purchasing power of money, market fluctuations, the impact of customs and local variety, monopolies, combinations, trade unions, conciliation and arbitration, to end with a discussion of cooperation. It was a neat little book mingling theory and application, even if its contents were highly condensed and therefore more difficult than they appeared to be at first sight. Such difficulty also arose from the original material and from the unobtrusive manner in which Marshall had introduced it to preserve the essentially Millian gloss of the book’s contents. The original features of the book make it worthwhile to consider some of its contents in more detail.

Book I of *Economics of Industry* starts with a fairly conventional discussion of the agents of production after a preliminary first chapter. That chapter I commences with emphasising the cooperative nature of modern economic life – a theme frequently stressed in the rest of its Book I – before defining economics (the name ‘Political Economy’ is explicitly rejected) as a science ‘because it collects, arranges and reasons about one particular line of facts’ (p. 2). A science is said to develop laws by describing uniformities of nature, from which inferences can then be made. Hence induction (the formation of laws) and deduction (reasoning from laws) are totally interdependent in economic argument and cannot be considered alternative methods (p. 3 and n. 3). After this definition of economics as a science using scientific methods, economics is classified as part of the social or moral sciences. Only then is its scope defined as investigating ‘the causes which determine the work of man’s daily life, the manner in which he spends his income, and the influence which his work has on his character’ (p. 4). This type of study, the reader is warned, is very broad and its conclusions are inevitably historically relative. ‘The economist should know something of the history of manners and customs and laws, and of the principles of mental, moral, legal and political science.’ Explicitly invoking J.S. Mill, readers are reminded that the economist can never regard current experience as of universal validity and mistake for human nature local phases of character, thereby again stressing the relativity of economic principles with respect to space and time. Finally, the introductory chapter treats
human well-being as the key element of economic science and therefore as closely related to, but not identical with, its basic subject matter of wealth (p. 5). Wealth itself is said to consist of material and personal wealth, that is with respect to the latter, those human energies, faculties and habits, physical, mental and moral, which directly contribute to making people industrially efficient and increase their power of producing material wealth’ (p. 6). Lastly, labour is recognised to be productive when it produces personal or material wealth, thereby making education and training, as well as moral influence, productive activities so long as they raise labour efficiency (p. 7).

Agents of production (chapter II) are defined first in terms of man and his environment (man and nature or, more narrowly, labour and land). Labour’s efficiency is argued to depend on physical strength and energy, knowledge and mental ability, as well as moral character (pp. 8–10). Nature reflects not only land, its fertility and location, access to natural resources in the form of minerals but also the presence of navigable rivers and access to the sea, and aspects of geographical location influencing costs of transport and communication. Capital, the man-made agent of production, is dealt with in chapter III. It is said to result from both labour and abstinence (thrift) and must be directed towards productive purposes. It does so by either supporting labour (wage capital) or aiding labour (auxiliary capital). It can be of single use (circulating capital) or more durable and lasting (fixed capital) and specialised or non-specialised in its functions. These definitions, it should be noted, use the traditional terminology of classical economics, but broaden them in terms of the demands of the more sophisticated production theory which Marshall was developing.

The same can be said about Marshall’s restatement of the law of diminishing returns (chapter IV). This is not confined to the agricultural and mineral sectors, but generalised to all productive activities where increased allocations of variable factors (say labour and capital) to a fixed factor (say, a plot of land or mineral deposit) eventually yield declining produce. More traditionally, the law was stated in terms of doses of capital successively applied to land (with explicit reference to James Mill’s treatment) and their declining productivity, and illustrated diagrammatically. Moreover, the Marshalls’ exposition stressed that application of the law assumed a given technology and would alter if technology changed. Population theory, on Malthusian lines, and the then associated topic of the poor laws were treated in chapter V. The discussion stressed the historical relativity of subsistence (or ‘standard of comfort’, as the Marshalls preferred to call it) and contains a splendid...
example of Marshall’s generosity in interpreting classical economists. Malthus’ reliance on geometrical progression to illustrate the magnitude of population growth, while using arithmetical progression to indicate the potential growth of food supply is simply depicted by Marshall as an expression of the law of diminishing returns since its implications for the potential growth of produce relative to population growth are virtually the same (p. 31). Growth of capital (chapter VI) is related to saving and accumulation. These are explained by the ‘intellect’ discerning the need to take care of the future, ‘sympathies’ reflecting the widespread practice of saving for others, self-improvement, the perceived advantage of wealth ownership and the presence of political and commercial security for private property (pp. 37–9). It is implied that these human forces making for accumulation are more fundamental than either high interest or high profit rates, though the impact of the latter cannot of course be ignored.

The most original chapters (VII, VIII) of Book I cover aspects of the theory of production, organisation of industry and the division of labour. Localisation of industry in the form of manufacturing (or industrial) districts, whose nature depends on the degree to which the division of labour itself had been applied, are a striking innovation on Marshall’s part, reflecting the fruits of ‘inductions’ when studying industry during his holiday travel in Britain and Europe (recall, for example, how he noted the concentration of local crafts and industry in specific streets in Palermo, discussed in Section 4.2). Localisation and industrial districts are later treated as a more contemporary development in the division of labour since it is nothing but an aspect of the benefits of specialisation. The concentration of firms, all contributing through their individual production a small portion of the inputs needed for producing a particular commodity, is described as a rich opportunity for introducing specialised machinery and for concentrating particular types of skilled labour within designated areas. Limited liability for incorporated business (a then relatively new privilege for certain types of business organisation) was argued to have facilitated this process which, in addition, impacts on scale economies and the optimal size of firms. These chapters are a splendid example of the way in which Marshall enriched conventional classical doctrine by giving it a new interpretation in the light of changed industrial circumstances of which his travels had made him aware. The final chapter of Book I (chapter IX), devoted to land tenure and its impact on productivity, paid special attention to the then popular topic of the virtues in this regard of peasant proprietorship, as stressed by J.S. Mill in particular. More generally, Mill’s
impact on Book I’s argument was frequently acknowledged. However, the manner in which that material was used by the Marshalls invariably implied its modification through the addition of carefully thought out new material, particularly with reference to the organisation of industry.

Chapter I of Book II (entitled ‘normal value’) was definitional and presented the law of demand. The contents of Book II itself were presented as assessing the influence of competition on wages, profits and prices on the understanding that competition worked best in the advanced countries of Europe, North America and Australia, and only sluggishly, if at all, in backward countries. Definitions were also presented of the market, of a buyer and a seller and of utility. Chapter I’s final paragraph concisely defined the law of demand as follows:

The amount of a commodity which finds purchasers in a market in a given time depends on the price at which it is offered for sale; and varies so that the amount demanded is increased by a fall in prices and diminished by a rise in prices. Its price measures its Final [that is, marginal] Utility to each purchaser, that is, the value in use to him of that portion of it which it is only just worth his while to buy. (p. 71)

Chapter II defines the law of supply in terms of cost of production. These in turn are defined as real costs (labour, abstinence or waiting, to use Marshall’s preferred term for the personal costs involved in the act of saving) and as the actual production expenses incurred in terms of labour, materials, depreciation of tools and equipment, interest on borrowed capital, wages of management and so on. Under free competition, normal value is in the long run equated to the cost of production, a proposition already established by Smith and Ricardo. Increases in supply are stated to depend on whether price is expected to cover the cost of production of the commodity concerned. Rent in relation to normal value is the subject of chapters III and IV. The economic rent of a piece of land is defined as the difference between the value of its annual produce and the ‘amount sufficient to return the farmer’s outlay with profits’ (p. 82), a proposition subsequently stated incrementally and illustrated diagrammatically. This demonstrates, as does the succeeding argument, that rent is price-determined rather than price determining. The final section of chapter III (§5) indicates that the rent of mines, depending as it does on the rate of exploitation of the minerals extracted, does enter into cost of production. In practice, the rent of mines is set by the sum of a royalty calculated as so much per ton of the mineral extracted, together with a fixed annual payment for the actual right to
exploit the mine (pp. 86–7). However, individual producers will have to include any rent payments incurred while producing their commodities as part of their actual costs of production which the price obtained for these commodities has to defray. Chapter V looks at the influence of demand on value as well as several unusual cases in value determination. For example, its §1 discusses the proposition that ‘a change which affects all expenses of production in like proportion … does not alter [relative] values’ (p. 71). Demand is said to be the sole influence on value when the commodities in question are in completely fixed supply (as in the case of Raphael’s paintings). In most cases, however, demand is only one of the causes which influence value so that the law of normal value (as stated on pp. 77–8) needs to be supplemented with the statement, ‘the normal supply of a commodity is such that its normal expenses of production equal the price which will call forth a demand for this amount; and the price so determined is the normal price’ (p. 93). Chapter VI links the analysis of normal value to distribution via expenses of production which ultimately are the equivalent of wages and profits. Net annual income is then defined as the sum of earnings (for both labour and management), interest on capital and rent of land, plus taxes whose revenue accrues to the state (p. 95). The problem of distribution is defined as explaining how ‘the wages and profits fund’ (or net national income minus rent and taxes) is divided between labourers and other sections of the community or, to put it in a better way, the wages-and-interest fund (p. 96). Two difficulties are then cleared up. Real costs of labour exertion and ‘abstinence’ are said to be measurable by the costs which have to be incurred to purchase them. Secondly, consumers can never be considered as a separate class to labourers, managers, owners of capital or landlords, since these classes themselves are all consumers, as is the state. Thirdly, in estimating net national income care must be taken not to count the same thing twice. For example, when a finished commodity is counted at full value, it includes the value of the items used to produce it, that is, raw materials, the depreciation of capital, the cost of labour and so on. Moreover, the benefits of owning property such as housing and furniture for personal use has to be included in measures of net national income as they would be when they were rented. Chapter VII discusses wage issues in relation to unskilled labour supply, including the proposition that wage variations can be used for equating the net advantages of labour in particular trades. Chapter VIII examines skilled labour and the expenses of education and training, and further explores the concept of net advantages as well as the notion of education as investment in human capital. Supply
of business power is the subject of chapter IX, in which variations in
the earnings of management are treated as the key determinant. The
next three chapters deal with the determination of the other major
forms of income, normal interest, normal wages and normal earnings
of management. A key influence on this is the size of the earnings-and-
interest fund which in turn depends on the productivity of resources
used in agriculture, mining and manufacturing or on the various causes
of output growth such as technology and the extent of the division of
labour (p. 119). Interest is said to depend on the ‘urgency of the demand
for capital, and its relative scarcity, other things being equal’. At the
same time, investment in labour depends on its rate of return relative
to the prevailing rate of interest or, as the Marshalls put it, the utility
of machinery at the margin, and the rate of interest (p. 122). In short,
there is a broad similarity between the law which holds for the sale
of commodities and that for the lending of capital. Moreover, in the
long run, the normal rate of interest is expected to fall further, but at a
slower and slower rate, ‘always….approaching its minimum’ but never
quite reaching it (p. 127). Normal demand for labour depends on the
demand for the commodities it helps to produce or, more generally, on
the demand or competition for it as an aid in production. For example,
in a building boom when the labour of carpenters is in short supply
relative to other building labour (that of masons and plasterers), their
wages will rise. ‘The normal wages of a trade are therefore determined
by the relation in which its wages (or more strictly, its Net Advantages),
must stand to those of other trades in order that the supply of labour
in it may be kept up. This depends on the difficulty of the work to be
done in it, on the expensiveness of the general and special education,
and on the natural qualities, physical, mental and moral, required in
it.’ (p. 131). When actual wages rise above the normal wage, labour will
increase in that trade and vice versa when actual wages are lower; the
normal wage is therefore the equilibrium wage for the trade in ques-
tion. Marshall warned, however, that these equilibrating forces often
acted slowly from economic and social obstacles to labour movements
between trades. Chapter XI then discussed the impact of time–wage
changes (§4) and the proposition that under free competition a person’s
wage tends to be equal to the discounted value of the product of his
labour (p. 133), a situation which is said never to eventuate in prac-
tice. Earnings of management are analysed in chapter XII. Their main
difference from ordinary wages is their association with the control of
capital on the part of managers. This is illustrated by comparing the
management earnings of a person working with his own capital and a
person who has to borrow that capital. The first is able to take the whole net profit, the second needs to deduct interest on the borrowed capital first. The size of this interest deduction is also said to vary with the degree of risk associated with the type of business in which the borrowed capital is employed. The Marshalls note that profits on equal capitals tend to equality under competitive conditions, if risk and managerial exertions are also the same and that managing very large capitals attracts additional renumeration for the greater skills it requires (pp. 139–40). Two exceptions may arise: first, when owners of large capitals delegate part of the management to their subordinates; secondly, when small firms are very specialised, this entitles their managers to higher earnings. Economies of scale are mentioned in this context, including a discussion of the Cournot problem, which suggested that if external economies of scale were very large, a single firm would eventually monopolise the industry, hence making such economies incompatible with competition. The Marshalls denied the importance of this problem on the grounds of the life cycle of firms and the potential deterioration in the quality of management as the firm passes from father to son. They also suggest that concentration of an industry into the hands of a few very large firms increases the intensity of competition, thereby lowering net returns and management earnings (p. 142). The final chapter of Book II broaches the relation of normal to market value which is said to depend on the degree of competition and where deviations of market value from normal value depend on the extent of short-term fluctuations in supply and demand. The subject of market value itself is treated in detail in Book III.

In some respects, Book III is the most interesting of the three parts of the Economics of Industry because it covers material not discussed in detail elsewhere by Marshall. Its chapter I deals with changes in the purchasing power of money, a subject related to the theory of value because that purchasing power was assumed constant for the discussion of the previous two books. Moreover, that topic, strictly speaking, belonged more fully to the ‘economics of trade and finance’, the topic for the proposed second volume. The basic explanation offered for changes in the value of money is in terms of the quantity theory, where the relative availability of the precious metals is said to determine it (p. 150). Expansion (or contraction) of the money supply through bank credit also affects the value of money, as does the possibility of business fluctuations and crises from fluctuations in demand. Marshall’s description of a credit cycle in the chapter is particularly interesting. Good harvests generally induce credit cycles from their income effects on aggregate
demand. Less has then to be spent on food, so that more can be spent on other things. This additional demand for commodities generates a need to borrow by factory owners to enable them to expand capacity. Prices also rise for manufactured goods and, after some time, labour shortages induce rising wages. Hence prices and wages become buoyant, feeding on each other and on rising demand and credit growth. Sooner or later this cumulative process comes to an end, as lenders ‘read the signs of the times’ and begin to curtail their lending. Such curtailments disturb trade because no further expansion of activity can take place without additional credit. Unsatisfied demand for loans from tightening credit sharply raises interest rates.

Distrust increases, those who have lent become eager to secure themselves and refuse to renew their loans on easy or even on any terms. Some speculators have to sell goods in order to pay their debts and by so doing they check the rise in prices. This check makes all other speculators anxious, and many rush in to sell. For a speculator who has borrowed money at interest to buy goods may be ruined if he holds them for a long time even while their price remains stationary; he is almost sure to be ruined if he holds them while their price falls. When a large speculator fails, his failure generally causes that of others who have lent their credit to him; and their failure again that of others. Many of those who fail may be really “sound”, that is their assets may exceed their debts. But though a man is sound, some untoward event, such as the failure of others who are known to be indebted to him, may make his creditors suspect him. They may be able to demand payment from him, while he cannot collect quickly what is owing to him; and the market being disturbed he is distrusted; he cannot borrow and he fails. As credit by growing makes itself grow, so when distrust has taken the place of confidence, failure and panic breed panic and failure. The commercial storm leaves it path strewn with ruin. When it is over there is a calm, but a dull heavy calm. Those who have saved themselves are in no mood to venture again; companies, whose success is doubtful, are wound up; new companies cannot be formed (Marshall and Marshall 1879, p. 153).

After a crisis and during a period of depression, it is said, Marshall continues, that supply exceeds demand. This proposition is only true in the sense that some commodities are in excess supply and cannot be sold at a remunerative price. Appealing to Mill’s statement that demand for commodities is constituted by commodities, commodities cannot
logically be in excess supply nor can there be general deficient demand. What can occur, according to Marshall following Mill, is that holders of purchasing power in the form of commodities may not exercise the use of that purchasing power, and thereby cause a partial glut of commodities. This arises from want of confidence, Marshall suggested, and it is this, or the general distrust in the market in a period of crises, which causes the problem. However, because it takes considerable time for that distrust to disappear and for confidence to return, a crisis can last for quite a while before a gradual recovery of business takes place. The price movements from changes in credit which accompany fluctuations in production tend to aggravate their consequences. As shown in the quote, high activity levels are stimulated as well as accompanied by the high prices made possible by abundant credit; the cessation of credit by making it difficult to sell, lowers prices and profits, thereby further lowering sales and slowing the market. In this sense, the credit cycle as described by Marshall is a cumulative phenomenon. However, its consequences for the growth of wealth and living standards are relatively slight. In the context of the 1873 crises, Marshall argued that average wealth in 1872 was but little different from the time of writing, that is 1879 (p. 157).

Chapter II deals with market fluctuations to explain the oscillations of market price around normal price. Expectations of high market prices raise supply; expectations of low prices tend to reduce supply. An example of a fish market illustrates the difficulties of price setting; too high a price leaves unsold stock (almost worthless in this case), too low a price sacrifices potential profits. Chapter II also explores speculative produce markets (including corn) whose actions of buying cheap when stocks are large, to sell when stocks are low, stabilises market prices over time. Dealers therefore make market prices, not producers. Incorrect forecasting of future demand generates major fluctuations in prices depending on the responsiveness of supply. The housing market, for example, generates sharp rises or declines in price, since supply responds only slowly to changes in price (pp. 161–2). Such sluggishness in supply responses also occurs in industries where a great deal of fixed capital is required (the case in mining or in pig iron production) and such price fluctuations follow the business cycle. Market prices tend to rise quickly just before a depression; they fall very drastically during a slump (pp. 163–4). Marshall also indicates that fluctuations in one commodity price (for example, cotton), affect the price of substitutes such as wool, as shown during the American Civil War when cotton supply shortages boosted wool as well as cotton prices (p. 164). The final sections of chapter II (§8–9) point to other features in the transmission of price changes. Initial benefits from price rises are said to go to producers;
wages fluctuate less than prices, consumer prices change more slowly. By way of conclusion to this tightly argued chapter, Marshall indicated that market price fluctuations generate fluctuations in production expenses, and not the other way round, and that this aspect of the problem had been insufficiently developed by both Ricardo and J.S. Mill (p. 167).

Chapter III analyses the influence of custom on local variations in prices and wages or the possibility that normal values for a commodity may differ in different markets. Locational influences on transport costs are an obvious example. Competition, especially the desire to break into new markets, may sometimes eliminate such differences. Local variations are often very important when the commodity in question is immobile, as in the case of land. In old village communities where the market is completely local and long established, immobility of goods is also the result of custom. As custom gradually loses its importance, competition starts to destroy this type of immobility. Labour is also often immobile because of the various costs of moving, particularly important in the case of female labour. However, progress in science and in machines are widening the labour market for women thereby reducing this traditional immobility of labour and cause of local wage variations. Experience in France, for example, shows the potential for women’s entry into managerial work, while Birmingham’s ‘largest and most successful brass works’ has a woman general manager (pp. 176–7). Local variations in profits are largely explicable by differences in the earnings of management. An example is the international variation in the profits of small shopkeepers. These tend to be low in Germany because of the attractiveness of this occupation to Germans with a small capital; they are high in England, and especially in America, where the occupation of a small shopkeeper is less highly regarded by owners of small capitals and where large capitals (and large firms) are increasingly displacing small firms in the retail trade. Local variations in retail prices are also noticeable in large cities, as for example, between those ruling in the west end of London and its east end. Fashion, and the incomes of potential customers, are major explanations. Retail prices also fluctuate less widely than wholesale prices, generally because competition and knowledge of the market are greater among wholesalers (pp. 178–9). High rents for west end shopkeepers cannot explain the high prices charged there. Rent is price determined, and the high west end rents in London derive from the high prices of the trade carried out there.

Monopolies and combinations are discussed in chapter IV, a prelude to the discussion of trade unions and associated matters in the subsequent six chapters. Monopolists are said to maximise profits in the few situations where monopolists arise (pp. 180–1), but ‘partial’ monopolies
may be procured either by very high-quality production or, more frequently, by combinations of producers. Such combinations have frequently existed in the past and continue to be present even though they are not always easy to arrange and to preserve. Relative size differences in the combining firms, plus the nature of the trade they engage in, may make it advantageous for some firms to break the price agreements reached on combination. Where commodities are difficult to transport, local combinations may be profitable. Modern forms of wage fixation have encouraged combinations of employers to keep wages low and of employees in the form of trade unions.

Chapters V–VIII discuss trade unions and associated topics. Trade unions are simply defined as ‘associations of workmen in the same trade’ designed to procure higher wages for members, improve their working conditions, and to provide mutual assistance for members in ill health, death, accidents, unemployment and retirement (p. 190). Much of the discussion in chapter V is descriptive and historical. It covers the growth of unions in the nineteenth century, their origins and association with medieval guilds, their main aims and instruments (that is, strike action, picketing and collective bargaining). Chapters VI and VII examine the effects of trade unions on wages. These suggest that if wage increases secured through strike action lower profits, they are often self-defeating in the long run. However, if rising wages from strike action encourage thrift in the workers, capital accumulation need not be adversely affected and employment opportunities may be maintained. The Marshalls also criticised the classical wages fund doctrine in this context, largely because of its inflexibility in treating all capital as fixed, thereby ignoring the potential for shifts from auxiliary to remunerative capital (from which wages are paid), the migration of workers and other factors (pp. 203–5). Workers in combination are therefore able to gain wage increases, particularly when the demand for their product is strong. Chapter VII then elaborates on the specific conditions which determine whether trade unions are likely to succeed in raising wages. The chapter concludes that, generally speaking, trade disputes in the form of strikes are best avoided and that conciliation and arbitration provide superior forms of conflict resolution. This topic is discussed in chapter VIII. After briefly mentioning contemporary British machinery for conciliation and arbitration, the Marshalls conclude that it is best to adjust wages on a sliding scale based on departures from the normal range of prices, wage and profit rates (p. 216). Such scales are complex, matching the complexity of problems in industrial life. By way of introducing the subject of the concluding chapter, workers are likely to be
better off through securing cooperative arrangements in production rather than sticking to the antagonism inherent in the more general organisation of production with its employers and employed workers (p. 217).

Cooperation and its merits are discussed in chapter IX. Robert Owen is named as the founder of the cooperative movement in Britain (and his praises by Karl Marx briefly noted). Industrial partnership schemes and cooperative production possibilities are then discussed. This discussion is followed by an examination of cooperative credit institutions and cooperative retailing organisations. Aspects of the latter movement, including the need for cooperative wholesale organisations, form the concluding sections of the chapter. This chapter, and the book itself, ends on the wish that achievement of the cooperative ideal in trade will constitute a ‘great gain’ for the working people of Great Britain. The text therefore covers more than just economic theory and illustrates at least one facet of Marshall’s youthful tendency to socialism in its support for the cooperative movement and praise for its socialist founder, Robert Owen.

This extensive summary of Marshall’s first book arises from the fact that it introduced many features of his economics for which he later became famous on publication of the *Principles* in 1890. The rarity of the actual text also makes a detailed survey of its contents of value.

4.5 Pure theory of foreign trade and of domestic value (1879)

This small booklet of sixty-five pages starts with the bold statement that ‘the function of pure theory is to deduce definite conclusions from definite hypothetical premises [which] should approximate as closely as possible to the facts with which the applied theory has to deal’ (Marshall 1879, p. 1). This proposition in the first instance guides the theory of foreign trade developed in its first twenty-eight pages. It outlined German–English trade with no financial flow complications: ‘in equilibrium, the exports of each country exchange for the imports’ (Marshall 1879, p. 1). Removal of monetary complications simplified a difficult theory significantly, a defence for Marshall’s theoretical treatment of the subject strictly in real terms (Marshall 1879, p. 3). Marshall treated the subject by means of reciprocal demand (or offer) curves, because a country’s exports simultaneously represented its demand for imports in the simplified case Marshall was considering. Curves, Marshall argued, were far superior to the arithmetical examples used in trade theory by
Ricardo and J.S. Mill: ‘Diagrams present ... the chief forces at work ... and they suggest [new] results’ (Marshall 1879, p. 5).

Marshall subsequently applied his diagrams to discussing some ‘exceptional cases’. One relates to a decrease in exports of one country which generates an increased volume of imports from the very ‘urgent demand’ for them abroad. A second case involved an increased demand for a country’s exports which creates a fall in their prices from scale economies in their production (Marshall 1879, pp. 5–6). After defining and demonstrating the properties of reciprocal demand curves, Marshall with their aid analysed the two problems mentioned previously. A note at the end of the chapters provides a solution to a problem of multiple trade equilibria in Mill’s *Principles of Political Economy* (Marshall 1879, pp. 15–16).

Stability and instability of trade equilibria are systematically discussed in chapter II of the *Pure Theory of Foreign Trade*. This defines the exchange index (or price) of the annual trade between England and Germany of cloth for linen and then proceeds to analyse whether the prices as determined result in a stable or unstable equilibrium position. Some peculiar cases are examined first. Marshall ends chapter II on foreign trade by speculating on the possibility of discovering laws for approximating the actual shapes of the trade curves from statistical data. This would mark a great advance for economic science. However, Marshall also warned that since ‘economic forces’ belong strictly to the ‘moral world’ or to that of the social sciences, too much cannot be deduced from an analysis basically involving ‘mechanical’ responses (Marshall 1879, p. 26). Moreover, Marshall emphasised the irreversibility of scale economies once they had been introduced, concluding that therefore the impact of some transactions is not easily or quickly reversed, a consideration of practical relevance to the stability or otherwise of equilibrium analysis in foreign trade.

Marshall’s *Pure Theory of Domestic Values* examines ‘the causes which determine the relative values of commodities produced in the same country under the action of free competition’ (Marshall 1879b, p. 1). Having first hypothetically constructed a demand function as a schedule linking quantities available and the prices at which they can be disposed of, a similar thought experiment enables Marshall to construct a supply curve. However, the construction of supply curves is far more complex given the greater variability in production methods and the economies which can be achieved through their alteration. By stressing the profitability of small firms cooperating in industrial districts and associated reasons for productivity improvements, Marshall demonstrated how
difficult it was to generalise on this aspect of supply curve construction. As in the case of foreign trade analysis, Marshall analysed the stability and instability of price equilibrium in the domestic commodity market. Increasing returns in this context was suggested as one factor capable of inducing positions of stable or unstable equilibrium. Application of the analysis is dependent on the length of the time period over which it is carried out. In short periods, in particular, unforeseen factors may drastically alter normal demand and supply conditions. An illustration of the corn market, where reliable price statistics are more readily available, is used to demonstrate some of the analytical problems associated with equilibrium price determination.

In chapter II of domestic value, Marshall investigates the burden of a tax. Taxes diminish consumer satisfaction in two ways. ‘First, in so far as [consumers] continue to purchase the [taxed] commodity, the tax causes them to pay a higher price for it; secondly, the tax deters them from consuming as large an amount of it as before’ (Marshall 1879b, p. 20). This remark sets the stage for analysing the measurement of the satisfaction gained from consuming a commodity or the loss of satisfaction when its consumption is curtailed by means of what Marshall called ‘consumers’ rent’, a concept he stated to be analogous to land rent (Marshall 1879b, p. 23). This consumers’ rent is calculated from the excess in price consumers are willing to pay for a commodity above the actual price in order not to be deprived of its use, a tool by which the ‘utility of a commodity’ could be estimated (Marshall 1879b, p. 21). This estimate, however, is neither easy to make nor accurate. It depends in part on the income levels of the consumers; a poor person reaping a larger consumer rent from consuming a specific commodity than a rich person. Derivation of consumers’ rent is then investigated by means of curves and changes in consumers’ rent following price changes are examined. This introduces Marshall’s famous tax/bounty analysis as an illustration of measures for the enhancement of community welfare. The discussion produced a policy conclusion favouring the taxation of commodities produced under conditions of diminishing returns, using the proceeds to give a bounty to the production of commodities under increasing returns, *caeteris paribus*. This tentative proposition was subsequently much debated. It was hedged by many necessary conditions including full knowledge of the situation on the part of the government and the nature of the taxes to be used. Even then, Marshall defended its usefulness in this context as a mechanism which could illustrate the potential benefits for policy makers from his theoretical apparatus.
The 1879 pure theory booklet provided analytical foundations for much of Marshall’s later work. The domestic value theory featured in much expanded form in his *Principles of Economics*; much of the foreign trade material was reproduced in the text and appendices of *Money, Credit and Commerce*, his final volume published in 1923. The same can be said for much of what appeared in his other book of that year, *The Economics of Industry*. Both publications exhibited the fruits of virtually a dozen years of economic research in the study and in the field from observations in factories. They also revealed Marshall’s interest in government policy as an important application of economic theory and analysis, an indication that his economic work was not devoid of usefulness for policy.

As shown in Chapter 5, these aspects of his knowledge were imparted from the outset of his Cambridge professorial career, both *ex cathedra* and as an expert in the witness box at government inquiries.
In January 1885, Marshall returned to Cambridge University as its Professor of Economics after an absence of eight and a half years. In mid-December, Marshall had been elected to the position from six candidates altogether, being the clear favourite in an ostensibly strong field. Marshall gave his inaugural lecture on 24 February 1885 on the topic, ‘The Present Position of Economics’. This allowed him to set out his aims for his subject by outlining both its present state in England and what Cambridge could do to assist its further development. The lecture upset some of his senior colleagues in the Moral Sciences. They included Henry Sidgwick and economic historian William Cunningham. It did so by clearly stating the dominant role Marshall intended to establish for economics at the expense of both the traditional Moral Sciences and of historical studies in economics. The contents of Marshall’s inaugural lecture are therefore important and are subsequently reviewed in detail.

Marshall’s various activities as professor over the twenty-three years he held the position at Cambridge (until his retirement in 1908) are discussed over three chapters. This chapter examines his teaching, the students he was attracting and his successful campaign to establish a new Economics and Politics Tripos to advance opportunities for more specialised economics studies. It concludes with an overview of his substantial role as adviser to governments he exercised during these years. Chapter 6 evaluates his major research task while being professor. This covers both the writing of his Principles of Economics and subsequent revisions for its first five editions, as well as publications of articles. Chapter 7 reviews Marshall’s extra-curricular activities as professor, that is, his political and social activities, his involvement in the Cambridge debate over women graduates and other controversial issues. It also looks at Marshall’s contributions to clubs and societies, including his role in
the formation of the British Economic Association in 1890, later the Royal Economic Society. To set the stage for this discussion of Marshall’s long and fruitful professorship, the first section of this chapter deals with his inaugural lecture.

5.1 The present position of economics (1885)

After paying a generous tribute to Henry Fawcett as his predecessor, Marshall outlined the thrust of his talk. He wished to ‘give a short account of the province of the economist as I understand it, and of what it seems to me that Cambridge may best do in it’ (Marshall 1885c, 1997a, p. 246). The first part of the lecture criticised the view of the older generation of economists who treated ‘man as a constant quantity’, thereby failing to pay attention to people’s essential changeability and hence to their capacity for improvement and reform. The way early socialist writers such as Robert Owen had grasped this possibility was praiseworthy, even if their criticism of contemporary Political Economy was invariably wrong. Starting with Smith, Marshall claimed economists had appreciated the truth that economics had little of scientific value to contribute on the ‘fitful and irregular incidents of the market’ but that it was able to generalise those ‘causes [acting] with tolerable uniformity’. In this, Smith was followed ‘by Ricardo, Cournot, Hermann, Jevons and others’. This methodological position in turn permitted the creation of ‘machinery...for reasoning about those motives of human action which are measurable’, a purpose for which money is at present by far the most important instrument. Money, after all, acts as a major inducement and motivation for man’s actions (Marshall 1885c, 1997a, pp. 248–51). However, this concern of economics with motives and their measurement cannot be taken as a sign of its ‘exclusive regard for material wealth, to the neglect of other and higher objects of desire’ (Marshall 1885c, 1997a, p. 252). Economics is important as ‘an engine for the discovery of concrete truth’.

Marshall then posited some critical remarks on the notion of ‘economic man’ which older economists such as J.S. Mill had so frequently used in their work. The measuring skills of contemporary economics enabled depicting of that person as ‘hard at work saving capital chiefly for the benefit of others,...[desirous] of making provision for [his] family’ and, more generally, acting unselfishly (Marshall 1885c, 1997a, pp. 253–4). Assigning a price to human motives was a major part of economics. However, this assignment was difficult because motives operated indirectly, conditions explaining human conduct
were complex and interdependent, while the same quantity of money ‘measures a greater pleasure for the poor than for the rich’. Moreover, though economic theory appeared to have unlimited scope for development, its practical application suffered from severe limitations.

Marshall illustrated this issue by discussing the use of economics for solving social problems of the day. Although this role for the economist had been criticised by Comte and his followers and by many of the historical critics of economic theory, the power of the economic organon in Marshall’s view was not easily dismissed as an aid in solving major social problems. After all, ‘nearly every important social problem [contains] parts having to do with those actions and strategies which commonly have a money price’, thereby offering ‘a firm foothold to scientific treatment by the economic organon’ (Marshall 1885c, 1997a, p. 257). Furthermore, in reply to historical critics of economic theory, Marshall noted that the ‘facts by themselves are silent’. Evaluating issues like protection and free trade, or disputes about wage rates between employers and workers, needed theory as well as facts. They required the skills of scientists to guide the public carefully through the arguments based on their ‘wide knowledge’. In practice, the lessons of history may therefore be quite irrelevant, particularly when the ever-continuing process of change has made ‘present economic conditions…quite unlike any of these that have gone on before’ (Marshall 1885c, 1997a, pp. 261–2).

Solving social problems was therefore the proper work of economic science. At Cambridge, this task was made difficult by the limited place assigned to economics within the Moral Sciences; even after recognizing the substantial past contributions of the Moral Sciences Tripos to reform, and the development of economics, at Cambridge. More attention within the university needed to be given to issues of material wealth, facilitating study in those aspects of the social order whose improvement would enable everyone to benefit from living ‘a refined and cultivated life’; rather than being ‘dragged on through their dirt and squalor and misery’. University men should therefore also direct their attention to matters of business whether in ‘counting-house, factory or workshop’ and apply their training to concrete aspects in material life.

Marshall then brought the lecture to an end with a glowing promise by way of conclusion:

It will be my most cherished ambition, my highest endeavour, to do what with my poor ability and my limited strength I may, to increase the number of those, whom Cambridge, the great mother of strong
men, sends out into the world with cool heads but warm hearts, willing to give some at least of their best powers to grappling with the social suffering around them; resolved not to rest content till they have done what in them lies to discover how far it is possible to open up to all the material means of a refined and noble life. (Marshall 1885c, 1997a, pp. 266–7)

As more fully demonstrated later in this and the next two chapters, Marshall’s inaugural set the stage for his intended actions as Professor of Economics at Cambridge in teaching, administration and course reform. Such aims also featured in his writings on economic theory and practice, which became the more enduring monuments to his life’s work. The necessity of economic theory, the importance of facts and continual striving to keep economic analysis relevant and practical were all crucial parts of Marshall’s promise to devote his professorial life to the improvement of economic science.

5.2 Professorial teaching at Cambridge (1885–1908)

The nature of Marshall’s Cambridge teaching is well attested to by his former students (for a survey, see Groenewegen 1995, pp. 313–16). It was succinctly explained by Marshall himself in a letter to former Oxford student, E.C.K. Gonner, (May 1894) when fully settled in as professor in the Cambridge teaching environment:

Methods of teaching, of course, vary, but I will explain my own private hobbies. That of course does not come to much by itself. But it seems to be what you want in this particular letter.

I recognize the existence of students whose minds are merely receptive; and who require of their teachers to render plain their path in the systematic study of a text-book; or even to speak an elementary text-book at them if they cannot or will not find the time to read a text-book for themselves. But I always warn such students away from my lecture room.

Even my more elementary teaching makes no pretence at being systematic, but aims at teaching certain dominant ideas and representative problems more fully than would be possible if every side of the subject had to be discussed equally. If I think the class are merely listening and not thinking for themselves, I try to lead on until they have got pretty well into the middle of a real difficulty and then help
to find their way out. I say very little about method; but I endeavour
in every advanced course of lectures to work out rather fully a diffi-
cult example of almost every important method, having generally
set, a week before, a question bearing on the example, so that they
will know its difficulties before they begin.

My aim is thus to help them acquire a delicate and powerful
machinery for scientific investigation without requiring them to
attend long courses of lectures. For that is what graduates generally
do not care to do. Some people say that books have superseded oral
teaching, at all events for able students. But I think able students
are injuriously treated when a chapter of a book is spoken to them.
It ought to be printed and be given to them to read quietly…The
graduate picks up the swing quickly. But he often wants a good
deal of personal advice. I am ‘at home’ for six hours in every week
to every student who chooses to come to see me; and graduates
generally come more frequently than others. The initiative in the
conversation rests with the student; but if he is interested in any
matter, I pursue it at length, sometimes giving an hour or more
to a point which is of no general interest, but on which his mind
happens to be troubled; and I give much time to detailed advice about
reading.

Of course the great hope in the background is that some of them will
go on to do original work.

(Marshall to Gonner, 9 May 1894, in Whitaker 1996, II pp. 120–1)

In writing to Foxwell about his teaching plans for 1901–02, Marshall
described their essentials as follows:

I propose to work over the main principles of economics commencing
at a point where my own first volume [of the Principles] ends; and to
move rather rapidly, avoiding elementary explanations. The course
will therefore not be suitable generally to students in their first and
second years, unless they have already some acquaintance with the
whole of the ground to be covered. But candidates for the Civil
Service and other students in their third or fourth year, who already
have done hard work in other subjects, and who wish to obtain
in a single year something more than an elementary knowledge
of economics, may find the course adapted to their requirements,
provided they are able to do some preliminary reading during the
summer….Generally speaking it is better to read a small number of
books carefully, re-reading the difficult parts several times, than to read many books….

(cited in Groenewegen 1995, p. 317)


**General Course:** 2 lectures per week. Treated (i) outlines of history rather fully (4 lectures). Law of D[iminishing] R[eturns], elements of the theory of rent – general outline of the problem of distribution with some account of H. George’s economic points, his socialism being disregarded as far as possible, so that the relation to government and to land nationalization remains either for the next Easter term or for a separate course on Land. The theoretical difficulties [for the special class] got through were few, chiefly (i) definition of income (ii) Mill’s four propositions [of capital] analysis (iii) the nature of interest (iv) if land rises from the seas and rent falls what is the effect on net rent (v) do high wages promote the use of machinery (vi) does change from circulating auxiliary capital to fixed auxiliary capital injure labourers (vii) relation between capital and rent (viii) something about metayers. But very little use was made of curves except in this last question.

(cited in Groenewegen 1995, p. 318)

As many of his students later recalled, and Marshall explicitly pointed out to Gonner in the 1894 letter already quoted, lectures in addition required a substantial amount of reading from the book lists Marshall invariably provided. Students could also obtain individual, voluntary tuition at Marshall’s house. There Marshall was willing to help
students in solving problems, provided they had been raised with him beforehand by the students themselves. General economic difficulties were explained and discussed in this context. Furthermore, and notwithstanding Marshall’s personal dislike of the use of textbooks in university teaching, publication of the *Principles* made a difference to his teaching from 1890 onwards. Topics covered in detail in the *Principles* were then less systematically treated in lectures, though the subject matter of these lectures invariably remained of interest to the students who attended them.

5.3 The nature of Marshall’s Cambridge students

Marshall’s students for the 1880s and 1890s came largely from either the Moral Sciences Tripos or, an increasingly important source for some of these years, from the History Tripos. The quality of these students, as Marshall frequently complained during this period, was steadily declining. Far fewer bright young men were entering for the Moral Sciences as compared with its ‘golden age’ of the 1860s and far too many women were studying Political Economy as part of the Moral Sciences. From 1885 on, Marshall tried to attract students to economics from graduates (often from London University) and from prospective Indian Civil Service students (the major source of the economics students he had taught at Oxford). Marshall’s problems with capturing the right type of students for economics greatly encouraged his drive towards a separate Economics and Political Science Tripos. This commenced in earnest in the early years of the new (twentieth) century but had already been announced by him in his inaugural lecture as an urgent objective.

In retrospect, Marshall’s ‘good’ students of the 1880s can be identified as Alfred Flux, William Johnson and Arthur Berry who produced some fine work especially in mathematical economics but who were only partly ‘caught’ for economics. For the 1890s, they included Arthur Bowley, Sydney Chapman, Charles Sanger, Arthur Pigou and David MacGregor, three of whom were among the four Adam Smith Prize winners he had by then taught (that is, Bowley, Chapman and Pigou, the fourth being Frederick Pethick-Lawrence). More generally, data about Marshall’s classes preserved for three years from the 1880s (that is, Marshall’s first five years as Cambridge Professor) indicated that from a total of one hundred and seventy students, forty-one came from the Moral Sciences, fifty-six from History, nine were special students (unspecified) and sixty-four were miscellaneous students including nineteen graduates and five Indian Civil Service students; sixty-six students came
from the two Cambridge women colleges, Girton and Newnham. Lists preserved for three years from the 1890s showed a smaller number of students, sixty-six in total, of whom only eleven were women. Twenty-eight male students came from the Moral Sciences, seventeen from History, nine were miscellaneous students and one a special student. This change for the worse further increased Marshall’s desire to have a Tripos of his own (student data from Groenewegen 1995, pp. 324–9).

The greater opportunity for specialisation in economics and related subjects which such a Tripos offered would have compensated significantly for the sharp decline in Moral Sciences students for the 1890s, and the even greater decline in History students keen to study economics recorded for that decade. Women economics students over the decade appear to have relatively held their own as approximately one-third of the total. (The implications of this for Marshall’s stance on the women degrees’ issue at Cambridge are discussed in Chapter 7.) Things were to improve from 1903 with the introduction of the new Tripos, but only marginally for the five years during which Marshall was able to enjoy this reform as professor (see Section 5.4). Marshall’s campaign in support of an Economics and Politics Tripos, together with some of its immediate results, are likewise discussed in the next section.

5.4 The new Economics and Politics Tripos (1903) and its consequences

In 1903, the University of Cambridge established a Faculty of Economics and Politics, largely on lines which Marshall had been developing from the commencement of his professorship in 1885. The 1903 event broadly speaking fulfilled Marshall’s aim for economics as originally expressed in his inaugural lecture (see Section 5.1) and was gradually achieved in discrete stages. The first of these was completed during 1888–89, the second in 1896–97 while the desired outcome of a new Economics Tripos was achieved by Marshall’s final campaign for its establishment. This commenced during 1901–02, following Sidgwick’s death in 1900.

Arguments used by Marshall to support gradual increases in the amount of economics which students were to study within the established History and Moral Sciences Triposes, drew on the following. First, the low standing in which economic studies were held at the University of Cambridge compared very unfavourably with practice in Germany and in the United States. Secondly, when compared with
Marshall’s one-year Oxford experience, economics teaching as organised at Cambridge was unattractive to the better students, hence drawing far fewer bright students to economics at Cambridge than Marshall correctly claimed to have done in his one year at Oxford. Cambridge students had to take too many irrelevant subjects in both these Triposes, and this made them even less attractive to those interested in taking courses of study in economics and related subjects.

The details of Marshall’s first two campaigns for course reform in the interest of a larger economics syllabus need not be discussed here. On both occasions, Marshall was able to enlarge the position of economics within the course structures for its original two Triposes of the Moral Sciences and History. However, Marshall’s dissatisfaction with the traditional teaching arrangement for economics within these Triposes grew as the opportunity for studying economics within them was slowly expanding. Marshall put his position concisely in a letter to his Cambridge friend and colleague, George Darwin. In this letter, Marshall explained the teaching resource requirements for adequately providing for Political Economy instruction at Cambridge University, if it was to satisfactorily prepare for the challenges of the twentieth century. Marshall noted, the vast and rapidly growing economics subject matter cannot be covered in a limited syllabus taught by the present handful of people. General acceptance in North America and on the continent of the need to supply economics teaching with adequate resources meant that Cambridge urgently needed to appoint a second Professor in Economics (or at least a Reader), as well as an additional university lectureship in economics, if it was to keep up with the teaching of the subject abroad. Even then, Marshall argued, economics teaching would be poorly resourced at Cambridge when compared with the situation at Harvard or Yale. Marshall added that Columbia University already had seven teachers exclusively devoted to economics. If resourced on this scale, Cambridge economics teaching would be able to cover special topics such as ‘railway problems’ and other areas of applied economics (Marshall to George Darwin, 24 March 1899, in Whitaker 1996, II pp. 248–50).

Marshall’s final campaign for his new Tripos began in earnest in May 1901 with his appointment on a committee of the History Board for investigating how ‘best to extend the study of modern economics and politics in the University’ (cited in Groenewegen 1995, p. 541). A draft plan for the new Tripos had by then been prepared by Marshall, to be shown to and discussed with his two oldest colleagues in the Moral Sciences, Foxwell and John Neville Keynes. The same arguments
Marshall had pushed during the 1880s and 1890s were brought to the fore, assisted by the 1895 establishment of London University’s School of Economics and Political Science. Marshall sent the new syllabus he had prepared to the University’s Senate and diffused it more widely through the community in general by writing letters to the newspapers.

Part I of the proposed new Tripos required students to take three compulsory papers on Economic Principles, two on General and Economic History, one on Constitutional Law and one on Essay Questions. Part II provided for no less than seven papers on General and Advanced Economics, one on Modern Political Theory, two on International Law, two on Legal Studies, as well as a paper on a Special Subject of an applied nature to be approved by the Special Board of Studies (Faculty Board). This board was to include the Professors of Moral Philosophy, History, the Laws of England, Political Economy and International Law as well as the Reader of Geography ex officio. In addition, it included all examiners for the Tripos of both the current and the last preceding year and five members to be elected by the Senate to serve for a period of five years.

Given the strong opposition from teachers in the History Tripos, Marshall had to fight a hard campaign in support of his project. This was directed at business leaders, politicians and churchmen, as well as at distinguished Cambridge graduates, particularly from the Moral Sciences. When the new Tripos came into effect, one subsequent loss for Economics was that Part II of the Moral Sciences Tripos could no longer be attempted by economics students while those in its Part I could continue to do so. Some lost friendships were another major cost of Marshall’s eventual victory. However, the new Economics and Politics Tripos has to be seen as a major achievement of Marshall’s professorship, initiating as it did the famous Cambridge School of Economics which during the 1920s, 1930s and 1940s virtually dominated world economics (discussed further in Chapter 10).

Student numbers for the first five years of the new Economics and Politics Tripos were small. This is shown in Table 5.1.

Small though these numbers were, the Tripos showed growth over these first five years. Moreover, it allowed Marshall to catch a number of specially gifted students during his last years as professor.

When non-Tripos (honours) students are included, the figures in Table 5.1 increase somewhat for the four years ending 1907–08. Over these years, Marshall attracted thirteen students from the History Tripos, twenty-eight from the Economics and Politics Tripos, twenty-two special students, as well as eighteen women students, but no students
whatsoever from the Moral Sciences (Groenewegen 1995, p. 327). Among students taking the new Tripos when Marshall remained the major teacher were Walter Layton (the later editor of *The Economist*) and John Maynard Keynes. They both attended Part II classes in 1905–06; the first as a London graduate, the second as a Cambridge wrangler. Lynda Grier and Eva Spielman, two women students who had enrolled in Marshall’s last class (1907–08), both achieved first class honours results in the Tripos examinations. This is evidence to support the proposition that at least some of Marshall’s women students produced quality work for him (as further discussed in Chapter 7). The Tripos in some ways was therefore not an immediate success as a means for attracting better-quality students, contrary to the predictions Marshall had so confidently made when campaigning for the expansion of economics teaching at Cambridge. However, when looking at his economics teaching at Cambridge from 1885 until his retirement, and at the very high quality of students he attracted, his course reform, especially that of establishing the Economics and Politics Tripos, must be judged to have been a tremendous success. Over the longer run, the legacy from these changes produced a brilliant school of economics.

### 5.5 Giving advice to governments

As Professor at Cambridge, Marshall was invited by the British Government on many occasions to participate in official government inquiries either as an expert witness or, on one occasion, as a member of such a commission. Earlier, in 1880, Marshall had done so as Principal of Bristol University College on the subject of higher education in Wales and Monmouthshire (evidence reprinted in Groenewegen 1996, pp. 14–61). As Professor at Cambridge, Marshall provided evidence to the 1886 Royal Commission on the Depression of Trade, to
the 1887 Gold and Silver Commission, to the 1890 Committee on the Taking of the Census, to the 1893 Royal Commission on the Aged Poor, to the 1897 Royal Commission on Local Taxation and to the 1899 Indian Currency Committee. In 1903, at the invitation of the British Treasury, he prepared a Memorandum on the Fiscal Policy of International Trade in defence of free trade principles. Moreover, from 1891 to 1894, Marshall actively served as a member of the Royal Commission on Labour, assisting in the drafting of sections of its voluminous Final Report (discussed in Section 5.6). In short, during ten of his twenty-four years as Professor at Cambridge, he contributed to government inquiries, for four years of which as a member himself of a Commission of Inquiry. This activity must therefore be seen as an important part of his life as the leading academic economist in Britain, while the views he expressed on such occasions frequently represent the only source on his mature position on the subject of these inquiries. This is particularly the case with his evidence on monetary subjects in the 1880s and 1890s, and the views he then expressed on trade depressions and unemployment, on taxation economics and on issues of social welfare. This part of his opus has been published under the head of his official papers (Marshall 1926, 1996, 2006). Some of Marshall’s official economics clearly needs to be included in an outline of his life and work as economist.

Marshall’s monetary evidence, or that more generally concerned with macro-economic issues, can be considered first. His answers to questions posed on currency and prices by the Royal Commission on the Depression of Trade and Industry (1886) was chronologically the first of this evidence. His written answers enabled Marshall to quote with approval some of Tooke’s factors in explaining depressions by way of the removal of obstacles to foreign supply, reduced import costs from lower freight charges, technical progress in manufacturing and a fall in the rate of interest (Marshall 1926, pp. 4–5). Marshall also put forward a law of hoarding for the precious metals. This indicated that demand for hoarding rose as prices increased for the metals in question, the opposite result from the normal law of demand (Marshall 1926, p. 6). On the issue of the relationship between trade depressions and the value of money, Marshall quoted substantial extracts from his chapter on the trade cycle in *Economics of Industry* (summarised previously in Section 4.4). Finally, Marshall (1926, pp. 15–16) briefly discussed the effects of changes in the gold:silver ratio on trade with India in particular, and more broadly on that between gold-using countries (Britain) and silver-using ones (India).
The Gold and Silver Commission (1887) which grew out of questions raised in the Report of the Commission on the Depression of Trade drew several memoranda from Marshall, as well as three days of evidence in the witness box. Of particular interest are Marshall’s views on the quantity theory of money expressed in this context, most concisely in a note he provided to the commission on the submission prepared by J.S. Nicholson (Marshall 1996, pp. 70–7). Marshall understood this theory to be a complex one, as is indicated by the following quotation from his comments on Nicholson:

The Quantity theory, like every other theory which endeavours to summarise in a few words a very complex situation, is apt to get the credit for being much cruder than it actually is. It is so tedious to be constantly repeating all the many conditions which are implied in it, that some of them are in danger of dropping out of sight. The Quantity theory, as I entertain it, ... admits that the general level of prices is affected by many causes besides the quantity of currency. We have to take account of (i) the volume of currency; (ii) population; (iii) the amount of goods produced by head of the population; (iv) the amount of business to which any given amount of wealth gives rise; (v) the proportion of these payments which are made for currency; (vi) the average rapidity of circulation of the currency (and under this head provision may be made for the locking up of money in hoards, in bank cellars, military chests. &c.); (vii) the state of commercial and political confidence, enterprise and credit; and this last head might be again divided. (The influence of cost of production shows itself in the amount of the metals available for currency purposes; and the anticipation of a change in the cost of production is among the many causes which determine the amount of hoarding.) Now since the general level of prices is determined by all these seven elements acting together, it is quite possible that one or more of them may be tending to move general prices in one direction, while yet the net results of all the forces acting on prices is to move them in the other. (Marshall 1996, pp. 74–5)

Taken together, these points clearly covered many of the aspects raised by the Gold and Silver Commission. Its major concerns related especially to the impact of a shortage of gold relative to silver on the price levels of gold-using countries, on activity levels and on the competitiveness in trade of silver-using countries, of which India was the most important from the point of view of British trade. Money fluctuations would also
affect interest rates in the short run (but not the normal, long run rate) generating further potential consequences for activity levels. The effective shift to the gold standard by many countries at this time, plus the shortage of new gold from the low productivity of existing gold mines were identified as the major causes for this relative change in value of gold with respect to silver.

Marshall sought to address the monetary consequences of this decline in the gold base of the currency by his proposal for symmetalism. This would effectively expand the monetary base of Britain by adding bars of silver in a proportion determined by the market value of the metal to each bar of gold in the monetary reserve. An expansion of the monetary base in this way would enable a general expansion of the currency, thereby removing the monetary shortage and its detrimental effects on price levels, activity levels and the competitiveness of trade. The advantages of this scheme for making the British currency convertible into a basket of two international currencies (gold and silver) would be to have an ‘economical and secure currency’ (to paraphrase the term used in Ricardo’s similar proposal of 1816) and to have a reserve sufficiently large to eliminate relatively frequent ‘twinges’ in the money market (Marshall 1926, pp. 204–5).

Marshall himself therefore depicted this plan as an adaptation of the gold reserve system proposed by Ricardo in his 1816 Proposals for an Economical and Secure Currency, differing ‘only by being bimetallic instead of mono-metallic’. Under Marshall’s scheme, currency would be exchangeable at the Mint or Issue Department of the Bank of England not for gold but for gold and silver, ‘at the rate of...£1 for 56⅓ grains of gold, together with, say, twenty times as many grains of silver’. As a consequence of adopting this scheme for currency convertibility, gold coin would be abandoned and coin would consist of silver and bronze tokens.

Marshall’s symmetalism proposal had been first put forward in an article, ‘Remedies for Fluctuations of General Prices’, published in the Fortnightly Review (March 1887). Its text was submitted as part of Marshall’s testimony to the Gold and Silver Commission. After presenting the two functions of money as ‘a medium of exchange’ and as a ‘standard of value’ or ‘standard of deferred payments’ Marshall (1887, p. 292) argued that both functions for their efficient operation required a relatively stable volume of money or, what was virtually the same, a stable level of prices. Marshall then indicated that price instability injected an element of speculation in the normal transactions of everyday life, which most people would be unable to handle
effectively. The cost of borrowing would be specifically altered when prices were rising or falling: borrowers gaining from steady inflation, lenders from continuing deflation (Marshall 1887, p. 293). Hence, when prices are rising, borrowing is encouraged, and since the proceeds of such loans are invariably spent, prices are driven up further, encouraging further borrowing and the perpetuation of the credit cycle. Money wage payments are also adversely affected by inflation (which lowers real wages) and *vice versa* by deflation.

Given the dramatic fall in prices in terms of gold since 1873, the precious metals were no longer able to function effectively as a stable standard of value. A bimetallic standard would not eliminate such price fluctuations, contrary to the views of most bimetallists, Marshall argued. By way of remedy, he proposed the introduction of a ‘tabular standard’ (price index) by which to adjust (index) the values of all transactions or a stable bimetallism based on a certain quantity of gold combined with a certain multiple quantity of silver. As already indicated, these would be turned into bars, in gram weights, to make them acceptable, and therefore suitable, for international trade (Marshall 1887, p. 307). Convertibility of the currency would then be ensured, Marshall claimed, by limiting its quantity in such a way that it would never exceed three times the bullion reserve in the Issue Department of the Bank of England. At the same time, coins in actual use would be confined to token copper and silver, the use of gold coin (such as the sovereign) would be abandoned.

The evidence Marshall presented in 1899 to the Indian Currency Commission followed fairly similar lines. Given the terms of reference of this inquiry, it concentrated on the effects of price instability and the shortage of gold on the competitiveness of trade with India. However, Marshall’s submission and evidence to this commission was silent on the usefulness of a tabular standard and only briefly mentioned his symmetalist proposal, both of which had been criticised by Giffen and by a leading article the *Economist* (details in Groenewegen 1995, pp. 350–1). Instead, Marshall’s oral evidence provided explanations of Indian prices, addressing the importance of the Indian rate of exchange together with its causes and influences, including those in stimulating foreign trade. At the end of his evidence, and at the specific request of the commission, Marshall volunteered the judgment that better economic education should be provided for Indian civil servants, particularly in the form of advanced studies in Political Economy (Marshall 1926, pp. 325–6). Even in the witness box, advancing the cause of improved economics education was invariably a high priority in Marshall’s scale
of values at this time. The importance Marshall himself assigned to this monetary evidence is indicated by the fact that some of it was reproduced in one of the appendices to his 1923 *Money, Credit and Commerce* (as is further discussed in Chapter 9).

In March 1890, a few years after appearing as an expert witness before the Gold and Silver Commission, Marshall gave evidence on the taking of the census. This emphasised the importance of the availability of good statistical data for economists but also noted regretfully that, in spite of this, British industrial statistics induced a sense of shame in their users. Marshall first of all criticised the omission by the census to classify satisfactorily all homogeneous industrial groups (by skill, social status or as recognised in this way by economic and social studies). Enumerators of the census, Marshall also suggested, should be able to reject poorly completed census forms. When asked to comment on the German census, Marshall indicated that it was so ‘elaborate’ that its quality could not be matched in Britain within this generation. Marshall subsequently argued that ‘accuracy of results based upon minuteness of data’ was the first aim to be achieved in compiling census data, while better-trained enumerators would assist in the process of gaining greater accuracy for the data being collected. Further questioning indicated that Marshall was more interested in industrial statistics than in vital statistics, and that in his view money spent on gathering good statistics ‘was not wasted’. In this context, he illustrated the high quality of German industrial statistics by a table reproduced from a German economics textbook. On being questioned on the details of this table, Marshall showed himself incapable of always answering confidently and correctly. Nor did Marshall know the details of how German census data were collected. Marshall then provided further evidence on the extent to which Britain was deficient in supplying good industrial statistics for the economist, reiterating that improvement in the situation required better-trained enumerators. He had nothing to offer on the desirability of creating a separate Census Department in Britain. This evidence once again illustrates Marshall’s ardent desire for facts as essential for good economic work.

In 1893, while still busy as a member of the Labour Commission, Marshall submitted a memorandum, and later gave evidence, to the Royal Commission on the aged poor. This was largely concerned with the provisions of pensions to the aged poor. In his evidence, Marshall claimed to have devoted the last twenty-five years of his life to the problem of poverty (Marshall 1926, p. 205) and presented himself as a supporter of ‘outdoor relief’, given that ‘indoor relief’ in the ‘poor house
was highly unpopular’. This was the view he had previously presented in his 1879 *Economics of Industry*, in a letter to *The Times* (February 1886) and in two articles on the poor laws (and on state pensions) published in the *Economic Journal* during 1892. These supported the aged pension scheme as a form of outdoor relief, and ‘the best that had ever been suggested’. However, difficulties in implementing such a scheme arose on the tax side because of excess burdens generated by the additional taxation required to finance aged pensions. Marshall’s preliminary memorandum for the Aged Poor Commission expanded on the content of these articles and answered more than two hundred and fifty questions during his day in the witness box. These concentrated on Marshall’s advocacy of workers’ participation in administering a pension scheme and, as in the case of his evidence on the census, occasionally revealed him as rather hazy on matters of detail. Although some of his views presented in evidence (particularly those on the desirable treatment of ‘tramps’ and ‘gypsies’) sound rather harsh to contemporary ears, Marshall also held firmly to his support of outdoor relief to the aged in the form of pensions and on the limited impact of pensions in reducing wage rates. Some of the tax matters raised by Marshall in this context were revisited when he gave evidence to the Royal Commission on Imperial and Local Taxation in 1897.

Marshall’s evidence to this Royal Commission was only in written form, once again of such quality and detail that large parts were subsequently incorporated as Appendix G of the *Principles* from the fifth edition onwards. Quality was undoubtedly assisted by the broad range of issues which Marshall was asked to address by the commission. These included the meaning and classification of taxation in general, the degree of equity embodied in the tax system, the incidence of property taxes and the principles of function and revenue assignment for local governments together with the desirability of cost sharing with the central government in the case of some, if not all, local expenditures (Marshall 1926, pp. 329–30). Marshall’s answer on the classification of taxes stressed that taxes were levied on people, not on things. Things were only a conduit for taxation, when owned, used, bought, sold or traded. Classification by tax base could be misleading when some bases were selected to simplify administration, as was the case when they were a suitable proxy for the activity or asset intended to be taxed (Marshall 1926, pp. 334–6). On equity in taxation, Marshall (1926, pp. 336–9) suggested this could be measured either on benefit grounds or on those of ability to pay. The progressive principle of taxation, revealed in the form of rising average tax rates as income or wealth increased, was
preferred by Marshall on equity grounds; but this could never be the sole criterion in levying taxation. A progressive income tax, for example, was detrimental to saving. Greater equity of a tax system was therefore best secured by removing unambiguously inequitable taxes and not by searching for the spurious perfection of an ideally equitable tax system.

On incidence analysis, Marshall first discussed general principles. Tax often could be shifted forward (that is, on consumption) or backwards (on production); some taxes (such as those on monopoly profits) were unshiftable. Landlords, however, were not monopolists, and rent often embodied profit or earnings of ability. Ability to shift a tax was also influenced by whether it was locally or nationally levied. The theory was then applied to existing property taxes, in the context of which Marshall argued that general statements on this subject were invariably wrong. The burden of long-established taxes was often capitalised into the tax base, hence imposing no real burden on current property owners. Long existing rate burdens should therefore only be relieved on new building and other fresh investments. Taxes on the transfer of property ought to be avoided, while profit taxes had a complex incidence because they were levied on an amalgam of interest paid on capital, earnings of management and insurance of risk. Profit taxes as well as inheritance taxes also acted unfavourably on capital accumulation, encouraging in addition the movement of capital abroad (Marshall 1926, pp. 345–57). On function and revenue assignment to local government, Marshall’s memorandum was rather cautious. National taxes should not be assigned locally. Good local governments should be encouraged to experiment freely. Cost sharing was superior to spurious tax assignment, particularly, when many local expenditures (on education and roads, for example) carried national benefits. Marshall’s recommendations for change were minimal. Local governments should continue to be financed largely from the local rate on property, but national taxes levied on a similar tax base should be gradually eliminated. The actual impact of Marshall’s memorandum is difficult to gauge, though its contents were greatly admired by many of his colleagues and friends (see Groenewegen 1995, pp. 375–6).

Marshall’s final advice to government came with his Memorandum on the Fiscal Policy of International Trade written in 1903 at the request of C.T. Ritchie as Chancellor of the Exchequer, but not published as a government paper until 1908. It made Marshall an official participant in the British tariff reform debate during the first decade of the twentieth century and his intervention has been described as ‘one of the finest policy documents ever written by an academic economist’
Professor at Cambridge and Adviser to Governments

(Hutchison 1978, p. 114). It arose in the context of the introduction of a corn registration duty as a simple tax for defraying the cost of the South African war, at a time (1897) when imperial preference was also under discussion as a means by which to cement imperial relations. Imperial preference returned to the agenda in 1902. It generated a proposal to reject imperial preference if it, as it had to, came at the expense of British free trade. In July 1903, Marshall was approached by Llewellyn-Davies, private secretary at the Treasury to Chancellor Ritchie, to write some private and unofficial memoranda on the controversy, an invitation which he accepted. By 22 August 1903, Marshall had completed the memoranda and sent its two parts to the treasury. The first part addressed technical issues on the incidence of import duties. Part II evaluated England’s fiscal policy in view of recent changes to the tax system (Marshall 1926, p. 367). Marshall concluded in general that this incidence fell on the imposing country, except in special circumstances. Tariff effects on the purchasing power of money, and the supply and demand elasticities of traded commodities, permitted the opportunity of transferring part of their burden on a non-imposing country. Marshall illustrated this with two examples. One related to the impact of German tariffs on German price and wage levels; the other examined the behaviour of British corn prices before and after the repeal of the Corn Laws. Marshall (1926, p. 579) in general portrayed the German tariff as adverse to real wage growth in Germany. With respect to British grain prices after the Corn Laws had been repealed, these prices followed the path suggested by theory on the introduction of free trade. To gain this simplified result, Marshall warned that corrections needed to be made to account for other influences (of which changes in the relative availability of gold was one, bad harvests in many parts of Europe were the other).

The second part of Marshall’s memorandum discussed the general issue of historical relativity when making a case for free trade. Thus the infant industry protection argument had limited validity for developing countries (Marshall 1926, pp. 386–8). Furthermore, importing goods able to be produced domestically simply reallocated resources and did not cause unemployment. Only inconvenient import duties (on wage goods, on raw materials and differential duties imposing large domestic burdens) were to be removed (Marshall 1926, pp. 388–9). Britain had been fortunate that when it introduced free trade, most of the import duties it removed were inconvenient. Further, Marshall claimed that his study of the American economy in 1875 had convinced him that import duties there owed much to political patronage of
already strong industries and little to the existence of infant industries. Marshall concluded the paper by saying that protectionist needs could now be more easily solved by more mature and responsible governments able to resist special pleading in fiscal policy design. However, he denied that the United States and Germany in their industrial development warranted protection from British industry. He then raised the severe detrimental effects from a situation when all trading nations erected tariffs, and for Britain in particular, the advantageous effects on British cost structure from the free trade in wage goods. Severe trade reprisals against offending nations were sufficient to shelter Britain’s trade from excessive protection abroad, but aspects of such protection (related to trusts and cartels) had been greatly exaggerated in popular discussion. Finally, the small real benefits of imperial preference should go to ‘poor India’ rather than to the rich dominions of Canada, Australia, New Zealand and South Africa. Emphasis on equity in international trade (Marshall 1926, pp. 415–20) brought the argument to its final conclusion.

Marshall summarised his views on the role of the professional economist in a draft preface for the Memorandum on Fiscal Policy when it was to be published in 1908:

I have made it my rule to avoid taking part in the discussion of a burning political question, even if it contains a lengthy economic argument. For however clearly a professional economist may distinguish in his own mind those aspects of the question on which his studies directly bear from those on which he had no special knowledge, the distinction is apt to be ignored by partisans on either side. And if he allows himself to be drawn into the heat of the fight, he may himself lose sight of the distinction… There is one further point. An economist is after all a human being, and has his affections and enthusiasms like others….

(cited in Groenewegen 1995, p. 389)

5.6 Member of the Labour Commission (1891–94)

In February 1891, the Salisbury Government announced its intention to establish a Commission on Labour to investigate the causes of the ‘new trade unionism’ and the recent growth of industrial disputes. Marshall was named as one of its members and took active part in its work and procedures. He attended all the general sessions of the committee, and most of those called by its Committee B (transport and agriculture)
of which he was a member. He also attended a smaller number of meetings called by its other two committees. Marshall assiduously questioned many of the witnesses who appeared before the commission (examples are reprinted in Marshall 1996, pp. 129–286). More importantly, he contributed significantly to the commission’s work by assisting in writing parts of its Final Report. Discussion of his work on the commission for this chapter is in fact largely confined to this part of his contribution to the commission’s work, that is, to the contents of a section on trade unions for part II of the Final Report and that of its part VI on the irregularity of employment, for which his wife later claimed his responsibility as author. (More detailed discussion of Marshall’s work on the Labour Commission is in Groenewegen 1995, pp. 360–71.)

The first of Marshall’s two contributions to the Labour Commission’s Final Report provided what can be described as a cost/benefit analysis of the role of trade unions in contemporary Britain. The section started with evaluating the trade union’s role in bargaining about wages and conditions, a role fully accepted by most employers as the ‘legitimate province of trade unions’. However, the commission’s report also identified a number of abuses in this context perpetrated by some unions. These abuses included excessive interference in the detailed management of a business involved in bargaining, misjudgment of the economic situation of the firm, unnecessary extension of the range of a particular dispute and excessive confidence in the strength of the union thereby prolonging disputes unnecessarily. Moreover, trade union action generated a greater tendency in the uniformity of wages and conditions than the actual situation warranted, and specific trades were often damaged by the rigidity of trade union rules as in ‘demarcation’ disputes and refusal of work to non-unionists (Marshall 1996, pp. 93–5). The report also noted potential disadvantages for unskilled workers from specialised labour organisations and the potential for suppressing individual energy and freedom to experiment when an industry was dominated by large trade unions and employers’ organizations (Marshall 1996, pp. 97–8).

The part of the commission’s Final Report devoted to irregularity of employment enabled Marshall to return to some business cycle analysis. The business cycle was seen by the report as one cause of irregular employment; others were a chronic excess supply of labour in an industry relative to the demand for it (often associated with the long-term decline of the industry in question) and the normal vicissitudes of work and activity arising during the ordinary state of trade (Marshall 1996, p. 98). The report ascribed business fluctuations to the credit
cycle, to seasonal factors and the state of the weather, to changes in fashions and to the consequences of long industrial conflicts. Competition from abroad was a further cause of such fluctuations, as was the secular decline of an industry, ascribed in particular by the commission to long-term stagnation in occupations associated with clothing and textiles, as either exercised by domestic workers or in ‘sweated workshops’ (Marshall 1996, pp. 99–101). In relatively unskilled occupations, long-term adverse employment trends were most likely to occur. The ordinary vicissitudes of trade were described in the report as the third and most common cause of irregular employment, arising as they did from a normal feature of business life. The report illustrated these general observations from the special case of riverside labour in the port of London. It then discussed some remedies for irregular employment. The extension of employment opportunities by public authorities was seen as a particularly effective remedy, especially the case of providing work through municipal public works. Better information on the employment situation in the labour market with respect to vacancies was another solution mentioned by the commission. Preventing immigration of destitute aliens, as a way of reducing over-supply of unskilled low-grade labour, was also mentioned in this context. Education and skilling to make labour more mobile was a further solution to irregular employment described by the commission. The situation of the London docks was taken again as a case study of this problem, especially useful for explaining the legitimacy of restricting the supply of labour to particular industries. Issues arising from increased public employment as a solution to irregular employment were hotly debated but its limitations as a universal solution were vigorously denied. Overall, this part of the commission’s Final Report is interesting because it clearly illustrates how fully the problem of unemployment was considered in Britain during the final decade of the nineteenth century.

Marshall later claimed to have gained a great deal from his work as member of the Labour Commission, both from the information provided by witnesses through evidence and submissions and from mixing with his fellow commissioners. Little of the wealth of that information is easily visible in Marshall’s subsequent published work. Moreover, the time consumed by this activity came at a substantial cost. Marshall’s membership of the Labour Commission more than any other single event was responsible for the non-appearance of the second volume of his Principles of Economics, though (as shown in Chapter 6) it was by no means the only one. Marshall’s active involvement as member of the Labour Commission thereby provides an interesting example of
his proclivity to occasionally misallocate his own intellectual labour time. Its cost in the form of economic writing foregone on the second volume of the *Principles* clearly exceeded the benefits of participation in the Labour Commission. These net costs are even greater when it is appreciated that Marshall was at the zenith of his intellectual powers during the 1890s.
Writing and Revising the *Principles* (1882–1922)

The first volume of Marshall’s *Principles of Economics* was published on 18 July 1890. It quickly became a landmark in the literature of economics, on par with Smith’s *Wealth of Nations* and J.S. Mill’s *Principles of Political Economy*, books with which it was in fact often compared. Publication of this work was undoubtedly the high point of Marshall’s economic career. It embodied a great deal of his life’s work between its two covers, even when it became a self-standing single volume of economic foundations. For several decades, it was planned as a two-volume work, intended to cover all major elements of economics. This second volume was, however, formally abandoned by the time the sixth edition appeared in 1910. Some reviewers of the first edition had already hinted at this possibility, given the long gestation period of the first volume. This chapter examines both the process of producing and the contents of Marshall’s *Principles of Economics*, highlighting in particular the many enduring contributions it made to economic analysis and theory.

The contents of this chapter are divided as follows. Section 6.1 investigates the road to the *Principles* over the period of a decade ending with its publication in July 1890. Section 6.2 presents an overview of the contents of the first edition and of its reception by reviewers. Section 6.3 discusses the preparation of a short version of the *Principles*, published in 1892 as *Elements of the Economics of Industry*, as well as its second edition. Section 6.4 reviews the progress and conception of the planned second volume, providing reasons why it never eventuated and was ultimately replaced by the publication of two companion volumes (discussed in Chapters 8 and 9, respectively). Section 6.5 evaluates the subsequent six revisions and in particular the contents of the definitive eighth edition. A final section presents conclusions largely devoted to explaining the
book’s long life as a textbook in economics and its enduring status as a major economic classic.

6.1 Preparing the first edition of the Principles (1880–90)

The two works that Marshall had published in 1879, that is, Economics of Industry and the Pure Theory of Foreign Trade and of Domestic Value, sparked a desire to write a book of principles of economics for which the Pure Theory of Domestic Value was to provide the core. As Marshall later recalled the matter in a letter to French economist, Léon Colson (June 1909, in Whitaker 1996, III pp. 227–8), the ‘purely analytical part of Book V – with a part of Book III, were the kernel from which my book expanded backwards and forwards to its present shape’. Earlier he had written to J.B. Clark (24 February 1908, in Whitaker 1996, III pp. 182–4) that the whole of the mathematical appendix for the Principles had been developed by the early 1870s with the exception of Note III on elasticity and Note XII bis on Edgeworth’s contract curve. Marshall’s ‘main position as to the theory of value and distribution’ had also been ‘practically completed’ by that time. Writing the Principles was therefore largely a task of presenting the already existing material and organising it into a suitable form.

While Marshall was still at Bristol, little time could be devoted to a major book. The summers of both 1880 and early 1881 were, however, used for work on the theory of value. This term can embrace either the intricacies of utility analysis discussed with Edgeworth over these years or consumer behaviour and demand or the broad supply and demand theory which was to feature in Books V and VI of the final version of the Principles. The term, theory of value, may even be applied to the material on the dynamics of growth and distribution on which Marshall was working in the early 1870s (see Whitaker 1974, pp. 1–17). The last was Marshall’s attempt at constructing a neo-classical aggregate production function growth theory, which can be interpreted as well as a theoretical summary of the theory of production.

More constructive work on the Principles took place during the twelve months leave in Europe the Marshalls enjoyed during 1881–82, beginning with their five months sojourn in Sicily. On the roof of their guesthouse in Palermo, as Mary Paley later recalled, Marshall discovered the concept of elasticity as an element in the theory of demand and completed the whole of Book III of the Principles in draft. Subsequent places in which they stayed were associated with specific parts of the emerging Principles. Preliminary chapters, and an attempt
at an introduction, were written in Venice in April/May; measurement and continuity were tackled in May/June at Waldensee and Achensee, together with the pure theory of equilibrium of supply and demand. At the Waldensee until August, Marshall also prepared rough drafts on joint demand and supply, market bargaining, normal expenses of production and normal earnings. After a brief break for travel, the Marshalls were in Bournemouth until October, where he worked successively on monopolies, combinations and foreign trade, polishing the chapter on supply/demand equilibrium, rethinking organisation of the material and studying economic history for what initially were the preliminary chapters on history of Book I. The inclusion of foreign trade at this stage suggests that a two volume *Principles* had not been contemplated by late 1882, though this option may have occurred to Marshall when rethinking organisation of the material in October of that year.

During 1883, much additional material was prepared in almost five months of uninterrupted work on the book. Marshall then wrote a long note on Ricardo’s theory of value, and a great deal of time was given to expounding cost of production in relation to value. In 1884, pressures of other work distracted Marshall from his writing of the *Principles*. These distractions included preparing articles and talks, a heavy teaching load in Oxford and applying for the Cambridge chair on Fawcett’s death in November; 1885 saw great progress. The scope of the *Principles* had by then been substantially enlarged, though it still did not include active planning for a two-volume work. Marshall later recalled that during the summer of 1886 the *Principles* more or less reached its final form. By April 1887 he was therefore able to make a formal offer of his book to Macmillan for publication. At that stage only parts of Book VI on distribution needed to be completed. A new outline prepared in October 1887 included plans for a second volume. This was to contain foreign trade (Book VII), money and banking (Book VIII), trade fluctuations (Book IX), taxation (Book X), collectivism (Book XI) and aims for the future (Book XII) together with a mathematical appendix (in Whitaker 1975, I pp. 89–90). At the end of 1887, Marshall had also co-opted John Neville Keynes to read proofs. By October, Keynes had read those for Book I; by November he was reading the proofs for Book II; in January/February 1888, Keynes worked on the proofs of Book III and by the start of May 1888 he had read the proofs of the first chapter for Book IV. Marshall was then estimating the length of the completed book at approximately six hundred pages.

However, during late 1888, Marshall decided on a major organizational change. This involved creating a new book on cost of production
from material already completed for Books V and VI, thus making seven books in all for the first volume of the *Principles*. Successive publication dates for 1889 were contemplated and rejected. Work in that year concentrated on Books V and VI as well as on finishing the mathematical appendix. The summer holidays in 1889 were devoted to Books VI and the first five chapters of Book VII. By the end of June 1889, John Neville Keynes was reading proofs of this work, initially only of Book VI on cost of production; later in the year, he was reading those for Book VII on the theory of distribution. That new book caused further delays, effectively eliminating a publication date for Christmas 1889. June 1890 was eventually settled on, close to the actual date of publication a month later. The book as a whole by then had expanded to nearly seven hundred and fifty pages, a substantial increase on the six hundred pages Marshall had projected in early 1888. No wonder that Marshall complained to Keynes, ‘My book do grow. Oh! It do grow. B[ig] B[ook], Bother it.’ (Marshall to J.N. Keynes, 2 December 1889, in Whitaker 1996, I p. 309). In April 1890 Marshall sent Keynes the printed table of contents, to enable him to contemplate ‘the geography’ of the work, and not for correction. On publication in July 1890, Macmillan advised a rise in price to 14 shillings, from the 12 shillings and six pence originally agreed, even though normally a book the size of volume I of Marshall’s *Principles* would have cost 18 shillings retail. A decade of planning, organisation and writing appeared to have ended.

6.2 The first edition (1890): contents and reception

‘It is a very handsome volume’ was Keynes’ reaction on receipt of his complimentary copy of the *Principles* on 24 July 1890. And so it is. Bound in Macmillan’s well-known blue cloth, with ‘Principles of Economics. Marshall. Vol. I. Macmillan & Company’ in simple gold lettering on the spine, the title page adds details of the author (Professor of Political Economy at the University of Cambridge, sometimes Fellow of Balliol College, Oxford). It also contained a motto, *natura non facit saltum*, highlighting the principle of continuity which gave the book its special character, or so the author claimed. Excluding two pages of advertisements for Macmillan publications, the book clocked in at seven hundred and eighty two pages, when twenty-eight pages of preliminary material are included in the total.

The preface opened with the observation that ‘economic conditions are constantly changing’ and that ‘Economic science is, and must be, one of slow and continuous growth’ (Marshall 1890, p. v). It then
pronounced on the book’s close relationship to past economics, to ethics, and spoke of its foundations in the principle of continuity philosophically and biologically contemplated. Finally, the preface explained and defended the book’s use of the incremental method and mathematics, which the author claimed to have adapted from Cournot and von Thünen.

As already indicated, the text was divided into seven books, to conclude with a mathematical appendix. Book I provided a preliminary survey in eight chapters. The first defined economics as a science of wealth and as a branch of the study of man. It also linked the study of economics with poverty, emphasised its recent growth and development and explained that modern business is characterised by free industry and enterprise, not competition. It also noted that value is another term frequently encountered in economics. Chapters 2 and 3 contained a survey of economic history under the title, ‘The Growth of Free Industry and Enterprise’. Chapter 4 presented a brief history of economic thought from mercantilism onwards. The three following chapters (5–7) advised on methods of study (facts and theory, induction and deduction), economic motivation and the nature of economic laws, respectively. The final chapter of Book I provided a summary and conclusion on the contents of the previous seven.

Book II was definitional. It was devoted to fundamental notions of the science. Its six chapters in turn discussed classification and the use of terms, warning of the need to keep usage in everyday life firmly in mind when constructing such language. It then moved to the meaning and nature of wealth, the notions of productive and unproductive, and the meaning to be assigned to necessaries, or consumption goods and necessities, the various types of capital and their definitions and finally income.

Four chapters in Book III dealt with demand and consumption. Its brief preliminary chapter of two pages indicated this topic had been little studied by the early economists despite its importance. Chapter 2 established the law of demand, linking it to the theory of utility and deriving a demand schedule as a function of price under simplified conditions. Elasticity of demand was the subject of the third chapter; while measuring utility by means of consumers’ rent (later consumers’ surplus) was explained in its final chapter 4, thereby providing the foundations for a new welfare economics.

Book IV with its thirteen chapters on production and supply is one of the longest books of the Principles. Its first chapter introduced marginal disutility as a form of cost, before moving on to supply schedules and the
notion of supply price. Chapters 2 and 3 discussed land and its fertility, including the law of diminishing returns analysed incrementally. They thereby presented the basic theory of land as a natural agent of production. The next three chapters (4–6) were devoted to labour, in turn looking at population as a long-term labour supply factor, the health and strength of a labour force as part of its essential attributes, while industrial training and skilling through education and on-the-job training were taken as other, and exceedingly important, ways of substantially increasing the quality of labour supply. The growth of wealth, particularly the nature and accumulation of capital, was discussed in chapter 7. This also investigated ‘waiting’ and time preference as the explanation for saving, the associated decline in the rate of interest, together with the forms taken by capital when used in production. Five chapters (8–12) on industrial organisation followed. A preliminary account in chapter 8 gave an historical overview of the subject, devoted especially to Adam Smith’s analysis of the division of labour as a milestone in the development of this topic. Chapter 9 elaborated on the development of the division of labour in understanding industrial organisation, with emphasis on the role of machines in this process. Chapter 10 looked at concentration of industry within special geographical areas (industrial districts) as another aspect of the division of labour; production on a large scale was raised in chapter 11, while the role of management (and the entrepreneur) in business organisation was explored in chapter 12. The final chapter of the book (chapter 13) summarised and concluded on Book IV’s rich contents, contrasted diminishing and increasing returns and introduced the concepts of internal and external economies, and diseconomies, of scale. Book IV is a particularly original and rewarding book in Marshall’s Principles, despite its classical dress and origins. It embodied the fruits of Marshall’s factual research in factories during his ‘wanderjahre’. This enabled him to turn production economics into a broad analysis of industrial organisation, productivity and industrial leadership, within a framework using scale economies and the laws of returns.

The theory of equilibrium of demand and supply in Book V combined aspects of the tools developed in the preceding two books. Markets are defined in its first chapter; the next three chapters examine supply/demand equilibrium in the market period, the short period and the long period during which supply gradually becomes more elastic as more capital using production processes become eligible for introduction. Stability of equilibrium is analysed in chapter 5; joint supply and demand (partly as a theory of distribution) are treated
in chapter 6; an elaborate analysis of equilibrium and the doctrine of maximum satisfaction is presented in chapter 7. Chapter 8 introduces the theory of monopoly and other forms of non-free competition between firms. Book V closed with a summary of the general theory of supply/demand equilibrium expounded systematically in its previous eight chapters.

Book VI provided further consideration of cost of production. After a brief introductory chapter, warning that the element of time is the most difficult part of the subject of economics, five further chapters examined aspects of cost of production, developed the notion of quasi-rent as an attribute of durable capital (including human capital), the influence of location and situation on costs, investment of capital and its profitability, to conclude with a chapter on the distinction between prime and total costs, the importance of marketing costs and of insurance and risk. The last chapter of Book VI ended with a very long note on Ricardo’s theory of value and cost of production, a quite old part of the book as mentioned in the previous section.

Book VII, another long book of thirteen chapters, was devoted to value or distribution and exchange. Once again, its chapter 1 is a preliminary statement, warning from the start that the theory it contains never assumes ‘perfect competition’. It looks at people’s economic motives realistically and examines distribution at the margin in terms of the net product of the productive agent in question. Chapters 2 and 3 provide an overview of the literature, including a brief history of distribution theory from the end of the eighteenth century. Chapters 4–6 then look at the price of labour as determined by supply and demand. This includes an enumeration of the various methods of wage payments, of the peculiarities of the labour market and the application of quasi-rent to explain aspects of labour’s reward for training and education. Three chapters on the value of capital follow, in terms of time preference and deferred consumption (‘abstinence’ or ‘waiting’).

The rate of interest is explained, as are the contributions of risk, earnings of management, the reward for business power and organisation and of profit as a major form of entrepreneurial gain. Chapters 10–11 examine the rent of land as a form of producers’ surplus, and hence as a leading species of a large genus (which includes quasi-rent). The chapters also review the various forms of rent identifiable in past history. Chapter 12 gives an overview of the theory of value and distribution by way of a summary of the contents of the previous eleven chapters and further explanation of the relationship between the quasi-rent of human, and of material, capital. The final chapter
of Book VII is also the last of the volume as a whole. It addresses the notion of progress in relation to value, the various causes of that progress in commerce and industry, its impact on labour and property income, on leisure, on employment and on the organisation of industry, the progress of which in turn reflects improvement in living standards and the character of man. At this stage, it should be remembered, chapter 13 of Book VII was not a formal concluding chapter; the argument looked forward to its continuation and completion in volume II.

On publication, the Principles was extensively reviewed. The Pall Mall Gazette was the first of twenty-one newspapers to do so, while twenty further reviews appeared in periodicals ranging from Nature and The Academy to the Edinburgh Review and the Political Science Quarterly. The Times (24 July 1890) described the book as a ‘contribution of capital importance to the higher literature of economic science’, the Daily Chronicle (24 July 1890) declared that this long-awaited first volume ‘will not disappoint the great expectations which its long preparation time had generated’. Reviews frequently compared the Principles with the great treatises of Smith and Mill, and in one case (The Observer, 24 August 1890) even with Marx’s Capital ‘for its rich variety of practical illustrations’. The Manchester Guardian (29 August 1890), among other things, remarked that while Smith had commenced his great work with the ‘productive powers of labour’, Marshall had chosen to start his with ‘the urgency of the problem of poverty’. In reviews in Nature and in the Academy, friend Edgeworth praised the book’s many theoretical contributions, in particular noting the merit of the book’s unifying principle of the law of supply and demand, which allowed its author so judiciously to combine value, exchange and distribution in one major subject heading. The Edinburgh Review (1891) in a long review article first critically noted the fact that the Principles was going to appear in instalments, always a dangerous policy. It ended with a warning about the inherent dangers of the excessive state intervention Marshall’s Principles was willing to support in the case of labour. In the Political Science Quarterly (March 1891), J.B. Clark assigned Marshall’s Principles classical status at the outset. This partly derived from Marshall’s judicious approach to the science in inviting ‘immediate and future progress’ as ‘the useful starting point for further work’. In short, the book could not have had a better reception from the many notices it was given in newspapers and periodicals in the English-speaking world.
6.3 A dangerous interruption: breaking the flow with an early second edition (1891) and a summary, *Elements of the Economics of Industry* (1892)

Although as just shown, the reviews of Marshall’s *Principles* were, generally speaking, very favourable, some of the reviews were rather critical about style and organisation of the subject matter. Such reviews probably induced Marshall to start preparing a second edition before the year 1890 had ended. Although the phrase, ‘representative firm’ made its first appearance in this second edition, most of the changes Marshall made in its preparation were structural and designed to improve organisation of the subject matter. The most visible change of this type was the removal of Book VI on cost of production by amalgamating its contents into Book V. This restored the six books provided for in early draft outlines of the first edition, and this six-book framework was maintained for the six subsequent editions. Other reorganization of the contents occurred as well. In Book I, the historical chapters V–VII were rearranged and revised to become chapters V–VI; in Book II, chapters III and IV were combined into a single chapter III, hence reducing the total number of chapters in this book from six to five; two additional chapter for Book III raised its total number of chapters from four to six, thereby giving greater formal emphasis to demand than was done in the first edition. Changes to the rest of the work were relatively minor, apart from those arising from amalgamating Books V and VI for the second edition, mentioned previously in this paragraph. As a result of these changes, the size of the book rose marginally from 754 to 770 pages. The second edition of the *Principles* was published in June 1891, within twelve months of the first edition.

Publication of the second edition of the *Principles* was immediately followed by Marshall’s preparation of a condensed version, to be called *Elements of the Economics of Industry*. With one exception, the addition of a final chapter on trade unions (previously mentioned in Section 5.6), this condensation completely followed the table of contents of the second edition. It therefore did not take too long to prepare, and by February 1892 the summary version had been printed. Publication followed in March, after which the book was widely reviewed. Most reviews applauded the condensation and the finesse with which it had been carried out, arguing that it would make the valuable content of the larger work accessible to a much wider public. Only the *Journal of Education* demurred from this judgment on the ground that ‘beginners
will find it much too difficult’, a quite justified remark given the amount of complex content still crammed into the condensed volume.

Some critical voices were also raised on the publication of the *Elements*. Various reviewers remarked that this new book by Marshall also made it the third in a row of three *first* volumes which had appeared without any sign of their proposed sequence. Its model, the *Principles*, was clearly one of these two first volumes, the 1879 *Economics of Industry*, being the other one. Other reviews noted that the more narrow theoretical framework of the *Elements* made it no substitute for the earlier *Economics of Industry*, the contents of which embraced many more topics (as will be recalled from Chapter 4). The demise of that book was all the more regretted because of its very high quality as a textbook for beginners, a quality not really shared by its much duller successor. Reviews of the *Elements* also reminded its author that the public was still eagerly awaiting the promised second volumes of these earlier works, designed as they were to illuminate international trade, banking, currency, bimetallism and taxation.

### 6.4 An indefinitely postponed second volume

By the end of 1892 progress on the second volume was in fact little advanced. Although work on it had seriously started in late 1891 when the second edition of the *Principles* had been well and truly published, Marshall could report little progress on its preparation by October of that year. The optimistic forecast to Macmillan that Marshall had made in 1887 about having a manuscript of the second volume ready by 1889 was by then clearly totally unachievable. Interruptions to work on the second volume did not only come from preparing the second edition and the *Elements*: the early 1890s provided other distractions from the task. Marshall’s membership of the Labour Commission from 1891 to 1894, a task which occupied a great deal of his time particularly during its first three years (see Section 5.6), was by far the most important of these interruptions.

Work on the second volume did, however, slowly proceed during the 1890s. In May 1893 Marshall advised Cannan (in Whitaker 1996, II pp. 94–5) that he was immersed in the problems of money and foreign trade for the second volume, and that his teaching on these subjects in Cambridge was greatly assisting him in this task. Work on the third edition of the first volume, published in 1895, and often regarded as the best edition of the *Principles*, unfortunately further delayed work on preparing volume II. Perhaps subconsciously influenced in his writing
by the large reports flowing from the Labour Commission, Mary Paley later recalled in this context that the material Marshall was preparing on foreign trade for volume II in the early 1890s had begun with a historical treatment of the subject on such immense proportions that Marshall afterwards referred to it as his ‘white elephant’.

Three years later, Marshall commented on some of these aspects of his work on the second volume in a revealing letter to Lord Acton:

My book makes no progress. The work for it which I feel I must do before finishing it grows: there is more of it ahead than there was when I had finished my first volume. The history of foreign trade seduced me: I thought it exceptionally instructive for modern times: and I spent an incredible time in laboriously producing several chapters about it. And yet, after all, I find that they would make the main argument hang so, that I am forced to fall back on the awkward expedient of putting them into an appendix, and making frequent reference to them in illustration of my argument. I made the resolve sadly; but at the same time I resolved to read as little history as possible till I had finished my main work. I find that the illustrations that I want to take from recent events alone will occupy more time than I can spare, and will fill more pages than people will have patience to read. I must leave economic history to others….

(Marshall to Acton, 13 November 1897, in Whitaker 1996, II p. 206)

More interruptions to the second volume came in 1897. These included the time spent making the necessary revisions for the fourth edition of the Principles which appeared in 1898, preparing submissions and giving evidence to the Royal Commissions on Indian Currency and Finance and on Local Government Finance, as well as a time-consuming second campaign for the expansion of economics within the syllabus of the Moral Sciences Tripos. Work on volume II and its problems continued to be mentioned occasionally in correspondence. In October 1899 Marshall wrote to Bishop Westcott (in Whitaker 1996, II p. 260) that he was working hard on stock exchange fluctuations but that, ‘like everything else which I touch in my second Volume, which will be much longer than my first, I find it grows in difficulty in my hand’. In May 1900, Seligman was informed by letter (in Whitaker 1996, II p. 279), ‘I am lost in a mass of material relating to Trade, Money, &c. which I cannot get in order. I can’t recollect what I have said in one chapter, & am constantly saying the same thing twice and wasting time.’ Similar laments about
the lack of real progress on volume II of the *Principles* went to other friends.

In 1903, the original scheme for the second volume (as indicated in Section 6.1) was abandoned. A new, longer ordering of contents, was substituted. Compared to the scale of the ‘white elephant’ constructed during the previous decade, this probably appeared to its author as a model of restraint. This new outline presented the subjects to be covered in volume II successively 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 (Book VII in the first edition) of my first volume).
9. Public Finance

(Source: undated manuscript fragment in the Marshall Library, reproduced in Groenewegen 1995, pp. 429–300)

Such new outlines and plans did not facilitate the writing task for volume II, and it was formally abandoned as impossible before 1910. Not much of the material prepared originally for volume II remains extant from the drafts Marshall wrote during the early years of the twentieth century. They appear to have been heavily cannibalised as part of the preparation for Marshall’s final two volumes (see Chapters 8 and 9). Some of this material was even used in the later editions of the *Principles*. In 1910, the ‘first’ volume of the *Principles* was explicitly renamed as a single volume of foundations. Hence ‘Vol. I’ was dropped from both its spine and its title page. In retrospect, a second volume on a par with volume I, as sketched in outline in 1887, was then something Marshall could no longer achieve. As Marshall wrote to Austrian economist, Richard Lieben (19 June 1906, in Whitaker 1996, III p. 140), by 1906 he rarely used diagrams in lectures, had forgotten much of the theory from his own completed first volume and was incapable of formalising and systematising the masses of material on money, trade, markets, fluctuations and public finance into a coherent second volume. That second volume, it now seems abundantly clear, could only have eventuated if Marshall
had concentrated on its writing immediately after publishing volume I in 1890, and had not used the first half of the 1890s on an early second edition for 1891 and on the *Elements* as a summary volume for publication in 1892.

### 6.5 The final editions of the *Principles*, including the definitive eighth edition (1920)

Marshall prepared revisions for the fifth editions during the first eight months of 1905. These further reorganised material by creating appendices from the introductory historical and methodological chapters, from some of the long notes to the text and from a desire to introduce some new material (see Groenewegen 1995, p. 431 and n.*). Its final chapter on progress (Book VI, chapter 13) incorporated material on trade unions, perhaps in part imitation of the final chapter on that subject in the summary *Elements of the Economics of Industry*. The fifth edition also contained a substantially new preface, drawn largely from Marshall’s 1898 *Economic Journal* article on ‘Distribution and Exchange’. This introduced the famous phrase, ‘The Mecca of the Economist lies in Economic Biology rather than in Economic Dynamics’, suggesting that ‘the central idea’ of economics, even in a volume on its foundations, must make it ‘a part of living force and movement’. This evolutionary content grew a little in the final editions.

As already indicated, the sixth edition in 1910 removed volume I from the spine of the book, but contained few other important textual alterations. The same applied to the seventh and eighth editions of the *Principles*, published in 1916 and 1920. However, even for the ‘reprint’ of 1922, the last version published during Marshall’s life time, Marshall could not resist making minor alterations. A copy of the *Principles* preserved in the Marshall Library likewise has handwritten suggestions for further corrections, indicating that even for the octogenarian Marshall, the task of correcting and revising his *Principles* was never ended.

To enable comparison with the outline of edition 1 previously presented in Section 6.2, it is useful to include a brief outline of the contents of the eighth edition. Its title page now described the *Principles of Economics* as an introductory volume, eliminated all references to former academic titles of the author and listed it as the eighth edition. It also still included the motto, *natura non facit saltum*, which had graced the title page of the first edition, as for those of the subsequent six.
As was the case in the preceding six editions, the contents of the eighth edition continued to be divided into six books. Book I, preliminary survey, now contained only four introductory chapters. Chapter 1 defined economics as both a study ‘of wealth and a branch of the study of man’. It suggested that the question of whether ‘poverty was necessary’ gave economics ‘its highest interest’, before referring readers to relevant historical material in Appendices A and B, and warning that competition ‘is less beneficent than co-operation’. Chapter 2 clarified the substance of economics as largely concerned with incentives and resistance to actions, roughly measured by money. Chapter 3 postulated economics’ reliance on both deductive and inductive reasoning, and that its status as a science ensured its ability to generate scientific doctrines and laws. Both chapter 3 and the preceding chapter were respectively supported by Appendices C and D, devoted to methodological issues. The order, and aims, of economic studies were summarised in chapter 4. This chapter also warned that satisfactory training of the economist in particular required stimulus of the ‘faculties of perception, imagination, reason, sympathy and caution’.

Book II remained definitional, and in its four chapters clarified some fundamental notions used by the economist. The first introductory chapter linked wealth to want satisfaction and to effort. It also warned that economics needs to follow ‘the practice of every day life’, thereby justifying the use of simple illustrations in the argument about ‘economising’ practices of the frugal house wife and of boys picking strawberries. Chapter 1 also warned that definitions of terms should always be clear, but never rigidly applied to actual situations. Chapters 2–4 in turn defined wealth; production, consumption, labour and necessaries; as well as income and capital. The final chapter in fact presented definitions of all types of property income, including profits, business income, interest, quasi-rents and land rent, as well as the various types of capital. Appendix E provided further discussion of the complexities involved in defining capital.

Book III, ‘Of wants and their Satisfaction’, now with six chapters, continued to deal with the ‘demand side’ or consumption. Its introductory chapter 1 explained the relationship of its contents to that of the three other books which followed – things are demanded, they are produced, bought and sold (exchanged) in the market for a price (value), aggregate price (value) or income being distributed among the productive agents in the form of wages, profits and rent – and warned that insufficient attention had been given to its subject matter – demand – by earlier economic writers. Wants in relation to activities
were explained in chapter 2. Their causality is reversed once a degree of development has taken place, wants then being stimulated by activities rather than the other way round. Gradations in consumer demand are explained in chapter 3 with a statement of the law of diminishing marginal utility, deriving an individual’s demand schedule and explaining the necessary terminology of demand (increase in demand, market demand, the law of demand and demand for rival commodities). This chapter also provides an early illustration of the value to Marshall of his partial equilibrium method by indicating the things to be held constant when treating demand as a simple function of price. The elasticity of wants, and some consumption statistics designed to illustrate it, are discussed in chapter 4. Time preference and demand for deferred uses are discussed in chapter 5. The notion of consumer surplus as a useful aspect of the relationship between price and utility is examined in chapter 6. It likewise clearly illustrated the logical necessities of Marshall’s partial equilibrium method, and warned of the inherent difficulties in measuring utility simply by price.

Book IV examined production by way of its agents, that is, land, labour, capital and organisation, together with their respective costs. Its chapter 1 defined these agents by indicating that labour and nature, the more basic classification, gave rise to the other two agents, capital and organisation, as produced agents. Real costs of these agents were identified as the disutility of labour and abstinence (or waiting, to use Marshall’s preferred term) or in terms of the supply prices which needed to be paid to make the necessary quantity of agents of production available for efficiently procuring the requisite production. Chapters 2 and 3 addressed the fertility of land, and the additional, but related, topic of diminishing returns. Chapters 4, 5 and 6 discussed population, its health and strength and its industrial training and education necessary before it could become a genuine representative of labour as a requisite of production. Chapter 6 also demonstrated the artificiality of distinguishing agents of production too precisely. For example, education was easily conceived as a form of national investment, making its result in the form of educated labour a type of human capital. Wealth, together with saving from wealth, were indicated in chapter 7 to be the basic sources for the accumulation of capital, with interest the reward for saving, or the postponement of consumption (hence explaining the term, ‘waiting’ to describe the other real cost of production). The next five chapters (8–12 inclusive) dealt with industrial organization. Chapter 8 indicated that organisation and its consequences of increasing efficiency had been given ‘new life’ by Adam Smith’s doctrine
of division of labour; while biology had assisted study of the influence exerted by struggle for survival on the efficacy of productive organization. Division of labour and machinery, together with concomitant skilling of the labour force, was discussed in chapter 9; concentration of industry in specific localities (industrial districts) in chapter 10, the economies (and diseconomies) of large-scale production in chapter 11. Chapter 11 emphasised as well, however, the continuing role for small firms. This was ensured by their distinct advantages derived from their easier management and supervision. Business management, including its specialised forms of cooperation, profit sharing and government enterprises, were discussed in chapter 12, together with the related notion of business ability. Chapter 13 summarised the drift of the later, organisational chapters of Book IV. It also reconciled tendencies to increasing and diminishing returns and suggested that generalisation of the notion of costs of production in an actual industry required the concept of a ‘representative firm’, reflecting the overall productive capacity of the heterogeneous firms operating in the industry in question. Contents of Book IV had varied relatively little over the eight editions of the *Principles*. In addition, Book IV was the only book which did not require elucidation of part of its contents by means of a separate appendix.

Book V, ‘general relations of demand, supply and value’, in its fifteen chapters combined the subject matter of the previous two books into what became known as the Marshallian cross of supply and demand, and their respective roles in determining equilibrium prices. Its first chapter introduced the topic of markets as a concept of space, gravely limited in terms of that of time. Time, as its subsequent chapters demonstrated, influenced the degree by which demand and supply exerted their respective influences over equilibrium price determination, the longer the time period, the greater the influence of supply considerations captured in cost of production. Hence the market period, short period and long period are investigated in chapters 2, 3 and 5. Chapter 4 is devoted to issues preliminary to study of the long period; that is, investment, the distribution of resources over time, as well as the division between prime and supplementary costs in relation to the duration of the enterprise. Prime and total costs are further examined in chapter 7, together with definitional issues raised by other forms of cost. Chapter 6 discussed joint and composite supply and demand, illustrating aspects of this discussion by a problem taken from a labour dispute in the building trade. Marginal cost in relation to value is the subject of the next four chapters (chapters 8–11), the last two treating
marginal cost with special reference to agricultural and urban values, respectively. Chapter 12 examined the difficulties raised by increasing returns for equilibrium of the firm and of the industry, accompanied by Appendix H which indicated the inappropriateness of static analysis when increasing returns are involved. Chapter 13 discussed increases in supply, and increases in demand, with respect to the doctrine of maximum satisfaction, under conditions of diminishing, constant and increasing return. This chapter included Marshall’s tax/bounty analysis proposal suggesting the beneficial welfare consequences of taxing diminishing returns industries and using the revenue for subsidising increasing returns industries. Monopoly theory is the subject of chapter 14 in which maximum profits for monopolists are shown to occur when marginal cost and marginal revenue are equated. Chapter 15, the final chapter of Book V, provided an overview of the equilibrium of supply and demand discussion presented in the book, to which Appendix I on Ricardo’s theory of value was attached.

Book VI is devoted to the distribution of national income. Its first two chapters presented a general overview of the subject including a brief history of the development of distribution theory, the theory of net productivity as a preliminary theory of distribution focusing on the demand side of the problem, the impact of factor remuneration on factor growth and the close interconnection of wages and capital. Appendices J and K on the wage fund doctrine, and on certain types of surplus, are attached to the second preliminary chapter. Earnings of labour are discussed in great detail in chapters 3–5; the rate of interest in chapter 6, profit in chapters 7–8, rent in chapters 9 and 10, while chapter 11 provides a general overview and summary of the theory of distribution as discussed in Book VI especially. The final two chapters discussed issues associated with progress and distribution. Chapter 12 examined the impact of progress on value (particularly the value of labour or the hierarchy of wage rates), chapter 13 looked at progress in relation to the standard of life. For Marshall this continued to be an essential chapter since it made the important point that genuine social progress does not just rely on improved living standards, it depends even more on the manner in which the rising incomes from rising living standards are spent. The chapter ends abruptly on a somewhat peculiar note, its final paragraph being particularly apologetic about the achievement of the Principles as a whole:

And now we must conclude this part of our study. We have reached very few practical conclusions; because it is generally necessary to
look at the whole of the economic, to say nothing of the moral and other aspect of a practical problem before attempting to deal with it at all: and in real life nearly every economic issue depends, more or less directly, on some complex actions and reactions of credit, of foreign trade, and of modern developments of combination and monopoly. But the ground which we have traversed in Books V and VI is, in some respects, the most difficult of the whole province of economics; and its commands, and gives access to, the remainder.

(Marshall 1961, I p. 722)

This paragraph can perhaps be interpreted as the implicit, and final *apologia* for the missing, second volume.

### 6.6 The significance of the Principles

The *Principles of Economics* remained a leading textbook on the foundations of economics not only during the life of its author, that is, from 1890 to 1924, but for the next quarter century as well, that is, until the early 1950s. Its contents provided much inspiration for theoretical debate on many aspects of micro-economics in the journals of the inter-war period, illuminating much of the simultaneous development of the theory of the firm, of welfare economics and of aspects of the theory of distribution over these years. The nature of the contributions which made it such a landmark in twentieth century economics needs some elaboration.

In his centenary essay on Marshall’s *Principles*, Stigler (1990) listed various aspects of the analysis presented in that book which exerted, and continue to exert, considerable influence on subsequent generations of economists. The first of these was Marshall’s major and distinctive contribution in making time a key variable in the theory of value, as revealed, for example, by its appearance in examining the meanings attributable to the concept of supply elasticity. Supply could be said to be completely inelastic in the market period when stocks of the commodity in question were given. Over the short period, supply became more elastic as additional quantities of the commodity could be obtained from existing stocks and fully elastic in the long period when additional quantities can be indefinitely supplied from the variable supplies of the necessary agents of production. Furthermore, assuming specific time periods for a specific analysis enabled significant abstractions to be made. For example, the determinants of long run normal price (such as new plant development, entry or departure of firms in the industry)
exert little influence when the problem under consideration is one of short run normal price. To take another example, in solving a specific problem related to the market period, no attention has to be given to investment or to production, while in studying long period problems, short run influences on price and output are negligible and can be ignored. Marshall’s classification of time became an enduring part of the analysis of price, unquestioned as to its importance for understanding problems in the theory of relative prices in a dynamic context.

Marshall’s discussion of internal and external economies is likewise a major contribution which has endured in various branches of economics. Marshall’s close knowledge of industry enabled him to list virtually every relevant influence capable of generating internal economies of scale, while his examination of external economies recognised the potential for both firms and industries to benefit from industrial growth. The notion of industrial districts embodies one particular and practical application of this major insight; external economies still have contributions to make in the theory of economic development. The relevance and legitimacy of using such notions within the theory of value and production was hotly debated during the 1920s and 1930s, especially with respect to their appropriateness for static, competitive equilibrium analysis. Key contributions include Clapham’s ‘Of Empty Economic Boxes’ and Sraffa’s ‘The Laws of Returns and Competitive Conditions’, both published in the *Economic Journal*. External and internal economies also played a distinctive role in the development of Marshallian welfare economics particularly as practiced by Pigou.

Marshall’s *Principles of Economics* likewise did much to develop the theory of the firm, and the associated notion of industry economics. Marshall himself, for example, regarded his concept, ‘the representative firm’, as of crucial importance. It allowed the economist to say something about an industry composed of highly heterogeneous units, as invariably was the case in practice, by means of examining a single, representative, unit. In this context, Marshall not only had gained much from Cournot’s earlier work, including analysis of the profit maximising output determination for the monopolist, but he also developed the notion of firms as competitive units within an implicitly imperfectly competitive industry, where marketing costs could be considered as part of a competitive firm’s cost structure. Marshall’s later work on *Industry and Trade* elaborated significantly on these topics, as discussed in Chapter 8.

The introduction of consumer’s (consumers’) surplus was also one of Marshall’s lasting contributions to economics, even if Marshall later
believed himself that its practical application was rather limited because it was virtually incapable of being realistically quantified. (It is a contribution, of course, Marshall shares with Dupuit, whose work had probably made him aware of its theoretical importance in the first place.) Here later practice by economists appears to have proven Marshall’s misgivings as wrong, because the notion is still extensively used in environmental, recreational and other policy studies, where its quantification is crucial for the practical task of assessing the award of damages in the case of major accidents or in estimating the net benefits of major projects.

Marshall’s theory of distribution, including its exposition in terms of ‘net advantages’, also entailed some major contributions in the development of economic concepts. The emphasis Marshall placed in this discussion on human capital issues in relation to investment in education for workers and others is an important aspect of this. In this context, Marshall’s notion of quasi-rent should also be mentioned as his skilful adaptation of a theory designed to explain the income (rent) arising from a very long-term (indefinite?) natural advantage to the income of acquired advantages (from education or training, for example), which become part of the productive agent’s qualities over its life time, generating additional income when that agent’s skills are applied to an appropriate task.

A sixth contribution which needs to be listed is Marshall’s clever use of diagrams by way of illustrating the arguments he presented in the Principles. Here again, he was by no means the first to do so (he was anticipated in this by both prominent English and by German writers). However, the neat simplicity of his diagrams enabled their popularisation to such an extent that they continue to feature, often without acknowledgement, in contemporary textbooks. His supply and demand diagrams in particular, featuring the Marshallian cross, are an enduring contribution to economic exposition. It is also symbolic of the fact that the diffusion of these diagrams simultaneously spreads the substantial explanatory powers of the supply and demand apparatus. After all, supply and demand analysis informed most of the essentials of Marshall’s great book. Even then, it should be noted, the diagrams were of course invariably ‘hidden’ by Marshall in the footnotes which accompanied the argument to the illustration of which they were applied.

Marshall’s more circumspect use of algebra and the calculus can also be noted. Their use was almost completely confined to the mathematical appendix, a small fraction of the total text but preserved in all eight editions. This ‘lowly’ place for the mathematics was deliberate,
because its use in economic explanation was rather limited, as Marshall explained to some of his former students. For example, he wrote to Bowley, a student from the 1890s and as London University Professor himself an ardent user of the mathematical language in economic analysis, ‘a good mathematical theorem with economic hypotheses was unlikely to be good economics: and I went more and more on the rules – (1) Use mathematics as a shorthand language, rather than as an engine of inquiry. (2) Keep to them till you have done. (3) Translate into English. (4) Then illustrate by examples which are important in real life. (5) Burn the mathematics. (6) If you can’t succeed in 4, burn 3. This last I did often.’ (Marshall to Bowley, 27 February 1906, in Whitaker 1996 III, p. 130). Marshall’s warning has unfortunately all too frequently been forgotten by some later mathematical economists.

Marshall’s Principles set records as a textbook as well. Its sales were enormous by contemporary standards, and those after Marshall’s death in 1924 greatly out-numbered those made during his lifetime, a reflection in part of the enormous growth in economics as a university subject during the twentieth century. The Principles remained continuously in print with Macmillan until the end of the twentieth century, though with new pagination from the 1960s, when the 1920s plates used in its printing had eventually worn out. This new pagination was also used in the paper-covered edition published at that time. A variorum edition reflecting changes in the eight editions of the Principles was published in 1961 by the Royal Economic Society in conjunction with Macmillan. Over many years, it was edited with loving care by Marshall’s nephew, Claude Guillebaud.

At its centenary of publication in 1990, the Principles were celebrated in every continent and in many languages. Major celebration were organised in Cambridge, in the United States, in Japan, in Florence, resulting in dozens of assessments of Marshall’s work as economist. The articles which that economics inspired, largely through study and debate of the Principles, were reprinted in eight hefty volumes, as part of the critical assessment of Alfred Marshall (Wood 1982, 1996). Long life of Marshall’s ideas was also reflected in the fact that even when dead, and despite the enormous growth of the economics profession, he was among the top ten economists in terms of citations for the greater part of the twentieth century, a virtually unique distinction.

Marshall himself remained somewhat sceptical of this triumph. Late in life, he expressed the wish that his students, by their own discoveries and research in economics, would effectively turn the greater part of his Principles into so much waste paper. This wish was only partly granted.
For example, student John Maynard Keynes succeeded in demolishing most of his short-period macro-economics, a topic which only rarely features in the contents of Marshall’s *Principles* (in the remarks devoted to Say’s Law, for example, in the final chapter of the book in its last four editions). In micro-economics, even when some of the detail was criticised, much of the essentials were carefully preserved, elaborated and illustrated by new factual data. Examples of some of this enduring content were given earlier in this section. Its status as a classic means that the *Principles* will continue to be studied by those in search of the wisdom locked into so much of its varied contents, to be absorbed, adapted, reinterpreted and given new use in economic explanation. These features of the work are of course those that made Marshall’s *Principles* a classic in the first place.
This chapter is devoted to examining Marshall’s activities and ideas on political and social topics either closely related to his economics, to his position as Professor of Economics at Cambridge or to his behaviour as academic in advancing certain causes. It also provides examples of his willingness to engage in controversy when the subject, in his view, warranted it. As mentioned at the start of Chapter 5, this chapter gives an opportunity as well to examine a miscellany of Marshall’s activities while being Professor at Cambridge. These are of interest in grasping aspects of his economics, even if they do not directly relate to his activities as teacher and writer explored in the two previous chapters. The length of the title reflects the nature of this chapter. It is a convenient vehicle for bringing together some important episodes in Marshall’s life associated with his role as Britain’s leading academic economist while being Professor at Cambridge.

The first section of this chapter is devoted to an examination of Marshall’s social and political thought, with special reference to that ‘youthful tendency to socialism’ to which he confessed in the preface to Industry and Trade (Marshall 1919, p. vii). Section 7.2 discusses a number of specific controversies in which Marshall became involved in the 1890s and after. They include his debate with William Cunningham over economic history in the Economic Journal, his confrontation with Böhm-Bawerk on capital theory in the mountains of Austria and in the classroom and his debate on heredity, nature and nurture with Karl Pearson, aided and abetted by the young Maynard Keynes. Section 7.3 looks at Marshall’s involvement in social reform with respect to the
poor, their education and housing, partly by way of his membership of charitable institutions. Given Marshall’s emphasis on poverty as a motivation for the study of economics, this is a particularly important aspect of his applied social philosophy. Section 7.4 mentions his involvement in various economic clubs and societies, including the Political Economy Club and his participation in the formation of the British Economic Association which became the Royal Economic Society. Section 7.5 briefly investigates his shift of opinion on women’s tertiary education, including his strong support for the campaign to prevent women from getting degrees at Cambridge. A final section offers some conclusions

7.1 Marshall’s political and social thought – an overview

When Marshall was approaching his eightieth birthday, he recollected that during his period of postgraduate studies during the second half of the 1860s and early 1870s, he developed a tendency to socialism. This was fortified for him in 1879 by reading John Stuart Mill’s posthumous essays on socialism in the *Fortnightly Review*. However, generally speaking, the writings of socialists tended to repel him and he could recall no socialist scheme which made ‘adequate provision for the maintenance of high enterprise and individual strength of character’ or promised sufficient growth to enhance the living standards of workers (Marshall 1919, pp. vii–viii). When Marshall abandoned this youthful ‘tendency’ to socialism is difficult to say with precision; however, his attitude to socialist writings suggests that it did not last too long and that the ‘mature’ Marshall from the 1880s had dropped most socialist pretensions he initially may have had. By then, Marshall had become a staunch neo-liberal in his politics, not necessarily adverse to the Tory party but, generally speaking, opposed to political labour.

How Marshall gained his tendency to socialism is, however, easy to explain. Cambridge Moral Sciences circles in the 1860s included several Christian socialists, of whom F.D. Maurice, the Professor of the Moral Sciences at the time when Marshall came in contact with them, was an outstanding example. Moreover, Marshall’s reading at this time included work by socialists and other ‘romantic visionaries of socialist utopias’, some of which he had personally encountered during his visits to primitive religious socialist communities while on his 1875 trip to America. These in turn reflected an earlier interest in Owenite socialism and a continuing sympathy for cooperative ventures and reading about the utopian dreams of French socialists (Proudhon, Fourier, Saint-Simon
and Louis Blanc). His acquaintance with their views and opinions undoubtedly formed the basis for lectures on socialism and the functions of government which Marshall gave at Cambridge in 1886 as part of his teaching duties as its new Professor of Political Economy.

Marshall also appears to have studied some of the German classics of nineteenth-century socialism to a degree, recalling later that an interest in what was practicable in social reform had encouraged him to do this reading. Marshall's never completed 1870s manuscript on foreign trade (in Whitaker 1975, II pp. 37–42, esp. pp. 37–9, 41), for example, contains a discussion of Lassalle's scheme for a federation of industries as a solution to the problem of commercial depression. Marshall praised this as a useful contribution to the subject, even if Lassalle in his view had failed to treat its many difficulties satisfactorily.

In 1867, Marshall bought, and subsequently read, volume I of Marx's *Capital*, using it as a broad historical source for his economic research at the time. However, he never read the two later volumes edited by Engels as they appeared in 1885 and 1894. He later concisely 'rebutted' Marx's system in the *Principles* and only acknowledged 'the strength of Karl Marx's sympathies with suffering' as something 'always worthy' of claiming 'our respect' (Marshall 1890, p. 690).

Rodbertus was the third major German socialist studied by Marshall. In his case, however, this was only done at second hand by way of commentary on Rodbertus' views provided in Anton Menger's *The Right to the Whole Produce of Labour* and in Böhm-Bawerk's harsh review of Rodbertus' theory of exploitation in his *Critical History of Interest Theories*. However, when friend J.B. Clark wrote an introduction to Rodbertus' *Overproduction and Crises* (1898), the presumably complimentary copy sent to friend Marshall found its way into the Marshall Library as the only Rodbertus text housed there.

At a more practical level, the young Marshall's socialist tendencies led him to some involvement with East-Anglian rural labour during 1872–74, when he addressed public meetings on the right of agricultural labourers to unionise. In 1874 Marshall also contributed two articles explaining aspects of contemporary Political Economy to the socialist newspaper, *The Bee Hive* (as mentioned in Chapter 4). Marshall recalled later that earlier, sometime between 1869 and 1872, while on a holiday in Germany, he had attended a meeting of a 'working-man's party' in Frankfurt at which the audience was orderly and disciplined, but where the speaker's frequent references to capital as the enemy had annoyed him, because they were totally incorrect. The evils of class war, combined with socialist misunderstandings of the positive role of capital, were
the attitudes of socialists which eventually led Marshall to abandon his youthful tendency to socialism, to enter into the self-help avenues of cooperation and the politics of neo-liberalism. Marshall’s Bristol lectures attacking Henry George’s views, discussed in Chapter 4, were an early indication of his strong opposition to what he held to be erroneous social policy. Such views in any case became increasingly prominent in public speeches from the mid-1880s. A good example is his address delivered to the 1885 Industrial Renumeration Conference. This indicated that Marshall by then still regarded himself as a sort of socialist in the sense that he believed that ‘almost every existing institution must be changed’ (Marshall 1885a, 1997, p. 231). The address also strongly opposed government interference in business, considered by Marshall to be particularly harmful to members of the working class who ‘have lost a pound for every shilling that government interference has given them’ (Marshall 1885a, 1997, pp. 232–3). Marshall then briefly discussed nine remedies for sluggish employment. These ranged from abandoning the custom of slavishly following fashion, to deficiencies in knowledge capable of preventing excessive confidence, unwarranted credit growth and rising prices, stimulus to stagnating trade and attacking undesirable combinations (of labour or business) in order to maintain and strengthen competition at home and abroad. Finally, as a remedy for low wages, Marshall stressed education, as well as encouraging skilled, and discouraging unskilled, labour to enable workers to ‘earn a reasonable income and have [the opportunity to live] a noble life’ (Marshall 1885a, 1997, p. 240).

Such progressive liberal opinions were cogently pulled together in one of Marshall’s last major addresses, ‘The Social Possibilities of Economic Chivalry’. It enabled Marshall to argue strongly for the severe curtailment of state social activities by confining them basically to municipal works; and to present competition and private initiative as vastly superior vehicles for achieving social aims (Marshall 1907, 1997, pp. 458–607). Marshall also denied the economic need for excessively large fortunes and pecuniary rewards for business leadership, proposing instead to maintain entrepreneurial efficiency by government awarded ‘honours’ (Marshall 1907, 1997, pp. 588–9). He then drew attention to extensive opportunities for progress at this time from ‘temporary suspension’ of the law of diminishing returns, but such opportunities should not be wasted by excessive stress on spurious egalitarianism, an attitude from which skilled artisans’ families would be the major losers (Marshall 1907, 1997, pp. 592–3). Marshall also warned emphatically about the dangers of trying to implement socialist utopias, particularly
when human nature had not reached a sufficiently advanced stage to implement them (Marshall 1907, 1997, pp. 604–7, 610–1).

By contrast, the mature Marshall did not greatly alter his position on the virtues of redistributive taxation. Although Marshall invariably expressed concerns about disincentive effects from government poor relief, he nevertheless supported universal government assistance schemes even though they imposed substantial welfare losses on the community and were very costly to implement. (This issue is further discussed in Section 7.3.) Marshall indicated his views on redistributive taxation in the context of Lloyd George’s 1909 so-called ‘people’s budget’ in a letter written to Lord Reay (12 November 1909, in Whitaker 1996, III pp. 231–4) in which he further clarified his views on socialism. Extensive quotation from this important letter is clearly warranted:

I do not know what ‘socialistic’ means. The Times has just said that it means taking away property from individuals and giving it to the State. But the Budget proposes to take money; and if, say, £M 150 have to be levied by taxation, the Budget, whatever its form, must be accordingly Socialistic to the extent of £M 150, neither more nor less.

My own notion of Socialism is that it is a movement for taking the responsibility for a man’s life and work, as far as possible, off his shoulders and putting it onto the State. In my opinion Germany is beneficially ‘socialistic’ in its regimentation of those who are incapable of caring for themselves: and we ought to copy Germany’s methods in regard to our Residuum.

But in relation to other classes, I regard the Socialistic movement as not merely a danger, but by far the greatest present danger to human well-being…

…On the financial side, Socialism may be rapacious, predatory, blind to the importance of security in business and contemptuous of public good faith. But these tendencies lie on the surface: they provoke powerful opposition and reaction; and personally I fear them less than those which are more insidious. In moderation, they are even beneficial in my opinion. For poverty crushes character: and though the earning of great wealth generally strengthens character, the spending of it by those who have not earned it, whether men or women, is not nearly an unmixed good. A cautious movement towards enriching the poor at the expense of the rich seems to me not to cease to be beneficial merely because Socialists say it is a step in their direction…
For about fifteen years I taught somewhat eagerly that ‘Death Duties’ were a grievous evil because they checked the growth of capital. For the next few years I hesitated. Now I think they are on the whole a good method of raising a rather large part of the national revenue; because they do not check accumulation as much as had been expected, and a small check does not seem to me now as great an evil as it did then.

As regards the influence of taxation of employment, I hold it to be indirect only. All income is spent on the purchase of services including that of postponing consumption, or ‘saving’, excepting in so far as it goes to the owner of land and other forms of wealth that have not been created by individual effort…To return to the relation of taxation to employment, the State by taxes takes part of the national income and spends it almost exclusively on services…Hence, I conclude that, if taxes are so levied as to impair enterprise, they pro tanto lessen employment at good wages…

This letter leaves no doubt that there was no real tendency to socialism left in Marshall during his first year in retirement from the Cambridge chair. However, redistributive taxation, even capital taxation, was to be condoned in moderation as something not nearly as inimical to incentives as he had first thought. Self-help and individual initiative were the real solutions to poverty and unemployment, not government assistance, generally speaking.

Marshall’s emphasis on self-help and individual action coloured his views on the various avenues open to the labour movement for improving the lot of workers. He identified self-help with character building, indicating it was the mark of the conduct of a ‘true gentleman’. Industry and punctuality, thrift and politeness, a healthy and frugal lifestyle were the desirable characteristics which the working class should, and could, adopt through self-cultivation and its own institutions. This made Marshall side with the older trade unionism in Britain rather than with the new. Such a preference was strengthened by his firm belief that the contemporary tendency to resort speedily to strike action for higher wages, shorter hours and better conditions would inevitably induce a decline in British export competitiveness as compared with new industrial nations (especially the United States, Germany and Japan) and with other, newly industrialising European countries. Self-help philosophy also generated Marshall’s strong support for the cooperative movement in wholesale and retail trade, combined with the associated practice of
Alfred Marshall

profit sharing (Marshall saw dividends from membership in cooperative stores as a direct and easily accessible form of profit sharing).

Marshall remained an anti-imperialist and strong opponent of war for virtually the whole of his life. War in particular implied a waste of resources which could be much better used elsewhere, and this perspective coloured his views on the 1895 Venezuelan crisis, the Egyptian crises over the source of the Nile two years later and his strong (and to John Neville Keynes disgusting) pro-Boer stance during ‘the horrid war in South Africa’. He likewise thought the First World War a wicked waste of life and resources (Marshall 1919, p. 2 and n. 1). Furthermore, with reference to the Indian colonial question, and to imperialism more generally, Marshall was broadly hostile to imperialism and war, both on moral grounds and on the economic argument that, generally speaking, it did not pay (for details, see Groenewegen 1995, pp. 599–608).

To what extent can Marshall’s political stance be articulated more precisely? Ultimately, it closely approximated classical liberalism, given his strong belief in personal freedom and individual liberty. Marshall was also inclined to nationalism, but with sufficient liberal perspective to accord sympathy for the nationalist pretensions of other countries even if they contravened British interests. Thirdly, and by no means least, Marshall completely embraced free trade and free enterprise as essential principles of the classical liberal. It was this view in particular which made him oppose turn of the century ventures in Imperial Federation of the kind espoused by Chamberlain. His strong anti-war stance was likewise in the classical liberal tradition of Cobden and Bright. Later in life he could occasionally flirt with the political attractions of the Tory (conservative unionist) side of politics perhaps partly induced by his friendly relations with Balfour (a Cambridge man and moral scientist). However, his major political principles probably kept him on the liberal side of politics for the greater part of his life. This, after all, was the party and politics to which class and inclinations directed him in any case. His socialist tendencies were never serious. They perhaps recalled a liberal radical reform stance, to which the reforming enthusiasm of youth would in any case have inclined him.

7.2 A taste for occasionally initiating controversy: quarrels with Cunningham, Böhm-Bawerk and Pearson

If need be, Marshall could be a principled, and occasionally unscrupulous controversialist. He was, after all, a joiner of societies and supporter of causes of which he strongly approved. Some of the organisations he
joined, or even assisted in forming, are discussed in subsequent sections of this chapter. Marshall’s taste for occasional controversy is discussed in this section, by way of three, rather striking illustrations. It might be noted as well that Marshall was quite willing to write to the press to defend himself against misrepresentations or misunderstandings of his views or in support of principles to which he was particularly strongly attached. His collected correspondence contains many examples of this, while the third controversy discussed in this section, that with Karl Pearson in 1910, was initiated and sustained by Marshall in the letter columns of The Times.

William Cunningham, Marshall’s first target in controversy to be explored, clashed with Marshall on several occasions. Cunningham’s critical reaction to Marshall’s inaugural lecture was mentioned previously in Chapter 5. Cunningham’s clash with Marshall in the pages of the Economic Journal over the contents of Marshall’s three historical chapters then included with Book I of the Principles of Economics is discussed here. It started with the publication of Cunningham’s article, provocatively titled, ‘The Perversion of Economic History’ in the Economic Journal. This criticised people like Marshall who extensively proclaimed ‘free competition and the laws of supply and demand’ and were then ‘awakened’ to the actual world of industry and commerce in which these economic verities were not necessarily fully reflected. Cunningham then made sarcastic comments about persons untrained in dealing with historical complexities (as Marshall undoubtedly was), generalising on world history in the space of a few pages ‘with easy confidence’. A more specific attack on the historical content of the Principles then followed, taking Marshall to task for his use of Ricardo’s rent theory in historical explanation. Marshall’s (1892a, 1997) response, published in the same issue of the Economic Journal by courtesy of friend Edgeworth as editor, acknowledged that his historical position clearly differed from that of Cunningham. The use of Ricardo’s rent theory was an obvious example, another was their understanding of business education in ancient Rome. He also acknowledged that he had written the historical chapters of the Principles from extensive research on economic history. For Marshall, this was the end of the matter. His confident defence did not, however, reflect the fact that Cunningham’s critique had really hit him rather hard. This did not mean that the chapters in question were extensively revised. Only the prominence they were initially accorded disappeared when in 1906 they were shifted to Appendices A and B from the fifth edition onwards. Over the eight
editions of the *Principles*, their text was never significantly altered, and Cunningham’s criticism left few lasting scars.

The second controversy to be discussed concerns Marshall’s ‘debate’ about Böhm-Bawerk over the factual accuracy of his *Critique of Interest Theories* with special reference to Turgot. This took place in correspondence with Wicksell, that is, with a party other than the antagonist in question. The matter originated earlier in one of his classes, as a result of a student’s request. Although Marshall, as mentioned in Section 7.1, had happily studied Rodbertus’ views via Böhm-Bawerk’s *Critical History*, when confronted by some students over the general accuracy of Böhm-Bawerk’s book, he decided to assess the matter by choosing Böhm-Bawerk’s interpretation of Turgot’s theory of capital as a test case. Consequently, Marshall set aside a lecture for the purpose. It compared Turgot’s interest theory step by step with Böhm-Bawerk’s interpretation of it as a ‘fructification theory’. This comparison showed Böhm-Bawerk’s interpretation to be in error, a demonstration accepted and apparently appreciated by the whole of Marshall’s class. Marshall subsequently mentioned this experience to Gustav Cassel, who in turn recorded it in his *The Nature and Necessity of Interest* (Cassel 1903, pp. 22–4, esp. p. 22 and n. 2). This account attracted Wicksell’s attention. Wicksell sprung to the defence of Böhm-Bawerk’s position and in correspondence sought clarification of Marshall’s role in the matter. In the ensuing letters, which also covered Marshall’s interpretation of Böhm-Bawerk’s interest theory and the interpretation of Marshall’s theory of interest by Böhm-Bawerk, Wicksell conceded that Böhm-Bawerk had misinterpreted Marshall’s theory of waiting, but that Marshall was wrong in his discussion of Böhm-Bawerk’s theory of capital in his *Principles* and that Böhm-Bawerk was correct in interpreting Turgot’s interest theory as a fructification theory. Marshall disagreed with Wicksell’s last two propositions, and the matter was left at this between them. There is an amusing endnote to this debate. Much to Mary Paley Marshall’s relief, the issue was not brought up when the Marshalls and a party of Austrians including Böhm-Bawerk encountered each other in the Austrian Alps during the summer of 1909. Their afternoon together passed pleasantly, without any discussion of controversial issues in capital theory. Fay told the story differently: ‘after a brief salutation, Marshall and Böhm-Bawerk got down to the Rate of Interest, on which, according to Marshall, Böhm-Bawerk held preposterous views, and things got so hot that finally Mrs Marshall took her Alfred by the sleeve and Frau Böhm-Bawerk did ditto, and hurried them from each others presence’ (cited in Groenewegen 1995, p. 477). Irrespective of which account of Marshall’s encounter with
Böhm-Bawerk is believed, Marshall was readily drawn into controversy on the subject by some of his students.

The third controversy started with a letter in The Times from Marshall (7 July 1910, in Whitaker 1996, III pp. 250–2) commenting on a study on the influence of parental alcoholism on offspring by a Miss Elderston and Professor Karl Pearson, published by the Galton Laboratories in Cambridge and summarised in an earlier issue of The Times (21 May 1910). This study, Marshall claimed correctly, denied such systematic influence, contrary to popular belief. Marshall queried this conclusion, partly on economic grounds, but also questioned the statistical methodology used in the study. His letter elicited two responses: a critical one, not unexpectedly, from Pearson; a laudatory one from former student Maynard Keynes, who especially praised Marshall’s damaging critique of Pearson’s method. Encouraged by Keynes, Marshall wrote again to The Times (2 August 1910, in Whitaker 1996, III pp. 255–6) with a further letter a fortnight later (17 August 1910, in Whitaker 1996, III pp. 256–60). In them Marshall supported his criticisms by evidence drawn from Charles Booth’s survey of the London poor. Other methodological ammunition came from Keynes who in correspondence severely criticised Pearson’s heavy reliance on the discredited method of least squares. Marshall’s initiating role in this controversy is explicable by the fact that it raised an issue on which he clearly held strong views. These were very evident in his discussions of the great social and economic benefits from raising standards of life with respect to consumption spending from income, particularly among members of the working class. Avoidance of alcohol on their part played an important role in that agenda and would not have been assisted by a ‘scientific’ denial of one of its more important detrimental effects. Pearson’s work constituted a major affront to Marshall’s social beliefs, and therefore needed public rebuttal.

7.3 Housing policy, the poor, poor law reform and the Charity Organisation Society

Problems of poverty had been the issue which had drawn Marshall to the study of economics, and it is therefore not surprising that he took a stand on public policy issues associated with the poor. These included reform of the poor law, housing policy for the poor, often involving questions now classified as issues of social security. Concern over poverty also induced Marshall’s association with, and support of, the Charity Organisation Society, whose principles advocated self-help whenever
possible and advocated public charity only as a last resort. Marshall’s activities connected with these types of issue form the subject matter of this section, beginning with his proposals for housing policy.

During the 1880s Marshall was involved with the ‘Society for the Promotion of Industrial Villages’ and later offered both inspiration and support for the Garden Cities Movement, founded by Ebenezer Howard. While at Oxford, Marshall had become involved with the Toynbee Trust almost of necessity, named as it was after Arnold Toynbee whose death had enabled Marshall to succeed him as Economics Lecturer at Balliol College. In addition, Marshall was an enthusiastic supporter of the University Settlement Movement, which provided holidays for inner city slum dwellers, often at the seaside.

As mentioned in Chapter 4, in 1884 Marshall had contributed to a symposium on ‘How to House the London Poor’, which was published in the *Contemporary Review*. This article had stressed the need for everyone to have access to clean air and green open space for healthy living. Such aims were difficult to achieve in London, hence it seemed better to start afresh in the provision of housing for workers by creating ‘garden cities’ outside London to ‘house the poor’. This policy procured lower rents for them, gave families access to fresh garden produce by way of facilitating the provision of private garden allotments and even saved workers from drink if public houses were barred from the new housing estates. Creating such benefit for workers enabled reductions in their wages, thus making provision of local employment opportunities for them more attractive. More new industry would then be gradually established, in turn generating greater employment. Alternatively, Marshall suggested, cheap rail travel would enable the newly housed workers to continue working at their London jobs. This proposal, as already mentioned, brought Marshall into contact with the Garden City Movement. He supported this financially and gave it moral support by permitting publication of a letter he had written endorsing the movement’s objectives. However, Marshall’s support failed to stretch far enough to induce him to join the society’s governing council. In any event, the society itself had only a short life. It was wound up by the end of the decade, in September 1889.

As mentioned in Chapter 6, the housing question also featured as a topic in successive editions of the *Principles*. There Marshall emphasised the need for good housing for workers and the social and economic waste of housing workers in high rent London districts when there was no absolute necessity for them to reside there (Marshall 1890, pp. 123, 250, 720 and n. 1, 1920, pp. 88, 196–7, 676–7). Although
when warranted this material was revised, its essential message remained the same, sub-standard housing of the very poorest sections of the community was a scandal while the provision of good and healthy living space to the population constituted a major social investment.

Marshall’s support for both the University Settlement and the Toynbee Trust was publicly declared on his return to Cambridge at a meeting (5 February 1885) which he chaired at St John’s College. A contemporary report of this meeting can be quoted by way of illustration:

Professor Marshall, who was received on rising with hearty cheering, expressed the pleasure it gave him to be present on the occasion. He had had some experience of the Settlement Movement in Oxford from the commencement, and his interest in it was deepened by the fact that he had been the immediate successor of Arnold Toynbee at Balliol. He had thus had peculiar opportunities of estimating the extent of his influence, and of understanding the spirit in which he worked. It was Arnold Toynbee’s interest in working men of the East End of London that primarily made him an economist. He went among those classes with the view of becoming acquainted with their wants and opinions. And so he believed that the University Settlement would most worthily fulfill its purposes, and would best do the work which he would most have desired to see done, if the residents of Toynbee Hall went there not with the expectation of teaching so much as of learning. He looked upon this as their great object. Perhaps it might sound like saying that ‘there was nothing like leather’; but he could not conclude without expressing his opinion that there was no subject in the present day more important for men to study than the laws of Political Economy; and it was only by such systematic study that we should see our way clear to solving the great problems that are now occupying modern society.

(The Eagle, vol. 13, 1885, p. 315)

In the same vein, Marshall gave a lecture on population pressures to the Malthusian League at Toynbee Hall. Its purpose was to correct misrepresentations about the relationship between subsistence and population, partly by way of indicating the countervailing factors of capital accumulation and the advance of knowledge. Excessive population was even more detrimental if it induced sub-standard, overcrowded housing and lowered access to clean air and open space. Migration from London, presumably to newly formed ‘garden cities’, was a solution to this existing, and pressing, evil (in Whitaker 1975, II pp. 386–93). Marshall’s
continued support of the Toynbee Trust and the Settlement Scheme was publicly acknowledged by Canon Barnett at a meeting held at Cambridge in 1887 (see Groenewegen 1995, pp. 453–4).

Marshall’s active involvement in movements on behalf of the ‘poor’ can be illustrated in other ways. The remainder of this section revisits Marshall’s submission to the Royal Commission on the Aged Poor (earlier looked at in Chapter 5), set up by a Liberal Government in 1892 to investigate whether reform of the poor law with respect to provision for the aged poor was warranted. Bismarck’s comprehensive social security legislation in Germany had induced proposals for such schemes of a similar nature in Britain and New Zealand. In his evidence to this Royal Commission, Marshall referred to his association with the Charity Organisation Society, and this aspect of Marshall’s social welfare activities in aid of the poor is also looked at in this context. The Charity Organisation Society, it should be noted, was bitterly opposed to any aged pension scheme. Firstly, it would eliminate the responsibility of children to provide for their parents in old age. More importantly, it contravened the Charity Organisation Society’s principle of only supporting ‘indoor relief’ in the workhouse. Provision of universal aged pensions, on the other hand, made it possible for the elderly to provide for themselves within their own homes. Finally, it should be realised that as a major charity group, the Charity Organisation Society was well represented on the Aged Poor Commission: both its secretary, C.S. Loch and one of its council members, Albert Pell MP, were among its members.

In his evidence to the Poor Law Commission, Marshall claimed long-term involvement with general issues of poverty and poor law reform, as well as membership of the Charity Organisation Society. Marshall had indeed proclaimed the importance of poverty as a major social issue in the opening chapters of his then newly published Principles of Economics. Furthermore, Marshall in 1892 had published two articles in the Economic Journal on poor law reform in relation to state-aided pensions for the aged, of which the second had replied to Charity Organisation Society criticism of the first voiced by their spokesman, Bernard Bosanquet. Earlier, in Economics of Industry, Marshall (1879, pp. 32–5) had discussed aspects of poor relief, (correctly) describing ‘indoor relief’ in the workhouse as very unpopular and ‘outdoor relief’ as socially detrimental because it encouraged pauperisation of the population. Marshall conceded, however, that outdoor relief could be granted when it strictly discriminated between deserving and undeserving poor, a decision, he admitted, posing great practical difficulties. A letter to The Times

The first of these articles was undoubtedly inspired by Marshall’s attendance at a meeting of the Royal Statistical Society (15 December 1891) at which Charles Booth had unfolded his scheme for old age pensions. Marshall at this stage cautiously supported a simple tax-financed scheme like that suggested by Booth, though he also believed that this, and similar schemes, ought to be first examined by a public inquiry. He therefore proposed that supporters of a public inquiry answered an extensive set of questions before the matter could be proceeded with. The sixteen questions Marshall proposed for this purpose, raised many issues, including the universality of cover from a state-funded scheme as against one privately funded and the need for working-class support and experience for any inquiry established. Marshall staunchly defended this position when replying to Bosanquet’s critique thereof on Charity Organisation Society principles. Marshall’s response likewise repeated his call for appointment of a Royal Commission to report on the matter, preferably with working-class participation. In response to the public debate on the pension issue, including, undoubtedly, the contribution thereto by Alfred Marshall’s two articles, a Royal Commission was duly established in November 1892.

Before dealing with the Royal Commission and Marshall’s role therein, another issue raised by Marshall in his two 1892 articles needs to be mentioned. This was Marshall’s remark (1892c, 1997, p. 462) on his familiarity with Charity Organisation Society principles. He had gained those from Octavia Hill, through her writings and by participating in Charity Organisation Society meetings for a good many years. The last claim by Marshall was an exaggeration at best. Marshall’s membership could not possibly have started before the Marshalls moved to Oxford in 1883, so had been for ten years at most. Furthermore, Charity Organisation Society Annual Reports only indicate financial support from Marshall after 1887. However, Mary Paley Marshall was very involved with the Charity Organisation Society from 1883 onwards, so Marshall confessed to gaining much of what he knew of its activities from her (Marshall 1892c, 1997, p. 456).

Marshall’s evidence to the Poor Law Commission came in the form of a submission on the contents of which he was subsequently questioned. Little has to be said on this matter because, as noted earlier, it has already been discussed in Chapter 5. Much of Marshall’s preliminary memorandum repeated the contents of the two 1892 *Economic Journal* articles
which had advocated the need for broad poor law reform given that
the ‘modern’ poor law had been enacted in 1834 under very different
circumstances. Marshall’s memorandum denied that introducing old
age pensions necessarily lowered wages, maintained the possibility of
effectively discriminating between the deserving and undeserving poor;
and suggested that administration of any scheme could be satisfactorily
helped with assistance from Charity Organisation Society committees.
His questioning, particularly by Charity Organisation Society Secretary
Loch, tried to demonstrate Marshall’s lack of detailed knowledge and
experience in poor relief, including of actual poor law administration
and that of workhouses. In short, the two Charity Organisation Society
members of the Commission tried to discredit Marshall’s appearance as
an expert witness.

The Poor Law Commission had no positive outcome. Old age pensions
were not introduced until 1908, after a further Royal Commission had
debated the matter. In that, Marshall’s role was only indirect. His well-
publicised views on the subject were presented by Pigou, his successor
in the Cambridge chair, and also from his 1907 *Economic Journal*
article, ‘Social Possibilities of Economic Chivalry’.

However, the type of involvement discussed in Section 7.3 indicates
that Marshall was quite serious about improving the position of the
poor by practical measures and that his principle that economists should
be prepared to act as agents in lowering the impact of poverty was
a heartfelt matter which he tried to put into practice whenever the
opportunity arose. His rejection of socialism therefore did not really
dilute his philanthropic propensities which had turned him to the study
of economics in the first place. After all, they also fitted very well with
his neo-liberal position.

7.4 Member of learned economic societies and formation of
the British Economic Association (later Royal Economic
Society)

Marshall’s election to the Cambridge Political Economy Chair entitled
him *ex officio* to become a member of the prestigious London Polit-
cical Economy Club. Accordingly, Foxwell and friend Leonard Courtney
formally proposed him. Marshall was duly elected in 1885. His first
paper to the club dealt with the price level (discussed in Chapter 5), and
he proposed further questions for discussion at the club in 1887 and
in 1889. The first proposed discussion of his symmetalism scheme for
stabilising prices (also discussed in Chapter 5), the second examined the
influence of recent social changes on trade union initiatives on wages and hours of labour. (This paper probably contributed to Marshall’s appointment as member of the Labour Commission in 1892.)

In 1894, Marshall proposed discussion of a broad distributional question: what are the general principles which determine wages now that the wages fund explanation has ceased to be operational, a vehicle also used for canvassing the relative merits of marginal productivity explanations. Marshall therefore contributed considerably to the club’s discussion, and only Sir Robert Giffen among its members had more presentations to his credit. Marshall attended club meetings whenever possible. Although over the twenty-three years of his membership, these came to only nineteen out of a possible one hundred and sixty one, for him this was extensive participation. Marshall resigned his membership on vacating his chair in 1908, in time for ratification at the club’s December meeting for that year.

As a matter of course, Marshall was also associated with activities of the British Association for the Advancement of Science, whose Section F from 1856 covered Economics and Statistics. Marshall was elected President of Section F in 1890. This meant directing the organisation of the 1890 annual meeting and giving a presidential address. Marshall used this opportunity to treat ‘Some Aspects of Competition’ to demonstrate that dogma was increasingly being replaced by analysis on this subject. He illustrated this proposition by first looking at some cases favourable to protection, thereby conceding that there were limitations to the general case for free trade. Secondly, Marshall reviewed the issues for competition policy raised by the growing presence of trusts and combinations, particularly in the United States. In this context, Marshall also discussed the efficacy of American attempts to deal with these problems by legislative measures such as the Shermann Act. Maintaining competition and its benefits therefore required state initiatives but not necessarily state control or nationalisation of inherently non-competitive industries (or natural monopolies). Marshall’s address ended with the discussion of some general issues. The profit motive in business was better portrayed as a gauge for business success than as a sign of entrepreneurial greed. Competition in marketing had to be sharply differentiated from competition in production. Economic progress required full scope for individual initiative in business undertakings together with state intervention (from taxation, for example) to correct gross inequalities of wealth. Finally, Marshall suggested the growing strength of public opinion as an element of control over the power of business, complementary to that exerted by the forces.
of competition (Marshall, 1890a, 1997, pp. 379–414). Other aspects of Marshall’s presidency in conjunction with the 1890 Congress of Section F of the British Association are discussed in Groenewegen (1995, pp. 460–1).

Marshall joined the Royal Statistical Society in 1880 as a life member. As indicated in Section 7.3, Marshall had attended its meeting in 1892 to listen to Booth’s proposal for old age pensions. In 1893, he attended Henry Higgs’ address on the subject of working men’s budgets and in 1895 he participated in the discussion of a paper by Arthur Bowley on the growth of wages in Britain. Marshall himself presented a paper in 1885 on the ‘Graphic Method of Statistics’ in which he illustrated its pitfalls as well as its strengths (Marshall 1885b, 1997, I pp. 269–82).

Dissatisfaction with aspects of the organisation of these three institutions for encouraging economic discussion induced the formation of a British Economic Association in 1890. The new organisation was intended to be much more broadly based than the somewhat exclusive London Political Economy Club, more focused on economic matters than the Statistical Society and more professionally oriented than Section F of the British Association for the Advancement of Science. At the same time, there was an enormous need for a specialist economic journal with articles, book reviews, special reports, notes and memoranda, a venture best undertaken by a new professional body.

Although discussions on this objective had been started in the late 1880s, and limited finance was available for starting a journal, things did not really begin to move until early 1890. As President of Section F of the British Association for the Advancement of Science for that year, Marshall took what was for him a dominant role in forming the new economic society. He circulated a questionnaire on its desirable functions and objectives among interested parties on the ruling bodies of the Political Economy Club, the Royal Statistical Society and Section F of the British Association. After considerable debate and discussion, this led to calling an inaugural meeting at University College, London, for 20 November 1890. It was attended by close to two hundred persons, sixty-three sufficiently prominent to be mentioned by name in the report of its proceedings. As President of Section F, Marshall was invited to introduce the major resolutions for the meeting.

In doing so, Marshall began by noting the fact that in 1890 there were sufficient young people interested in economics, or trained in it at the universities, to write articles for the proposed journal. Furthermore, a new society would do useful work in amicably bringing together the
economics of every different school of thought. As shown in the previous two sections of this chapter, Marshall himself assiduously helped the new journal by writing no less than three articles for it in 1892, a further three in 1893 and one in 1898. Other articles in the *Economic Journal* by Marshall appeared in 1901 and 1907, of which the last, that on economic chivalry, was also previously discussed in this chapter (Section 7.2).

The necessary resolutions to form a British Economic Association all passed unanimously. The election of president was, however, deferred to the first council meeting of the new society, following George Bernard Shaw’s objection to electing a president identified with a specific political party, as was undoubtedly the case with the meeting’s chairman, Viscount Goschen, then Chancellor of the Exchequer in the Liberal government. Marshall himself was among those elected to the first council of the Association. Edgeworth was elected as foundation editor of the *Economic Journal*. Goschen was duly elected as foundation president of the British Economic Association at the first council meeting. He gave his presidential address in 1893 to which Marshall moved the official vote of thanks. In 1896, Marshall was elected Vice President of the Association and, in 1906 when Goschen retired as president, the position was offered to Marshall. Marshall, however, declined this honour. Reasons included his inability to organise the Royal Economic Society’s annual conference to be held in October, because the summer was the only time he had available for his writing. Moreover, his wife had already booked their accommodation in the Tirol for that summer and this could not be easily undone.

Marshall participated in two other economic societies. He was a member of the ‘Economic Circle’ or Hampstead Economic Discussion Society, occasionally participating in its deliberations when he was in London at the appropriate time. He also occasionally addressed meetings of the Junior Economic Club, formed in 1890 by Clara Collet, an MA in economics from University College, London, and an acquaintance of Marshall from the 1890s.

### 7.5 Marshall’s shifting opinion on tertiary education (and degrees) for women at Cambridge

Marshall’s active support for the education of women at Cambridge during the late 1860s and after can probably be ascribed to two factors. First, most of his friends and acquaintances at St John’s College, and more importantly, on the Board of the Moral Sciences (such as
Maurice, the Venns, Fawcett, Mayor and especially Sidgwick) were active supporters of the tertiary education for women. Secondly, Marshall’s early contact with women, both at home and at university, comprised active-minded, intelligent ones. These had included his mother, his aunt Louisa who arranged his holidays as a boy, his sisters and later the women he himself taught at Cambridge, including his wife-to-be, Mary Paley.

The Marshalls’ period at Bristol University College, which he later resented for a variety of reasons (discussed in Chapter 4), appears to have induced a shift in Marshall’s original positive opinion on the right of women to a university. Various events which took place over these years at Bristol may have generated this change of mind on Marshall’s part. One of these relates to the actual manner in which the teaching of economics to women was organised at Bristol. Marshall himself taught economics in the evening class consisting largely of men; his wife taught the day class, largely consisting of women. Bristol men, despite Marshall’s initial urging, generally refused to attend these day classes preferring to come to the all-male classes in the evening. Secondly, there was the traumatic impact of the rather sudden death of Marshall’s mother in June 1878, of which he appeared to have been only informed well after the event. Thirdly, and perhaps most importantly, a change in his economic thinking may have influenced his change of mind on women’s tertiary education at this time. This was associated with his attempts to develop a theory of economic progress in as realistic a form as possible, a task for which he may at this stage have sought inspiration from the evolutionary works of both Spencer and Darwin. Among other things, this may have induced Marshall to read, or perhaps re-read, Darwin’s *Descent of Man*, which had first appeared in 1871. Darwin’s book contained several pertinent remarks placing men ‘in decided pre-eminence’ over women, particularly in mental activities. Furthermore, a sexual division of labour based on the ‘present’ inequality of the sexes seemed to Darwin to be an essential part of evolutionary progress (Darwin 1871, 1906, pp. 858, 860–1). The findings of evolutionary science from one of its leading practitioners thereby enabled Marshall to obtain intellectual support for his change of mind on women’s education.

Marshall’s opposition to giving degrees to women was enunciated as early as 1880, when the matter was raised in connection with a request that women students of Girton College be admitted to the BA on completion of the formal requirements for their degree. In 1887, Marshall again opposed degrees for women when the matter
was raised by university reformers. His opposition came partly from the fact that it would give women borrowing rights at the University Library, thereby potentially depriving men students from much needed books for their study. More importantly, it would give women voting rights in the university. In this context, Marshall gained the ‘distinction’ of being one of the first Cambridge dons to raise the spectre of petticoat government in male-dominated Cambridge University (McWilliams-Tullberg 1975, pp. 88–90). In 1893, Marshall opposed the admission of women to act as University Extension Lecturers even if, as the new rules would have required, they had reached first-class honours standards in their examinations for the Tripos they had attempted.

When the major campaign in favour of offering degrees to women at Cambridge opened at the end of 1895, Marshall took a very active part on the opposing side. The campaign in favour of granting degrees to women had started with the presentation of a petition containing more than two thousand signatories, requesting the University Council to appoint a committee to re-examine the question. It was argued that women were disadvantaged in the job market when their tertiary qualifications had not been properly attested. Petitions were also sent on behalf of one thousand two hundred and thirty four Girton and Newnham students, one hundred and sixty four head-mistresses and two hundred and sixty eight signatories from persons outside the university. A compromise from the opposition, among whom Alfred Marshall was by then prominent, suggested awarding an EBA (*externa*) or ABA (*associate*) degree to women, to reflect the fact that women generally completed their degree qualifications without the full benefit of college residence for the whole of their period of study. Marshall in fact went further on this issue by arguing that full residential college status at universities as an undergraduate was not open to the vast majority of women because their presence was almost invariably required at home. His Bristol experience with tertiary economics education (outlined earlier in this section) had influenced his views on this matter while his examining experience at Cambridge after 1885 revealed to him that women engaged in economics studies were lacking intellectual spontaneity (particularly in choosing examples) as compared with the best men (cited in Groenewegen 1995, pp. 503–4). In addition, Marshall gathered support from United States friends at universities (notably Seligman at Columbia and Taussig at Harvard) which, generally speaking, did not grant full co-education rights, even if, at Columbia, women did receive degrees from the university on satisfactory completion of their studies. Moreover,
Marshall’s experience at Cambridge suggested to him that the quality of women students in economics after 1885 had declined considerably as compared with the 1860s and 1870s, when he had actively supported provision of tertiary education for women by lecturing to them. Marshall’s assertions and statistics in support of his case opposing degrees for women were criticised by key figures in the party for degrees for women, in particular Mrs Sidgwick. Moreover, most members of the Moral Sciences Board (Foxwell alone excepted) opposed his views. Later in the debate, Marshall confessed that in his teaching by lectures, he regarded his prime responsibility as addressing the needs of the men, who as undergraduates were members of the university. He treated the subject matter in lectures differently when his audience was confined to women. Marshall also indicated that he did not admit women students to his ‘at home’ teaching sessions to individual students (a teaching practice explained in Chapter 5). However, when the vote was taken in 1897, Marshall’s side overwhelmingly prevailed (one thousand seven hundred and thirteen voted against, six hundred and sixty two voted in favour of degrees for women). Nothing further on the issue occurred during the remainder of Marshall’s life time (for further details see Groenewegen 1995, pp. 505–6 and McWilliams-Tulberg 1975, esp. chapters 8–11).

Some other aspects of Marshall’s attitudes to women can be mentioned here. A perceptive reviewer of Marshall’s Principles pointed out that its rich contents among other things made a case for women to stay at home and not to seek paid work. For example, necessities for the (male) worker were said to include ‘sufficient freedom for his wife from other work to enable her to perform properly her maternal and household duties’ (Marshall 1890, p. 123, 1920, pp. 69–70). References to women’s paid work, let alone approving ones, are rare in Marshall’s economic writing. Furthermore, he generally portrayed the family as consisting of a working husband, a non-working wife and their children. Moreover, Marshall tended to approve paying low wages to working women because then their paid work was not likely to interfere with woman’s crucial nurturing role in the family (Marshall 1890, pp. 727–8, 1920, p. 685). His hostility to working women would have been strengthened by his participation in the Labour Commission (as documented in Groenewegen 1995, pp. 514–15). As Marshall grew older, his position on the sexual division of labour seems to have hardened. It increasingly rested on the proposition that women’s prime responsibilities, whether married or unmarried, were with the family in the home, to secure its well-being and thereby the healthy growth of
the race. Marshall clearly was never a feminist. In many respects, he tended to treat women, both at university and in society more generally, as second-class citizens. His persistent intercession from the 1880s on behalf of the opposing side to granting degrees to women at Cambridge is a cogent illustration of this aspect of his social and economic thought.

7.6 Concluding comments

Marshall’s political views undoubtedly had become liberal by the time he had reached mature age. The youthful tendency to socialism to which he had confessed in 1919 disappeared by the late 1880s. This is clear from his increasingly critical stance on government interference in business, his frequent profession of support for individual liberty and freedom, with its important economic extensions into free trade and free enterprise. His reading of the works of socialists, and his occasional attendance at socialist meetings, generally induced highly critical responses on his part, even if he supported the sympathetic stance of these socialists towards the poor. Redistributive taxes, in moderation, were, admittedly, a policy to which Marshall could give his blessing, as were initiatives for outdoor poor relief such as those inherent in schemes for general pensions for the aged. Marshall was also a staunch anti-imperialist and strong opponent of war, once again in harmony with his firm classical liberal beliefs.

This chapter has also shown that Marshall was ready to engage in controversy in defence of his beliefs. The three episodes of such controversies selected all clearly support this. Moreover, they reveal that he was willing to do so by a variety of means. These included academic debate in the learned journals (among which the new Economic Journal was an important vehicle) or writing to the press. Nor did he shun controversy, and difference of opinion with colleagues and friends, when taking the unprogressive stance on a university issue as hotly debated as that over the granting of degrees to women. Marshall here showed a distinct conservative side in his social thought, as he did on the feminist issue more generally.

Last, but not least, this chapter indicates the facts on Marshall’s association with economic discussion groups and associated societies (the Political Economy Club, Section F of the British Association for the Advancement of Science and the Royal Statistical Society) and his role in the formation of the British Economic Association (which became the Royal Economic Society). However, in all these organisations his
participation was rarely extensive. This is indicated, for example, by his refusal to accept the position of President in the Royal Economic Society when it was offered to him in 1906. However, his professional participation in organisations of this type, limited though it was in most cases, was very befitting to his role as professor at one of Britain’s leading universities.
This chapter reviews the final years of Marshall's life from his retirement in 1908 as Cambridge Professor of Political Economy to the publication of *Industry and Trade* in 1919 as the first of an eventual two companion volumes to the *Principles*. The discussion of these eleven years is broken up as follows. The first section (Section 8.1) deals with Marshall's retirement, a step he took to provide more time for the writing of the companion volumes whose publication had already been delayed for far too long. It also discusses the final lecture he gave just before he retired and the honours conferred on him by his university including that of the painting by William Rothenstein of his official portrait. Section 8.2 examines the battle for the succession between Foxwell and Pigou, and Marshall's role in Pigou's election to the Cambridge chair. The early years of Marshall's voluntary retirement, that is, up to the beginning of First World War in 1914, are discussed in Section 8.3. Marshall's work during the war is looked at in Section 8.4 under the heading of a 'principled war effort'. Section 8.5 then reviews the circumstances surrounding the writing of *Industry and Trade*, followed by a discussion of its publication, its contents and its reception in Section 8.6. A concluding section closes the chapter.

For most of the years covered in this chapter, Marshall's health continued to be satisfactory. Hence he was able to continue to travel during the summer, initially in Europe for lengthy stays in his beloved Austrian Dolomites or the Alps. However, when that had to be stopped on the outbreak of First World War, he and his wife spent the summer vacations in English seaside resorts, as they had already started to do from 1911. An attempt to renew overseas travel in 1919 when hostilities had ceased, and as a form of celebration for the completion and publication of *Industry and Trade*, proved totally unsuccessful. A year later, their
last foreign trip almost ended in disaster, as Mary Paley Marshall herself recalled in her published recollections:

In July 1919 *Industry and Trade* was finished and Alfred much needed a complete change and rest. His doctor said that if possible he must go to the mountains and he went to Folkestone to be in readiness to cross while I was to see after passports, etc. It was very hot, and I seemed to be sitting most of the day on the steps of Consuls’ houses in a crowd. Then when we succeeded in getting inside I was told that I must return to Cambridge for references from bankers or others. It was quite hopeless, so in the late afternoon I went to Folkestone and we agreed that as difficulties might be even greater on the Continent we had better stay in England that summer. Probably the mountain air would have set him up as it had done so often; he began indeed to write his third volume but he was very jaded and in June 1920 we determined to make another attempt to go abroad.

When about 20 miles from Milan, at a small station, the carriage door was opened and we were told to descend as a lightning strike had begun and that the heavy luggage was to remain in the van. With great difficulty we found a ramshackle carriage which took us and a suitcase to Milan. But when we got there no good hotel would admit us as they did not seem to like our broken-down carriage and insufficient luggage. After many vain attempts we were received by a third-class Italian hotel where we spent the next three days whilst awaiting the end of the strike. We could speak little Italian, and I don’t know what would have happened but for Mr Churchill, the English consul. He saw how important it was to get Alfred to the mountains and said that we must not wait for the luggage (he would see to that) but leave Milan as soon as the trains began to move. He also lent us his ‘messenger’ who spoke English and who was to see us off. On the third morning, when the trains began to move, we went with the messenger to the station who said ‘you take hold of my coat and let him take hold of you’, and he pulled our suitcase and us along through the dense mass of people in the waiting hall where the air was full of bundles and belongings flying about. He succeeded in squeezing us into a first-class carriage full of people and we were carried to Verona. We reached our destination in the Abtei Tal without much further trouble, except that the names of the stations which had been changed from German to Italian were puzzling, and we lived on the contents of the suitcase together with
a few purchases. I was haunted by the idea that we might never see our heavy luggage again for it contained all the MSS relating to what afterwards became *Money, Credit and Commerce* though, curiously enough, Alfred did not worry about this... This was our last visit to the Continent for with Alfred’s loss of memory and increasing ill-health I felt that we must not venture again, though he always had a hankering after the beloved South Tirol.

Mary Marshall (1948, pp. 49–50)

### 8.1 Retirement and final lecture

The Economics Board which governed the teaching and examining for the Economics and Politics Tripos recorded Marshall’s resignation on 20 May 1908, not long before his sixty-sixth birthday. Marshall decided on retirement at this stage because it would give him more time for completing his second volume, by then already delayed by nearly two decades. Furthermore, the financial situation of the Marshalls had improved sufficiently to enable him to take this step. There was of course no question of obligatory retirement at age 65; professors were then appointed for life.

On hearing of Marshall’s retirement the Economics Board thanked him ‘for his services as Chairman… and for the generosity with which he has for many years supported the School of Economics destined to be long identified with his great name (in Whitaker 1996, III p. 189 and n. 2). Marshall subsequently thanked the Board for its resolution which he described as ‘most kind and generous’ and expressed the thought that ‘as long as I live I shall cherish a happy and grateful remembrance of the kindness I have received from the whole Board…’ (Marshall to J.M. Ward, 30 May 1908, in Whitaker 1996, III p. 189).

The other formal immediate consequence of Marshall’s decision to retire was the presentation of his last lecture. It was given the day after (that is, 21 May 1908) the Economics Board had moved its vote of thanks for Marshall’s five years of service as its foundation chairman. D.H. MacGregor’s account shows that it was sparsely attended, ‘there were perhaps twenty of us, including what he called “all the colts in his stable”, some of the more senior of his former pupils, and a few undergraduates’. William Rothenstein, then busily at work painting Marshall’s official portrait, was one of those present, as was Lynda Grier, an undergraduate and soon to complete her degree with honours. Her presence preserved the contents of Marshall’s last lecture for posterity, since she took detailed notes.
From these notes it can be seen that the lecture attempted to summarise the essentials of Marshall’s life’s work by pulling together, ‘what I have been talking about’. Marshall therefore discussed problems of measurement, of aggregation, issues of methodology, the notion of progress in economics and problems in applying consumer’s surplus illustrated by the case of a demand curve with rapidly varying elasticity, which may have required some final use of the blackboard. The last mentioned topic, Marshall forecast confidently (and, as it turned out, very accurately) would outlive him and most of his audience. Discussion of socialism and the Webbs’ prescriptions for government intervention followed, inducing remarks on the Factory Acts, the economic incompetence of Harriet Martineau (a favourite target for Marshall’s scorn), the importance of competition, problems of monopoly (illustrated by instances of railway amalgamation in England and Germany), the lack of German democracy, the limited usefulness of international comparisons, to return to comments on collectivist, socialist and anarchist movements in which collectivists were described ‘as the only true anarchists the world has ever seen’. Marshall’s sense of the occasion was particularly well captured in his closing remarks, as noted down by Lynda Grier:

Put before us Work, Self-Sacrifice and Joy, when it comes. If we do not seek it, it will come. Every man and woman must go through some form of self-denial. Man and woman have separate parts to play. Danger of movements. Be a little suspicious of them because people get together and become enthused. Oxford has made movements, Cambridge has made men. 24 years ago I gave my inaugural address (quoted it). I leave my office with a feeling of satisfaction. There is growing up a method of loving one’s country more than one’s party and sometimes one’s party more than one’s self, and[?] truth even more than one’s country.

(quoted in Groenewegen 1995, pp. 620–1)

At the end of the lecture, John Neville Keynes as Secretary of the Economics Board, as well as a former student and friend of Marshall, briefly spoke some words of thanks (‘rather badly’, as he later confessed to his diary). He, Pigou and MacGregor also appear to have been the only ‘colts’ from the Marshallian stable present on the occasion. No other teachers in the Tripos (such as Lowes-Dickinson, W.E. Johnson, Clapham, Fay or Meredith) left records of their presence and Maynard
Keynes (undoubtedly to become the most famous of Marshall’s many ‘colts’) was not there.

Marshall’s retirement was followed by several honours together with acts of generosity to the university on his part. The last included the gift of the books Marshall had set aside for use by his students for permanent use by the Board of Economics. These were the foundation of what on Marshall’s death became the Marshall Library. On 17 June 1908, Marshall received an honorary doctorate from the university to add to those he had received from universities elsewhere. An official portrait was also commissioned, initially at the suggestion of friends Edgeworth and L.L. Price, and the Royal Economic Society. William Rothenstein, an eminent Edwardian portrait painter was requested to do the work, completed during 1908. Rothenstein recalled that Marshall ‘took sitting seriously, for he was vain, and vain men make the best sitters’. Rothenstein also recalled that early on Marshall had presented him with a copy of the then current, fifth, edition of the Principles, praising as particularly insightful ‘the extraordinary perception of human motives’ contained therein. On completion, Marshall’s portrait hung for a while in the Marshalls’ sitting room at Balliol Croft; in 1909 it was publicly exhibited as part of a showing of Rothenstein portraits. It was then donated to Marshall’s College, St John’s, because Marshall himself had never really liked it. Many years later, Mary Paley, had a copy made for presentation to the Marshall Library of which she was then the librarian.

8.2 Electing Marshall’s successor as Professor of Political Economy

Election of Marshall’s successor took place not long after his retirement, on 30 May 1908. Four candidates had applied for the position: Ashley (from Birmingham University), Cannan (from London), Foxwell and Pigou (the local Cambridge candidates). The Board of Electors was as follows: the ex officio chairman of the Board was the Vice Chancellor, then E.S. Roberts, Master of St John’s College, who as chairman had the casting vote. The eight nominated electors were A.J. Balfour (a prominent member of the university, a Moral Sciences graduate and a former Prime Minister), J.N. Keynes, V.H. Stanton, J.E. Sorley, R.H. Inglis Palgrave, J.S. Nicholson, Leonard Courtney and F.Y. Edgeworth. Of these, Stanton, Palgrave and Courtney had been electors at the time of Fawcett’s death in 1884; Edgeworth, on the other hand, was the most recently appointed to the post (on 22 January 1908) when Marshall was still chairman of the Economics and Politics Board, but after he had
Alfred Marshall informed the Vice Chancellor of his intention to retire. Edgeworth’s appointment in retrospect is easy to interpret as part of Marshall’s careful manoeuvring to get the successor he wanted.

That Marshall engaged in such tactics can be seen in various entries from J.N. Keynes’s diary. These recorded two occasions when Marshall tried to do just that. The first of these occurred on 30 April, the day before the Vice Chancellor formally announced Marshall’s retirement. The second occurred on 27 May, three days before the election. On both occasions, Marshall strongly pressed the case for electing Pigou and appeared most anxious to Keynes to ensure that Foxwell was not elected. On 29 May, Keynes recorded that Marshall had sent Edgeworth to Keynes’s house to persuade three of his fellow electors (that is Keynes, Palgrave and Nicholson) to support Pigou against Foxwell. This appears to have annoyed Nicholson in particular from its gross unfairness to Foxwell. There is no evidence available that Marshall tried to persuade other electors in this manner, nor is there evidence to the contrary. After all, he knew all the electors personally and may easily have done so.

Foxwell was certain that the Vice Chancellor supported his candidature, if only because he strongly disliked Marshall. In the event, Courtney, Edgeworth, Sorley and Stanton voted for Pigou; Nicholson, Palgrave and Keynes for Foxwell, with Balfour deliberately absenting himself from the proceedings and the Vice Chancellor only able to vote in a tie (Foxwell to Clara Collet, 6 June 1908, in Groenewegen 1995, p. 625). This gave the chair to Pigou by the narrowest of margins. Had Balfour been present and voted for Foxwell, the Vice Chancellor would have been able to give the casting vote which, Foxwell believed, would have definitely gone his way. No wonder that Foxwell was furious with the outcome and subsequently severed his ties with Cambridge for several years, including giving up his Cambridge teaching.

Marshall, on the other hand, was delighted with the result. It was exactly what he had wanted. He hosted a celebratory dinner that evening at Balliol Croft to which all the electors were invited. Keynes’s diary indicates the presence of himself, Nicholson, Palgrave and Edgeworth for the occasion, so that festivities must have been considerably dampened by the presence of three supporters of the losing side. Unfortunately, no detailed accounts of this occasion have been preserved. Whether it turned out as celebratory as Marshall would have initially intended, is therefore not known.

When precisely Marshall abandoned Foxwell in favour of Pigou is also not clear. On Webbs’ recollections, this probably occurred in 1905 or
1906, at least two years before the event. By then, Pigou would have had sufficient time to demonstrate to Marshall his qualities as teacher for the new Tripos. From Marshall’s perspective, these would have greatly outstripped the basically historical teaching contributions from Foxwell. Concern for the success of the Tripos as he wanted it, was, therefore, probably the major driving force behind Marshall’s ultimate choice of his successor. Despite this, after the event Marshall tried unsuccessfully to regain Foxwell’s friendship, an attempt which totally failed (see Groenewegen 1995, pp. 622–7 for an account of this episode, and pp. 670–9 for an account of Marshall’s long friendship with Foxwell).

8.3 Learning, writing and continuing contact with students and colleagues

During the first six years of his retirement (that is, up to the outbreak of the First World War in August 1914), Marshall remained quite busy. He continued to see students at home, particularly favourite ‘old’ students such as Maynard Keynes, Fay and Walter Layton, who were then all teaching for the Economics Tripos at Cambridge for at least part of this period. He likewise corresponded with former students, answering their questions and giving advice.

Marshall also continued to learn during these early years of his retirement. He kept up his active reading from the flow of new books on his subject, of articles in the new academic journals including the *Economic Journal* and of government ‘blue books’ relevant to his current research and writing. In particular, he learned more about heredity and twins in 1908 correspondence with Bateson, an eminent Cambridge biologist. He also became a life member of the Cambridge University Eugenics Society not long after its formation (Marshall to Maynard Keynes, 18 May 1911, in Whitaker 1996, III pp. 284–5) and discussed Galtonian eugenics issues with Keynes for a while from early 1910. Marshall became a regular attender at the monthly meetings of this new society. His debate with Pearson over the effects of parental alcoholism on their children (discussed previously in Section 7.2) is an example of a related activity in which Keynes also eagerly participated.

Most of the writing on which Marshall was engaged over these years was for preparing the first of the ‘companion volumes’ to the *Principles*, that is, *Industry and Trade*. Details are discussed later in this chapter. However, some other publications occurred as well. During the second half of 1908, Marshall revised, and prepared for publication, his *Memorandum on Fiscal Policy* (the contents of which were discussed
in Section 5.5). This had been written in 1903 at the request of the government. In 1910, he published the sixth edition of the *Principles*. 

It dropped Vol. I from the spine, confirming final abandonment of its elusive second volume. The writing for that long-promised second volume engaged in since the 1890s was, however, not lost. It was partly embodied in the two companion volumes published in 1919 and in 1923. In periodically revising the *Principles*, Marshall was now assisted by Cannan and Fay. Their help was specifically acknowledged in the preface for the sixth edition. It might be noted that the sixth edition contained few important alterations of the text; a new footnote attempting to explain ‘quasi-rent’ more clearly is one of the few exceptions. Moreover, the sixth edition text is virtually indistinguishable from those of the seventh and eighth editions which appeared respectively in 1916 and 1920. The habit of minor alterations and revision they embodied seemed difficult for Marshall to drop. Hence, even the 1922 reprint of the eighth edition contained some minor changes. These included a reference to an article by Taussig published in 1921 in one of its footnotes (Groenewegen 1995, p. 433).

Correspondence with students and colleagues continued steadily. Marshall’s correspondence with Lord Reay on distributive taxation and the meaning of socialism was quoted at length in the previous chapter (Section 7.1). Marshall also wrote to Louis Dumur (2 July 1909 in Whitaker 1996, III pp. 229–30) on population decline in western Europe; to Sir Horace Plunkett (17 May 1910 in Whitaker 1996, III pp. 247–9) on aspects of country life and its improvement; to the Vice Chancellor, E.S. Roberts (22 August 1910 in Whitaker 1996, III pp. 260–1) on the splendid progress made by the Economics and Politics Tripos over its two completed academic years under Pigou; to Darmstädtener on differences between analytical and realistic economics (27 October 1910, in Whitaker 1996, III pp. 269–70); and to Indian colleagues Manohar Lâl and B.B. Mukerji (22 February 1911, 12 April 1911, in Whitaker 1996, III pp. 282–4) on protection of Indian industry. Correspondence with H.L. Moore, the American economist (5 June 1912, in Whitaker 1996, III pp. 296–7), commenting on a book on wages he had sent to Marshall, is also of interest. These remarks reveal Marshall’s impatience with simplified mono-causal explanations of wages and his doubts about statistical measurement of crucial explanatory factors in economics. The letter also raised some personal issues in the context of a possible visit from Moore to Cambridge:
My power for work is very small. I have half done many things which I cannot hope to publish. Talking fatigues me in a very unusual manner. And finally, it would be wrong for me to encourage you to come to Cambridge for serious conversation.

But if you are coming to Cambridge to see others, and would like to take lunch (1.30) or afternoon tea (4.15) with my wife and myself, and discuss general topics, we shall be honoured by the opportunity of making your acquaintance.

Next Friday would not suit us: but we have at present no engagement on any other day. If you write nominating a time, I will write (or if necessary, wire) should that particular time be already mortgaged.

The record from these years in retirement before 1914 also shows that Marshall involved himself occasionally with issues of university reform. One undated draft letter to Henry Jackson (in Groenewegen 1995, p. 639) suggested the need for introducing scholarships to college men (taking into account parental income and academic merit of the students); two letters to Clapham (17 May, 4 November 1912, in Whitaker 1996, III pp. 294–5, 301–2) discussed the role of professors in advanced study and criteria for justifying university finance from the public purse.

8.4 A principled war effort (1914–18)

Outbreak of war with Germany and Austria in August 1914 affected the Marshall household in various ways. As indicated previously, it made spending the summer in their favourite locations of the Bavarian Alps and the Austrian Tirol impossible for the duration of the war. Secondly, it involved him in some additional writing. This initially took the form of letters to The Times about aspects of the war, in particular the plight of Belgium and the Belgians, whose neutrality had been so brutally violated by the German military machine. A lengthy chapter on post-war public finance published in 1917 was likewise a literary product from the conflict which needs further comment. Finally, Marshall’s personal feelings about the war are of interest. As already indicated, Marshall condemned German aggression and its guilty military caste but defended the German nation and argued that Germans as a whole should not be vilified as a result of the war and the actions of the officer corps.
Marshall’s letter writing campaign can be briefly considered first. On 22 August, his first letter to *The Times* (in Whitaker 1996, III pp. 306–7) on the conflict is characteristic:

Those who know and love Germany, even while revolted at the hectoring militarism which is more common there than here, should insist that we have no cause to scorn them, though we have good cause to fight them. For instance, tales of their shooting civilians in cold blood should never be repeated without inquiring whether the laws of war had been broken by hostile action on the part of non-combatants. I was in Berlin in the winter of the Franco-German war, and my friends complained bitterly of the willingness of Englishmen to believe that civilians who had not so offended, had been ill-treated by them. As a people I believe them to be exceptionally conscientious and upright, sensitive to the calls of duty, tender in their family affections, true and trusty in friendship. Therefore, they are strong and to be feared, but not to be vilified… It is therefore our interest as well as our duty to respect them and make clear we desire their friendship, but yet to fight them with all our might.

Further letters to *The Times* followed (25 August, 27 October 1914 and November 1917, the last directed against a campaign advocated by Conan Doyle for the vilification of Germans as an act of national policy), together with other comments on the war. These covered war-created unemployment and the necessity of post-war employment adjustments, written in private correspondence. Marshall was particularly diligent in writing to Maynard Keynes about aspects of the war, fully aware of Keynes’s war work for the treasury and offering, without success, any assistance therein he could offer. Marshall also wrote on future tax implications of the war, partly with respect to income tax and capital taxes, first in a letter to *The Economist* (30 December 1916, in Whitaker 1996, III pp. 344–5). This was followed by a chapter on tax policy for a volume edited by Dawson on post-war economic problems (Marshall 1917, 1997, pp. 613–46), which Marshall had completed by the end of 1916.

This chapter was divided into two parts. The first dealt with the appropriate distribution of the post-war tax burden, essentially in terms of direct taxation on income or wealth; the second with the opportunities for taxing imports under the new international situation. By way of introduction, Marshall pointed to the likelihood of diminished resources and higher tax burdens in Britain after the war, a prospect which tax
policy makers would have to take into account. Hence the need for thrift would be particularly high in post-war Britain to replace destroyed capital, necessitating tax policy to be saver friendly. Efficiency considerations as well as equity needed to be taken into account when formulating post-war tax changes. For Marshall, a graduated personal consumption expenditure tax would therefore be a very good tax to consider, if only implementing an income tax with a full saving offset was administratively possible (Marshall 1917, 1997, pp. 621–2). In connection with general capital taxation, Marshall could only support increased inheritance taxation as an appropriate post-war tax measure. In addition, and perhaps as proxies for direct consumption expenditure taxes, Marshall suggested a graduated housing tax, a graduated tax on motor cars, as well as taxes on advertising, proclaiming these to be moderate but useful revenue raisers. With respect to his advertising tax, he added that checking ‘the growing influence of the advertising manager in the counsels of periodical literature’ might in itself be a distinct public benefit (Marshall 1917, 1997, pp. 624–6). Finally, Marshall warned in the last section of Part I of his chapter, of the dangers in using of excise and selective commodity taxation in which ‘inverse graduation’ easily occurred because the poor paid a greater percentage of their expenditure in such taxes as compared with the rich.

Part II of the chapter allowed Marshall to investigate the post-war role of import duties. After indicating the nature of import duties, and whether foreign or local tax payers were likely to pay their burden, Marshall demonstrated that taxing manufactured imports tended to yield little revenue and caused much friction in an old, established manufacturing country like Britain. Protective taxes would not enable British industries to overtake foreign industries which had already surpassed them, a proposition illustrated with examples drawn from the textile industries and its reliance on foreign dyes. Marshall then discussed import duties on food as part of a defence strategy to make Britain more self-sufficient. This was unnecessary if greater cooperation among farmers and better technical education were encouraged. Imperial preferences were then briefly discussed as part of an overview of the need for post-war trade protection. On this issue, Marshall concluded that ‘a general system of protective duties would deprive Britain of the strength which has enabled her to carry the chief financial burden of the war’ (Marshall 1917, 1997, p. 646). As one of the few discussions of practical tax policy by Marshall, this is a particularly interesting chapter.

The war also imposed some personal losses on the Marshall household. A letter from Marshall to his nephew, Arthur Raymond (the younger
son of his older brother Charles) who was wounded at the front during December 1917 and died within weeks the letter was written, shows the impact this family bereavement had on an old and childless uncle:

How good and strong you are under your grievous pains! The latest news of you is always the news of the day, rivaled only by the inch high headings – if there are any – over the war news in the ‘Times’. Poor dear lad! It is sad that you are thus struck, and in parts of the body that are specially sensitive and self-willed. But all brave soldiers, when hit, have the consolation of being able to say, ‘it was for my country’, and in this war there is even more to be said. The whole world – other than Germany – is in a sense ‘the country’ of those who are fighting for a future of peace: you suffer on behalf of the world; and the world will be grateful to you in coming times. Even should the worst befall and the world seem to darken before you, you can say ‘Dulce et decorum est pro patria mori’.


8.5 Constructing the first ‘companion volume’ to the Principles

As mentioned earlier, publication of the sixth edition of the Principles in 1910 formally announced the abandonment of the ‘second volume’ and instead proclaimed the strategy of producing several companion volumes to the book ‘of foundations’ which the Principles had by then become. No such companion volume had appeared at the time the seventh edition of the Principles was published in 1916, but its preface indicated Marshall was now working on an independent work, extending to more than one volume, dealing with Industry and Trade. Even this promise was not fulfilled. When Industry and Trade was published in 1919, it came as a sizeable single volume, to be joined four years later by a further, much slimmer, volume, Money, Credit and Commerce, published in 1923 (the contents of which are discussed in Chapter 9).

The saga of the companion volumes had in fact begun as early as 1903, when Marshall planned effective continuation of the Principles with a volume on National Industries and International Trade, to be drawn from the existing manuscript of the second volume (Marshall to Macmillan, 12 December 1903, in Whitaker 1996, III p. 71). In May 1904, he wrote to Flux (26 May 1904, in Whitaker 1996, III p. 84) that this book in its
first part would deal with trade and industrial problems of Germany, the United States as well as of Britain, making it about two hundred pages long, a slight overestimate of the actual length of Book I of *Industry and Trade* when it was published fifteen years later. The book would be practical, attractive to business men and, in particular, would demonstrate the industrial conditions underlying the fiscal issues of the day and pay considerable attention to ‘large industrial conglomerations’ such as trusts and cartels. It would also contain little theory, and no ‘curves’ at all (Marshall to Henry Cunynghame, 28 June 1904, in Whitaker 1996, III pp. 85–6).

By 1910, Marshall estimated the book’s length at about a thousand pages and apologised for the delays in producing a final manuscript, blaming the ‘sluggishness’ of his ‘weary old brain’ and ‘reduced mental agility’. He also indicated that its topical and highly realistic subject matter would need to be rewritten every decade, if its contents were to stay accurate (Marshall to Macmillan, 5 March 1910, in Whitaker 1996, III pp. 240–1). In April 1916, Marshall was still confessing ‘slow progress with my new book’, now estimated to run to three volumes altogether, each of about 600 pages or three quarters of the size of ‘my *Principles*’. These additional volumes referred, however, to what later became *Money, Credit and Commerce* in 1923, and the volume on social and economic progress which Marshall had actively contemplated over many years but never seriously begun (also discussed in Chapter 9). Marshall now proposed to call the book simply *Industry and Trade*, the contents to consist of three parts. The first of them would provide a historical overview of present problems of industry and trade in an international setting; the second would give a very realistic account of the organisation and administration of business; and the third to deal with tendencies to ‘monopolistic aggregation’, hence very much as the book turned out on publication (Marshall to Macmillan, 5 April 1916, in Whitaker 1996, III pp. 330–1). In response Macmillan suggested to await the end of the war for publication, a suggestion to which Marshall readily agreed. Further correspondence specified that reference to specifically numbered volumes would be dropped. As Marshall wrote, ‘I think you are right about dropping the words ‘Volume I’ even though, he also noted, there already was enough finished material for the next volume (*Money, Credit and Commerce*) to be published (Marshall to Macmillan, *Circa* 23 October 1918, in Whitaker 1996, III pp. 338–9). During June 1919 the final corrections of the proofs were sent to Balliol Croft for checking (by wife Mary and nephew Claude Guillebaud) and in August 1919 copies of the first printing of
two thousand copies were in the bookshops. A second printing was necessary by December 1919, so strongly did the book sell. After all, the long-awaited ‘second’ volume from the ‘master’ had at last seen the light of day.

8.6 Contents and reception of *Industry and Trade*

As Marshall had told his publisher in 1916, *Industry and Trade* appeared in three parts. These dealt in turn with the historical origins of industry and trade on an internationally comparative basis (that is, with respect to France, Germany and the United States, as well as with Britain); the dominant tendencies of business organisation (and administration) including marketing and financial management, as well as with the views of the contemporary scientific management movement; and finally, with monopolistic tendencies and their relations to public welfare, that is, aspects of the analysis of trusts and cartels and related topics. In addition, there were sixteen appendices: seven attached to Book I, four to Book II and five to Book III. The total came to over eight hundred and fifty pages, that is, closely approximating the length of the final editions of the *Principles*. The book contained no diagrams and no mathematical appendix, but its contents in many ways foreshadowed issues in the theory of the firm, as its subject matter became known from the 1930s onwards.

The first two chapters of Book I were introductory. The first chapter emphasised the gradual development of problems associated with industry and trade. This explained why it was often useful to investigate the historical background to such industrial problems. After all, current developments tended to reveal ‘the one in the many, and the many in the one’, the reason why this motto was placed by Marshall on the frontispiece of the book. Chapter II introduced the general connection between industry and trade, in which Marshall aired some broad generalisations on the subject. These included the proposition that ‘small countries have often a large foreign trade, of which seventeenth century Holland was taken as a splendid example; the fact that the gains from trade arose from the cost savings in importing a thing rather than attempting to manufacture it ‘at home’; that advantages for trade are unevenly distributed between countries; and that transport costs, an essential consideration in determining trade flows, had tended to fall over time for both long and short distances. Appendices A (a note on the method of economic study) and B (early phases of industry and trade) supplemented these two chapters.
Three chapters followed on British industrial development in relation to its trade. The first of these (chapter III) discussed how Britain’s industrial leadership was established; the second (chapter IV) examined Britain’s enjoyment of its industrial leadership, the association it had with free trade as well as with the British national character, system of education, resources available for research and invention, some of which factors, so Marshall claimed, contained the seeds for Britain’s eventual decline, explored in chapter V. This chapter was designed to demonstrate the ease by which Britain’s industrial leadership had become challengeable in recent times by the industrial growth of competitor countries, particularly Germany and the United States. Appendices C, D and E looked in turn at the development of British industry and trade first under medieval conditions, then their subsequent development under the Tudor strategy of creating trade monopolies and the technical progress associated with the industrial revolution. Thirdly, they looked at Adam Smith, his critique of mercantilism and the movement towards free trade and deregulation it generated, though readers were told to keep in mind the necessity for continuing regulation of industry in the form of measures such as the Factory Acts.

Chapters VI–VIII presented brief comparative studies of the industrialisation of France, Germany and the United States. In discussing French industrial leadership, Marshall noted first that the geographical endowment of France was unfavourable to industrial concentration and that its consumer base divided industrial output into quality design (as illustrated especially by French dominance in the fashion industry) and ‘cheap local products’ for purchase by an unadventurous lower middle class with its general lack of good taste. German industrial leadership (the subject of chapter VII) was initially achieved only slowly, was then speeded up by the creation of a national customs union (Zollverein, discussed further in Appendix F) and the development of an excellent railway system. A strong education system, especially for the sciences and chemistry in particular, had been turned to good account in specifically related industrial developments. Marshall stressed that Germany’s relatively recent industrialisation was also a strong advantage, preserving as it did some of the vibrancy of youth in German inventiveness. In chapter VIII, Marshall associated the industrial leadership of the United States with its size, the uneven distribution of its rich resource base, its heterogeneous and rapidly growing population, its inventiveness and its successful mechanisation by semi-automatic machinery. Further factors explaining American success were its rapid capital accumulation, large entrepreneurial class of ‘high business genius’ in combination with the
great benefits bestowed from a widely distributed company ownership along millions of shareholders. Appendix G further developed some of these features, indicative of American industrial dominance for the coming twentieth century.

The final chapter of Book I examined a miscellanea of relevant considerations. These included emphasis on the importance of confidence and credit, the successful integration of industry, the crucial presence of an inventive and responsible leadership class for industry, able to take full and quick advantage of its specific environment. It ended with a comment on the significance of ‘natural selection’ in tendencies towards dominant industrial leadership, together with the mistakes of socialist writers in interpreting the realities of industrial societies and for neglecting the historical factors which specifically nurtured their development.

Book I of Industry and Trade set the factual stage for modern industry by illustrating some key features in the development of the leading world players. These were Britain and France as the older but still significant economic powers, Germany as a relative newcomer from the old world of Europe and the United States as the emerging industrial world power, ready to dominate the post-war world of the twentieth century. The remainder of the work was designed to come to grips with the major tendencies in forms of business organisation and partly to explain these shifting leadership positions in the adjustment of production to consumption. This was to be done first for an open, competitive market characteristic of the nineteenth century (Book II) and then in the more modern, monopolistically dominated world of large firms (Book III) prevalent particularly in the German and American forms of business organisation. In the introductory chapter to Book II Marshall warned that the line of division between competitive business and monopoly is very indistinct in practice (even if not in theory), the two forms of business organisation shading into one another far too frequently in the modern world. Hence Marshall’s treatment clearly foreshadowed the imperfect competition (monopolistic competition) revolutions analysed on both sides of the Atlantic during the 1920s and 1930s. Moreover, he argued that the nature of the competitive process was continually changing, because the means for its implementation by specific marketing strategies was changing continuously.

These features of the evolving nature of business organisation in turn influenced the meaning to be assigned to the language of economic analysis in terms of demand, supply, price, market, cost of production, output, firm and industry. None of these could now be envisaged as
precise technical terms: they had to be redefined and reconstituted to tackle specific problems of a firm’s strategies to produce, market and sell its products. This was discussed in the opening chapter of Book II, which also stressed the crucial role of time in grasping the theory of value in contemporary conditions. The content of the remainder of Book III was devoted to illustrating the meaning of this proposition in special cases of considerable interest in the contemporary world.

Time, Marshall argued, is crucial in understanding the growth of demand, since it is required for potential consumers to learn about the product and how to use it, inevitably a long process when the product was very new. Variations in price of the product likewise need time before influencing demand. Levels of demand influence cost and supply through the permissible size of the firm they jointly determine. Time is also required on the supply side. Large standing orders for particular products involve large-scale plants to produce them, assisted by the requisite flows of material and labour which has to be organised, together with ensuring the necessary transport arrangements to enable output to be delivered when and where it is wanted. With time comes the interdependence of industry: ensuring the availability of a steady material supply requires coordination with agriculture or mining or import agencies; adequate labour supply involves the requisite education and training facilities by which the necessary labour force in all its varieties can be assured. Pricing of commodities in relation to costs (including interest, depreciation of capital employed, insurance) together with the necessary earnings and profits for management and owners, needs to take account of appropriate allocation of these costs to individual products when the firm is the multi-product enterprise so characteristic of modern industrial organisation. In short, industry economics has become a very complex area of study in which the general is often swamped by the particular, even if it is also crucial for explaining the particular. Once again, this strikingly illustrates the relevance of Marshall’s motto for the book, ‘the one in the many, and the many in the one’. This chapter’s stress on the many limitations of specific theoretical tools used for understanding the economics of industry remains very instructive reading, because this problem has grown rather than disappeared over the ensuing years.

Successive chapters of Book II further illustrate this complexity and interdependence. Aspects of the advantages of standardisation in machine making, and their costs in the form of lost skills, are treated in chapter II. Technical influences on the size of the business unit (including standardisation, techniques of production, the economy of
ensuring the necessary supply of raw materials and so on) are discussed in chapters III, IV and Appendix H dealing with size in specific industries. The advantages of constructive speculation in organised produce markets, including forward contracting, are the subject of chapter V and illustrated in Appendix I with reference to specific agricultural markets, particularly that of wheat. Marketing, including the organisation of a ‘massive retail trade’ are discussed in chapters VI, VII and in Appendix J with respect to their influence on a firm’s location, size, chosen degree of specialisation and choice of strategies in terms of ‘branding’ of products, advertising (whether informative or combative or both) and the provision of guarantees of quality and durability to some, or to all, consumers.

Five chapters on business organisation conclude the contents of Book II. The first of these (chapter VIII) deals with the influence of joint-stock companies on business amalgamations including its advantages for administration and management, problems in gaining accurate information about ‘small’ companies; and the benefits and costs of the increasing trend to move to corporate forms of business organisation in terms of the responsibilities of managers versus owner/shareholders. The financial basis of business organisation is dealt with in chapter IX. It examines flotation of companies, valuations of companies for amalgamations for winding them up, the different role of banks in company finance in Britain as compared to Germany and the United States and the importance of improving bank financial assistance for post-war corporate restructuring in Britain. Desired management skills (faculties) for corporate industry are raised in chapter X. Financial, administrative and creative skills are all crucial attributes for sound management, and their supply could be improved by providing suitable training and education, a point further elaborated in Appendix K. The final two chapters (XI and XII) discuss the application of scientific method to management and the scientific management movement in the United States. Its methods of time and motion study are critically examined in chapter XI; chapter XII looks at its specific effects on efficiency, labour effort and wages, concluding that it does little to fit ‘manual workers for the responsibilities of democratic control [of industry]’.

Book III of *Industry and Trade* is devoted to the growth of monopoly in business organisation, and the different forms these take in various countries. Its fourteen chapters and five appendices cover a wide range of topics dealing especially with the welfare aspects of monopolistic tendencies and the appropriate organisational responses thereto, including that of cooperative forms of business organization in Britain. Again, the first introductory chapter is partly definitional and designed
to set the stage for the subsequent argument. As a starting point it indicates that although competition and monopoly are frequently seen as perfect opposites, ‘the fiercest and cruelest forms of competition are found in markets…under monopolistic control’ (Marshall 1919, 1923, pp. 395–6). Furthermore, it is noted that competition and monopoly merge into each other in imperceptible degrees, that absolute monopolies are of small importance in the reality of modern business, but that monopolistic elements in forms of business organisation have spread enormously. Moreover, monopolistic pricing policies are geared to immediate net revenue objectives and to prospects of future development, despite which the use of monopoly power can entail valuable public benefits (such as cost reduction from growth in size, the introduction of new products, improvements to existing products). Harmful uses of monopoly power can be reduced by government control and regulation, while the exercise of monopoly power by trade unions, for example, may sometimes have harmful consequences (Marshall 1919, 1923, pp. 418–19). Chapter II (and Appendix L) discuss other price consequences of monopolies and the effects thereon of taxation (section 1), by discriminatory allocation of costs (section 2), price discrimination and other forms of differential charging (section 3) and issues of interdependence in transactions between local, buyers’ and other forms of monopoly (section 4).

Some of these tendencies are illustrated in a detailed study of competition and monopoly in British transport (railways, roads and canals) over four chapters (III–VI) and in Appendix M. Forms of monopolistic business organisation, that is trust and cartels, are discussed in chapters VII–X. The first two of these cover United States experience (statistically illustrated in Appendix N); the second two that of Germany, supplemented by a comparative study of employment in British and German steel plants in Appendix O, which critically examine the public advantages claimed for Germany’s steel cartel. Three further chapters (XI–XIII and Appendix P) discuss trends in aggregation, federation and cooperation in British industry and trade, partly illustrated by trends in the steel industry, but also by the growth of producers’ organisations and their impact on trade (dumping and tariffs) and price regulation. The final chapter raises some miscellaneous items to illustrate the decline of exclusive class advantages in industry. They include the impact of education, technical change, workers control and democratisation of industry. The chapter ends on an interesting and important note: over the last century education has been largely responsible for the growth of national well-being from industry and trade (Marshall 1919,
1923, p. 672), a sentiment once again emphasising Marshall’s strong belief in the value of investment in human capital for every level of the population.

The nature of the contents of *Industry and Trade* as outlined here illustrates the pertinence of Marshall’s remark to his publisher in 1910 that these contents would need regular updating by revising them every ten years. With Marshall’s death in 1924, he was never able to implement this advice. Moreover, as elaborated in Chapter 9, even if he had been still alive in 1929, such updating would not have eventuated given the rapid deterioration in his mental capacity and memory over the last half dozen years of his life. Despite this self-perceived shortcoming, the book was an enormous success. It remains a classic and path breaker in the field of industrial organisation economics. This was fully realised on its publication, as indicated by the many reviews *Industry and Trade* received. Content and tone of these reviews can now be briefly summarised.

Many generally laudatory press reviews are preserved in the Marshalls’ scrap book (reproduced in Groenewegen 1998, II pp. 129–82). There were only a few critical reviews. The last came exclusively from socialist writers. In the *Daily News* (13 October 1919), R.H. Tawney condemned Marshall’s work for failing clearly to demonstrate the validity of his negative attitudes on government industry and nationalisation. The *New Statesman* (13 September 1919), after praising ‘the minute and subtle analytic description of the organization of Capitalist enterprise on a large scale in the United Kingdom at the opening of the twentieth century’, criticised the work on several grounds. It omitted any real discussion of the ‘leisure class’ as passive recipients of the earnings of industry in interest and dividends and gave far too little space to the role of the working class in industry and its exploitation, and on the nature of cooperative enterprise. The remainder of the press (summarised in Groenewegen 1995, p. 713) praised the book for the erudition of its subject matter, its humanity, its ‘lack of curves’, its careful use of government blue books, trade and official publications, though the *Times Literary Supplement* (15 September 1919) noted its strong pro-German sentiments, particularly with respect to German university education. This last view, however, delighted Alfred Marshall as author: he had feared that his book had been far too harsh on the Germans. *The Economist* (17 December 1919, p. 1096) congratulated Marshall on at last finishing his book, proclaiming its eight hundred pages deserved ‘careful study’. In the end, however, readers would close ‘the book with the feeling that there has come to an end a long and delightful after-dinner
conversation’ which had greatly benefited from the ‘ripe reflection’ and the ‘rich experience’ of its distinguished, and aged, raconteur.

There were also reviews in the new academic journals. Pigou’s eight-page review for the *Economic Journal* apologised that the range of topics covered by *Industry and Trade*, and its ‘author’s unrivalled mastery of the subject’ matter, made it virtually impossible to grapple seriously with ‘this mine of learning and engine of power’. Pigou’s review therefore confined itself to a rough inventory of its rich comparative industrial history, of its detailed discussion of industrial techniques and of ‘its elaborate realistic analysis . . . all welded together into an ordered whole’ (Pigou 1919, pp. 443–50). Gide (1919) saluted the book as a rare event, the first new book by Marshall since 1890, whetting the appetite of its potential readers by cataloguing its contents as dealing with ‘industrial characteristics of various countries, influence of monopoly on price, railways, cooperation and nationalization’, all discussed with the author’s ‘well-known, remarkable even-handedness’. The *Journal of the Royal Statistical Society* described the book as ‘an enzyme or ferment of men’s minds, precipitating new conclusions out of experience gleaned in half a century of varied and intimate intercourse with men and things’ in industry as it is practiced. H.S. Jevons, in the *Indian Economic Journal*, praised the publication of *Industry and Trade* as ‘an outstanding event’, even if it was not the long-awaited second volume of the *Principles*. Its style, the selection of apt illustrations, the careful thought which had gone into every sentence together with the general arrangement of its rich contents were specific qualities of the book praised by Jevons. Given the nature of the journal in which it was published, the review concentrated on noting specific features of the book, of relevance to India. Another academic review by one of the younger colts in Marshall’s Cambridge stable, Gerald Shove, praised the erudition and detailed industrial knowledge of the author, perhaps the most extensive of that of any living economic writer. Nevertheless, the book was never overloaded with detail, avoided emphasis on information because it was ‘curious’ and undoubtedly presented a ‘well-balanced picture of the main forces and tendencies which were at work in the organization of business on the eve of the war’. Shove’s one criticism, a sign perhaps of a change in post-war economics writing, was the excessive ‘moral tone’ of the work, not appropriate to reporting the ‘non-moral science’ of economics.

Mary Paley Marshall, who had seen *Industry and Trade* through the press, called it a treatise reminiscent of Adam Smith’s ‘great work’. She also recalled the book was greatly admired by businessmen and that she had been told by a person in the book trade that he ‘had never
known such a demand for a big and serious book’. She described it as Marshall’s ‘last constructive work’, a judgment of particular relevance when contemplating the precise nature of Marshall’s second companion volume, *Money, Credit and Commerce*, published in 1923 (in Chapter 9).

### 8.7 Conclusion

Chapter 8 has covered Marshall’s initial years of retirement when, for their greater part, he was still mentally active and alert, hence capable of producing what he himself called ‘constructive work’. *Industry and Trade*, a magnificent volume in its own right as Section 8.6 has clearly indicated, was a massive monument to that capability. In addition, his last major short publication, the chapter on post-war government finance (discussed in Section 8.4), was a clear illustration of his ability to write major policy overviews during 1916, when already seventy-two years old. However, as emphatically indicated at the end of Section 8.6 in Mary Paley’s remarks there quoted, by 1919 his mental alertness, ability to concentrate, as well as his memory, were deteriorating rapidly, a process, as indicated in Chapter 9, greatly accelerated during the last five years of his life.

Retirement had started early for Marshall as an opportunity for writing without the distraction of teaching and other university business in administering a growing area of special study. Given the fact that the fruits of that early retirement included *Industry and Trade*, a volume which otherwise might never have been finished in the definitive, highly polished form its published version had reached, this personal decision can be judged as fully justified for later generations of economists. To put it bluntly, *Industry and Trade* was well worth it. It is a classic in industry economics, innovative as an early contribution to the theory of the firm and a book on par with the *Principles*, even if completely different in style and scope.

As shown in Section 8.2, Marshall’s early retirement had a further major implication for the future of economics in England: the selection of Marshall’s successor as Cambridge Professor of Political Economy. The choice of Pigou, was undoubtedly greatly superior to that of Foxwell. After all, Foxwell was by then an economist of the past century, irrespective of which other qualities he may have brought to the chair, had he been appointed. Pigou’s active research programme, different though it was from Marshall’s with respect to ‘realism’, undoubtedly preserved the Marshallian line of theory and analysis as an important component of Cambridge economics. Moreover, looking at the titles of the many
books Pigou produced, much of the scope of his economics was firmly based in the wide tradition of Marshall. It covered socialism, economic and social welfare, selected topics in contemporary economic history, tax economics with special reference to capital taxation, the business cycle, public finance, monetary economics (including the Cambridge version of cash balance equation, discussed further in Chapter 9) and the theory of employment. Hence in retrospect the choice of Pigou over Foxwell, so strenuously (and so narrowly) engineered by Marshall, achieved much good for Cambridge economics. Such judgments are, however, clearly outside the scope of this book even if related to material discussed in this chapter.

Marshall’s retirement enabled his consolidation of his many contributions to economics. First of all, this is apparent from both the publication of new work, in particular completion of *Industry and Trade* and the final revisions of the *Principles*. It also arises from the continuation of the Cambridge School of Economics he started with his Tripos and whose spirit was maintained by Pigou as his successor, sustained as it was by the brilliant band of followers from among Marshall’s, and Pigou’s, students, often financed from their own pockets. These aspects of the Marshallian legacy, sustained and consolidated in his retirement, are investigated further in Chapter 10, concerned as it is with evaluating that legacy.
Final Years and Some Further Volumes (1919–24)

The final years of Marshall’s life following his deserved triumph with the publication of Industry and Trade were spent in growing ill health, the onset of senility from the early 1920s, rapid increase of short-term memory loss, though poor memory had apparently plagued Marshall from the beginning of the twentieth century. Hypertension, first diagnosed in 1914, steadily grew worse, together with a gall bladder ailment causing nausea, acidity and digestive problems dating from the 1870s, which likewise gradually worsened. Keynes’s description of his last visit to Marshall on 16 May 1924, less than two months before Marshall’s death, is illustrative. It mentioned seeing Marshall in bed with his night cap on, ‘weak in voice, still able to laugh’, no short-term memory left to speak of and ‘now rather like a child,… often troublesome’ (Keynes to Lydia Lopokova, 16 May 1924, in Hill and Keynes (eds) 1989, p. 195).

Yet in these final years, revision of old work and publication continued. The final edition of the Principles was published in 1920; a second companion volume, Money, Credit and Commerce, was put together for publication in 1923, and a further companion volume, on issues of social and economic progress, continued to be contemplated even though it has now to be described as a book that never was (Groe newegen 2005).

This chapter surveys these final years of Marshall in the following manner. Section 9.1 looks at the nature of Marshall’s final years in so far as this can be retrieved from the record. This sets the stage for evaluating Marshall’s role, and that of his wife and colleagues, in the preparation of work completed during this period. In this context, it should be remembered that work on the final edition of the Principles has already been discussed in Sections 6.5 and 8.3. Section 9.2 therefore looks at
the preparation and completion of a second companion volume, *Money, Credit and Commerce*, published in 1923, together with its contents and its reception by the reviewers. Section 9.3 investigates what can be retrieved about Marshall’s planned third companion volume on the basis of the surviving outlines and tables of contents. Section 9.4 deals with his death, funeral and other related aspects. Section 9.5 presents brief conclusions.

### 9.1 The sage in old age (1919–24)

Glimpses of Marshall’s last years are preserved in Mary Paley Marshall’s record of her husband’s sayings at this time. Many of these tended to dwell on the past, on what had been and what may have been, often striking a spiritual note. The following extract presents a condensed chronological sample of their nature:

26 July 1920 – Alfred’s birthday when he was 78. He said he did not much want a future life. He spoke of the idea many have of heaven as a place where one spends one’s time praising God. Singing praises would be an infinite yawn... If you believe in a future life, you can’t be disappointed, for if there isn’t one, you won’t know there isn’t. I don’t care for living except to work.

He said that he was glad to have done all he could to help the world on. I asked him whether he would not like to return to this world at intervals of (say) 100 years to see what was happening. He said he should like it from sheer curiosity. He said, ‘If in another 100 year’s time I meet some newcomer, the first question I should ask would be: how has the exhaustion of coal been met?’

‘My God is not the God of the whole world. He is the God of this Universe. So I can never get into touch again with those who regard the world and the universe as nearly the same.’

‘My own thoughts run more and more on the millions of worlds which may have reached a high state of morality before ours became habitable, and the other million of worlds that may have a similar development after our own has become cool and our world uninhabitable.’

His greatest difficulty about believing in a future life was that he did not know at what stage of existence it would begin. One could hardly believe that apes had a future life or even the early stage of tree
dwelling human beings. Then at what stage could such an immense change as a future life begin?

24 September 1920 – Looking around the dining room he remarked on the large proportion of pictures of theological subjects. The reasons for this were (a) that at the time when theological feeling was strong, art was a chief career open to the ability of this country and many who in these days would have gone into science and other careers, became artists. (b) At that time the chief way of appealing to the multitude was by works of art, which could be seen by the many. As soon as printing became general, the multitude could be got at by books...

26 December 1921 – at breakfast we were considering what new rolls we would get for the autopiano (which was the greatest solace to him during the last 10 years of his life). He said he was getting to like sacred music more and more. He had given up theology, but believed more and more in religion, of which Christianity was the latest development. He said lately, ‘religion seems to me an attitude’.

3 December 1922 – His favourite poets are Goethe, Shelley and Shakespeare.

23 February 1923 – ‘As men become old, they become extinct volcanoes.’ [analogous to Gladstone’s last government] but inside the fire with a ‘closed vent is pure white heat’.

7 January 1924. Alfred said that economics a 1000 years hence would be entirely different from the science it is today and would probably be based on biology.


However, these last years were not totally devoted to such religious, Darwinian and biological speculations dwelling on aspects of the nature of after-life. They still contained many happy events, often associated with the triumphs of Marshall’s former students. Congratulatory letters went from Balliol Croft to Maynard Keynes and Walter Layton when in 1917 they were awarded a CB and CBE, respectively, for their war work. New writings on economics by these and other former students were also duly acknowledged by their old recipient and master, occasionally mixed with a little healthy criticism. They included Keynes’s 1919 Economic Consequences of the Peace, his 1922 A Revision of the Treaty and the 1923 Tract on Monetary Reform; Pigou’s 1916 The Economy and Finance of the
War and his 1920 *Economics of Welfare* and Fay’s 1920 *Life and Labour in the Nineteenth Century*.

Praise also went the other way to reach the great economist. On 16 June 1922, Marshall’s eightieth birthday was recognised by the Royal Economic Society through an address signed by its leading members. After recording the massive debt the new generation of economists owed to Alfred Marshall as its founder, particularly when they had been associated with the Cambridge School of Economics he had created, they saluted Marshall as ‘a master of method and a path breaker in difficult regions … [because] through you, British economists may boast among their foreign colleagues that they have a leader in the great tradition of Adam Smith and Ricardo and Mill, and of like stature’ (Pigou (ed.) 1925, p. 497).

After indicating how he had enjoyed their tribute, Marshall characteristically responded with a brief sermon and exhortation for them to continue their good work:

The address which you have sent me on my eightieth birthday, fills me with gratitude and joy. It is all too kind, but I am so avaricious that I would not give up a jot of it.

It is true in almost every science that, the longer one studies it, the larger its scope seems to be; though in fact its scope may have remained almost unchanged. But the subject-matter of economics grows apace; so that the coming generation will have a much larger area to study, as well as more exacting notions as to the way in which it needs to be studied, then fell to the lot of their predecessors. The Chinese worship their ancestors: an old student of economics may look with reverential awe on the work which he sees young students preparing themselves to do.

If I have helped in putting some young students on the way to grapple with the economic problems of the coming age, that is far more important than anything which I have been able to do myself: and, resting on the hope that I have done a little in this direction, I can depart in peace. (in Pigou (ed.) 1925, p. 499)

Some of Marshall’s students who had presented him with their new work during his old age also left brief comments on their last visit to him, fully aware that his days were limited. Thus Fay recalled his final visit to Marshall in 1923 before going back to Canada, when his wife and he had tea at Balliol Croft: ‘I made one short remark about the monotony
of modern industrialism whereupon he jumped up and began to picture
the romance of modern steel. But I had broken my promise to Mrs
Marshall, for I had been with him two minutes over the allotted ten. So
I rose to go, but he anticipated us and slipped out into the garden’ (in
Pigou (ed.) 1925, p. 77).

Keynes, in a letter about his last visit, already quoted in part at the
start of this chapter, recalled how touched he had been on the occasion.
‘I had news that my old master [Alfred Marshall] who made me into an
economist… could not live much longer, so I paid him a last visit … His
voice was weak but he told me how he first came to study economics, and
how such study was a sort of religious work for the sake of the human
race … he has no memory for what happens now and has probably
forgotten my visit already …’ (Keynes to Lydia Lopokova, 16 May 1924,
in Hill and Keynes (eds) 1989, p. 195)

Mary Paley Marshall in notes she prepared for Walter Scott, Marshall’s
official obituary writer for the British Academy, recalled some of her
husband’s pleasures during the last years of his life. They included the
novels of Walter Scott, his enjoyment at winning their nightly back-
gammon games and annoyance when he lost and the great joy given
by an electric auto piano:

With great difficult I persuaded him to buy it, for he would never
indulge in luxuries for himself. It gradually became his great solace.
He invented a plan, by means of string and pulleys for starting and
stopping a tune whilst lying on the sofa and he would often play
a sonata over and over again and it was nearly always Beethoven.
Towards the end of his life, he sat and worked a great deal in the Ark,
a large revolving shelter fitted up as a study … He took great delight
in mechanical contrivances [such as the Ark] and declared that if he
landed on a desert island, with tools and men, he could construct
most kind of machinery.

A letter to Walter Layton added to some of these recollections. The Ark,
which the Marshalls had bought in Norwich in 1910, was fitted up with
bookshelves, one of them revolving, a rocking chair and nests of boxes
where Marshall stored his manuscripts. In winter when he worked there
he wore a furred coat, warm mittens and kept his feet warm in fur
shoes. The revolving part of the Ark was his own invention. That and
his electric piano (Blackbird) were his two great joys in life. ‘During
the last few years he was not allowed to do constructive work for more
than an hour at the time, then he laid down and Blackbird played to
him and after half an hour he got up quite refreshed and ready for work. He nearly always played Beethoven and had about 200 rolls of his works.’ (Mary Paley Marshall to Walter Layton, 4 November 1926, in Groenewegen 1995, pp. 651–2).

On a less happy note, Mary Paley recalled for Keynes – to assist him in writing his famous obituary memoir (Keynes 1924, 1972) – the gradual deterioration in Marshall’s health after 1919: ‘He suffered from acidity and nausea which I believe was the beginning of his final illness, and his memory began to fail though he did not know it. On this account, I did all I could to hasten the appearance of *Money, Credit and Commerce*, especially as Dr Bowen told me in 1921 that his working life was over and that he was incapable of constructive work. During the last year he was beginning to realise that his memory was failing him and he often said, “how glad I am that *Money, Credit and Commerce* is out.” Since *Money, Credit and Commerce* appeared, he has been trying to prepare a little old MSS and his early pamphlets, etc. for publication.’ (Mary Paley Marshall, ‘Notes for Maynard Keynes’ in Groenewegen 1995, pp. 653–4).

A self-diagnosis by Marshall, not long after his seventy-ninth birthday in 1921, indicated:

Acidity and sick feeling somewhat abated.

Tendency of work to bring on feeling of pressure in the head, accompanied by weariness is increasing; and it troubles me.

I must work on as strength permits for about two full years (or say four years of half time) if that is allowed to me; after that, I can say, *nunc dimittis*.

I care little for length of life, for its own sake. I want only so to arrange my work as to increase my chance of saying those things which I think of chief importance.

(Fragment dated 13 September 1921, in Groenewegen 1995, p. 654)

The need to complete as much of his writing as possible clearly sustained Marshall’s will to live in these final years of retirement, difficult though the task had become especially after 1919. What was achieved by him and what not in these years after 1921 is examined in the next two sections, devoted as they are to writing companion volume II, *Money, Credit and Commerce*, and to his volume III on progress which never materialised beyond good intentions from its tangible signs in the form of outlines.
9.2  *Money, Credit and Commerce* – writing, contents and reception

Few details are known about the writing of *Money, Credit and Commerce*. It may be recalled that in 1918 Marshall could write to his publisher, Macmillan, that after finishing *Industry and Trade*, there was still much material left for the next volume, to be devoted to money, credit and associated topics. In 1920, as Mary Paley recalled in her account of their last European holiday already quoted (at the start of Chapter 8), their temporarily lost luggage included all the manuscript material for ‘what was to become’ *Money, Credit and Commerce* on which they intended to work in the peace of the mountains. As Keynes (1924, 1972, pp. 230–1) later indicated, this last book by Marshall was ‘mainly pieced together from earlier fragments, some of them written fifty years ago…It shows all the marks of old age,…and contains a quantity of material and ideas, and collects together pamphlets which are otherwise inaccessible to the student or difficult to access’. As shown later in this section, the element of pastiche is particularly evident in the final two of its four ‘Books’ and in the more technical appendices. Given Marshall’s state of health in the last five years of his life, his own role in the final construction of the work cannot have been very great, thereby suggesting Mary Paley’s substantial hand in its preparation. A draft preface in Marshall’s handwriting noted her refusal ‘to allow her name to appear on the title page, but that is its proper place’. Not a hint of this type of acknowledgement was allowed to appear in the preface as actually published. The draft preface just mentioned therefore depicts her role in its preparation far more accurately. As she modestly indicated in her notes for Keynes on the subject (already quoted in the previous section), she described her task as ‘doing all I could to hasten its appearance’.

Actual work on *Money, Credit and Commerce* seems to have started in September 1919, not long after the publication of *Industry and Trade*. Mary Paley Marshall wrote to Walter Layton that month, ‘he is now engaged on money and foreign trade on which he has a great deal of material in quite an advanced stage’ (Mary Paley Marshall to Walter Layton, 10 September 1919, Layton Papers, Trinity College, Cambridge). Marshall’s last letter to Foxwell (13 March 1920, in Whitaker 1996, III p. 375) mentioned he was writing on index numbers (a topic covered in *Money, Credit and Commerce*, Book I, chapters II and III) for which he was using Jevons’ *Investigations into Currency and Finance* which Foxwell had edited in the 1880s. Marshall added that he did not think he would ‘finish the book on which I am engaged’. Mary Paley’s correspondence
with Keynes indicates that the summers of 1920, 1921 and 1922 were used to put the book together, from material ‘much of it about 50 years old’. By the end of the summer of 1922 the book was finished, in record time, when the long gestation periods of Marshall’s previous two books are recalled. By December 1922 Marshall reported that the whole of _Money, Credit and Commerce_ was out of his hands, and the book was published in February 1923 in a print-run of five thousand copies. Marshall’s difficulties in settling for a final title of the book is illustrated by the fact that the almost simultaneously March 1923 reprint of _Industry and Trade_ in its preface described the new book as _Money, Trade and Commerce_.

At first sight, _Money, Credit and Commerce_ closely resemble its companion volume, _Industry and Trade_. It looks about the equivalent thickness and is covered in Macmillan’s traditional blue cloth with gold letters on the spine. Appearances in this case, as in many others, are deceptive. Pages of the new book, including index, number fewer than four hundred, or less than half the number of the previous two volumes. _Money, Credit and Commerce_ is divided into four books, following an introductory chapter of eleven pages. These are called ‘Money’ (with six chapters), ‘Business Credit’ (with four chapters), ‘International Trade’ (with twelve chapters) and ‘Fluctuations of Industry, Trade and Credit’ (with four chapters). There are nine appendices, taking up a quarter of the book’s contents. Relative shortness is not the only difference between this book and its two predecessors. The last eight chapters (that is, those commencing with Book III, chapter VIII) are largely composed of previously published work in contrast with the earlier chapters. However, they too draw heavily on ‘old material’, although less obviously and more indirectly. Citations of what can be described as recent, that is, post-1914 work, are confined to half a dozen books. They include Pigou’s _Economics of Welfare_, Maynard Keynes’s two volumes on the Treaty of Versailles and A.W. Kirkcaldy’s _British Finance during and after the War_. This citation practice makes _Money, Credit and Commerce_ much less than a companion volume to _Industry and Trade_ or the _Principles_. It is ‘an old man’s record of past contributions’, with virtually all of its originality gone. That novelty ‘had found expression in the work of others’, especially in that of his direct, and indirect, Cambridge students (Laidler 1990, p. 44).

Marshall’s published work on which _Money, Credit and Commerce_ was based, drew on journal articles, conference papers, government publications and his two earliest published books, _Economics of Industry_ and the _Pure Theory of International Trade and of Domestic Value_. Of special
importance was the evidence Marshall had given to the Gold and Silver Commission in 1888 and 1889, and to the Indian Currency Commission in 1899. Some of the international trade chapters in Book III drew heavily on the published memorandum on the fiscal policy of international trade (Marshall 1908) and others on the privately printed *Pure Theory of International Trade* already mentioned. Aspects of Book IV on business fluctuations and employment could easily have been taken from material Marshall had drafted for the Labour Commission’s final report. This was not done because Marshall thought it improper to claim this material as his own as it had been influenced by the comments of other commission members. Material from the *Economics of Industry* (1879) was used for the chapters on changes in the value of money, and on business fluctuations. That book’s joint authorship perhaps provided the rationale for Marshall’s wish to make *Money, Credit and Commerce* likewise a joint work with his wife. Groenewegen (1995, pp. 718–19) provides more detail of the other Marshall sources used in writing *Money, Credit and Commerce*, including his early unpublished paper on ‘money’, dating from the late 1860s, early 1870s (and discussed in Section 3.6).

The contents of Marshall’s last published book are fairly easy to summarise. Book I on the theory of money dealt first with the functions of money as a medium of exchange and as a store of value (chapter I). Measures of the general purchasing power which money provides including index numbers are discussed next (chapters II and III). It then analysed the total value of the currency required in a country in terms of the total volume of transactions it needs to circulate, the prices of the goods and services involved in these transactions and the demand of the public for cash balances (chapter IV). This chapter therefore presented the Cambridge version of the quantity theory of money in the form of demand for cash balance equations, expressed as given proportions of income and of asset holdings. In addition, chapter IV discussed issues of currency convertibility, though without taking account of the post-First World War abandonment of the gold standard in Britain and elsewhere. Chapter V deals with gold and silver currencies, and their merits. Chapter VI commented on Gresham’s law (or the manner in which debased currency drives good metallic currency out of circulation), in which context Marshall also explained bimetallism and his own symmetrical proposals based on making currency convertible into gold and silver bars of a pre-determined proportion of the two metals based on their general value. On this note, Book I ends.

Book II discusses business credit in four short chapters. Chapter I looks at the development of modern capital markets on the assumption that
private capital was initially relatively small (if private land, buildings and slave ownership were excluded). Hence most large-scale borrowing was on behalf of the government, generating public debt, particularly in times of war. By contrast, manufacturing and trade financing dominate contemporary capital markets. Chapter II is devoted to the origins of joint stock companies and their implications for capital markets in terms of both the nature of loans and interest payments required. The British banking system is then briefly discussed in chapter III as one major institution of the contemporary capital market, followed by a discussion of stock exchanges in chapter IV (parts of whose operations are compared to those of the raw produce markets, examined in Industry and Trade, Book II, chapter V). The first two books together cover less than one hundred pages, or just over a quarter of the length of the book as a whole.

Book III on international trade is by far the longest book. Its twelve chapters cover the following topics. Chapter I looks at the influence of transport facilities on the extent of trade, linking developments in shipping with the growth of international trade from the sixteenth century onwards, spurred on as it was by new discoveries of gold and silver in the Americas and of the spice trade routes to the East Indies. Basic characteristics of international trade are spelled out in chapter II. Large trade for a country is said to reflect its national productivity and efficiency. Trade itself increases opportunities to buy variety, thereby widening the range of goods available for domestic consumption. Statistical problems pertaining to international trade are also explored in this chapter. British external trade from the end of the eighteenth century is discussed in chapter III, including the influence thereon of its ties with empire and dominions (Canada, Australia, New Zealand, India and South Africa). Chapter IV examines the concept of the balance of trade, including the associated terminology of a favourable or unfavourable trade balance, the importance therein of transport costs and income transfers such as interest on foreign debt. Chapter V discusses the foreign exchanges, the role of bills of exchange and of convertible metallic currencies. Chapters VI–VIII deal with the pure theory of international trade in terms of comparative advantage and illustrated by reciprocal demand curves, a technique Marshall had pioneered on the basis of John Stuart Mill’s influential account of international values. Elasticities of export demand and the impact of protective duties are also discussed. Chapter IX deals with the taxation of specific imports and exports as part of the fiscal policy of international trade, together with their incidence, a subject continued in chapter X, and with reference to
their use in fostering infant industries, in chapter XI. The final chapter in Book III (chapter XII) returns to monetary aspects of international trade, examining the impact of national currencies on trade under stable conditions, much of the contents of which were drawn from Marshall’s evidence to the Gold and Silver Commission (1888) and the Indian Currency Commission (1898).

Book IV was assigned coverage of fluctuations of industry, trade and credit. Its four chapters commence with an overview of causes of continuous employment in early times (chapter I), the influence of stable employment on technical change and mechanisation (chapter II, heavily influenced by the two last chapters of the *Principles*), the relation of the money market to fluctuations of industry and trade (based on discussions in both *Industry and Trade* and *Economics of Industry*) including a short account of the credit cycle discussed in chapters III and IV. At thirty pages, Book IV is by far the shortest book of *Money, Credit and Commerce*.

Nine appendices conclude the book. These provide a historical account of the evolution of money and its conveniences (Appendix A); some difficulties in price statistics and their implications for the construction of index numbers (Appendix B); a diagrammatic illustration of a metallic currency (Appendix C); interest and profits in connection with the use of capital (Appendix D); the development of banking, largely confined to England (Appendix E); international trade statistics and their reliability (Appendix F); trade amongst countries with dissimilar monetary bases (Appendix G); international values and comparative costs (Appendix H); the graphical illustration of international trade problems drawn from the 1879 privately printed *Pure Theory of International Values* (Appendix J) which was originally prepared for his never completed book on foreign trade begun in the 1870s (and discussed in Section 3.7).

Not surprisingly, the last new book of Alfred Marshall was extensively reviewed. In so far as they were collected in the Marshalls’ scrapbook, reviews totalled nearly three dozen. The greater part of them were polite rather than favourable, a quality equally apparent in the academic reviews. Edgeworth (1923, p. 198) described the book in the *Economic Journal* as combining ‘the substance of his earliest writings and the results of his latest reflections. Not all economists could with equal credit have confronted their present and past views [in this way]’. Bonar, another Oxford friend, started his review with the comment, ‘if the famous *Principles* of 1890 was a book of discovery, the present is a book of revival
and reminiscences’ which, in its many pages, still had a great deal to offer (Bonar 1923, p. 430).

The review in the *Manchester Guardian* (by former student, Henry Cunynghame) called the book ‘interesting and important’, particularly its ‘penetrating analysis of international trade’ (in Groenewegen 1998, II p. 185). *The Economist* (3 March 1923) only devoted one small, descriptive, paragraph to the book, as part of a commentary on recent offerings in economics. In the *Glasgow Herald* (5 March 1923), D.H. Jones succinctly described the book as a valuable survey. Margaret Tappan, for the *Clare Market Review* (1923) hailed many sections of the book as delightful, illustrating her remark with suitable examples. However, she deplored its old-fashioned emphasis on discussing international trade exclusively under gold standard conditions, no longer operable in the British world of 1923. Finally, to complete this brief survey of newspaper and magazine reviews, the *Nation and Athaneum* (28 April 1923) concisely, and correctly, judged much of the book to be grossly outdated.

Unlike its predecessors, *Money, Credit and Commerce* did not sell sufficiently well to require reprinting; its original print run of five thousand proved to be sufficient. Nor did it have the long-lived success as a major textbook enjoyed for so long by its two predecessors, the *Principles of Economics* and *Industry and Trade*. As indicated previously, its author was delighted, however, to have got it out of the way and after its completion still hoped to work on a further volume on social and economic progress.

### 9.3 A book on progress that never was

The study of economic progress had always been an important part of Marshall’s economics. After all, it had been the thought that economic progress could eventually eliminate poverty by providing satisfactory living standards for all, which had encouraged Marshall’s initial studies in economics in the late 1860s, and which had kept him there. It is therefore not surprising that preserved outlines for the intended second volume of the *Principles* (as discussed in Chapter 6) contained ‘books’ to be devoted to either ‘aims for the future’ which were to contain matters of applied economics or economic policy, including the notion of progress, or, at another initial stage, issues relating to income redistribution. Moreover, the notion of progress was kept well to the fore during the writing of the *Principles*. For example, the opening chapter of its first edition mentioned progress for the working class as a pressing
issue for the age and as an objective to which economists in particular should pay considerable attention:

This progress has done more than anything else to give practical interest to the question whether it is really impossible that all should start in the world with a fair chance of leading a cultured life, free from the pains of poverty and from the stagnating influences of excessive mechanical toil; and this question is being pressed by the growing earnestness of the age. (Marshall 1890, p. 4)

It may be noted here that the companion volumes already discussed (in Chapter 8 and in this chapter), covered many of the topics which Marshall had originally intended to include in the planned second volume of his Principles. They dealt with foreign trade, money and banking, and trade fluctuations, the subject matter for the first three books of volume II as outlined in 1887. By providing material on ‘produce markets, business combinations, monopolies, transport problems, labour associations, and combinations’, largely in Industry and Trade, they included all the material for volume II as outlined in 1903 apart from the treatment of supplementary redistributional issues to Book VI of the Principles and of the theory of public finance.

An early outline for the planned final volume (dated early 1920s, that is, when preparation of Money, Credit and Commerce was already well on the way) was explicitly described as that for a work on economic progress or as dealing with ‘the economic future’. It closely matches the intentions expressed for the final parts on these topics outlined in the 1887 and 1903 plans for volume II, and can be reproduced here in full to illustrate Marshall’s conception of the subject. Content is divided into three ‘Books’, with some of the proposed chapter headings for these books indicated as well:

- **Book I** The Nature of E[conomic] P[rogress]
  - I Introductory: conditions of E.P.
  - II Various tendencies of E.P.
  - III Interactions among the tendencies of E.P. Note on diagrams in lower type.
  - IV Sectional interests in E.P.
- **Book II** Functions & Resources of Government in regard to E.P.
  - Intro[ductory]
  - Currency
Stability of Credit
Taxes
I[nternational] T[rade] competition
Commercial Policy

Book III The Economic Future
Influences of E.P. on the quality of life
Retrospect & Prospect
Ideal & Attainable Poverty

(Source: Whitaker 1990, p. 217)

Book I is clearly intended as a discussion of the nature of economic progress in which its final chapter can be taken as an attempt to analyse the desires of the stake holders in that progress in terms of its distributional consequences. Book II was to deal with what would now be called public finance issues, together with issues of economic policy relating to money and credit, trade, taxation and economic stability. The third book intended to look at the heart of the matter for Marshall: what the future can bring for economics; the necessary impact of economic progress on the quality of life (and presumably also the ‘standard of life’); a retrospect and prospect (presumably of distributional issues); and finally an overview of what is ideal, and what is attainable in eliminating poverty, a crucial aspect of such a discussion for an economic realist such as Marshall.

The logic of the outline just reproduced and interpreted somewhat disappears when compared with other preserved outlines for the elusive final volume. It should be recalled that most of these were written when Marshall’s mental powers had deteriorated significantly from memory loss and lack of concentration, as mentioned at the start of this chapter. One of these outlines suggests Book I of the final volume was to cover first, ‘the study of final tendencies’; second, ‘influences of character on economic progress’; and thirdly, sectional interests in economic progress. A third preserved outline suggests the book on progress was to develop issues raised in Marshall’s 1907 lecture on economic chivalry (discussed in Section 7.1). These included the convergence in economic writings as to social ideals, and the ‘ultimate aims of economic effort’; the potential of the ‘temporary suspension of diminishing returns’ for giving special opportunities for social improvement; the possibilities of delaying progress by exaggerating current evils in economic conditions; chivalry in business; and vastly increased state activity for social
improvement, together with the acceptance of greater responsibility by
the rich for advancing genuine social progress.

Other preserved notes and fragments from the early 1920s dealt with
attainable ideas and utopias, with economics and ethics, the require-
ments of economic progress and the meaning of human progress
as understood by Marshall. They are very heterogeneous: some-
times epigrammatic, sometimes fairly structured, some commenting on
specific literature and some of it constructed without any apparent
source at all. They often reveal hard thinking on the cultural, educa-
tional, ethical, psychological and economic forces eventually generating
an evolutionary process to ensure the character improvement of all
members of society which for Marshall constituted real social progress.
These notes also referred to current events like the 1917 Bolshevik
Revolution, the horrors of war as revealed by the 1914–18 world conflict,
ewn schemes for guild socialism and for workers control, along with
references to recent inventions with social and educational potential
(the gramophone and the cinema). They also occasionally reverted to
older aims and ambitions with respect to widespread access to clean air,
the pleasures of the country side, good housing and healthy recreation.

A fragment entitled, ‘Ye Route to Orderly Progress Towards Utopia’
casts further light on the wide scope with which Marshall envisaged
the contents for his final volume. It emphasised the need to provide ‘a
cultured life for all who care for it’, ‘education for everyone, youth, men
and women, and saving by the state’. Another fragment listed devel-
opment of mental and moral faculties as the essence of the wider part
of progress, increasing man’s command over the material resources for
moral and mental well-being as the narrower part. Progress was inevit-
ably proclaimed crucial for its potential for yielding the vital difference
between mere physical subsistence and the standard of comfort needed
to sustain a high standard of life. Such progress was to rely not only on
business, entrepreneurship and the benefits from capital accumulation,
but on the opportunities provided for members of the working class to
supply the best genius for managing and improving business.

Further examples of some of these notes on ideals for the future drawn
up during the 1920s can be given. Ultimate aims of future society were
perceived to include:

(1) health, physical and moral. This implies adequate food and warmth,
interest in the well being of relations and friends and the exercise
of affectionate [faculties];
opportunities for healthy exercise of faculties (he should be able to say with quiet pride – I have done a good day’s work);

(3) scope for initiative;

(4) recreation of a kind adapted to his faculties – beginning with skittles (under cover) rising to cricket and football, and the simplest and yet almost fullest pleasures: walks by day light or artificial light;

(5) create work that exercises rare higher faculties.


The final two aims were further explored in the following fragment: ‘Art for the sake of art is a most worthy purpose of human endeavour and literature and is perhaps the highest form of art. Art of all kinds needs to be enlarged without stint. But, on quite a different plane, knowledge of nature is becoming a dominant power in the world. Knowledge of human nature is a most important pursuit for its own sake…Thus our ideals are: work for all intelligent [people] but not carried to [excess]…comic and even coarse picture palace entertainment…are likely to have greater value than purely intellectual delight. But still real progress will be made if the coarser (and most socially expensive) pleasures of eating and drinking fall into the background to those which exercise faculties of intelligence and thought’ (‘The Possible Future of Industry and Trade’, undated, in Groenewegen 2005, pp. 33–4).

In these fragments, ethics was clearly presented as a hand-maiden of economics (to use Marshall’s phrase from an 1893 published address). They can also be taken as a sketch for a new Plato’s Republic for the twentieth century, particularly when Marshall also occasionally spoke of such schemes during these final years. Other fragments reappraised the importance of economics relative to the other moral and social sciences, including especially ethics and psychology, as in the following detailed listing:

(1) Underselling.

(2) Consumer League: should the consumer insist on standard wages being paid. If so, how is the standard to be set. By the Trade Unions?

(3) How much of his income may a person spend on (i) his own gratification (other than necessities for efficiency) (ii) those of his family. Is the above affected by the question whether his income is inherited or earned by himself?
(4) Ought the community to interfere to secure (i) steadiness of work (ii) comfort in old age (iii) comfort and necessities for children (training, e.g. free meals) (iv) fresh air (v) good homes for all or good and cheap homes?

(5) What rules with respect to the consumption of alcohol and stimulants should be enforced by public opinion and law (cf. economic aspects of liquor problem)?

(6) Is it right to diminish the death rate among the children of improvident and worthless parents, while leaving those children to be educated in vice, account being taken of the extent to which it may be necessary to levy taxes which retard the age of marriage and otherwise diminish the birthrate among those classes whose children are likely to become good citizens?

(7) Given that specialization of tasks increases the resources available for living a full life by the community at large and that in some cases unspecialized work is more educative for the individual, what is in practice the comparative strength of these two tendencies and how ought opinion and law to be governed thereby?

(8) To what extent is gambling wrong? Would it be right to boycott newspapers that give much space to betting news? What forms of risk taken by business are necessary for society; which are doubtful, which are to be condemned as gambling?

(9) The morality of competition generally.

(10) The morality of the axiom *caveat emptor* [let the buyer beware], considered with reference to judicial and private standards; also with [respect] to dealings in which

(a) both sides are experts (b) one side is not expert. The duties of shopkeepers in setting forth the disadvantages of their wares; of joint stock company directors; auditors, etc.

(11) Adulteration. Should we use none but linen paper? Where is the line to be drawn between that and paper made of rags?

(undated, Marshall Library, but possibly late 1890s)

The ethical issues raised in this substantial list of moral quandaries for economists should continue to give food for thought, particularly since many of them remain unresolved. Marshall’s points 2, 3, 5, 6, 8, 9, 10 and 11 are particularly good examples of this. They also inform what Marshall liked to call the ‘high theme of economic progress’ where lofty moral standards in business dealings rather than income per capita were considered to be the more important by him.
Many of these issues were also raised in the chapter on progress in relation to the standard of life (Book VI, chapter XIII) which Marshall added to the fifth edition of the *Principles*. This was to remind his readers of the wider objectives of economics, essential even in a book ostensibly only dealing with economic foundations. They also demonstrate the difficulty of separating Marshall ‘the preacher’ from Marshall the analytical economist. Most of them remain highly relevant for contemporary economic discussion, particularly when their intent is extended to cover twenty-first century social ills such as the general drug problems in point 5 and the wider variety of gambling instruments created by human ingenuity in relation to point 8. Issues of unfair competition, the principles of general wage setting, the extent of government interference to secure minimum standards of comfort and life and the rights of consumers continue to feature in many other social reform agendas of the contemporary developed, and developing, world. This can only heighten regret about the fact that Marshall never got round to treating these topics in the detail they deserve through effectively completing his extensive project for an economic treatise. Even in point form, this subject matter remains instructive. It shows the extent to which economics for Marshall had to be treated in conjunction with ethics, politics, psychology and social thought if it was to be seriously regarded as a useful, applied science. Secondly, they carry the suggestion that a final volume on progress actually completed by Marshall when he still had the full mental strength to do so would have been an interesting book indeed.

**9.4 Final days and death (July 1924)**

Marshall died at home on 13 July 1924, a fortnight before his eighty-second birthday. The causes of death listed on the death certificate were cholecystitis, senility and cardiac failure. The funeral took place on 17 July. It consisted of a brief college chapel service at St John’s, followed by interment at St Giles Cemetery, Cambridge. Alfred Marshall’s last will was written in 1908, with a few amendments in later years. Probate was granted on 18 October. Mary Paley was appointed the sole executrix, looking after her husband’s material affairs in death as she had done for the greater part of his life.

Many obituaries of Britain’s leading economist appeared in the press. *The Times* (14 July 1924) stressed Marshall’s qualities both as devoted teacher and major researcher in economics. It also called him a true and brilliant generalist as ‘mathematician, statistician, linguist, and a student...
of history’ and of course as a leading economist. The Guardian (14 July 1924) reviewed his work as economist both for the government through evidence given to public inquiries, and as an economic educationist of supreme value. The Economist (19 July 1924, pp. 90–1) suggested that Alfred Marshall was one of the three or four great names which made English economics a power over the world, a quality boosted by his great strengths as ‘teacher, and as a man’. However, it also recalled ‘his love of paradox, his pleasure in discovering unexpected grounds for differing with the general view, and a certain love of combat which made him a difficult colleague to work with’. Student C.P. Sanger provided the Nation and Atheneum (19 July 1924, p. 502) with a picture of Marshall as teacher at home, ‘always sympathetic, encouraging, eager’. For the Cambridge Review (31 October 1924, p. 58), his nephew Claude Guillebaud recalled his uncle’s strengths and weaknesses. His slow writing and lack of rapid progress with his books were a major weakness; Marshall was at his best as ‘an oral teacher’ but his books would preserve and spread the relevance of his economic ideas for all times, when his pupils were no longer able to do so directly.

Longer obituaries came in the academic journals. The Economic Journal published Maynard Keynes’s brilliant, though sometimes inaccurate, portrait of Marshall, his teacher who had made him into an economist, a most notable essay in biography and tribute (Keynes 1924, 1972). Scott, as previously mentioned, wrote the official obituary for the British Academy, assisted in this task, as Keynes also had been, by material provided by Mary Paley Marshall. Cannan, in Economica (November 1924, pp. 257–61), provided personal reminiscences of the man, from Cannan’s own youthful glimpses of Marshall in Bristol, to his subsequent role of assisting Marshall in looking for mistakes in some of the later editions of the Principles. Cannan particularly regretted that Marshall had never concentrated fully on advancing, developing and defending his really new doctrines, only presenting them within a balanced overview of the subject as a whole. Taussig (Quarterly Journal of Economics, November 1924) described Marshall’s death as creating ‘a vacancy that will long wait to be filled’, hence an enormous loss to the profession on both sides of the Atlantic. Bonar, another old friend, in his obituary for the Journal of the Royal Statistical Society (January 1925, pp. 152–6), reminded his readers first of the availability of Keynes’s ‘noble biography’ in the Economic Journal and then highlighted some of the major characteristics of Marshall and his work. Marshall’s road to economic studies via religion and philosophy made it not surprising that he became a great admirer of Benjamin Jowett, while it should
not be forgotten that in his short stay at Balliol College, Marshall had
greatly stirred up the teaching of Economics at Oxford. Bonar’s obituary
especially stressed the unity of Marshall’s writings, its ‘wonderful, well
balanced judgment’ and ‘patient analysis, acute reasoning and learning’.

If it be asked how much of his work will stand, the provisional answer
may be that we are too near to it to judge. On the other hand, Marshall
lived long enough to put his teaching to the proof over a generation
of men… We hardly think of Marshall as founder of a School; he has
influenced all Schools of English speaking economists… His place
will be fixed by posterity. If some fringes drop, his robe of honour
will be ample enough to preserve his fame. No economist since Mill
has had higher homage, or kept it so nearly unabated over a long
life. (Bonar 1925, pp. 155–6)

Marshall’s death was very extensively noted by the press, by colleagues
and above all, by his many former students.

As previously indicated, Marshall’s funeral service was organised for
17 July at 2.00 pm, by St John’s College. The college therefore invited
members of the university, friends and relatives to pay their last respects
to Marshall first at the service in the College Chapel, later at the graveside
in St Giles’ Church of England cemetery. Whether Marshall, the self-
confessed agnostic about future life, would have approved of these form-
alities including the choice of hymns, is doubtful; however, the funereal
choral music by Purcell and Croft, plus the organ rendition of Beeth-
oxen’s Funeral March, would have been greatly appreciated by him.

Among the mourners were Marshall’s widow, who was to survive
him for a further twenty years, and a few close friends and relatives
(unnamed in the press report of the occasion). The Vice Chancellor of
Cambridge University was represented by the Master of St John’s, and
the Vice Chancellor of Bristol University by Dr Broad. Oxford and Balliol
were not represented, despite Marshall’s stirring role in their economics
teaching for 1883–84, as recalled in Bonar’s obituary. However, many
former students and colleagues were there, constituting his real family
and descendents as it were. They included: D.H. MacGregor, W.R.
Sorley, James Ward, J.H. Clapham, J.E. McTaggart, Dr Ellen McAr-
thur, Arthur Berry, H.S. Foxwell, J.M. Keynes, W.T. Layton and A.H.
Lloyd. Of these mourners, Foxwell and Ellen McArthur were particularly
forgiving; the absence of John Neville Keynes and of Pigou is particu-
larly surprising. The gravestone was simply inscribed ‘Alfred Marshall
1842–1924’. It can still be visited in a far corner of St Giles graveyard, as
indeed it was during the Cambridge commemoration of the centenary of the *Principles* in 1990.

The start of a new term in October 1924 brought a memorial address by Pigou. There is a sermon-like quality to this speech, clearly brought out in its opening remarks: ‘The voice is silent, the work done. In reverence and gratitude we take our leave of him’ (Pigou 1925, p. 81). In his address, Pigou concentrated on Marshall’s views of economics in theory and practice. It explored its links with philosophy, its objectives in terms of social improvement, its close contact with ‘realistic detail’ and its invariably tight analysis underpinning seemingly ‘platitudinous arguments’, its attributes as ‘tools’ in the making and creating an ‘organon of inquiry’. Pigou ended on an earnest high note,

The master whom we all revere is dead: full of honour, full of years, his life-work done: and you to whom I speak, many of you, have less than a quarter of his age. If it were possible I should wish to stand as an interpreter of his spirit to you in your youth and to hand on some message, not unworthy of his thought and life. We are set together in the world for a little time…[In our short lives, we can help in many ways]. One way is the way of thought and study and the building up of knowledge. That was the way he took. It is the way for some, but not for all. (Pigou 1924, 1925, p. 91)

More significantly for posterity, Pigou prepared a memorial for Alfred Marshall in book form, published in 1925 by Macmillan in conjunction with the Royal Economic Society. Its publication honoured a testatory wish by Marshall to have his successor in the chair of Political Economy at Cambridge edit from his manuscripts, ‘such material as he may consider to be of value, aiming at brevity and suppressing controversial matter…’ (Pigou 1925, p. v). This volume, simply titled *Memorials of Alfred Marshall*, was divided into the following three unequal parts. The first, ‘In Memoriam’, contained five items: Maynard Keynes’s obituary essay from the *Economic Journal* (with some minor revisions and corrections), separate reminiscences of their friend and teacher by F.Y. Edgeworth, C.R. Fay and E.A. Benians, and Pigou’s memorial address quoted in the previous paragraph. Part II reproduced a selection of Marshall’s published articles and book reviews, ending with a previously unpublished essay on retail prices, and extracts from some of his sayings and observation drawn from unpublished manuscripts. Part III reproduced selections from Marshall’s correspondence in chronological order, commencing with a letter to Jevons from 1874 and ending with personal
letters to two of his nephews, respectively, dated 1904 and 1917. Part III rarely reproduced the complete text of the letter and never indicates the precise nature of Pigou’s editing. The volume was illustrated with quite a few photographs from the Marshalls’ collection, showing him, often accompanied by his wife, at work and at play. It ended with the letter sent by his friends and students on the occasion of Marshall’s eightieth birthday (discussed in Section 9.1) and with a bibliography of Marshall’s writings compiled by Maynard Keynes. For many decades, this work, with all its imperfections, stood as the major monument to Marshall’s life and writings, together of course with his lifework in economics as published in his three major volumes and in his *Official Papers* (edited by Maynard Keynes and published in 1926). The commemoration of the centenary of Marshall’s *Principles* in 1990 sparked off a rapid growth in Marshall’s literature, often sponsored by the Royal Economic Society and the Cambridge Faculty of Economics he had founded. This, and other parts of Marshall’s legacy, are discussed more fully in the final chapter of this book.

### 9.5 Concluding remarks

The last five years of Marshall’s life, that is, from the end of 1919, were spent by him in growing ill health, loss of mental powers, particularly of short-term memory. Yet during these years, with the assistance of his wife, he was able to publish *Money, Credit and Commerce*, a much briefer, second companion volume to the *Principles*. Its contents had been lovingly put together from old and previously published, and unpublished, material, going back to the 1870s. From this perspective, *Money, Credit and Commerce* is markedly different from his two previous treatises, the *Principles of Economics*, so assiduously refined over eight editions, and the equally polished *Industry and Trade* with their many important contributions. The third volume is a work of much smaller stature and was clearly seen as such in the many reviews the book received.

More interesting, but only as an exercise in what might have been, are the fragments for the book on progress preserved among the Marshall papers. In particular, the list of eleven specific items to be covered within its never written pages, dating back perhaps to the late 1890s, show what was lost by the dilatoriness of Marshall’s writing practices. As shown in Section 9.4, such regrets of what could have been were also expressed in some of Marshall’s obituaries, particularly those by Cannan and Bonar.
As friends and non-Cambridge colleagues, they perhaps found it easier to present such somewhat critical views in an obituary of the great man. Marshall’s death, funeral and early commemorative events from the mid-1920s indicate the extent of his influence and the various reactions thereto. This is partly reflected in the list of the mourners at Marshall’s funeral service. It was noted at length in the reminiscences and in some of the other items included in Memorials of Alfred Marshall. It is equally apparent in the first volume of Official Papers edited by Keynes (whose contents were discussed in Chapter 5) and likewise published by Macmillan and the Royal Economic Society. These were all important parts of Marshall’s legacy, incomplete in many respects though they were. This matter is pursued in more detail in Chapter 10, the final chapter of this volume, devoted to an assessment of Marshall’s legacy for the subsequent generations of economists.
10
A Rich and Enduring Legacy

Alfred Marshall’s legacy was both a rich and an enduring one. From his personal estate he left his library and papers to the Cambridge Faculty of Economics and Politics, together with money to maintain it. His widow, for close to the two decades by which she survived her husband, helped as librarian of what became the Marshall Library of the Cambridge Faculty of Economics and Politics. The printed catalogue of this library, issued in 1927 within a few years of Marshall’s death, indicates the extent and value of this part of his legacy to the faculty he had created at Cambridge (as is discussed later in this chapter).

Of greater importance in the longer run for the economics profession were two specific aspects of Marshall’s more general legacy. The first of these consisted of the many writings (listed chronologically in the bibliography) he left to economists for their education and, at least equally significant, for their constructive criticism. These included especially his *Principles of Economics*, carefully refined in contents over its eight editions, as a book of foundations for economic analysis in the broadest sense. Late in his life, they had been joined by the two companion volumes he then managed to publish: *Industry and Trade* (1919) and *Money, Credit and Commerce* (1923). Moreover, there were his official papers in the form of evidence to government inquiries collected and edited by Keynes in 1926 (with a supplement thereto edited by Groenewegen seventy years later). Marshall’s essays and reviews are now also collected in two volumes as part of an eight-volume collected works (Groenewegen 1997). A very fine edition of Marshall’s correspondence (Whitaker 1996) and of Marshall’s early economic writings (Whitaker 1975) supplements his published output admirably.

The second aspect of Marshall’s economic legacy is the School of Economics he formed at Cambridge on his return as Professor of
Economics in 1885. The Economics and Politics Tripos he created in 1903 was an important part of this legacy, since it consolidated and improved the manner in which economics was taught at his alma mater, and thereby considerably enhanced the quality of its pupils (his immediate legatees) and in turn their pupils who carried on his work in teaching and developing economics under the guidance and training provided by his extant work. This second legacy was in some respects the most important. It constituted a living legacy which transformed and transcended the economics Marshall had left in his written work and in the teaching he had directly provided to some of the older members of this Cambridge school, particularly Pigou and Maynard Keynes.

This concluding chapter will examine these aspects of his legacy by way of concluding this brief examination of Marshall as one of the great British economists of the nineteenth and early twentieth centuries. Section 10.1 briefly discusses Marshall’s direct testatory disposition and its implications for the faculty he had founded and developed in its formative years. Section 10.2 reviews some of the major contributions he left in his written works and the lessons which contemporary economists can still draw from them. These cover both tools and concepts and, more broadly, aspects of methodology. Section 10.3 then comments on the school that Marshall left in the 1920s and 1930s when Cambridge reached its zenith so to speak in training and educating economists. This involves, as already stated implicitly, a look at both his major pupils and, quantitatively more important, the pupils of these pupils who taught, debated and improved Marshallian economics during the 1920s and 1930s. Section 10.4 offers final conclusions on this study, particularly with respect to identifying those aspects of Marshall’s rich economic legacy which continue to be worth preserving and developing. Marshall’s work and thought has become classical in the manner he himself defined that word, that is, as a leaven which continues to ferment in the world of economic ideas, past and present.

10.1 A generous testatory disposition

Marshall’s last will and testament, dated 13 June 1908 (with a codicil in June 1919), left all his property unconditionally to his wife in the expectation that she would dispose of it according to the plan proposed in his will. In 1924, Marshall’s estate was valued for probate at £13,001. This estate consisted of five distinct parts: the remainder of Marshall’s 99-year lease on Balliol Croft; his library of books, journals and government reports; his copyright in books (undervalued considerably
given the substantial sales his books enjoyed in the decades after his death); his small portfolio of investment in shares; and finally, his personal effects in the form of furniture and pictures.

The will provided for the disposition of the property in the following manner. First, it provided for some specific legacies free of duty. These included an outright gift of £100 to Newnham College Library; secondly, a post office annuity of £26 for life to their maid, Sarah Payne (who, however, had died in their service in 1920, aged 58) and an annuity of £5 to their gardener, Mr Ellis. In addition, Marshall expected that the two executors to the will be paid £100 each. From the residue of the estate, but excluding books, papers and copyright, one quarter went to a dozen close relatives or so, while the remaining three quarters, together with his copyright work and his personal library, went to the university ‘to be applied to the promotion of advanced economic studies in such a manner as the University may resolve’.

Although the university therefore received the bulk of Marshall’s estate, to be used generally for the advancement of economic studies, Marshall could not refrain from offering some specific suggestions on the manner in which this was to be done. Enlargement of the economics teaching staff featured prominently in 1908 when the will had been made, but was a far less pressing need in 1924 (see Section 10.3) when it came into effect. Scholarships for economics students were a second major use of the funds suggested by Marshall. One quarter of such scholarships were to be reserved for women students from Newnham College; three quarters to men students, but characteristically no scholarships were to be ‘open to competition by men and women simultaneously’. This last provision was undoubtedly inspired by the 1908 Tripos results in which two women had topped the first class honours list in economics. Marshall’s last will and testament therefore stayed true to his long-held belief in providing a separate type of university education for men and women, and therefore non-competition in this field.

Two aspects of Marshall’s will deserve further discussion. His gift of his personal library to the university, more specifically, to its Economics Board of Studies, gave them the right to sell any items no longer considered useful. The remaining books of the library, together with those he had given to the university for use by his students in 1908, became the nucleus of what in 1925 was officially called the Marshall Library. Secondly, Marshall’s will named Pigou as his literary executor, with precise instructions on how he was to deal with Marshall’s literary remains. These instructions gave Pigou the power to publish any material he considered to be of merit, including material from Marshall’s
preserved correspondence, though only few of his letters, Marshall advised at the time of making his will, contained any material of lasting public interest. Pigou carried out this testatory task by publishing *Memorials of Alfred Marshall* in 1925. As indicated in Chapter 9, this volume included selections from Marshall’s correspondence and two of Marshall’s unpublished papers, together with a selection of his published papers and a number of personal reminiscences (including the obituary memoir in the *Economic Journal* by Maynard Keynes). The original manuscripts among the Marshall material printed in the *Memorials*, including the letters, were subsequently destroyed by Pigou. Such material could therefore not be published in full when, for example, Marshall’s collected correspondence was published by Whitaker in 1996.

There are other possible leakages from what constituted Marshall’s unpublished literary remains. First of all, Marshall himself seems to have sorted, and dated, many of his personal papers during his retirement years, suggesting that he may have taken these opportunities as well to destroy items which he did not wish to be viewed by posterity. The absence of personal letters to family members and non-professional friends is a clear sign that this was in fact the case. Furthermore, there is evidence that Mary Paley Marshall returned letters to their original senders in the year following Marshall’s death, explaining the considerable dispersal of that correspondence. Moreover, she also lent material to interested faculty members over long periods and these loans may not have always been returned (see Groenewegen 1995, pp. 748–9). Like Pigou, she also destroyed various personal items, including Marshall’s attempts at poetry which she had shown to Keynes in 1924. Be that as it may. A considerable amount has survived and remains available to Marshall scholars in the substantial Marshall Archive at the Marshall Library.

As already indicated, a major legacy from Marshall to his students was the gift of his library to become the foundation of a Faculty Library, named in his honour the Marshall Library in 1925. This collection had previously been enriched by gifts from former students, Arthur Berry and Charles Sanger. The Marshall Library Catalogue published in 1927 indicates the approximate size of Marshall’s bequest: well over two thousand items from a total holding estimated to consist of four thousand books in 1926 (Ross 1990, p. 321 and n. 24). Although some of Marshall’s books have been dispersed to other Cambridge libraries (particularly, for security reasons, to Cambridge University Library), these books continue to be a very important source of information for Marshall scholars. A major reason for this is that many of these books were annotated
by Marshall in his own hand, often in many places. However, at the
time of this gift (supplemented by a gift of £1000 for the purchase of
books), Marshall’s donations made the Faculty of Economics Library at
Cambridge one of the best endowed in the university.

Two other Marshall ‘legacies’ may be briefly mentioned in this section,
even though they are perhaps better viewed as posthumous honours
bestowed on him by a grateful faculty. The first was the Marshall Society,
created in 1927 as an economics discussion group for undergraduates.
Eighty years later, this society remains active in the Cambridge Faculty.
The second are the Marshall Lectures, established in 1932 and a regular
event in the calendar of faculty activities. They institutionalised the
practice of inviting distinguished economists from outside the university
to give a series of at least three lectures during term on a topic of their
choice within economics, economic history or a broadly related social
science. Not all of these lectures have been published, but many of
them are.

In this way, the legacy of Marshall continued within his own
university and in particular within the faculty he had created, in part
by his donations granted through his last will and testament. To these
direct ‘bequests’ two major indirect ones need to be added. They are
investigated in Sections 10.2 and 10.3.

10.2 A substantial doctrinal legacy

Academics live through their books and other writings, because of the
ideas they contain. This is particularly the case if these ideas are novel
and widely adopted by colleagues in the field. Marshall’s books had
both a widely spread geographical influence and a long lasting one. This
was particularly the case for the Principles of Economics and its first, and
major, companion volume, Industry and Trade. By way of introduction,
an overview of some of the more enduring analytical and other contrib-
utions from these two works was given in Chapter 1, together with
some quotations from views on his work expressed by leading Marshall
commentators.

This section likewise reviews the outstanding features of Marshall’s
economics which gave rise to debate in the literature over the decades
following his death. Not surprisingly, the 1920s and 1930s were the
decades especially fruitful in generating such debates, controversies
and clarifications. What is more startling is that Marshall’s economics
continues to give inspiration to both economic theory and applied work
during the decades ending the twentieth century, a trend which so far is
continuing for the first decade of the twenty-first century. Most recent use of this part of the legacy, chronologically speaking, has often been methodological, a somewhat ironic situation for an economics writer like Marshall who tended to shun methodological controversy even if he himself never abandoned the importance of a sound methodological position for the practising economist.

Marshall’s more important methodological contributions can therefore be looked at first. To generalise, all were designed to make economics more realistic, wide ranging and practically useful. Marshall’s chosen method of partial equilibrium as a form of theoretical simplification is a good example of this. It was designed to emphasise key variables in theoretical relationships, thereby making them more amenable to practical analysis. It implied that less significant variables in the relationship were held constant for the time being. What had to be held constant in this context had to be carefully specified, in order to enable the economic investigator to check whether this involved contradictions in the analysis or was otherwise feasible for the situation under discussion. As an analytic method, it was less general and elegant than the general equilibrium analysis pioneered by Walras but, on the other hand, the partial equilibrium method was capable of more practical inferences and uses. As previously indicated, Marshall was fully aware of the analytical properties of general equilibrium systems but clearly preferred to use the partial equilibrium method for his scientific economic work.

Although not a perfectly novel aspect of Marshall’s thought, his methodological solution to choosing between deductive or inductive methods of reasoning followed Schmoller’s approach of combining the two by adopting the strategy of ‘walking on two legs’. His popularisation of this strategy in England was a major contribution. It stressed that logical processes in generalising economic ideas and relationships should never be conducted as forms of pure abstract reasoning; the validity and realism of propositions should always be tested by seeing how they stood up against the facts. Facts without theory may have been blind, but for Marshall theory without facts was practically useless even if this meant that factual studies such as his *Industry and Trade* would have to be regularly revised if not completely rewritten.

Marshall’s succinct position on the manner in which mathematical argument could be used in economics was a further methodological insight of importance to the way in which he constructed his economics. Undoubtedly, this principle has far fewer contemporary adherents. It is

Attentive readers of the *Principles* will have observed that Marshall’s diagrams are placed in footnotes and that the algebra and calculus is placed in a mathematical appendix. His *Industry and Trade* omits diagrams and algebra altogether. In this matter, he practiced what he preached and clearly revealed his preferences for good economics over mathematical demonstration or proof.

There is much good and enduring economics in Marshall’s two books. In a paper prepared for a meeting in Cambridge to commemorate the centenary of publication of Marshall’s *Principles*, Stigler (1990) listed five major points in economic theory on which Marshall influenced successive generations of economists. The first of these is the emphasis Marshall gave to time as a major factor in explaining the theory of value by means of the apparatus of supply and demand. Moreover, the form in which Marshall presented the time factor was clearly amenable to empirical analysis and therefore good economics in the manner he himself had defined it for Bowley. The division of time into the market period, the short period and the long period, over which supply gradually becomes more elastic, became a virtually permanent part of economic language. Secondly, Stigler mentioned Marshall’s doctrine of internal and external economies which permitted recognition of a firm’s economic environment in assessing its productivity, thereby making it a very handy tool for understanding the theory of industrial production. Thirdly, the theory of the firm is undoubtedly a major contribution of Marshall even if its emphasis is not on the individual firm *per se* but, as Stigler (1990, p. 7) emphasised, on the firm as part of the industry. Marshall’s construct of a representative firm, made particularly difficult by the vagueness by which Marshall defined it, is an indication of this, since its purpose is to explain decision-making in a fairly decentralised way. Fourthly and somewhat ambiguously for Marshall himself since he came to believe that this concept lacked realism and hence any value for applied economics, is consumer surplus. It became the foundation for modern welfare economics in which, it should be said, Marshall himself was much more cautious than his student and successor, Pigou. Finally, Stigler (1990, pp. 9–10) presented a number of more minor matters on which Marshall made important theoretical contributions. These include the notion of human capital, defined in terms of the education and training invested in workers; the theory of demand for money in terms of the price level, interest rates and the level of income; but these by no means constitute all of Marshall’s new
insights in contemplating and understanding economic phenomena. Marshall’s theory of production presented in Book IV of the *Principles* is particularly rich in such insights, many of which only recently taken on board in economic analysis. One of these arises from Marshall’s use of Darwinian evolution in its application to economic development, possibilities which, in Marshall’s own words, make economic biology the Mecca of the economist and not mechanics. One simple implication of this is that in economics time can only go forwards, never backwards, unlike the case of space where both of these movements are realistically conceivable. Another implication, and one which Marshall (1961, p. xv) particularly emphasised in the preface, was that ‘biological conceptions are more complex than those of mechanics’. Secondly, Book IV of the *Principles* contains the notion of an industrial district as a special factor in economic development where the conglomeration of firms within an area is taken as the fundamental material concept for the analysis. Thirdly, Marshall’s implicit development of the notion of imperfect, or monopolistic, competition should be mentioned. Perfect competition was explicitly rejected by Marshall as an abstract and highly artificial market construction, not even really useful for the most preliminary analysis despite the temptation to use it as a simple starting point. Much of Marshall’s realistic competitive analysis is developed during the detailed discussion of actual firms and their strategies within a broad industrial structure of large or small firms as done within the covers of *Industry and Trade*. In this way, Marshall left a rich inheritance for both Chamberlin’s work on *The Theory of Monopolistic Competition* (1928) and that by Joan Robinson on *Imperfect Competition* (1933) as Shackle (1967, p. 68) has clearly indicated.

Marshall also explained aspects of the nature of marginal analysis in the preface of his *Principles*, particularly in that for the eighth edition (Marshall, 1961, pp. xvi–xvii). There he stressed that the margin was crucial to understanding issues of resource allocation under given conditions, but that this margin was never ‘uniform’ or ‘absolute’, but varied ‘with the conditions of the problem in hand, and in particular with the period of time to which reference is being made’. However, it does yield a few, ‘universal rules’:

(1) marginal costs do not govern price;
(2) it is only at the margin that the action of those forces which do govern price can be made to stand out in clear light; and
(3) the margin, which must be studied in reference to long periods and enduring results, differs in character as well as in extent from that
which must be studied in reference to short periods and to passing fluctuations.

With marginal analysis, Marshall also recounted, came the differential calculus as the ‘science of small increments...to which man owes directly or indirectly the greater part of the control that he has obtained in recent times over physical nature’. Marshall then correctly predicted that the margin’s reign over ‘that limited but important field of economic inquiry to which it is appropriate’ would be complete before ‘another generation had passed’. Note carefully, however, that Marshall did not make the marginal method a universal one: it is a valuable tool for solving important economic problems, but it cannot, and was never designed to, solve every economic problem. Marshall therefore had a greater awareness of the limitations of the ‘new economics’ he helped to popularise than some of its later advocates who wished to turn it into a universal principle of application to all economic problems.

Perhaps Marshall’s careful appreciation of the limitations of economic study, and of the complexity inherent in both its subject matter and its various methods, is the major legacy he left to his students. His remarks on the virtues and dangers of the marginal method are a good illustration of this. More generally, his cautious approach in presenting conclusions in specific situations and problems is an equally valuable attribute which economists ought to adopt extensively given the extensive limitations to economic knowledge. Marshall’s writings therefore continue to be particularly valuable by imparting awareness of the limitations and imperfections of economic principles in their application to understanding and helping to solve specific problems. It preached the enormous need for modesty in economists when applying their subject, as well as the need for hard work and hard study if they were to become any good at it. In this sense, Marshall’s major writings constitute a particularly remarkable legacy because they remain worth reading and learning from a century after they were first written, true classics in every sense of that word.

10.3 Direct and indirect ‘pupils’ to form a Cambridge School

More than his books, Marshall bequeathed teachers of economics, not only for his own Cambridge, but more widely for many other British universities and for those in the ‘dominions’, particularly in
Alfred Marshall

Canada. An undated fragment (attributable to 1910) preserved among the Marshall papers indicates Marshall’s own delight at the wide and growing diffusion of his ‘economic lieutenants’ in a large part of the English-speaking world:

Even before a distinct curriculum in Economics and associated branches of Political Science was instituted at Cambridge, the influence of the Moral Sciences, and indirectly the mathematical curricula made itself felt in promoting thoroughness; and a great part of the leading teachers [of economics] are Cambridge men. Thus in Edinburgh University and University College London economic teaching is directed by Nicholson and Foxwell, who are of middle age. And Chapman at Manchester, Clapham at Leeds, Lloyd at Sheffield, Hamilton at Cardiff, Jenkyn Jones at Aberystwyth are young Cambridge men responsible for what may become important economic schools. Other Cambridge men are Flux at Montreal and Bowley at the London School of Economics, who are certainly among the ablest living Economists, also Sanger at University College, London and Macgregor, and after Christmas – Meredith at Manchester . . . . (cited in Groenewegen 1995, p. 753)

It might be noted that the two ‘middle-aged’ professors, Foxwell and Nicholson, never really became full-fledged Marshallians, being critical of Marshall’s economics in quite important ways. They had been among Marshall’s Moral Sciences students in economics of the 1860s. Arthur Berry, Alfred Flux, Arthur Bowley and Charles Sanger were taught by Marshall in the 1880s and 1890s, captured from Mathematics rather than from History or the Moral Sciences. They produced some work in mathematical economics, but also much non-mathematical work. For example, Bowley wrote studies of wages; Flux wrote a very Marshallian and very ‘elementary’ Principles of Economics (first published in 1904), while Sanger published an article in the Economic Journal on ‘The Fair Number of Apprentices in a Trade’. Sanger treated this very Marshallian theme in both a rigorous analytical and inter-disciplinary manner, and made it a notable example of Marshall’s methodological stance: it combined the abstract with the concrete, the deductive with the inductive, hence making it a very hallmark of the Marshallian school in action.

Another student generation removed brought a further number of academic economists whom Marshall so proudly listed a few years into his retirement. The first of these was Sidney Chapman who like his
teacher loved to balance in his writings theoretical sensitivity and factual illustration and evidence. Chapman wrote a short textbook for the Home University Library on Marshallian lines and an industry study which Marshall greatly admired and used in his own work. He held chairs at Cardiff and Manchester before becoming a civil servant. A quote from Chapman’s *Political Economy* (Chapman 1912, pp. 19–20) on Marshall’s major contributions to economics gives a neat indication of its Marshallian flavour:

…to Dr. Marshall belongs the distinction of having realised the far-reaching application of the new [marginalist] ideas, of having refined them and brought out unsuspected implications, and of having presented economic phenomena unified for the first time in an all-embracing theory. The method developed by Dr. Marshall may be called the marginal method; and associated with it in the most convincing modern speculations is the conception of individual experience, and even of society as an organic hole. The two chief notions of economic theory to-day consist in seeing each item of experience as in continuous relation with the rest of experience, and in explaining the definite results reached in economic affairs – the consequences of demand and supply, to use the expression sanctified by long usage – as largely brought about by the difference made to the totality of experience by the final activities of producing and consuming…In the technical language of mathematics the chief part of the explanation of economic value, whether revealed in the prices of goods or the rates of international exchange, or the level of wages or the rate of interest, is to be found in the differentiation of economic experience – in observing the differences made to the value goods by small changes in their supply, the differences made to the worth of capital by slight accession to its quantity, the differences made to the burden of labour by the lengthening of the hours of work…

Chapman therefore firmly connected Marshall’s major contribution to his status as the best expositor of the use of the marginal method to theoretical and applied economic reasoning. Unfortunately, Chapman did so without acknowledging Marshall’s recognition of the limitations of the marginal method, noted in Section 10.2.

The second, and undoubtedly the most famous for present generations of economists, was Pigou. His writings also married facts with theory, but often not within the same set of covers. Pigou became Marshall’s successor and remained a loyal, and not always sufficiently critical,
follower of the master. He worked on theory and applied economics, as well as on economic history. His *Principles and Methods of Industrial Peace* and much later, his *Industrial Fluctuations* did, however, manage to achieve the Marshallian marriage of theory and facts to a very high degree. As shown by Collard (1981), Pigou made many important contributions to applied areas – welfare economics, public finance, monetary theory, unemployment, the business cycle, the economics of socialism and other aspects of applied economics and economic history – within the Marshallian tradition.

D.H. MacGregor (1877–1953) was the third of this generation of Marshall’s students. He was a graduate of the Moral Sciences and after teaching economics for some time at Cambridge as a Fellow of Trinity College, he became Professor at Leeds in 1908 as successor to Clapham. After the First World War during which he saw active service, he was appointed Jevons Professor of Political Economy at Manchester (1919) before accepting the Drummond Chair in Political Economy at Oxford as successor to Edgeworth in July 1921. He retired from this chair in 1945. MacGregor completed several economic studies during his lifetime. In 1906 he published *Industrial Combinations*, in 1911 *The Evolution of Industry*, in 1934 *Enterprise Purpose and Profit* and in 1949 *Economic Thought and Policy*. MacGregor therefore was another of Marshall’s students who developed his ‘master’s’ analysis in the theory of the firm and business organisation. A contribution to mark the centenary of Marshall’s birth (MacGregor 1942) provides some of his reminiscences on Marshall the teacher and, more specifically, detailed comment on his ‘book’, the *Principles of Economics*. It neatly summarises the logical structure of that book as follows: ‘Things are wanted (Bk. 3), so they are produced (Bk 4), and are then exchanged (Bk 5) and the price is divided (Bk 6). It is like the development of a plot’. Above all, however, MacGregor argued that ‘Marshall unified and integrated the economics of enterprise’ and many of his direct students developed or applied this part of his legacy.

There were less prominent persons as well among this generation of Marshall’s students. Clapham, a later important economic historian, is the most prominent given his role in starting the 1920s cost controversy with his article, ‘Of Empty Economic Boxes’ (*Economic Journal* 32, September 1922). He taught at Cambridge from 1908, becoming its first Economic History Professor from 1928 to 1938. He oversaw the editing of the first volume of the Cambridge *Economic History of Europe* and produced major economic history studies of his own. Of these, the most important was his *An Economic History of Modern Great Britain* in three
volumes (1926–38); *The Bank of England: A History* (1942) and, his first work (1921), *The Economic Development of France and Germany* (1815–1914). Others were Godfrey Lloyd, a Lecturer at Sheffield University and Associate Professor at Toronto (1909–18) before joining the public service and the League of Nations. He wrote a book on *The Cutlery Trade in Sheffield* as a study in small business and *A History of the Ministry of Munitions* in eight volumes (1921–22); Henry Hamilton, Professor of Birmingham and author of some industry studies including *The English Brass and Copper Industries to 1800* (1926); H.O. Meredith who taught in Belfast from 1911 to 1946 as an economic historian and Jenkyn-Jones, a teacher of political science at Aberystwyth for some years.

The final decade of Marshall’s period as Professor of Economics at Cambridge included the start of his long association with his most famous ‘pupil’, John Maynard Keynes, as well as that with several persons who at least for some time taught Economics: Charles Fay, Walter Layton and Lynda Grier. Fay was the ‘senior’ of the three as Marshall’s student. He had begun his studies in economics at Cambridge in 1902. Fay was essentially an economic historian, though in addition he heavily researched that very Marshallian area of study, international cooperative enterprise. His major area of teaching (both at Cambridge and in Toronto) was *Life and Labour in the Nineteenth Century* (published as a book by Cambridge University Press in 1920). His work on cooperation began as an undergraduate and was published in 1908 as *Cooperation in England and Abroad* (fourth and final edition in two volumes, 1936). It is interesting to note that the preface of its first edition thanks Walter Layton and Maynard Keynes for ‘assistance in correcting the proof sheets’ and in particular his economic teachers of the previous three years, namely Alfred Marshall and Edwin Cannan. Walter Layton taught economics at Cambridge from 1908 to 1914, was then heavily involved with war work and built his post-war economics career on economic journalism as owner/editor of *The Economist* and owner of the *New Chronicle*. He published two books during this period at Cambridge, *An Introduction to the Theory of Prices* (1912) and *Relations of Labour and Capital* (1913). The first of these books, a study incorporating the theory and practice of price movements, expressed in its preface its author’s ‘indebtedness to the teaching and inspiration of Dr. Alfred Marshall [as] evident to all who are acquainted with recent economic thought in England’. Lynda Grier, who graduated with first class honours in economics during Marshall’s final year as Cambridge Professor, taught the subject for some years first at Leeds and then at Oxford.
John Maynard Keynes also taught economics at Cambridge from 1908, some years after completing his year of economic studies with Marshall and Pigou for the second part of the Tripos in 1905. For Keynes, the great appeal of Marshall’s economics was its ability to act as a vehicle for understanding the way an economy actually works and this made him a firm follower of Marshall in his economics for the initial decades of his life as economics teacher at Cambridge, revealed clearly in some of his early books *On Indian Currency and Finance* (1910) and on post-war *Monetary Reform* (1923). Keynes’s attitude is concisely reflected in his introduction to volumes of the Cambridge Economic Handbooks series, itself a very Marshallian enterprise:

The Theory of Economics does not furnish a body of settled conclusions immediately applicable to policy. It is a method rather than a doctrine, an apparatus to draw correct conclusions…Its modes of expression are much less precise than those provided by mathematical and scientific techniques…The main task of the professional economist now consists, either in obtaining a wide knowledge of *relevant* facts and exercising skill in the application of economic principles to them, or in expounding the elements of this method in a lucid and illuminating way…Even on matters of principle there is not yet a complete unanimity of opinion among Professors. Generally speaking the writers of these volumes believe themselves to be orthodox members of the Cambridge School of Economics. At any rate, most of their ideas about the subject and even their prejudices, are traceable to the contact they have enjoyed with the writings and lectures of two economists who have chiefly influenced Cambridge thought for the past fifty years, Dr Marshall and Professor Pigou.

At the time when Keynes wrote this in 1922, both Marshall and Pigou were alive; within two years the founder of the Cambridge School was dead, and its leadership passed to the ‘Prof’. as Pigou became known from the 1930s. Pigou, assisted by Keynes in many respects, largely guided the new generation of Cambridge economists – the indirect pupils of Marshall who carried on his work in teaching and writing. Some of the authors of these Cambridge Economic Handbooks became leading members of the Cambridge School: they include Denis Robertson (who wrote two of these handbooks, one on money and the other on the regulation of industry), Austin Robinson (The Economics of Industry), Hubert Henderson (later at Oxford, who wrote the first Cambridge Handbook, on the good Marshallian topic of Supply and
Demand). Other prominent members of the Cambridge School who were indirect pupils of Marshall, students of his books rather than in his classes, include Charles Guillebaud (Marshall’s nephew and the editor of the variorum edition of his *Principles*), Frank Lavington (who wrote on both the capital market and business cycles), Joan Robinson and Gerald Shove. Two other prominent members of the Cambridge School of this period, Piero Sraffa and Maurice Dobb, were critics of Marshall rather than his ‘pupils’, but had absorbed much of Marshall’s economic system as part of their early studies in economics. Their views and writings are surveyed concisely in Collard (1990) and as part of the economics developed between the two World Wars by Shackle (1967) which views this period (1926–39) as ‘the years of high theory’ or of ‘invention and tradition in economic thought’ where ‘tradition’ refers substantially to Marshall’s dominant economic position for most of the leading economists of the time.

10.4 Final concluding remarks on an enduring legacy

There can be no doubt that Alfred Marshall is one of the most important economists of the nineteenth century, if not the most important one. The extraordinary influence he exerted, and continues to exert on at least some practicing economists today, is a clear indication of this. Although his books have not served as textbooks for well over half a century, their contents continue to inspire various researchers in many parts of the world. The tool box he provided, especially between the covers of the various editions of his *Principles of Economics*, often illustrated by means of diagrams he first developed and used, have become so much part and parcel of the contemporary textbook literature that they are often no longer specifically attributed to him.

This book has illustrated the essential features of these contributions as developed over the years in his articles, books and through his teaching. The last is important and should not be ignored in appreciating his contributions. Reasons for this were reiterated once again in Section 10.3 of this chapter, and were also explored in some of its earlier chapters, especially Chapters 3 and 5. Marshall’s qualities as a great and influential teacher provide one crucial reason why he is to be treated among the major British economists.

It should also never be forgotten that Marshall did not produce his economics in a vacuum. He drew heavily on the work of earlier writers, especially the classical systems developed by Adam Smith and by John Stuart Mill, bringing them up-to-date as it were by altering
and widening their findings to take account of changing institutions, products, processes and technologies. This highlights another feature of his economics which this book has emphasised: the proximity of much of his economic writing to economic reality, an attribute of economics which he regarded as essential. As restated in Section 10.2 of this chapter, this desire for realistic economics is a major aspect of his methodological legacy and one which can never be neglected by the practical and applied economist.

For several decades after his death, Marshall’s research agenda, including that especially for the various branches of industry economics, was taken up by his ‘pupils’ and by their students and the students of their students. The introduction to the recently published *Elgar Companion to Alfred Marshall* (Raffaelli et al. 2006, p. xiii) hails him not only as ‘a star in the history of economic thought’ but as a person whose many ‘contributions still form an essential part of the analytical core of the discipline’. In its section on Marshall’s legacy, the *Elgar Companion* stresses ‘increasing returns and the competition dilemma’, ‘the theory of the firm’ and ‘welfare economics’ as key parts thereof; while ‘evolutionary economics’, ‘industrial economics’ including ‘industrial districts’, ‘cognitive economics’, ‘institutional economics’, ‘the micro-economics of supply’ and ‘methodology’ are described as his major links to contemporary economics. Given this very recent assessment of Marshall’s multi-faceted contributions, Marshall is clearly a classical author in his field in the manner in which he himself had defined this term as ‘an existing yeast [of ‘architectonic ideas’] ceaselessly working in the Cosmos’ (Marshall to James Bonar, 27 September 1898, in Whitaker (ed.) 1996, II p. 236). On all the evidence, Marshall’s economics continues to provide such a ‘yeast’, actively and ceaselessly yielding fresh and productive ideas for refinement and elaboration by those of present day economists who have taken the trouble to seek them out. Marshall therefore remains ‘a great thinker in economics’ in every sense of the term.
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bibliography, followed by 1997 and page reference to this reprint. For example,
‘Mr Jevons’ Theory of Political Economy’, the first item in this bibliography of
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