DEVELOPMENT OF CONCEPTS OF CAPITAL AND INCOME IN FINANCIAL REPORTING IN THE NINETEENTH CENTURY

Calculation, Context and Consequence

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A THESIS SUBMITTED FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN THE SCHOOL OF ACCOUNTING AND LAW OF RMIT UNIVERSITY, MELBOURNE, VICTORIA, AUSTRALIA
DECLARATION

I certify that:

Except where due acknowledgement has been made, this thesis is mine alone; and

The work has not been submitted previously, in whole or part, to qualify for any other academic award; and

The content of the thesis is the result of work that has been carried out since the official commencement date of the approved research programme.

THOMAS R. ROWLES
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Responsibility for judgments made in the study is with the author. Corrections are welcome.
ABSTRACT

few, if any, … were able and willing to venture into the common but unchartered borderland of economics and accountancy


This study is concerned with the conception of capital and income as these ideas were understood in the changing economic circumstances of the late nineteenth century; in particular, as the prevailing conception provided a framework for financial reporting and the determination of accounting profit.

This issue arises as a matter of interest from the confusing, conceptually flawed, accounting for capital and income followed in respect of capital assets in the late nineteenth century that has been the subject of a small but significant accounting literature. That literature has extended discussion of accounting practices followed in respect of capital assets at that time to the consequences to economic organisation of flawed accounting policies; and to a concern with identification of the conceptual basis of that accounting. Methodologically the issue, and the literature it has provoked, provide a ‘set’ in which an accounting calculation is identified, its consequences evaluated and its context considered. This set introduces the idea that accounting had macroeconomic implications. In this way, the debate meets Hopwood’s injunction that accounting ought to be considered in the context in which it arises. In the study, the context of accounting calculation is extended beyond the differences of accounting detail into the philosophical
organisation of society, and its material circumstance. Accounting becomes invested with social consequences in the broadest sense.

The ‘capital assets’ in question were the industrial wealth-producing assets – the products of Britain’s superiority in iron, coal and steam technology – that formed the basis of the British Industrial Revolution. Variously such assets are referred to as capital assets, industrial assets, fixed assets or sunk costs, or other such terms. They involved considerable financial investment in physical plant of uncertain character and life. Though profitable, management of wealth in the form of such assets was a novel matter, quite different from the management of wealth derived from land or commerce. By the late decades of the nineteenth century, wealth was a matter of financial abstraction, dependent on calculation of an obtuse sort. Determination of capital and income in financial form was therefore a matter of consequence in the organisation of economic activity. By the latter decades of the nineteenth century the management of much of Britain’s industrial system was comprehensible only in the abstraction of accounting numbers, yet because of defective distinction between capital and income, these numbers were systemically flawed. The study notes that this dysfunction was exacerbated by the underlying economic circumstance of the deflation that occurred between 1873 and 1896.

The idea that accounting promoted the organisation of capitalism is known in the literature as the Sombart hypothesis. That hypothesis was originally argued by the German economist Werner Sombart in the context of the part played by double-entry bookkeeping in the rise of mercantile capitalism and, in that context, it has been disputed, by Yamey. The Sombart idea has been set by Brief in the context of late nineteenth century finance capitalism and the organisation of an industrial economy using financial signals. It is Brief’s argument that is developed here by exploration of the conceptual apparatus available to accountants in the critical task of accounting for capital assets and, in particular, identification of profit.

The study shows that confusion in the distinction between capital and income in accounts was apparent to contemporaries and it links the accounting problem noted here at that
time to the contemporaneous legal debate and litigation about the definition of profit available for distribution as dividends, in which the key case was *Lee v. Neuchatel Asphalte*. The study illustrates that, in both these instances, the issue debated dissolved to a view that capital and income were separate states of wealth, and that each might be dealt with separately. The modern, twentieth century, understanding of capital and income as antithetical states of wealth is identified in the study as deriving from the work of the American economist Irving Fisher in 1896.

In the accounting literature, comment about nineteenth century accounting for capital assets has generally been confined to observation of practice, and the nature of the underlying conceptions followed has not been explored. This study distinguishes between the late nineteenth century debates about depreciation and the specification of the relationship between capital and income. It notes that, while tangentially related, they are conceptually separate matters.

Discussion of nineteenth century accounting practice in the secondary literature suggests that the approach followed to capital asset accounting was a matter of individual, ad hoc, arrangement; unrelated to an underlying concept of capital and income. This is a view rejected here. As analysed in the study, a commonality is noted in the concept of capital, in the legislatively imposed ‘double-account’ system and other forms of ‘renewal’ accounting, and in legal opinion about distributable profit. The commonality is that capital and income were regarded as separate, one from another. The implication which provides the basis for the exploration in this study is that they were linked by the prevailing, archaic, conception of capital and its relationship to income, quite different to how the relationship has been understood in the twentieth century.

This idea is explored in economic philosophy on the basis that it would be in that body of philosophic literature that such ideas would have to be explored, and that economic philosophy would provide the basis both for what was taught and the doctrines determining legal and accounting practice. The idea is extended here into the hypothesis that a flawed conception of the relationship of capital to income could not be self-
sustaining because it would cause dysfunctional decision-making. The argument here is that, the long legal dispute about the composition of profit in the English courts in the closing decades of the nineteenth century reflects exactly the effect of such a failed mechanism working itself out.

The study finds that, for most of the nineteenth century, understanding of the nature of capital and income derived from the works of William Petty and Adam Smith that held that capital and income were separate states of wealth. This conception continued in the work of David Ricardo, Marx and J. S. Mill, and is evident also in the work of Alfred Marshall. Mill’s view, in particular, is found to be important because of the contemporary significance of his *Principles* as the source of the common understanding of economic ideas for most of the second half of the nineteenth century, and his view that, ‘there is nothing in the laws of value which remains for the present or any future writer to clear up’.

The contribution of this thesis is to

- Establish that the crisis in late nineteenth century financial reporting derived from the prevailing conception of capital and its relationship to income,
- note that the conception in legislative requirements determining profit were consistent with that definition, and
- identify the origin of the modern, twentieth century understanding of capital and income as antithetical states of wealth.

In addition, the study presents an in-principle view that nineteenth century capital accounting had the capacity to cause misallocation of resources within an economy.
Chapter One

Introduction

the ideas of economists and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood. Indeed the world is ruled by little else. Practical men, who believe themselves exempt from any intellectual influences, are usually slaves to some defunct economist

John Maynard Keynes, 1936, last paragraph

1.1 Introduction

This chapter establishes the context of the study. It indicates the purpose of the study and identifies the source of the research idea in the existing literature. The Sombart hypothesis is identified and outlined. The research issue prompted is outlined. Relevant characteristics of the late Victorian economy are sketched and the significance of the Great Depression of 1873-96 to the study is indicated.

1.2 Purpose of the Study

The purpose of the study is to explore further the unsatisfactory approaches to accounting for capital and income observed in late nineteenth century British financial reporting, in
particular, as reflected in external financial reporting of fixed assets, otherwise variously described as capital assets, or capital intensive, assets. These assets were the new industrial assets of the Industrial Revolution – the product of developments in the coal, iron and steam industries that dominated the economic life of Britain to 1900. The study seeks a causal explanation for the practices noted in the literature.

The character of nineteenth century financial reporting followed in respect of such assets has been explored in a variety of ways in the literature. For example, Pollins, (1956), has examined early railway accounting, Tucker (1960) and Lee, (1975), have discussed early approaches to the concept of profit, Pollard, (1968), has assessed ‘the failure of capital accounting’ as an aid to management, and Kitchen, (1974), has commented on the prevalent use of the double-account system in that century. In these discussions, the central issue is accounting for capital assets as reflected in extant financial statements and the appropriate approach to the allocation of cost associated with the loss of value of such assets.

In a small, but important, literature, Brief (1965, 1966, 1976 and 1993) has shown that the accounting policies followed in British (and American) financial reporting in respect to such assets were, by the standard of twentieth century concepts, confused, or ‘irrational’; that they were inconsistent in the approach followed in respect to capital lost

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1 The expression ‘capital and income’ rather than ‘capital and profit’ is used generally in the study because ‘income’ is the term more generally used in the material cited, though ‘profit’ would be the term generally employed in Australian Accounting. The term profit is used in Chapter 10 because this is the term used in the material cited in that Chapter. In the study the terms are regarded as synonyms, and no distinction is admitted here.

2 The emphasis in this study is on British practice because British experience was in advance of American. As noted by Brief after comparing the quality of British and American accounting practice, ‘We must conclude, therefore, that the quality of accounting practice in the United States was, at no time, ahead of English practice’. (Brief, 1976, p.182).

3 ‘Rational’, in the early twenty-first century is sometimes held to be a pejorative term, that is, it is taken to mean profit beyond anything else, and held to stand against the moral or ethical, rather than a technical statement referring to choice between competing ends; that is, to seek satisfaction by preferring more to
due to depreciation or other forms of wasting, for example, physical or economic obsolescence or changes in value. Viewed retrospectively, the practices followed then muddled capital and the expense associated with the use of that type of asset.

Brief, (1965 and 1994), has described this failure to systematically distinguish between capital and revenue expenditures, and to allocate original costs of fixed assets to expenses, as ‘accounting error’ (1965, p.14 and 1994, p.254). The attention Brief has drawn to this issue has been followed by Bryer (1991, 1993 and 1998) and Napier (1997, Unpublished). However, with the exception of Napier’s paper, no causal explanation for such practices has been advanced in this literature. Seeking such an explanation for those practices is regarded here as an example of Hopwood’s (1983) injunction to ‘study accounting in the contexts in which it operates’. The explanation advanced here relates to the underlying conception of capital and its relation to income held in the nineteenth century. In this way, the scope of accounting enquiry is extended into a broader, philosophic, context. Methodologically, the study is concerned with the context of the issue rather than with identifying, describing and classifying differing accounting techniques. The approach to be followed is an interpretation of historical evidence.

less, which is the idea that provides in neo classical economics. Maximising behaviour is ‘rational’ in the sense that to act otherwise imposes a cost of lost opportunities, that is, ‘irrational’. It is in this sense that the term is used in the study. The ethical question of such choice made at the cost of other humanistic alternatives in not entered into here, but the following observation about the ethical, or moral, foundation of economics made by Keynes is noted,

I want to emphasis strongly the point about economics being a moral science. I mentioned before that it deals with introspection and values. I might have added that it deals with motives, expectations, psychological uncertainties. One has to be constantly on guard against treating the material as constant and homogeneous. It is as though the fall of the apple to the ground depended on the apples motives, on whether it is worthwhile falling to the ground, and whether the ground wanted the apple to fall, and on mistakes calculated on the part of the apple as to how far it was from the centre of the earth’,


Lee, uses the expression ‘bad capital accounting practices’, but in deference to the existing literature ‘irrational’ is used here, (Lee, 1975, p.17).
Evidence evaluated explores the evolution of the concept of capital, and the relationship of capital to income, in economic thought, the law and chartered accounting in the nineteenth century. A cross-disciplinary approach is considered appropriate; indeed, necessary because of the well known problems brought to financial reporting in the late nineteenth century by the legal decision in *Lee v. Neuchatel*. As evaluated for the study, this decision is understood to reflect a flawed understanding of capital and its relation to income and one inconsistent with the modern understanding of the capital income nexus. It is interpreted here to indicate a conceptual evolution in the concept of capital that has hitherto not been explored. The problem is seen to be reflected in economic conception, legal judgment and accounting practice.

As a subsidiary thesis, Brief (1965) has suggested that the flawed policies followed in respect to capital assets led to ‘accounting error’ that might have biased economic decision-making. Brief has argued that the ‘accounting error’ resulting from flawed accounting policies followed in respect of wasting assets, was randomly distributed in a normal manner (Brief, 1975) and no bias was exhibited. This study extends this idea. It does so by exploring contemporary practice in respect of the wastage of capital assets in the context of the crisis of falling prices and depression that affected the British economy from 1873, and which persisted until 1896. In his PhD thesis, published in 1976, Brief makes no direct reference to the general trend of falling prices over the period in question, commenting on falling price only as a general possibility (Brief, 1976, p.54), while noting, amid a variety of approaches to depreciation, a tendency to value assets at replacement cost. The alternative possibility suggested here is that where assets were valued at historical cost, and depreciation based on an allocation of original cost in a period of falling prices, (such as existed in the later part of the nineteenth century) profit would have understated the cost of capital asset consumption where this was calculated on historical costs rather than replacement cost. Recording at cost was a feature of accounts kept under the ‘double-account’ system’ followed at the time by railway and other utility companies. The double-account system continued to be employed in such companies into the twentieth century.
The argument presented is that the effect of the failure of capital accounting was that the financial representation of capital in financial reports did not reflect the underlying stock of wealth, nor income the underlying gain or losses of wealth. As a consequence accounting measures of profit were flawed, as were rationalising ratios such as Return on Assets or a Return on Investment. Additionally, the calculation of fixed costs would be similarly flawed, to the detriment of the determination overhead rates, costs and prices. There is nothing inherently rational about accounting measures and ratios. Rather, rationality concerning ‘cost’ derives from the nature of the conceptions on which they are based, yet the character of the conceptions on which nineteenth century accounting was based has not been explored in the relevant literature. Nineteenth century accounting practice in respect of capital asset accounting was irrational in the sense that it did not conform to twentieth century conceptions of capital and income as one of antithetical relationship, one to the other. This idea raises the question, ‘when, and how, did the twentieth century conception arise?’ It is this question that the study explores.

Put another way, determination of fixed costs is about determination of depreciable amount. The issue of depreciation was another matter subject to important discussion at the time: whether it was necessary and how this might be reflected in accounts, or whether the continued loss of value and the need to make expenditures might best be accommodated by other techniques, for example, the double-account system or by replacement cost accounting. In this study, depreciation is argued to be a separate matter, and the concern here is with the conception of capital.

Given the confused bases employed to determine the cost of lost, or wasted, capital in the nineteenth century, it is possible that accounting measures of profit would have been flawed, and dividend policy therefore falsely based: that overall the effect was to corrupt profit signals and the result to misdirect financial resources. In principle, depending upon

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4 It is an interesting point that the contemporary literature on the question of depreciation was extensive, much more so than the literature about the nature of profit, though the need for depreciation arises from the need to calculate profit.
the assumptions made underinvestment and underemployment would result and
economic and social dislocation ensue.\textsuperscript{5}

These consequences of flawed asset accounting in the nineteenth century are visible in
contemporary legal actions concerning the determination of profit available for
distribution as dividends. Starting with the matter of Knowles and Son, v. McAdam in
1877, such cases became increasingly common, culminating in the notoriously confused
judgments in Lee v. Neuchatel. Best (1902, pp.10-4) provides a summary of significant
cases prepared at the time for chartered accountants, this summary is reproduced in
Appendix 4). These cases, Neuchatel in particular, reflect confusion in judicial opinion
about the appropriate principles to be employed in determination of profit in the context
of the loss in value of capital assets due to depreciation, obsolescence and, in particular,
resulting from changing price levels; indicating a systemic problem in the contemporary
conception of income at that time.

At that time, reference to the contemporary academic conception of capital and its
relationship to income would not have resolved the practical problems confronting
lawyers and accountants in the question of accounting for lost capital assets. Definitions
of capital and income provided by various academic authorities essentially followed the
work of Adam Smith. It divided capital into productive and non productive categories,
and held that capital and income were distinctive, separate, forms of wealth. A summary
of definitions provided by nineteenth century economist contained in Fisher (1896) is
contained in Appendix 3.

\textsuperscript{5} The critical assumption relates to whether resources would continue to be employed in the
domestic economy, albeit in a suboptimal manner. If they were not there would be a contraction in activity, i.e.
employment of resources, in particular, labour. Alternatively, if saving were balanced by investment
outside the domestic economy the effect would be, similarly, contractionary.
1.3 Sombart’s Hypothesis

Generally, when the role of accounting in economic organisation is mentioned in histories concerned with the rise of capitalism, the role assigned to it, if considered, is almost always limited to that of a scorekeeping function.

An alternative proposition is contained in the assertion made by Hopwood, (1985). It is that accounting occurs in a context and has consequences. In that article Hopwood observes that,

Conventional understandings of accounting view it from a relatively unproblematic technical perspective … notions of cost, profit and other indices of financial performance may not be seen as being unproblematic, the difficulties which they give rise to stem , according to such a conventional view, from the problems of operationalisation pre-given aspects of organisational and social reality
(Hopwood, 1983, p.290)

That is, accounting is a technique (or in this study a calculus) that is socially relevant because it is set in a context and the operation, or use, of which is consequential to the context: accounting information shapes decisions. As economic organisation increases in complexity accounting becomes increasingly important in economic organisation. As it becomes more complex its potential to disrupt increases. It is this process that the study draws attention to. The idea of technique, context and consequence, therefore, provides a theme around which the study is organised. The issue identified – the calculation of capital – is the technical matter, and the argument advanced is that the inadequate conception in the late nineteenth century came to accounting from the broader philosophic endowment of society at that time.

The idea that double-entry bookkeeping played a shaping, if not determining, role in the organisation of capitalism derives originally from the work Werner Sombart, a member of the German historical school of economics. As argued by Sombart, double-entry bookkeeping assumes a role of economic significance by providing information from which rationalising calculations can be made. Using the rational calculus provided by double-entry bookkeeping, profit-seeking activity was asserted to be rationally directed in
the sense that utility derived is maximised. In this way, accounting, or double-entry bookkeeping, provides information that shapes economic events and assumes a larger significance than would be conferred by a simple score-keeping medium. In Sombart, there is the idea that accounting was active, rather than passive, in shaping capitalism and, by corollary, flawed information contained the potential for crisis. In the literature this idea is described as the ‘Sombart hypothesis’.  

Though, as will be illustrated below in Chapter 5, the Sombart hypothesis pertains strictly to a set of propositions advanced by Sombart relating to the role of double-entry bookkeeping in the rise of medieval mercantile capitalism, Sombart’s idea provides a starting point for an important literature that considers the economic significance of accounting in the later, industrial, phase of capitalism. Even more generally, the idea draws attention to the way in which information about the organisation of information about finance changed as the particular circumstances of capitalist organisation developed, for example from capitalist agriculture to mercantile commerce. Sombart’s theory of double-entry bookkeeping being integral to the rise and success of capitalism in fact sits uncomfortably with what is known of the practice of accounting in the nineteenth century, in particular the flawed accounting for capital-intensive assets in the later part of that century. Capital asset accounting at that time provides something of a case study of the economic effect of failed accounting. As described by Brief, the suggestion is of a flawed accounting practice, confusion and crisis.

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6 For use of the Sombart hypothesis in a general argument see Pollard, (1963, p.114). The Sombart hypothesis is discussed further in Chapter 5.
7 It provokes, for example, thought about how such information might be organised in a capitalist system based on employment of intellectual, rather than industrial, assets.
8 A suggestion of this inconsistency is contained in the opening and closing paragraphs of Sidney Pollard’s paper, ‘Capital Accounting in the Industrial Revolution’, Yorkshire Bulletin of Economic and Social Research, 15, (November 1963), pp. 75-91, but Pollard does not develop the theme.
1.4 An Alternative Model; Entrepreneurial Decision-making

Sombart’s conception of accounting’s role in the organisation of capitalism is of a
calculative machine in which resources are rationally directed on the basis of profit to
their most useful employment in an almost mechanical manner. It is a conception in the
Anglo-American tradition of business decision-making by marginal adjustment as
contained in the ideas of Jevons and Marshall. Alternative explanations about the nature
of entrepreneurial behaviour might be advanced as an alternative to Sombart’s
conception. For example, an important alternative explanation might be that
entrepreneurial decisions are based on ‘entrepreneurial impulse’; a matter of intuition:
inspired prospective insights into what might yield an economic rent. Implicitly, this
view lies behind many of the descriptions of the process of British and American
industrialisation; the activities of technical originators and financial formulators who took
their ideas to market.

The literature of the past two hundred years about the process of industrialisation
abounds with biographies and accounts of entrepreneurs who took an inspirational, rather
than the calculative, road to prosperity (and no doubt in instances less recorded, failure
and obscurity), a road that is often more interesting than the rise of the mundane calculus
described here. Inspection of that entrepreneurial motive is incidental to the analysis of
the issues of concern here, and is not entered into. It can, however, be observed that
often such entrepreneurs were following faith in themselves and some particular
advantage that nature had endowed them with, and which conferred some monopoly
advantage that sometimes defies rational understanding. It can, also, be reasoned that in

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9 For an interesting investigation of more rapacious capitalist behaviour see Lewis (1935). Generalising, in
the end, such behaviour seems to founder when confronted the cold calculation in the finance market.
10 Implying no particular emphasis, but illustrative of the general nature, see Chisholm and Davie (1993) on
11 So, for example, of Allen Lane, founder of Penguin Books and hailed as the ‘greatest publisher of the
twentieth century’, it is said, when selecting manuscripts while working for Bodley Head, that he possessed
‘…a nose for a good book; “He had an inexplicable, almost psychic ability to sniff out a
publishable book or series without reading more than a page or two”…..’ (Hall, 2005, p.R15). See
the medium to longer term, the activities of such entrepreneurs require recourse to financial markets, and a need thereby arises to converse with the financial community; to indicate success or failure in an abstract manner, determined by agreed rules. Whether entrepreneurial direction is concerned with profit maximising, sales maximisation, maximisation of market share or results in behaviour of a satisficing type, it is reasoned here that there will be a requirement for a system of financial information that identifies financial position and from which relative performance can be judged, and a need to identify wealth and the cause of change in the stock arises whatever the character of entrepreneurial decision-making. In that sense the character of entrepreneurial behaviour is regarded as irrelevant to the composition of financial reports.

That is, necessity dictates the need for general comprehensibility that requires recourse to a common, abstract, rational calculus based on generally understood rules (or a grammar). In this way, the problems encountered by entrepreneurial actors, communicating about their financial wealth, reduce, in the longer run, to the issues of conception, comparability, comprehension and inherent rationality discussed here. These matters seem important whatever the character of entrepreneurial decision-making.

1.5  Context: The Industrial Revolution and ‘Profit’

The context of the study is the later, financial, phase of the industrial revolution that was exhibited in the last three decades of the nineteenth century and the opening of the

also Bill Gates account of his equally inexplicable insight into the need for a computer operating system that occurred to him in Harvard Square when shown by his friend Paul Allen the issue of *Popular Electronics* magazine reporting on the release of the Intel 8080 micro processor chip, and understanding that this was the start of the mini computer and the need for software, (Bill Gates, 1995, pp. 14-7).

Also Les Carlyon on the Australian media tycoons Frank Packer, Keith Murdoch, Warwick Fairfax, Rupert Murdoch and Kerry Packer,

‘All…were better at politics than politicians. All believed in following their instincts, doing it by feel rather than numbers, making the odd wild bet and then riding that bet home so energetically that, when the race was run and won, the wager didn’t seem so rash at all’

twentieth century; say between 1870 and 1914. This was the age of finance, ‘hoch’, or ‘high’, capitalism, of ‘rentier capitalism’, the age of the bourgeoisie and of a society and values of their making. The high point of this society was late Victorian and Edwardian England, and its end, as identified by John Maynard Keynes and others, was the First World War. (Though in the context considered here the end of the old order was probably signalled by the election of the liberal government in 1906, the ‘people’s budget’ of 1909 and the eventual passage of the Parliament Act in 1911. The people’s budget provided for a measure of social welfare financed in part by a property tax on the inheritance of large estates. The introduction of transfer payments signalled the end of a society in which incomes were determined exclusively by the ownership of land and receipt of rent, interest or profit.)

12 ‘Rentier’, ‘…loosely used to describe any person whose income is ‘unearned’ and derived solely from the ownership of capital – interest, rents, or dividends rather than ‘earned’ income in the form of salaries and wages, Seldon, A and Pennance, (1973)

The later decades of the nineteenth century was a time when thrift and saving had became the redeeming feature of liberal values, surviving what Schumpeter describes as ‘…all-round vituperation directed against “sloth” landlords and grasping merchants or “masters”…’, (Schumpeter, 1954/1994, p.516). It was a time when the bourgeois kept ‘baking cakes not to eat them’ Keynes in (Schumpeter, 1954/1994, p.501).

Ultimately, the virtue of saving without a commitment to spending was destroyed by Keynes in the General Theory.

To most observers, including Keynes, the age of rentier capitalism and laissez-faire economics ended with the First World War.

13 Winston Churchill understood the revolutionary implications of what was proposed,

We have arrived at a new time. We must realise it. And with that new time strange methods, huge forces, larger combinations – a titanic world – has sprung up around us. The foundations of our wealth are changing.’ (Speech, Manchester Free Town Hall, May, 22 1909).

and

If we carry on in the old happy go lucky way, richer classes ever growing in wealth and in number, the very poor remaining plunged or plunging ever deeper into helplessness, hopeless misery, then I think there is nothing before us but savage strife between class and class…

The new industrial economy that emerged in Britain in the second half of the nineteenth century was financed by absentee, or anonymous investors, ‘rentiers’, who followed Adam Smith’s invisible hand of self-interest by responding to the opportunity for financial gain expressed in the bookkeeping abstraction, ‘profit’, rather than by direction based on personal familiarity or connection with a business, as had previously been the case. Almost without modification by other considerations, the prospect of profit determined the allocation of resources, shaped society and its institutions in new forms and determined the life style of millions, to whom the abstraction of profit remained a mystery. Pursuit of profit by the bourgeoisie determined the employment of those who were dependant on wages. ‘Profit’ became a source of popular antagonism. The increase in output, or wealth created by the pursuit of profit from industrial activity altered social organisation, necessitated changed social institutions, and required a new set of conceptions; not least about the nature of profit. Accounting profit assumed, though seldom acknowledged, a central role in the organisation of Victorian society. Yet, as this study will illustrate, the technical composition of profit was a vague matter; not given to close specification. At least until it became a seriously awkward issue, as it did in litigation about the determination of profit available for distribution as dividends; say from about 1880.

As the scale of industrialisation increased during the nineteenth century, so the task of directing economic activity became more complex: of necessity, dependant on abstraction and intellectual constructs. A critical feature of the process became the collection, organisation and investment of savings. Perhaps by 1800, the key organising idea of pursuit of gain could only be understood in the abstract. This, for example, appears as the motivation in Cronhelm’s attention to the accounting determination of proprietor’s wealth (Scorgie and Joiner, 1995). The economic system of advanced financial capitalism evolved around attention to the abstraction of financial gain determined in accounts kept in the double-entry mode, and validated by independent checkers.
Stripped to an essential idea, the Industrial Revolution was about investment of the available economic surplus in new, ‘industrial’, tools of production that had the effect of dramatically lifting productivity; giving rise to economic rent. What was different about the Industrial Revolution was not that technological innovation and its application to production was revolutionary, rather it was the scale of the accomplishment. In this study, what is important about physical scale of industrial change was the organisation, collection and allocation of savings to the most desirable investment and the institutional changes this implied. It is the intellectual aspect of that accomplishment that is the focus of interest here.

The rise of British industrialisation may itself be seen as the result of an abstract idea, application of which had dramatic consequences. The Industrial Revolution was the result of the operation of Adam Smith’s impersonal ‘invisible hand’ of self-interest identifying activities on the rational basis that benefits exceed costs and thereby increasing wealth; the operation of an abstract idea. By contrast, early industrialist such as Wedgwood, Boulton, Watt and Wilkinson made the necessary judgments concerning inputs on the basis of personal familiarity with their business; a tangible matter.

Separation of owners of capital – rentiers – from management increased the complexity of economic organisation. It necessitated a method of coordinating of participants. The need was to indicate the effect of economic activity on a duality; on the one hand, of the use of assets, and especially assets of a sunk and wasting kind; on the other, to show effect of events on the funds by which they were financed. The essential requirement was for a calculus that permitted determination of the financial value of the stock of wealth, and incremental change to it that reflected gains and losses occurring, both in the operation of the stock of physical assets, and in the management of the financial resources obtained to acquire them. Such a system might be thought of as a tool. The tool that provided such a facility was double-entry bookkeeping.

Development of tools as an aid to productivity may possibly predate humanity, and the origin of the process is lost to history. But the implication of productivity improving
tools prior to the Industrial Revolution is known. For example, the long, or deep, plough commenced, from the ninth-century, a process of economic change that altered, indeed commenced the destruction of, the feudal order in Europe (Reynolds, 1961, p.44).

Similarly, technological developments in European shipping technology by Portuguese, Dutch and British innovators after about 1400 provided the basis for European colonial adventure and expansion that financed the renaissance and enlightenment; creating the subsequent commercial revolution of mercantilism in north-western Europe (Reynolds, 1961, pp.411-13).

At a more abstract level, Faulhaber and Baumol, (1988), have drawn attention to economic research, or development in economic thought, as a ‘practical product’ which, rather than describing economic activity, provide tools for increasing economic productivity. Taking such developments in the nineteenth century to illustrate this idea, it is apparent that the idea of subjectively determined increments to utility evolved by Jevons and Marshall were examples of economic ideas that improved understanding of the economic process in that century that resulted in improved, i.e. more productive, decisions in the use of scarce resources. The association asserted in this study is that double-entry bookkeeping, if not itself an economic tool, is conceptually analogous as a tool capable of promoting improved economic outcomes. As identified in this study, in serving this role, the use of double-entry bookkeeping was visibly inhibited in the late nineteenth century by the prevailing conception of capital and its relationship to income.

1.6 The Changing Nature of ‘Investment’

Prior to the Industrial Revolution, the primary investment of financial capital was in assets for the purpose of trade. The increase in economic activity in the eighteenth century related to an entrepreneur financing the putting-out of stock (particularly textiles) for processing in what was essentially a handicraft system. In this system, stock ‘turned over’, or ‘circulated’, and was known as ‘circulating capital’. Characteristically, in this

14 Similarly, see the Australian Financial Review, October 16, 1997, p.17 on the Black-Scholes model and the rise of the financial derivatives market.
type of activity, profit was determined in the resulting sale by deducting the capital outlaid from sales revenue. Profit was calculated at the end of the cycle rather than as a function of time.

Consistent with Nef’s (1934) hypothesis that the industrialisation of Britain was underway well before the acknowledged start of the Industrial Revolution, mercantile accounts frequently contain reference to investment in assets of a fixed or permanent nature. Ships in particular were an important item of investment for mercantile capitalists. Approaches to such investments followed in mercantile bookkeeping are explored further in Chapter 2.

By contrast, in the new industrial enterprise, capital was ‘sunk’, or ‘fixed’, into ‘plant’. With such investments, there was no natural limitation to the life of the investment. Practically, investment was for the long term, requiring a periodic determination of gain.

15 Mathias, (1969) indicates that the phrase ‘industrial revolution’ derives from the French economist Blanqui who noted, in 1837, that Britain had in the late eighteenth century undergone a period of deep-seated change as significant as the revolutionary political upheavals occurring in France from 1789 (Mathias, p.3), though the really significant changes in the British economy were only just getting under way in 1837. The date selected for the start of the industrial revolution moves with the observer. For example, Ashton (1962) dates the industrial changes regarded as ‘revolutionary’ from 1760, following the famous nineteenth century Oxford historian Arnold Toynbee (Deane, 1969, p.2), though there is little to justify the selection of that date as a relevant discontinuity, other than the accession of a 22 year old George III to the British throne. Ashton, however, notes that the furnaces of the Carron ironworks in Scotland were first lit on Boxing Day of that year, (Ashton, 1962, p.65). Other writers suggest other dates from which a discontinuity might be recognised. For example, Deane (1969) and Seldon and Pennance, (1973), nominate 1750, and the famous economic historian W.W. Rostow notes 1783, (Deane, 1969, p.3), while Mathias (1969) dates 1740 as the beginning of the significant change in British society.

An alternative hypothesis, arguing that boundaries about such events are artificial and stressing the slow evolution of industrialisation from the sixteenth-century, is associated with the American historian Nef (1934). Broadly the evidence reviewed for this study supports Nef’s hypothesis. This is reflected in the gradual evolution in bookkeeping for fixed assets noted in the study, and discussed in Chapter 2.
available for distribution along the way so that investors might be sustained. Perhaps by analogy, with the ancient agricultural past the ‘natural’ period of reckoning was the year per annum.

In the industrial context, determination of this ‘profit’ is accomplished only by the difficult task of periodically reckoning the financial value of plant lost, or exhausted, in the process of production. In particular, ‘value’ might be lost because of depreciation of physical plant, by changes in the relative values, or in the ‘value’ of money. Notoriously, reckoning of profit in such circumstances had been a matter of arbitrary allocation, but in Chapter 3, the availability in the late twentieth century of conceptual tools which permit this judgment to be based on the objective criteria of ‘exhausted cost’ will be identified. That is, the distinction is between an allocation that is arbitrarily drawn, and one determined as a gain or loss in wealth; a distinction not available until the end of the twentieth century.

1.7 The Great Depression of 1873-96

In the long period between 1873 and 1896 the British economy suffered a period of falling prices. It was a time of depression, crisis and disruption to economic activity such that the period has become known as ‘the Great Depression’. It was also a time of growing German and American industrialisation, which challenged Britain’s industrial supremacy. In a curious way, the crisis existed side by side with the power and glory of late Victorian Britain: a period of economic uncertainty that extended into national self-doubt, such that it was regarded as a crisis at the time.

Relevant here, the crisis was characterised by investment in an aging stock of industrial assets, and competition in markets where British producers had hitherto faced none. As

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16 An illustrative metaphor is provided in the excessive sensitivity of contemporary English society to the loss of a cricket match celebrated in the Ashes series. The Ashes were created in 1882. It was the start of an autumn of self-doubt and decline in British authority that was to turn into winter in 1914.

17 This ‘Great Depression’ is not to be confused with the even greater depression that ensued after the Wall Street crash of 1929. Puzzlingly, unlike the ‘Great’ wars, the suffix 1 and 2 seem never to be applied.
the crisis continued into the 1880s, the foundations of British economic organisation
came under increasing attention, reflected in an inconclusive enquiry conducted by the
British Parliament in the 1880s into falling prices and in ambiguous litigation and judicial
decisions about profit available for distribution as dividends; cases in which the question
at issue was the way in which profit would be calculated, and which, as in the Neuchatel
case, were resolved on the basis of a deficient definition of profit. Taken together these
circumstances suggest a loss of intellectual control of a system. Viewed retrospectively,
increasingly the British economy, by then understandable only in the abstract, suggests a
system that had outrun the set of available conceptual tools necessary for its control.

The cause of falling prices between 1873-96 remains unclear, and contemporary national
income statistics provide an incomplete coverage of British economic activity at the time.
While it is understood that there was a general fall in prices, it seems that the fall affected
Britain’s long standing engineering industries of coal, steam and iron, which had been the
source of Britain’s strength in the preceding 100 years, while in emerging industries,
based on new technologies such as electricity, oil and services, the fall was less. The fall
in prices occurred at a time when the need to understand net wealth and income was most
acute, in particular in the old industries possessing aging or obsolescent plant. In such a
context, the need to make economic calculation based on information about the stock of
capital and its profitability might be expected to be of critical importance.

The difficulty of determining the stock of financial wealth in an industrial context is
increased when changing price levels are admitted to the equation. Price levels
undoubtedly varied during the late eighteenth and nineteenth-centuries. For example,
prices rose during the Napoleonic war and fell at its conclusion. But the literature does
not indicate any particular contemporary awareness of disturbance created by changing
money values in the determination of wealth and allocation of resources until the long run
decline in prices that followed from 1873. Generally, the tendency at that time was to
regard a decline in the market value of an asset analogously to a loss caused by physical
or economic wasting. The distinction between a real and nominal price changes was not
appreciated at the time. It is an example that illustrates the lack of intellectual and
conceptual tools available to contemporaries charged with the management of a more advanced economic order.

1.8 Intellectual Introspection

A climate of intellectual introspection that produced new conceptual tools of economic management is apparent in Britain after about 1880. This was manifest in a variety of ways. For example, the publication of Jevons’ *Theory* in 1870 introduced the marginal revolution in economic analysis, though a general understanding of the importance of that revolution was deferred until publication of Marshall’s *Principles* in 1890; from which date it came to replace Mill’s *Principles*, as every man’s guide to economics. At this time economics was establishing itself as an academic disciple rather than a matter of intellectual discourse between the gentry and clergymen concerning principles on which public policy might be founded. The publication of Jevons and Marshall’s works discussed below marked the rise of an economics concerned with the management of business rather than the formulation of national public policy concerned with the government of the state. The professional study of statistics was begun in 1880s and index numbers in the 1890s. The significance of the intellectual problems associated with business management was reflected in the rise of professional associations of accountants; relevant to this study were the creation of the English Institute and the publication of its weekly journal the *Accountant* in 1874. These developments were all important, but of the focus in the study is with work of Irving Fisher, in particular, concerning the logical relationship of capital to income.

1.9 Irving Fisher and the Conception of Capital and Income

Research for this study has identified that the twentieth century definition of capital and income derives from an academic paper *What is Capital* published in the *Economic Journal* in 1896 by Irwin Fisher, an American ivy-league academic economist working at Yale University.

In Fisher’s conception capital and income are antithetical expressions of wealth, where ‘capital’ represents the stock of wealth, and income, a flow of increments or losses. The
Fisher’s approach was that all stocks of wealth were capital, producing a flow of services, irrespective of the existence of a commercial purpose. So for example, a book produces information; likewise a building produces shelter. Whether or not capital produces financial income is a commercial issue that does not impinge on the essential nature of the relationship between capital and income as one of stocks and flows. Fisher’s conception differed significantly from the notion of capital generally accepted in the nineteenth century, which derived from the writings of William Petty and Adam Smith. In their conception capital and income were separate, discrete, components of wealth such that one might alter without affecting the other. In addition, capital was conceived to be of two types: business capital and non-capital; non-capital was capital that did not produce a cash inflow.

Fisher’s importance in establishing the modern conception of wealth as antithetical expressions of capital and income has been obscured by time, in particular his 1896 paper. In research for this study only one acknowledgement of Fisher’s accomplishment was identified, that by the learned chronicler of economic thought, Joseph Schumpeter, who acknowledged the contribution of Fisher’s work on capital and noted its significance to modern accounting theory. In addition, Fisher’s 1906 monograph, *The Nature of Capital and Income*, in which he endeavours to develop a theory of accounting, was the inspiration for John Canning’s *The Economics of Accountancy*, (1929/1978), both of which are commented on by Chambers, (1971 and 1978, see also Ryan, 2002). It was Canning who introduced into accounting the idea that accounting ‘profit’ ought to provide ‘economically useful’ information.

### 1.10 Research Issues Identified

The research issue explored in the study derives from the flawed accounting for capital assets followed in the late nineteenth century. That accounting affected both the character of financial statements, judicial judgments and economic outcomes at that time. That the identification of profit at that time involved so much litigation suggests that the distinction was an important issue at that time in the financial management of British economic life. Litigation at that time arose in the contentious accounting followed to
determine profit available for distribution. It is taken here to indicate that accounting was implicated in systemic dysfunction in the organisation of the economic system. The research idea explored in the study is that, behind the immediately visible issue of flawed accounting and difficult judicial judgments, was an inadequate philosophic distinction between capital and income. A primary research issue here then is to explore the conception of capital and income as it was understood in the nineteenth century.

A subsidiary hypothesis is suggested by Brief’s conclusion that the flawed practices followed in the period in question did not bias economic decision-making. The alternative suggested here is that the flawed accounting practices distorted profit signals, and had an adverse effect on economic decision-making and economic activity. In principle the assertion is that this must have been so since the approaches to capital asset accounting overstated the cost of plant and occurred in the context of falling prices. Such a hypothesis is an adaptation of the Sombart hypothesis that has been outlined above.

The specific research objectives of the study are identified in Section 2.6 below.

### 1.11 Summary

This chapter has indicated the rationale for the study and indicated its scope.

The chapter has noted the occurrence of conceptually flawed accounting for capital assets in the late nineteenth century has been the subject of a small, but significant literature commenting on the nature and consequences of the accounting methods followed at that time. It has noted that, with one exception (Napier, undated), an explanation has been offered for those practices. The chapter has further noted that the issue considered is separate from debate at that time about depreciation. However, debate about depreciation is recognised to turn on the definition of income.

A point of departure for the study is that while nineteenth century capital accounting appears flawed to twentieth century eyes, the practices followed, the accounting requirements imposed by Parliament and the accounting issues in numerous cases
decided in British courts at that time have a common theme. It is the idea, held prior to Fisher, that capital was separate from income. In accounting, it was the conception that permitted amendment of capital without adjustment of income that was at the centre of the decision in *Neuchatel*. The idea of capital and income as separate states of wealth is foreign to twentieth century conceptions, but provides a logic that unlocks the scheme of capital accounting followed in the nineteenth century. The idea indicates that a study of the character of nineteenth century notion of capital, and its relationship to income is warranted.

As a subsidiary matter, this chapter has noted that debate about flawed accounting for capital assets in the nineteenth century occurred during the economic crisis of the Great Depression and, in particular, the sharp fall in prices that occurred between 1873 and 1896. It is that the accounting followed in respect of the assets in question has been linked to macroeconomic consequences. Exploration of this link by Brief suggests no adverse consequences followed from the flawed accounting at the macroeconomic level. By contrast, the argument constructed in this chapter is that, because of falling price levels, capital asset accounting followed at that time would have lowered profit and macroeconomic activity because. This was because capital costs on historical cost would have been overstated. It is asserted, therefore, that accounting was implicated in the crisis that beset the British economy after about 1873.

The chapter has noted the ‘Sombart hypothesis’ that double-entry bookkeeping was a necessary precondition to the rise of capitalism. The Sombart hypothesis was originally made in respect of the role of bookkeeping in the rise of mercantile capitalism, but it has been extended by Brief et al. to consideration of the role of accounting in other stages of capitalist development. Methodologically, the study is an adaptation of the Sombart hypothesis, and follows the idea that accounting occurs in a context and is socially consequential.
Chapter 2

Derivation of Research Issues

2.1 Introduction

This chapter identifies the research issues to be explored in the study. Prior to doing so, observations in the secondary literature about accounting for fixed capital assets are explored. This examination is made in three parts: of the representation of fixed asset in mercantile bookkeeping; in early industrial accounting to 1840; and in the remainder of the nineteenth century. The chapter also considers and rejects an alternative causal hypothesis for the failed accounting for fixed assets previously noted. This hypothesis relates to the incomplete nature of knowledge about the physical and economic character of the new industrial technologies.

2.2 Evidence from Extant Accounts

The purpose of this section is to explore the generality of what is understood about accounting for durable assets from observation of extant accounts reported in the secondary literature. The study does not report on additional observations since it is

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18 Observation of extant accounts is something of a specialised art. Frequently what is understood results from scholarship reported in other than English, in particular, in German, (see for, instance, the footnotes to Yamey, 1940 and 1947). The impression gained here is that the nature of an observation is an objective
unlikely that additional facts would alter the generality of what is already understood and reported in the secondary literature. The facts as indicated in the secondary literature are assessed here to be uncontroversial.

2.2.1 Fixed Assets in Mercantile Accounting

Use of tools of a complex type in production seems always to have been a feature of organised economic life. Complex tools are necessary in most productive activities. Farm works, irrigation, bread, beer and brick making, metal and pottery work, mining and shipping have always required plant of some type; requiring the organisation of saving and investment irrespective of the underlying mode of economic organisation. Prior to about 1700, attention to economic calculation concerning the use of ‘plant’ does not seem to have been a particularly important matter in the operation of such industrial activities as were undertaken, and accounting records were not, it seems, kept. Even where technological change was occurring, assets were retained in use for a surprisingly long time and, for instance, a charge for depreciation does not seem to have been regarded as relevant. Rather emphasis seems to have been on repair rather than replacement. Relative to stock for trade, fixed plant was an inconsequential part of a merchant’s investment; it occupied little of his attention and, as will be indicated later in

matter, but interpretation of what gave rise to an entry, and the purpose it served is a matter of conjecture. For example, Yamey’s (1940, p.342) observation that:

The fragmentary records of early bookkeeping before double-entry make it impossible to state with certainty whether any given change in bookkeeping method was associated with the emergence of a new business need.’


20 For example, in shipping, where in North-western Europe technological change had been occurring almost continually ships were maintained in use for a long time. For example, in the Royal Navy the life of a war ship was about sixty years. To illustrate, Nelson’s flagship HMS Victory was launched in 1765 and laid up finally in 1812 and was then kept afloat alongside a wharf in Portsmouth as a depot for a further 110 years (www.HMSVictory.com, 3 Jan. 2006).
this chapter, was unimportant in his accounting. The more important issue in mercantile accounting was inventories of stock available for sale, bad debts and creditors (Yamey, 1940, Lee, 1975, esp. pp.15-6).

As understood from extant accounts, the importance of double-entry bookkeeping increased as mercantile capitalism increased in complexity, passing from disorganised lists, kept whatever-which-way, in the fourteenth-century to integrated, though sometimes incomplete, sets of accounts kept in the double-entry form. Reference to the type of assets relevant here – buildings, ships and machinery etc. – are observed in extant accounts from perhaps the middle of the seventeenth-century. What is understood here from extant accounts from this time about early accounting for ‘fixed’ assets can be summarised as follows.

In mercantile bookkeeping the accounting entity might have been either a venture or a merchant’s affairs; and gain, or ‘profit’ might have been calculated in respect of either. Winjum, (1972), surveying extant accounts between 1625 and 1750, captures the generality in his observation about the accounts of Sir Dudley North, in which the entity is the venture:

The thirty-eight voyage accounts in the ledger were accounted for in one of two ways. If they were isolated voyage to a particular port, profits were calculated and transferred to the profit and loss account as soon as all the goods were sold and the information was available. (Alternatively) If Sir Dudley carried on a continuous trade with a particular port, such as Constantinople, Cadiz, or Lisbon, profits were recorded in the ledger only on completion of a folio; no attempt was made to record the profits upon the completion of each individual voyage. For example, the voyage-to-Constantinople account was started on August 25 1680.

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21 In the same vein see Pollard,
Whatever the current notions of capital may have been, industrial accountants seem to be unable to integrate fixed capital into the scheme of things. Their practices were characterised by two main heresies: the treatment of capital as an auxiliary to entrepreneurship instead of the central motive force behind the firm and the confusion between capital and revenue.
(Pollard 1965, p233.)

22 d. 1691
Entries were made to this account for a number of voyages and their proceeds over the next three and one-half years. *When the folio became full in December 1683, the remaining goods were transferred item by item to a new voyage account: “By ditto for my ½ of a chest of East India goods cost.*

(Winjum, 1972, p.189, emphasis added)  

As interpreted here, his suggestion is that determination of financial position was not then a matter of particular interest. Both the work of Yamey and Winjum establishes that the purpose served by closing accounts to profit and loss was more a matter of bookkeeping necessity than a desire to understand financial position in the modern way,

Even in those records where there was an attempt at synchronizing and coordinating the closing process, certain practices were followed which indicate a somewhat less than complete desire to determine accurately total profit

(Winjum, 1972, p.233)

Indeed, there is no suggestion that closing nominal accounts related to a conception of profit as a gain in wealth. It is Yamey’s conclusion that the profit and loss account at this time can be regarded as a vehicle that facilitated the process of clearing nominal accounts from the ledger (Yamey, 1940, p.338). Yamey notes, however, that Wardaugh Thompson, in his bookkeeping text *Accomptant’s Oricale*, (1777), remarks that closing the accounts served to show ‘neat gain or loss on each article we deal in’, (cited in Yamey, 1940, p.341), which seems to indicate an early way of thinking about ‘profit’.

To Yamey, the profit and loss at this time represented ‘…changes in “value” from all

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23 Winjum surveys the extant accounts kept between 1625 and 1750 by,  
William Hoskins  
Sir John Banks  
Sir Robert Clayton and John Morris  
Sir Dudley North  
Sir Charles Peers  
Richard and Peter Du Cane.  
A sampling substantially the same as that reviewed by Yamey, (1977), see Fn 2, p.14.  
See also Winjum 1970-1, Fn 4.
causes’, a concept adopted ‘…because it was the only one consistent with the procedure of closing the books…’ (Yamey, 1940, p.339)

In respect to accounting for assets of a durable nature, as distinct to those acquired as stock in trade, Winjum’s observations from the extant accounts of Sir Dudley North are illustrative of contemporary practice. North invested in ships and securities and these were accounted, as were his other investments, at his fractional interest, 1/16 or 1/32 etc., and are recorded at net cost, with additional expenditures carried forward; only being taken to profit and loss on liquidation or loss. For example,

by Profit and Loss the [ship Herbert] being burnt in the Indies by the French, (Winjum, 1972, p.190).

Winjum’s observations from the accounts of North are supported by his observations of the extant accounts of Richard25 and Peter the Du Cane, a father and son. In the matter of investments, Winjum notes that Richard’s practice was to value assets variously at cost, arithmetic balance or current value. Unlike his father, Peter did not employ current values in his accounts, but did carry his fractional investments in ships at net value, or arithmetic, balance. For example,

his investment in the “Ship Anne & Mary Capt. Goland” for a 1/32 interest plus out fitting costs was £61.5s. This account was credited periodically for cash dividends received and the arithmetic balance carried forward. All his investments in ships were accounted for on a similar venture basis. No gains or losses were recognised until the ships were either sold or lost at sea (Winjum, 1972, p.210, see also Winjum 1972, pp. 194-203 on the extant accounts of Sir Charles Peers)

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24 Yamey cites Pacioli on closing the accounts,

But as to those accounts which you should not care to transfer to Ledger A (new), as for instance, your own personal accounts of which you are not obliged to give an account for another…all these accounts should be closed in the Cross Ledger (old) into the favour and damage account.

(Pacioli, quoted in Yamey, 1940, p.338)

25 1681-1744
At this time, Yamey observed that it had been an accepted view that accounting practice has been linked to business requirements (Yamey, 1940, p.333). He notes,

Accounting records were also useful because they could facilitate the administration of the proprietor’s estate after his death. They could also, in certain circumstances, be used as evidence of the existence of debt (Yamey, 1940, p.336)

But accounts were not necessarily complete. He observes further,

A distinction must be drawn between a balance account drawn up on the basis of the account balances appearing in the ledger, and a balance account incorporating the facts as revealed by an actual inventory where the possessions of the firm are examined and valued. (Yamey, 1940, p.336)

In the mercantilist period, the primary purpose served by double-entry accounting appears to be the control or tracking of transactions relating to stock, credit and debt rather than concern with determining wealth and additions to it. But recording fixed asset in accounts does not appear to have been a concern for the simple reason that such assets were relatively insignificant, and their economic management was not a matter of great attention or concern. More, or the significant portion, of wealth was invested in stock for trade – circulating capital. Consequentially, recourse to accounts either for record keeping or economic calculation about the cost of using fixed assets was unnecessary, and the emphasis notable in observation of extant accounts and texts was on matters that were of interest to a merchant – his stock and record of debtors and creditors. This general position, however, changed with the rise of the new “industrial” enterprises of the early nineteenth century. It was in the eighteenth century that the task of business management and financial organisation became increasingly complex; a complexity apparent in the organisation of the East India Company.

2.2.2 The East India Company
The East India Company was probably the largest privately owned economic organisation of the mercantilist era: in organisation, capitalisation and accounting the Company sits between the traditions of mercantile commerce and the later joint-stock
registered, industrial-type, company of the late nineteenth century. Like the Dutch East India Company, it was a commercial giant of its time. Unlike most contemporary businesses, ‘the Company’ was established as an ongoing entity and, in this respect, was similar to modern businesses in the scope of its undertakings, its financing, organisation and accounting. In particular, it possessed significant stocks of fixed assets in the form of ships. Together, these features cause the East India Company to be of interest and relevance here.

Drawing a distinction between ‘organisation’ and ‘accounting’, the East India Company was incorporated on the 31\textsuperscript{st} December 1600 by charter to trade by sea (rather than overland) with India. A point of particular interest here is that the purpose of the Company – trade with far-east – was assumed to be continuous, and the organisation of an entity with continuous existence was a problem to be surmounted. The Company was established, according to practice then followed, as a venture, with venturers known to have subscribed a total of £68,373 for the first venture. Due to difficulties raising capital for the second voyage, profits from the sale of the first voyage were employed to finance the second. The practice of raising capital for separate voyages was continued until 1613 when it was decided to raise capital for four voyages; the first of these ventures being known as the First Joint Stock. On its establishment, the Second Joint Stock purchased the assets of the First. The arrangements reverted to financing individual ventures in 1628, but, in 1638, the Third Joint-Stock purchased the assets of outstanding single voyage ventures. In this way the East India Company evolved a commercial mode of continuous existence, with an implicit requirement to distinguish capital from income (Winjum, 1972, pp.213-20). While the form of organisation adopted at this time was a form of joint stock entity with a continuous life, significantly the form at this time was different to the form of the continuous existence that subsequently evolved, in particular as it has come to be understood since the introduction of incorporation by registration in the nineteenth century. As commercial life evolved, arrangements for incorporation were

\textsuperscript{26} But the naval dockyards and the Royal Navy were probably of larger economic consequence, certainly during the French wars. No exploration of accounting in either institution has been identified in research for this study.
to have significant implications for the need to distinguish the stock of capital and income. But, at this time, the need to distinguish capital and income seems to have been resolved as a practical matter by the device of an existing venture being purchased by a subsequent, new, venture.

The Company adopted double-entry bookkeeping on 1st August 1664. Prior to that time, each voyage had been accounted for as a separate venture, but the revision of the company’s charter in 1657 recognised its continuous existence and permitted overlapping voyages, a situation which necessitated the adoption of an accounting system that integrated information about the totality of the company’s activities (Winjum, 1972, p.220).

The accounting policies followed in the double-entry accounts was largely those established in venture accounting. Purchases were carried at cost and summarised by type, e.g. iron, brimstone, cloth etc. On arrival goods were debited to factors’ accounts and the factors’ outstanding balances reduced by goods obtained on the company’s behalf for shipment to London. Profits were determined on sale in England on the liquidation of assets.

Apart from the establishment of a continuous life, the feature of the East India Company’s operations relevant here was the approach taken to fixed-asset accounting. The Company’s charter of 1657 provided that after the first seven years, and thereafter every three years, the Company would revalue its stock and allow venturers to withdraw (sell) their investment. For example,

Value of goods, houses, provisions, freight of ships, and good debts abroad. … Money and goods in England, expenditure for this year’s investments and the lease of East India House. … Money due for goods sold, but still in the Company’s warehouses. … Money due for goods delivered. … Total Assets £661,542. 12s. 1d."

After deduction of liabilities estimated at £165,807. 11s. 7d., "Leaving an excess of liabilities of £495,735. 0s. 6d. From this may be deducted £14,876. 8s. to even the account and provide for bad debts at the Coast and Bay, there will then remain £480,858. 12s. 6d., which is equivalent to the original
As an entity with a continuous existence, operating substantial depreciable assets, ships, the Company was in many respects similar to the industrial corporation of the nineteenth century. It resolved the difficult issue of determining capital and profit by periodically revaluing asset, closing its accounts, and offering partners the opportunity of withdrawing. The Company thereby effectively avoided the difficulty of determination of profit arising from the long term operation of wasting assets.

With the evolution of these sophisticated ideas, the British financial community was ready for the more challenging task of organising the finance of much larger scale industrial activities, based on iron, coal and steam that evolved after about 1760. As will be indicated in the next section, by 1800 a variety of possibilities existed for the application of the new industrial technologies evolving in Britain. Their direction to railways reflected the of the market directing resources to their best or most profitable employment.

2.2.3 Fixed Assets and Early Industrial Accounting

The twin problems of asset valuation and income determination are inseparable. One is dependant on the other and, as the contemporary accountant is well aware, this relationship results in some of the most controversial problems in accounting today.

Winjum, 1972, p.72

The defining commercial entity of the industrial revolution was the railway company. Its essential feature was possession of large stocks of fixed assets financed by public, rather than private, subscription, in anticipation of an annual dividend. By the 1840s the railway company exemplified what was to come in the organisation of an industrial economy. Increasingly, finance was obtained from a growing, anonymous, capital market. Over the remainder of the century the public company came to replace the
family firm and partnership. The organisation of the capital market resulted, from the mid 1840s, in a new type of entity: the limited liability company, endowed with continuous existence, available by registration on application, with publicly traded shares. These features modified the practice of double-entry bookkeeping, and expanded the need for financial reports; necessary to inform, otherwise remote, passive shareholders. From the 1860s the form of financial reporting to be followed came to be determined by requirements of the statute law, rather than by reference to convention and the evolution of common law concerning partnerships.

The modifications to double-entry bookkeeping imposed by these developments had two characteristics: those of continuous existence and, consequentially, periodically determine profit (Yamey, 1940); features that became institutionalised into common practice during the nineteenth century. What did not occur as a matter of evolutionary adaptation was the ability to determine profit systematically. By the closing decades of the nineteenth century, this had become a critical weakness in the commercial system. It was a weakness compounded by falling prices and capital asset values, with dysfunctional consequences in economic organisation. It resulted in the litigation previously noted. As has already been indicated, the inability to conceptualise the relationship between capital and income is also apparent in the late nineteenth century debate about depreciation that followed the increase in physical plant that occurred after the middle decades of that century, particularly in railway companies, and later heavy engineering companies.

The particular novelty of railway assets was the loss of value, frequently occurring quite rapidly, from physical and economic decay, processes that seem to have been heavily influenced by lack of knowledge about materials, other engineering factors, and loss of commercial viability. Such loss of value was novel because traditional manufacturing plant had tended to be useful over long periods, even generations, and tinkering and maintenance part of the productive process. While Lee notes that even as early as the late eighteenth century firms such as the Carron Co. and Boulton and Watt reckoned depreciation when determining wealth, and that the practice had become quite general
after about 1800 in the textile industry (Lee, 1975, p.17), it is unclear whether the expression ‘depreciation’ then meant what it does now. For example, it did not rest on any discernable concept, other than, perhaps, the commonsense one that a prudent man would seek to preserve his wealth, an idea discussed further in Chapter 10. At this time, bookkeeping conventions relevant to depreciating industrial assets were not established as that idea is now understood.

Observation of extant accounts and texts of that time indicate practices that are difficult to generalise, and suggest that practice was derived from consideration of particular circumstances rather than application of a generally held principle. This view is, apparent in Pollins (1956) much followed review of railway accounts that follows practice at that time, as distinct from seeking principles followed. Pollins notes an early appreciation that the life of railway assets was finite and uncertain, and that the evidence reviewed by him indicates that in the earliest period, say from 1830 to 1845, railway companies ‘depreciated’ railway assets. But he notes that the practices observed indicated an absence ‘…of any clear definition of what was meant by depreciation…’ (Pollins, 1956, p.343): for example, whether depreciation was a matter of cost recognition or funding of replacement assets. In this respect, Pollins cites the following debate,

the original cost of the stock being the assumed as the starting point, the only consideration is the amount of depreciation from wear and tear unredressed by repairs at the end of the period. It was thought possible to do this in one of two ways: by the Northern Union plan of taking an exact sum which the valuation each half year showed to be required, or by the London & Birmingham Railway’s method of debiting a regular percentage of cost to provide a fund to meet the occasional heavy outlays (apart from repairs) which were due to “the gradual destruction of parts that cannot be immediately replaced (Railway Times, 6th November 1841, quoted in Pollins, 1956, p.346)

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27 Pollins illustrates thus,

Some meant a fall in market value of the assets when they spoke of depreciation (thus when the price of locomotives rose some companies assumed that their assets had improved); others meant no more than current repairs and maintenance; others again were concerned with replacement. (Pollins, 1956, p.343).
Pollins also notes that railway companies halted depreciating assets during the railway mania of the late 1840s,

During the mania, and for a few years after it, accounting for depreciation seems to have been dropped by some companies, presumably in order that revenue account should be relieved of charges so that dividend rates could be more easily maintained (Pollins, 1956, p.347)

Pollins observations about the cessation of depreciation in the 1840s are widely accepted by other writers, for example, Bryer (1991, pp.456-62), Edwards, (1986) and Pollard, (1965), though with differing interpretations.

Though the revaluation of assets was a commonplace matter in the reckoning of wealth in mercantile accounting, in railway accounting it had become unacceptable after the late 1840s, (The Railway Times and Lardner, in Pollins, 1956, p.346). Discontinuance of depreciation at that time is generally ascribed in the literature to difficulty in paying dividends.

2.2.4 Capital Asset Accounting After 1870

The circumstances surrounding British industrialisation had altered markedly after about 1870. By then the British industrial economy had matured in the sense that the markets for its products were developed – that is growth rates previously obtained could not be sustained – though necessary social adjustments sympathetic to industrial organisation were still to be made. However, British firms were about to be challenged by foreign competition, and significant to the analysis here, the British economy was about to enter a period of falling prices, a symptom of the crisis noted in Chapter 1. By 1870 Britain’s railway system was essentially completed, though, as will be referred to in the next section, it had been constructed in iron rather than steel, and much of it was to be replaced in the following decades. Additionally, errors and inadequacies in technical assumptions were to be corrected over the following thirty years or so (Kitchen, 1974,
pp.117-8). This aspect of nineteenth century industrialisation will be discussed later in this chapter.

As with the observations made by Pollins, Brief, in his 1965 PhD, (published in 1976), observed a wide variety of approaches to accounting for the cost of capital assets, indeed almost all possibilities seem to have been employed. For example, depreciation might, or might not be, recorded and might, or might not, have been funded. But the principal conceptual problem concerned depreciation being ignored completely in favour of systems subsequently described as ‘renewal accounting’, or its institutionalised form, the ‘double-account system’. The characteristics of these systems are briefly outlined.

2.2.4.i Renewal Accounting
Under a renewal accounting approach, expenditure made on ‘renewals’ to repair, supplement or extend an existing asset such as a railway might be expensed. Renewal expenditures might include what would now be regarded as major capital items, for example, engines and other rolling stock, and track-and-way. In this approach, initial expenditure capitalised might, or might not be, subjected to depreciation. In this system ‘depreciation’ might also be expensed, and, as a separate matter, a replacement fund accumulated. The impression gained by research for this study is that a decision to capitalise or to expense expenditures was a matter for directors, and depended on the prevailing turn of events. It seems impossible to generalise, save that renewal accounting followed, as a matter of course, where the double-account system was employed.

Viewed generally, the effect on profit signals of the renewal approach is problematic. Expensing renewal expenditure, rather than depreciating capitalised expenditure, would result in cost being over or underestimated in any particular period, and the direction of that relationship varying between periods. For example, immediately after the introduction of an item of capital equipment, such as railway rolling stock, it might be anticipated that expenditure on renewals would be insignificant, and profit consequently overstated, relative to the result had the assets been subject to depreciation. In subsequent periods, when renewal expenditures were made, for example on the
refurbishment, or replacement of rolling stock, profits would be substantially understated, again relative to the result had the asset been subject to depreciation. The effect of depreciation on profit might depend on whether the debit was made before or after determination of profit, as it might be if the purpose was to accumulate a replacement fund. In principle, it does not seem possible to generalise the direction of the effect, or ‘error’, from the employment of the renewal accounting system. Rather, it would be a question of fact in each case and in each period. Brief regards the renewal method as ‘inherently unstable’ (Brief, 1965, p.12).

A renewal system might be understood as a cash system, in which cash expenditure is taken as an expense.

2.2.4.ii Double-Account System

The ‘double-account system’ institutionalised the renewals approach into railway accounting by the Regulation of Railways Act of 1868, a requirement subsequently followed by Parliament in respect of other utility companies. That Act required railway companies to return accounts in the form of schedules, the effect of which was to require all repairs and renewal expenditure to be expensed against revenue and for original expenditure financed by capital investment in the railway to be reported in a separate schedule. Subsequently, Parliament required the system to be used by so-called ‘Parliamentary Companies’ authorised to carry on water, gas, and such like utility activities. While having statutory obligations to return results in the double-account system for the purposes of determination of a dividend, such companies might or might not allow for depreciation (see Kitchen, 1974, Brief, 1965, p.15, Note11).

The double-account system and renewal accounting are discussed further in Chapter 10.

Adoption of the double-account system is sometimes interpreted in the literature as a defensive method adopted by Parliament to protect investor’s capital from deduction or dissipation by managers and promoters. This is the view expressed by Pollins, (1956) and repeated by Brief, (1965). Pollins notes that during the middle of the nineteenth
century there was much discussion in Britain about inappropriate charging of expenses to capital and the payment of dividends from capital. For example, Pollins cites the following instances that represent the tenor of his observations and the character of his footnotes on this point,

No one can examine the capital accounts with any degree of attention without being impressed and – were it not for the declarations of the chairman to the contrary – being convinced that this Company paid all dividends out of capital’.

This was not an isolated case. The recent accounting habits of one company were summarised in 1867 in these terms: ‘Dividends have only been paid by a wholesale system of charging to Capital not only interest on new lines, but repairs renewal law charges, and other accruing expenses on completed lines. (Pollins, 1956, p.340)

Clearly by 1868 it was a matter of public policy that opportunistic selection of accounting policies in respect of both expenditures of cash and the allocation of expenses should not be permitted. What stands out is that the solution opted for an effective separation of capital from income, a solution that begs the question why it should have been adopted over others, for example, institutionalising a requirement that long-term assets to be depreciated. It raises, in particular, the question whether there was some understood body of understanding that directed the decision?

Having adopted the double-account system and legitimised the renewals type approach to accounting for maintenance and additional capital expenditures, the problems confronting the financial administration of railways and other utility companies was what to do about lost capital value in an accounting model that permitted no variation in financial capital? As interpreted in this study, the legal debate in the later part of the nineteenth century about the distributable profit originated in the notion that capital might be considered inviolable implicit in the imposition of the double-account model by Parliament.

The debate observable in the literature after about 1880 concerning depreciation has been referred to in Chapter 1. Suffice here to note the outcome. In his lectures reported in the Accountant in 1883, Guthrie identified depreciation in the twentieth century, or modern, manner as a cost associated with the use of machinery (as distinct from a funding mechanism), and saw that its inclusion in the determination of profit was necessary to
recoup capital outlays. Guthrie advocated that the cost of an asset ought to be written off, or allocated, over its useful life after allowing for the residual value. Subsequently, depreciation has come to be understood as a process of allocation of initial cost rather than determination of lost utility or expense. At that time, it was also settled that depreciation was a charge and not a matter of valuation and it is from that time that the preference of accountants for historical cost over current value had began to assert itself.

The broader economic context of the discussion of depreciation was a contemporaneous fall in the general level of prices, the effect of which on the determination of profit was difficult to understand because of the absence of settled accounting conventions or indeed, broader understanding of the phenomenon; it is from this time that the issue of price levels begin to interest economists. Murray, writing in 1887, considered depreciation in the context of falling prices and replacement costs of plant, and cautioned that it would be misleading to charge depreciation at a rate higher than would be appropriate on the new plant (Murray, 1887, p.617). Murray did not advocate ignoring ‘fluctuations’ in value, but required that assets be written down prior to lowering the depreciation charge. Murray had separated questions of value, or measurement, from issues relating to the exhaustion of asset usefulness, and arrived at the conception of depreciation as it would be understood in the twentieth century; as an expense.

Nineteenth century approach to ‘price ‘fluctuations’ are examined in Chapter 10.

Guthrie and Murray’s belief that depreciation was a matter of cost recovery turned on a need to maintain capital, a requirement long imposed by the common law of partnership. The solution pushes the conceptual issue back to the definition of capital and its relationship to income that, in the early1880s, was about to absorb the commercial courts and legal and chartered accounting opinion in litigation concerning the determination of profit. The paradox notable in retrospect was the conceptual attention to depreciation rather than to identification of the nature of capital and income. The nineteenth century debate about depreciation is returned to in Chapter 10.
By the late nineteenth century, in the absence of settled conventions determined by the accounting profession, the arbiter of accounting practice was the law, and it was to the law that shareholders increasingly turned to resolve contention about the determination of profit, and hence dividends after the mid 1870s. In these cases, the issue was the disposition of capital lost due to ‘lost value’ resulting from falling prices. This issue is returned to in Chapter 10.

2.2.4.iii A Rejected Hypothesis

A hypothesis tentatively developed to explain the failed accounting of the late nineteenth century speculated on the practical difficulty of forming an accounting model for the novel industrial assets of the mid nineteenth century. These assets were typified by materials of unknown characteristics, uncertain engineering, assumptions about technical parameters that were little more than guesses and in retrospect were inadequate, management distracted by financial speculation and a need to satisfy expectations of investors for a constant dividend and entrepreneurial decision-making limited in understanding of what might be accepted in the market. All of which it was thought might account for the difficulty in developing a coherent accounting model for fixed assets. That is, the character of the accounting calculation central to the determination of the consumable surplus – profit -- was determined by the instability of the technology of the new mode of wealth creation. This idea is explored, and rejected, in the following Section.

The exemplar industry explored to illustrate these features of the new industries was the railway. The obvious usefulness of the railway was such that the idea of steam-powered locomotion would ultimately be brought to fruition. The idea was that, because railway technology was continually changing, it was impossible to develop a coherent approach to financial reporting, and that this might explain the abandonment of ‘depreciation

28 The fiasco of Brunel’s steamship Great Eastern comes to mind.
accounting – such as it was then understood – in the mid nineteenth century. This idea, and the grounds for its rejection, is discussed in the following section.

2.3 Steam and Iron: the ‘Railway Age’

Of the application of steam power to rotary motion, Ashton (1962) observes,

The introduction of the rotative engine was a momentous event. … it completely transformed the conditions of life of hundred of thousands of men and women. After 1783, when the first of the new engines was erected … it became clear that a technological revolution was afoot in Britain.

Ashton, (1962, p.70)

Properly applied, steam power contains the potential to turn wheels and this fact opened the way to locomotive power. This was not immediately possible after 1783 because of the many engineering problems that had to be resolved before steam power could be applied to movement and the commercial judgments necessary to decide how to apply the technology: whether it would be better refined for rail, road or water transport. Because of the large amounts of capital that would ultimately be required to construct railways, the development of rotary steam power also heralded changes in the capital market, and in accounting as the chosen medium of financial communication and organisation.

‘Rail ways’, for carrying heavy loads, had existed in England long before the start of the eighteenth century. Ashton notes that from the earliest times it had been the practice to put down baulks of wood to carry carriages carrying heavy loads, such as coal, to rivers and ports. In the early eighteenth century it became common for iron to replace wood (Ashton, 1962, p.86). A decisive technical improvement occurred in 1767, in the form of a cast-iron track, or rails, originally constructed from Coalbrookedale to the Severn, by Richard Reynolds. In Reynolds system, the trucks were fixed to the rails by flanges on the rail but, on advice of the engineer Smeaton, the flange was shifted from the rail to the wheel in 1789 (Ashton, 1962, p.86). In 1787 John Curr had introduced into the pits a wheeled corf (or small wagon used in mines), which ran on rails and was brought to the surface without being unloaded (Ashton, 1962, p.64).
The idea that a rotary steam engine might be placed on a trolley and provide ‘locomotive’ power was one that occurred soon after the development by Watt of the rotary application of steam power. Until about 1800 the use of rails was confined to heavy traffic in bulk goods drawn by horses or perhaps, later, by stationary steam engines winding cables, along regular routes, in particular connecting mines to water transport travelling along rivers and canals. But from about 1800 there developed what Mathias has described as ‘a rail concept’ (Mathias, 1969, p. 277): the idea of a ‘public’, as distinct from a ‘private’, or ‘works’, tramway established on a commercial basis.

Deane (1969) notes that the pressure behind the free market attention to the development of transport lies in the increasing size of British towns, the growth of which reflected a growing specialisation in the British economy based increasingly on manufactures. In this period, manufacture was typically of a handicraft nature, though some industrial manufacture had begun to emerge, for example, the manufactories of Boulton and Wedgwood. In Deane’s discussion, the bottleneck in the economic development of Britain at that time was access to fuel. The only possible fuels available were wood or coal and, since Britain had been substantially deforested by the mid eighteenth century, the reliance was on coal. Deane notes that by the middle of the eighteenth century the only possible explanation for the size of London, the largest city in the world at that time, was the ready access of the city to coal carried into the centre of the city by sea from the North East coalfields (Deane, 1969, Chapter 5, esp. pp.73-6). In Landes words, ‘Coal, in short, has been the bread of industry…’ (Landes, 1969, p.98) Hence, by the mid-eighteenth century, an economic premium awaited capture from the development of methods of inland transportation of coal. Clearly, it was the weight and bulk of coal that directed the evolution of steam locomotion to railways, rather than road or sea transport, where the technical problems were simpler. But the economic difficulties of such an application of steam power to transport were much less significant than the technical.

29 James Watt, 1736 – 1819. Watt was responsible for the innovation of the separate condenser, patent 1769, the double-acting rotative engine, patent 1784, and the governor, patent 1789, (Ashton, 1962, p.70).
30 Mathias notes that by 1800 there were about 200 miles of tramways served coal mining ‘staithes’ along the rivers of the north east coast coalfields (Mathias, 1969, p.277).
first commercial steam powered railway, from Liverpool to Manchester, was conceived to lower the cost of transporting cotton, rather than coal, though as events turned out, the initial employment of the railway was passenger transportation; frequently for the novelty of the experience. For example, Trevithick developed a steam-powered carriage as early as 1801 after first devising a crank and axle (Garfield, 2002, pp.64-65), and steamships first travelled between Dover and Calais in 1821, and most North Sea ports by 1828 (Clapham, 1926/1964, p.3). 31

Generally, early public tramways were planned to be powered by horses, or by steam drawn cable, and many such railways predated the first steam-powered railway, the Liverpool to Manchester. But the idea of using steam locomotion was obvious, and intuitively appealing to technically competent and innovative observers of Watt’s development of rotary power in the 1780s. Though Watt’s refinements of the steam engine increased its efficiency in the use of fuel, and provided the mechanisms for rotary action necessary for turning a wheel, Watt was disinterested in the ‘loco-motive’ application of the engine and to the use of pressurised boilers, which, not incorrectly, he considered dangerous. 32 Without the innovation of pressurised boilers, a steam engine was either too large for locomotive power, or too weak. Expiry of Watt’s patent in 1800 legitimised those engineers who were both copying his ideas and experimenting with developments, especially the obviously useful innovation of locomotion. There is much to suggest that Watt’s attitude against steam locomotion was built on his appreciation that the technical complexities of high-pressure steam were beyond the capacity of the available technology of the 1780s.

Mathias notes that by 1800 about half a dozen people, mostly colliery engineers, were struggling with the technical complexity of the idea of loco motion, citing in particular

31 Garfield notes that Trevithick’s was not the first steam carriage, this being credited to a French military engineer, Nicholas Cuznot, who’s steam road tricycle carried three men around Paris until crashing before being impounded in a military arsenal (Garfield, 2002, p.64).

32 Trevithicks carriage was destroyed by fire after the water boiled away whilst parked outside a pub (Garfield, 2002, pp.65-66).
Trevithick at Merthyr Tydfil, Blenkinsop at Middleton, Blackett at Wylam and George (father of Robert) Stephenson at Killingsworth (Mathias, 1969, pp.136 and 277). However, the technical details to be mastered in the application of a locomotive engine were such that it was to take sometime to resolve as a practical and economic matter; indeed, the technical instability of the technology continued until the late nineteenth century. It was not immediately apparent that the engine was best carried on rails and early attempts by the Cornish engineer Trevithick centred on a steam carriage that briefly toured the streets of London in 1803, before demonstrating its practical unsuitability (Ashton, 1962, p.87, Landes, 1969, p.102).

Trevithick played a central role in the application of the steam engine to locomotive power. His contribution, with others, was to recognise that steam locomotion required the use of high-pressure engines. Trevithick’s innovation avoided the use of a separate condenser and passed discharging steam into the atmosphere and the draught through the firebox, the use of a cylindrical boiler and placing the firebox inside the water space (Garfield, 2002, p.64). His innovations enabled Trevithick to construct a locomotive that could haul a load, but was not practical because it was too heavy for the available

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33 The steam carriage did not end with Trevithick. In the 1830s schemes went nowhere, seemingly because they required roads to be maintained in a suitable state of repair, (Clapham, 1926/1964, pp.385-6). Availability of the ‘steamroller’, a development of the ‘steam tractor’, dated from the 1860s (Deane, 1969, p.72). This failure is interpreted here as being attributable to the weakness of demand for this form of transport relative to demand for railways, where demand for passenger travel was supplemented by demand for the transport of coal and cotton.

34 That is, greater than two atmospheres. Landes, offers the following brief explanation of the advantages of high pressure engines, its main advantage lay in its simplicity and its ability to deliver the same work with a smaller piston; it was thus lighter and cheaper than the low-pressure engine and used far less water. This saving of space and materials was of primary importance in the construction of movable engines. By the middle of the nineteenth century, an average compound engine used 21/2 pounds of coal per horsepower-hour. Watt’s machine needed about 71/2 and the Newcomen engine about 30. (Landes, 1969, pp.102-1)

35 Landes suggests that Trevithicks engine was actually devised by an American, Oliver Evans, whose plans were ‘said to have seen them in 1794-5…’ (Landes, 1998, p.301, Note).
iron rails, causing them to crack (Garfield, 2002, p.66).\footnote{Garfield notes that Trevithick’s most famous engine, ‘Catch Me Who Can’, was set up on a circular track surrounded by high walls near the present Euston station and operated as an entertainment, (Garfield, 2002, p.67 with illustrative plate).} Trevithick’s experience illustrates the interrelated nature of technical advances necessary before a viable locomotive railway could be established. It also illustrates the inadequacy of available materials.

2.3.1 ‘Loco motion’: An Evolving Technology

It rapidly became apparent that the promoters of the railway had great trouble keeping pace with their own creation. \textit{They had only the faintest notion of what they were building.}

Simon Garfield, 2002, p.11, emphasis added

The technical details to be resolved in the development of even a minimally effective steam locomotive railway were formidable and were resolved by trial and error rather than by application of principles. By the opening of the Liverpool to Manchester Railway\footnote{The Liverpool to Manchester Railway was formally opened on the 15 September 1830 with some fanfare. Those attending included the Prime Minister, Duke of Wellington and William Huskisson. The opening was to cost Huskisson his life when he was struck by a train. Garfield’s account indicates, contemporaries were alive to the revolution in life that was to follow the opening of the Liverpool to Manchester, and absorbed by the novelty of travelling at hitherto undreamed of speed, which downhill might approach 25 miles per hour, (Garfield, 2002).} in 1830, the technical problems were resolved in only the most rudimentary way. As various accounts make clear, at the opening of the railway almost all technical assumptions were ‘contingent’ and a matter for future improvement, which proceeded to occur rapidly.

Elaboration of evolving engineering detail, interesting though it is, is not the purpose of this study, but an appreciation of the complexity and evolution of the detail is necessary.
to understand the complexity of the problem of those confronting the parallel issue of developing capital asset accounting that now appears to have been so confused.

Instances which indicate the nature of unresolved or partially resolved, technical detail include the following matters.

a) Engine Efficiency

Watt was uninterested in both the development of high-pressure engines and the application of low-pressure engines to locomotive use. This attitude probably reflected his understanding of the limitations of the available technology. For example, Watt relied on John Wilkinson to bore his cylinders. At that time, Wilkinson’s skill in boring iron was by far the most advanced in the world, but Landes, quoting Watt, notes that Wilkinson ‘… could promise upon a seventy-two inch cylinder being not further distant from absolute truth than the thickness of a sixpence (say 0.05 in.) at the worst part…’ (Watt quoted in Landes, 1969, p.103) The implication of this degree of accuracy, impressive though it was at the time, was that a vacuum could only be achieved by packing the piston with rope hemp or tallow (Landes, 1969, p.103, see diagram of a Newcomen piston, Speed, Undated, p.41). In this respect, the advantage of Watt’s engine initially was a matter of degree over Newcomen’s engine, and the real advantage of Watt’s engine was in the fuel efficiency given by the separate condenser.

High-pressure engines with about two atmospheres were available from about 1800, but they were not viable as a source of locomotive power. For example, the prospectus for the first public railway between Liverpool and Manchester was drawn up in 1824, and left open whether the source of power was to be provided by horses, stationary engines or locomotive power (Garfield, 2002, p.10). Garfield notes that as late as 1829 this issue had still to be resolved and, when advertisements announced a trial of locomotives, at least one director was still advocating the use of stationary engines.
The Rainhill Trials were commenced on the 6\textsuperscript{th} October 1829 and lasted a week. They were won by Robert Stephenson’s *Rocket*, \textsuperscript{38} which then represented the high point in locomotive technology: it incorporated the latest ideas refined for the task by Stephenson.\textsuperscript{39} In terms of the subsequent developments of locomotive technology it was rudimentary, and locomotive technology was a matter of continued development throughout the nineteenth century. Rapid and frequent replacement on the grounds of technical and economic obsolescence was always an issue in the manufacture of steam engines.\textsuperscript{40} These included such factors as the weight of engines – 7 tons 9cwt increasing to 57 tons – and the growing frequency of trains run along the way (Huish, 1849, cited in Edwards, p.31), all of which resulted in a progressive need to increase the weight of the rails from – 35 lbs per yard to 62 , then., progressively, to 65, 72, 75, 82 and, finally in 1849, 85 lbs (Huish, 1849, p.31). Other problems were attaching rails to sleeper and laying the line. In an era when rails were made of iron, not steel, a metal simply unavailable in the quantities required until the technical developments in smelting of the 1870s, wear by modern standards was excessive and asset life was brief and uncertain.

\textsuperscript{38} Rainhill was the only flat section on the route of the Liverpool to Manchester Railway. 

\textsuperscript{39} The *Rocket* incorporated Stephenson’s refinements of the latest advances in locomotive technology. These included fitting the firebox inside the boiler, a tubular boiler in which the heat was passed through, not just around, the boiler, the steam from the piston was passed up the flue, making the fire burn more fiercely and employing the increased energy thereby derived to use the piston to drive the wheels directly. Garfield notes that these improvements were based on the work of Timothy Hackworth’s engine, the *Royal George*. (Garfield, 2002, pp.115-130, Speed, Undated, p. 114.) Pictures of the Rocket and its main rival, the *Novelty* are shown in Garfield, p.119 and Speed, p.113. The Rocket is recognizably in the form of subsequent locomotives, though the form is rudimentary.). It is necessary to reflect for a moment when reading about the Rainhill trials. Almost 200 years later it all seems a little primitive, and the *Rocket* looks rudimentary, which in the light of subsequent developments, it was. But it was in point of fact the end point in a long period of determined technical effort, and the achievement one of extraordinary consequence. The world was definitely not the same after 6\textsuperscript{th} October 1829.

\textsuperscript{40} Following the subsequent life of the *Rocket*, Garfield notes that it was employed on the Liverpool to Manchester Railway until the mid 1830’s mainly on engineering duties and seldom pulling passengers. It was sold to the Earl of Carlisle in 1836 who used it on the Midgeholme colliery until 1844 before it ended up at Stephenson and Co in storage before reaching the South Kensington Science Museum in 1876, where it remains today (Garfield, 2002, p.215).
Similarly, economic life was short because of continued technical improvements; because the optimum technology had not been identified, and best case solutions took time to evolve.

b) Weakness of Iron Rails
The immediate application of Trevithick’s pressurised engine to rail locomotion was, thwarted by the brittleness of cast iron rails, which fractured under the weight of the engine. From about 1808 wrought iron rails began to come available from the iron masters of Nanpanton in Leicestershire and Northumberland (Garfield, 2002, p.100). But the rails were still inadequate to the task required. Garfield notes that the original specifications envisaged a life of 30 years, but in fact some lasted only 2 or 3 years, and most had failed after 10 years. A significant contributing factor was the ever-increasing weight of locomotives. For example, the original specifications for the Liverpool to Manchester Railway called for a locomotive weight of 6 tons, this soon increased to 12 tons, and further increases in engine weight occurred rapidly thereafter, as has been noted already.

c) Gradient of Track
The primary issue in the building of early railways, in hilly country like Britain’s north, was the lack of power of early engines (Speed, Undated, p.119,). Speed notes the requirement of the contemporary engineer Henry Booth for an engine able to draw 30 tons on a level grade, and notes that such an engine would only be able to draw 7 tons up an inclined plane of 1 in 100 (Speed, Undated, p.119). The specifications for the Rainhill trials required an engine of six tons to pull a load of 20 tons over the level grade of the flat Rainhill section of the proposed railway at 10 miles per hour along. The necessity, given the power of engines, was then to create a level bed along which the grade had

41 That is, iron cast in a mould. Originally, rails were cast in 3 foot lengths.
42 Wrought, or malleable iron, is produced by rolling, stretching and beating. By the time the Liverpool to Manchester railway was constructed the rails were passed through the rolling mill six times.
43 Specifications called for 44,000 rails, and 177,000 sleepers, 127,000 made of stone and 50,000 from Scottish oak (Garfield, 2002, p.101).
been reduced by civil engineering works: a fact that incidentally produced an immense demand for labour and capital. The maximum grade on the Liverpool to Manchester was 1 in 48 in the Wapping and Edghill tunnel at the exit to Liverpool. Subsequently, building the Great Western Railway, the acknowledged master of Victorian engineering, Brunel, resolved this problem with intensive civil works to form a ‘billiard table’ way in which the grade approached 1/1000. The capital intensive nature of this solution to the practical engineering limitations is noted here. Indeed, it was probably the need to construct massive earth works due to the inefficient nature of the early steam engines that created the massive demand for railway capital, and the consequential institutional revolution in company organisation and accounting practice.

A further consequence of under powered engines was a continuous search for improved engine power and improved design, and the necessity for considerable civil engineering work in the form of tunnels, embankments, bridges etc. It implied considerable redundancy in investment as engines were made more powerful.

d) **Gauge of Track**

Selection of the railway gauge for many, if not most, of the world’s railways was set by Robert Stephenson at the somewhat curious distance of 4ft 8\(\frac{1}{2}\)in\(^{45}\), when building the Liverpool to Manchester Railway by reference to the gauge that had evolved over time, and with much experience, in the coal fields of North West England (Garfield, 2002, p103). Subsequent experience was to indicate a broader gauge would be more satisfactory: Brunel, in building the Great Western Railway (GWR) employed a 7 foot gauge, and John Braithwaite building the Eastern Counties Railway used a 5 foot gauge. The implications of this approach came to fruition in 1845 when the two gauges met in Gloucester. In 1846 Parliament legislated to set the standard gauge to conform to 4ft

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\(^{44}\) On the Great Western Railway, operating between London and Bristol, the steepest grade was 1 in 100 in the Box Tunnel, for the next 40 miles outside Bristol it is 1/750 and for the remainder Brunel achieved a remarkable 1/1000 (Speed, Undated, p.119).

\(^{45}\) This becomes comprehensible when it is understood that, at that time, it conformed to a gauge of 5 ft when measured on the outside of the rails; subsequently it was the interior gauge that had to be maintained.
81\(\frac{1}{2}\)in. for future construction,\(^{46}\) and the GWR was forced to conform to the standard gauge in 1892.\(^{47}\) A similar issue resolved by arbitrary judgment, in the absence of anything better, was the distance to be allowed between up and down lines and the solution arrived at has subsequently been considered unsatisfactory.

f) **Other Civil Works**

In addition to the extensive civil engineering works required to make a flat grade, a number of other factors operated to increase the cost of railway construction. Factors included the need to detour to meet the objections of landowners, municipal corporations and rivals. For example, the refusal by the Common Council of Liverpool to allow the Liverpool to Manchester through Liverpool required the construction of a 220 yards long tunnel at Olive Mount.

Another problem was the architectural style adopted for railway buildings. Railways were seen by contemporaries to represent the spirit of the era that placed emphasis on the improvement of mankind by his exertions. In accord with that spirit, the architectural style affected was one of triumphant ornamentation in every style, rather than, for example, the plain utility reflected in the more considered industrial architecture say of more than a century later, when the question of cost had become the determining inspiration.\(^{48}\) Lastly, it took some time for the most functional arrangements for access to trains to be worked out. Speed notes that the definitive arrangements of widely spaced platforms running parallel to one another first began to appear at Nine Elms in London from 1838 (Speed, Undated, p.121).

\(^{46}\) Speed notes that had Parliament acted sooner it might have done Britain a service by requiring the adoption of the technically superior 7 foot gauge, but by 1846 there was 500 miles of the narrower gauge in existence, and it was too late. As a consequence, much of the world became locked into a sub-optimal technology. In addition see Mathias’ discussion of this problem in the context of the long run costs of being a pioneer (Speed, Undated, p.420).

\(^{47}\) This seemingly messy task was accomplished by laying a standard gauge track down the centre of the existing two broad gauge tracks while the revision was completed (Speed, Undated, p.120).

\(^{48}\) The Doric arches of the original Euston Station by Philip Hardwick cost £35,000. The replacement to the original station is built along particularly depressing functional lines.
e) **Arrival of Steel**

Many of these problems – the strength of the rails, weight of engines, strength and durability of boilers, life of rolling stock etc – can be traced to the use of iron rather than steel. It comes as some surprise to the modern reader to learn that steel was simply not available until the 1870s in anything but the smallest quantities for specialised and important components due to the difficulty of its production prior to the invention of the Bessemer process in 1856 and the Siemens-Martin open hearth method in 1866, and the availability of British iron for steel production with the invention of the basic process for ridding iron ore of phosphorous. 49

Steel production increased rapidly from the 1870s, quadrupling in the following twenty years. Production figures for the output of steel in Britain are provided in Table 2.1 in

49 While available to the medieval craftsmen, steel was difficult to obtain, rarely used, and highly prized, as the following quotation from Reynolds indicates.

> The metal men used by preference for their tools and weapons was iron worked into steel. Their second choice, iron was usually quite pure, and hence rather soft, but it was tough and slow to rust and so had its own advantages. Fine steel was used above all for noblemen’s swords. The best swords were literally without price, and the smith’s who could make them became legendary figures. German and feudal poets included fine steel blades in the legends of the Nibelungs, of Roland, and Arthur, and often these swords were given names. In real life the very fine sword was cherished for generation after generation as the best thing a noble father could give his son. When no peasant could be found using it to make a hoe…the best steel of that time was no better than the ordinary working steel of today, and of course far poorer than our specialty steels.

(Reynolds, 1961, p.32).

See also Nef’s brief observations about steel making in the sixteenth-century, (Nef, 1934, p.13).
Footnote 49. This indicates that steel was available in greatly increased quantities after 1870. The consequence of this development was the rebuilding of much of the existing industrial plant. Of this development Mathias, observes, ‘…railways converted from rolled iron to steel rails and the mild steel plate and girder became the basic construction units of shipbuilding…’ (Mathias, 1969, p.411) Similarly, of the development Hobsbawm observes,

\[\text{Steel Output in the United Kingdom (ingots and castings) by Process;}\]
\[\text{In ,000 (Imperial) Tons}\]
\[\text{1871 – 1939}\]

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>Bessemer Tons</th>
<th>Bessemer Percentage</th>
<th>Open Hearth Tons</th>
<th>Open Hearth Percentage</th>
<th>Acid Process Percentage</th>
<th>Basic Process Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1871-4</td>
<td>486</td>
<td>444</td>
<td>91.3</td>
<td>42</td>
<td>8.7</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1875-9</td>
<td>883</td>
<td>742</td>
<td>84</td>
<td>141</td>
<td>16</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1880-4</td>
<td>1793</td>
<td>1,402</td>
<td>78.1</td>
<td>391</td>
<td>21.9</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1885-9</td>
<td>2814</td>
<td>1,818</td>
<td>64.6</td>
<td>996</td>
<td>35.4</td>
<td>86 1889</td>
<td>14</td>
</tr>
<tr>
<td>1890-4</td>
<td>3143</td>
<td>1,637</td>
<td>51.8</td>
<td>1,506</td>
<td>48.2</td>
<td>86</td>
<td>14</td>
</tr>
<tr>
<td>1895-9</td>
<td>4,260</td>
<td>1,764</td>
<td>41.4</td>
<td>2,496</td>
<td>58.6</td>
<td>84</td>
<td>16</td>
</tr>
<tr>
<td>1900-4</td>
<td>4,955</td>
<td>1,774</td>
<td>36</td>
<td>3,181</td>
<td>64</td>
<td>79</td>
<td>21</td>
</tr>
<tr>
<td>1905-9</td>
<td>5,994</td>
<td>1,690</td>
<td>28</td>
<td>4,304</td>
<td>72</td>
<td>72</td>
<td>28</td>
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<tr>
<td>1910-4</td>
<td>7,007</td>
<td>1,529</td>
<td>22</td>
<td>5,478</td>
<td>78</td>
<td>73</td>
<td>27</td>
</tr>
<tr>
<td>1915-9</td>
<td>8,938</td>
<td>1,271</td>
<td>14</td>
<td>7,410</td>
<td>82</td>
<td>53</td>
<td>44</td>
</tr>
<tr>
<td>1920-4</td>
<td>7,067</td>
<td>556</td>
<td>8</td>
<td>6,414</td>
<td>91</td>
<td>37</td>
<td>62</td>
</tr>
<tr>
<td>1925-9</td>
<td>7,647</td>
<td>443</td>
<td>6</td>
<td>7,083</td>
<td>93</td>
<td>33</td>
<td>66</td>
</tr>
<tr>
<td>1930-4</td>
<td>6,733</td>
<td>195</td>
<td>3</td>
<td>6,409</td>
<td>95</td>
<td>25</td>
<td>73</td>
</tr>
<tr>
<td>1935-9</td>
<td>11,257</td>
<td>564</td>
<td>5</td>
<td>10,391</td>
<td>92</td>
<td>20</td>
<td>77</td>
</tr>
</tbody>
</table>

The new ability to mass-produce steel reinforced the general impetus given to the capital goods industries by transport, for soon as it was available in quantity a large-scale process of substituting it for the less durable iron began, so that railways, steam ships and so on in effect required two inputs of iron within little more than a generation. (Hosbawm, 1969, p.117, emphasis added)

f) Summary

A range of factors explain the impermanent, almost temporary, nature of much of the early investment in railway assets. Given the continued need to replace and rebuild the economic consequences of particular assets was probably unfathomable. By extension, the situation with industrial plant in other industries is assumed to have been similar, though until investment in plant increased in intensity, less economically significant.

It is inferred here that this inadequacy would have made the formation of expectations about asset life impossible in the management of railways, and by extension in other industries. The abandonment of depreciation accounting in the mid decades of the nineteenth century seems comprehensible for this reason. Approaches to asset accounting using renewal accounting in one of its various forms was probably as sound an approach as might be expected. In any event, as the argument to be made here indicates, the development of an approach to asset accounting based on the notion of assets composed of a stock of wealth added to by additional expenditure and subtracted from by erosion, was beyond the conceptual understanding of the time. Simply, this was not how capital and income were understood then. Such a distinction involves the conception of capital and income connected as antithetical expressions of the one identity: wealth. As has already been indicated, this conception was not available until late in the nineteenth-century.

A study of how capital and its relation to income were understood, and whether capital asset practices at the time followed that relationship, is therefore suggested. This idea gives rise to the following research questions.
2.4 Research Issues

The topic of the study is the concepts of capital and income as they were understood in nineteenth century, their context and consequence.

The specific research questions explored in the study are:

1. How was the concept of capital and its relation to income understood in the nineteenth century?

2. Was the flawed distinction between capital and income followed in capital asset accounting in the late nineteenth century consistent with the understanding of capital held in economic philosophy at that time?

3. Were late nineteenth century judicial decisions about distributable profit consistent with that understanding?

4. Can the source of the twentieth century definition of capital and income as antithetical states of wealth be identified?

5. In principle, would nineteenth century capital accounting have preclude a rational accounting calculus of the type asserted in the Sombart hypothesis; corrupting profit signals and misdirecting entrepreneurial activity?

Resolution of these issues will further understanding of accounting for capital assets in the late nineteenth century.

The methodological approach to these questions is indicated in the next section. The manner in which the argument is structured is indicated in Section 2.6 below.
2.5 Methodological Approach

As noted in Chapter 1, the approach followed in the study is a cross-disciplinary one. The starting point is the view that the apparent confusion in accounting for capital asset in the late nineteenth century was at heart a philosophic matter, and not one to be understood by further examination of extant ledgers and journals etc. Rather it is to be understood by identifying the philosophic themes that determined reporting practice at that time.

In the argument advanced, three strands of evidence are noted. These are:

Firstly: The development of ideas of value and capital, and the relationship between capital and income, in economic philosophy observed in significant works of economic thought between William Petty and Irving Fisher, that is, between the seventeenth and early twentieth centuries.

Secondly: Legal decisions made in the late nineteenth century defining profit available for distribution as understood by contemporary chartered accountants.

Thirdly: A contemporary discussion by chartered accountants about the conflict between those legal decisions and the traditional approach followed by chartered accountants to the determination of accounting profit.

Points two and three involve use of material identified in archival research.

Methodologically, use of arguments from outside the domain of accounting, and, in particular, employing deductive economic reasoning, to advance understanding of accounting practice have been argued by Hopwood, (1987/2000) and Carnegie and Napier, (1996/2000). Their ideas are discussed further in Chapter 4.7. The argument advanced is, therefore, a cross disciplinary synthesis. It evaluates the
development of the concept of capital in economics, the law and chartered accounting at the point of time when reporting of capital assets was confused.

The study involves identification of relevant philosophical works, archival material obtained in research at the library of the Institute of Chartered Accountant at Moorgate, London and review of secondary sources.

2.6 Structure of the Thesis

The thesis to be advanced is developed in the following way.

Chapter 3 provides a theoretical framework to consider nineteenth century capital accounting. The chapter is in two parts. Firstly, it indicates the character of economically efficient decisions noting the analytical distinction of cost into variable and fixed components, and illustrates the importance of fixed cost in efficient decision-making. The capacity of accounting method to alter perceptions of fixed cost in the analysis is noted, and certain propositions about the effect of differing nineteenth century approaches to capital asset accounting are demonstrated.

Secondly, that Chapter identifies definitions of the elements of financial reporting in modern conceptual frameworks, and notes the definition of an asset as a stock of wealth, and an expense as a flow. The definition of an expense as a consumption of an asset rather than as an allocation of cost is also noted.

Chapter 4 is the first of a three chapters (Chapters 4, 5 and 6) that identify literature concerning the role of accounting in the evolution of industrial capitalism. Chapter 4 notes a general lack of appreciation of the role of accounting in the rise of industrial capitalism, observing that this has been confined to the accounting history literature, which has been concerned with describing method rather than significance. The Chapter identifies a methodological discussion in the accounting history literature calling for a broader methodological approach to the significance of accounting in social organisation.
Chapter 5 introduces the idea of the German economist Werner Sombart that double-entry bookkeeping provided a necessary precondition to the development of mercantile capitalism, and notes the critique and rejection of Sombart’s hypothesis by Basil Yamey. The chapter also describes an unpublished explanation by Napier of the flawed approach to accounting for capital and income in the nineteenth century.

Chapter 6 reviews a number of articles by Bryer that offer a Marxist interpretation of nineteenth century capital-accounting practices.

Chapter 7 is the first of three chapters (chapters 7, 8 and 9) concerned the development of ideas about well-being, wealth, value, capital and income in economic philosophy. The economic philosophers reviewed in the study are, in order, Petty, Smith, Ricardo, J. S. Mill, Marx, Jevons and Marshall. The commentaries referred to are by Bonar, (1893/1967), Roll (1938/1992), Schumpeter, (1954/1994), Blaug, (1968), Barber, (1970) and Galbraith, (1991). Definitions of capital by a number of nineteenth century economists identified by Irving Fisher in his 1896 paper are noted in Appendix 3.

Chapter 7 is concerned with the evolution of these ideas in pre-Adamite economic philosophy.

Chapter 8 explores the understanding of capital and income in classical economics. Authorities reviewed are Smith, Ricardo, J. S. Mill and Marx. The special importance of Ricardo in shaping nineteenth century economic thought is noted. The importance of Mill’s *Principles* in informing opinion about economic concepts in the second half of the nineteenth century is indicated.

Chapter 9 notes the implications of the ‘marginalist revolution’ on economic thought concerning the nature idea of value, and identification of value with ‘marginal subjective utility’. The chapter shows that the neo-classical revolution in the idea of value did not alter the understanding of capital and its relation to income neo-classical economic theory, and before the publication of Fisher’s papers (1896, 1897a, 1897b, 1904 and
1906) on capital and its relation to income, continued to be understood in the manner described by Smith. The difficulty caused by accounting practices that did not provide a practical method of identifying the cost of using fixed assets in the development of neoclassical economic analysis by Marshall and Keynes has been noted.

Chapter 10 reviews the notion of capital and income held in chartered accounting at the end of the nineteenth century. It notes that accounting practice was influenced by the institutional arrangements relating to incorporation. The chapter notes that accounting practice at that time followed the requirements of the common and statute law. It also notes the rise of an accounting approach to determination of profit in the writings of the eminent chartered accountant, Ernest Cooper.

Chapter 11 introduces the work of Irving Fisher in which the relationship between capital and income as one of antithetical states is first made.

Chapter 12 indicates the conclusions reached in the study to the research questions posed. A modern relevance of the study to accounting for intangible assets is noted.

2.7 Summary

This chapter introduces the research hypotheses explored in the study. These are concerned with explaining the flawed accounting followed in respect of capital assets in the late nineteenth century in terms of the prevailing understanding of the concept of capital.

The character of fixed-asset accounting as it is understood from the literature has been explored. Firstly, in the early mercantile phase of capitalism, by the East India Company, in early industrial capitalist enterprises and lastly in the late nineteenth century financial phase of industrialisation, during which the renewal accounting approach predominated. It was noted that the use of this method necessarily followed where the double-account system of accounting was required.
The chapter has noted, and rejected, a preliminary hypothesis that the failed asset accounting of the late nineteenth century is explained by the immature nature of the technology, inadequate materials and incorrect technical assumptions concerning engineering and commercial parameters. This hypothesis was rejected because these factors do not account for a tendency, observed in nineteenth century accounting, for capital and income to be treated as separate matters, for example, as seen in the double-account method. This was also the matter at issue in the late nineteenth century litigation about distributable profit.

The hypotheses to be explored in the study derive from the proposition that the flawed accounting for capital assets visible in the late nineteenth century was consistent with an archaic conception of capital, and its relationship to income. It is noted here that this hypothesis requires exploration of the underlying understanding of capital and income in the nineteenth century, which was a matter of economic philosophy. An explanation for the twentieth century understanding of the relationship between capital and income, as one of antithetical states, becomes necessary, and is also sought.

It is also asserted that flawed accounting would influence profit signals available to decision-makers using accounting information.
Chapter 3

Evaluative Framework

3.1 Introduction

In this chapter a theoretical framework for the study is established. It provides a tool, or instrument, against which the character of nineteenth century financial reporting practices can be considered, understood and evaluated.

The framework outlined is in two parts. Firstly, the technical characteristics necessary for efficiency in economic decision-making are indicated. This is established by the standard static, price theory model. The model indicates the importance of fixed cost in the determination of the optimum output and price combination. The model is employed to illustrate the effect of differing approaches to accounting for capital assets, in particular, the use of renewal accounting approach. The effect of the historical cost system and falling prices on the determination of price and quantity mix is examined.

51 The analysis here follows traditional price theory analysis found in any introductory text. The particular text followed here is M.J. Brennan, (1970). A more applied approach is to be found in Joe S. Bain, (1952). Joan Robinson, (1969) provides a useful, dynamic, discussion of the static concepts, especially as they apply to the fixed factor.
The analysis shows that use of renewal accounting under conditions of falling prices causes the fixed factor to be overstated, and result in optimising outcomes at lower levels of activity than would have otherwise been so. This study indicated that this is substantially what historical sources show appears to have been the situation in the late nineteenth-century in Britain.

This model is supplemented by reference to the characteristics of financial information required by contemporary conceptual frameworks for general purpose financial reporting. These include objective and definitions of elements of financial statements, assets, liabilities, revenue and expenses that are based on the existence of wealth in the form of subjectively determined usefulness, or utility. The definitions in modern frameworks are based on the distinction of capital from income on the basis that capital reflects a stock of wealth, and income changes in a stock; and expenses, a reduction in the stock of wealth: as identified here, this distinction was not available in the nineteenth century. The characteristics of assets and expenses are particularly relevant to the study. The framework followed in the chapter is the Australian Framework for the Preparation and Presentation of Financial Statements, (AASB, July, 2004), (the Framework).

A link between the analytical propositions of static economic equilibrium analysis and the content of conceptual frameworks for general purpose financial reporting is indicated.

### 3.2 Static Equilibrium Analysis and Specification of Economic Efficiency

In static equilibrium analysis, the purpose of economic activity in a free market economy is assumed to be the satisfaction of consumers’ wants for goods and services as indicated by market-place purchases. That is, the activity of the market is determined by the subjective wants of consumers. The function of an entrepreneur is to identify those wants and to profitably organise the allocation of scarce inputs to the satisfaction of consumers.

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52 ‘General’ financial information that is generally available and containing information that is generally useful, as distinct to information that is of a ‘special purpose nature’, that is, information prepared for a particular purpose. More simply, general purpose financial information is published financial information.
In this process, an entrepreneur might be concerned with satisfying the wants of consumers directly or, alternatively, satisfying the demand for intermediate goods in the factor market that indirectly satisfies the wants of consumers. Technically, there is no distinction between the operation of the market for the supply of final goods and services to consumers and the operation of intermediate markets that operate to supply inputs for final production. As noted in Chapter 1, in nineteenth century Britain private economic activity, determined the nature and level of activity in the market place, modified only minimally by government activity.53

The conditions for market efficiency contained in the static equilibrium model are well known. The classical propositions of price theory were the result of the ‘neo-classical revolution’ in economic thought of the late nineteenth century that, in the Anglo-American tradition, is associated with the work of William Stanley Jevons and Alfred Marshall. The principles resulting from that revolution were a matter of a classic exposition by Alfred Marshall in the various editions of his *Principles*, first published in 1890, and the analysis is generally known as ‘Marshallian’.54 The origin of this work, and its place in the broader argument presented in the study, is discussed in Chapter 9.

53 During the long Revolutionary, Napoleonic, War government involvement in economic activity in Britain was extensive and those responsible for the discharge of public policy understood that the state could tax and thereby direct economic activity, subsequently, following the teaching of Smith and Ricardo, it was accepted doctrine that this ought to be avoided on the grounds that better outcomes were produced by individuals acting in their own interests.

54 There was considerable development by Marshall of his ideas through the various editions of his *Principles of Economics*. Screpanti and Zamagni note that the first draft of the *Principles* goes back to the early 1870’s, (Screpanti and Zamagni, 1993, pp.179).
3.3 ‘Marshallian’ Static Equilibrium Analysis

Static equilibrium analysis holds the following.

3.3.1 Consumer: Determination of Outputs

Give an assumption of economic behaviour under which a consumer is free to determine his preferences, what to produce will be determined in the market place by demands of a consumer for goods and services with regard to price. Consumer preferences indicate to producers what is to be produced, and producers are responsive to the desires of consumers in pursuit of profit. In that way, what to produce is exogenously determined, a subjective variable, and the consumer is said to be ‘sovereign’ in the market place. Sovereignty is referred to generally in the literature as the ‘invisible hand of the market’. The importance of ‘profit’ in this mechanism is noted.

Given the choice of dividing his limited income between two alternative forms of consumption, products A and B, a consumer will seek to maximise his consumption of both A and B, subject to his income or budget constraint. He will arrange his preferences such that no other combination of A and B will give greater satisfaction, or utility. The combination of A and B selected will be a matter of the subjective preference of the consumer.

The possible combinations of A and B available to the consumer, given the consumer’s particular budget constraint, which is determined by his income, is indicated in Fig. 1 by a budget line TC/PA, TC/PB that has the slope dPA/dPB. The slope indicates the rate at which A will be given up for B. The intercepts of A and B indicates the maximum quantity of either A or B that might be consumed. This situation is indicated in Fig. 1 below.
Fig 1: Subjective determination of outputs A and B

The utility of different combinations of A and B to a consumer are indicated by a series of negatively sloping indifference curves, UAB, with the slope determined by the marginal rate of substitution, A for B such that \( \text{MRS}_{AB} = \frac{\text{d}PA}{\text{d}PB} \), which indicate a consumer’s preferences for differing levels of consumption of A, B. In concept, Fig 1 contains a ‘map’ of differing levels of consumption of A, B, IABo, IABn, of which UAB is but one. Resolution of the unrestrained wants of the consumer and the consumers budget constraint is determined analytically by tangency of the budget line TC/PA – TC/PB with the indifference curve, IAB such that the slope of both are equal, \( \frac{\text{d}PA}{\text{d}PB} \) in Fig.1. At this point, the consumer’s consumption of A, B is maximised, and no greater level of satisfaction in the consumption of A, B can be achieved. Fig. 1 indicates that the mix of A and B to be produced is determined by the subjective preference of consumers. The level of production which optimises consumer satisfaction, A1 B1, can only be achieved at the point of tangency of the budget constraint with the indifference curve UAB. Any lower level of consumption of A, B, is sub optimal given the particular budget constraint the consumer is operating under, since this would provide lower levels of utility to the consumer.
3.3.2 The Producer: Determination of Output Mix

A producers’ profit-maximising level of output is determined by producing until marginal cost, MC, is equal to the marginal revenue, MR, derived from the sale of the marginal sale. Production should be expanded until this point is reached. Under the assumption of perfect competition, MR will be equal to average revenue, AR, and price, P. That is, at the margin, revenue will equal marginal cost. Under other assumptions about competition, the profit maximising level of output will still be determined by the intersection of MC with MR, but AR and P will be higher, the difference between AR and MR is attributable to monopoly or quasi-monopoly position of the producer, and is a ‘rent’ received by the producer in reward for his monopoly or quasi-monopoly position. This is generally held to be against the interest of the consumer, and restrictions on monopoly power have long been a feature of public policy.

Relevant to this study, static equilibrium analysis requires the ability to determine total marginal cost, and raises the analytical significance of fixed costs; the cost of using fixed factors such as industrial plant.

3.3.3 The Producer: Selection of Inputs

Traditional, static, equilibrium analysis of the optimum use of inputs by producers’ holds that inputs will be employed until the marginal benefit derived from various inputs will be equal. The analysis can be employed to illustrate the effect of nineteenth century circumstances, such as falling prices, use of the double-account system and renewal accounting, on the perception of cost and hence the allocation of inputs. This analysis indicates that these circumstances have the effect of altering, or interfering, with the optimal solution in the allocation of inputs.

Given two factors of production, Labour (L) and Machinery (M), where L denotes the more flexible factor labour and M denotes the inflexible ‘fixed’ factor, plant machinery and buildings, various possible combinations of factor employment are described by the budget line TC/PL – TC/PM, with the slope -dPL/dPM in Fig. 2. In Fig 2, the
combinations of inputs of L and M necessary to produce various levels of output A, Ao – An, can be indicated by a map of isoquants, IAo – IAn, of which 1 is but one. The profit maximising, least cost, combinations of inputs L and M, given the applicable budget constraint, is determined by tangency of the budget line TC/PL – TC/PM with the relevant isoquant, in this case it is isoquant I, such that for both the budget constraint and isoquant the slope is dPL/dPM.

Fig. 2: Optimisation of inputs M and L

Isoquant I indicates the various combinations of inputs of L and M that must be combined to produce some level of output, A1. The slope of the isoquant indicates the technical substitutability of L for M, MRTSLM = dPL/dPM. The particular characteristic of isoquant I is that it is tangent to line TC/PL – TC/PM, indicating that any other combination of M and L required to produce the quantity A along I would require a larger input of M and L than is available. Isoquant I can only be reached at the point of tangency, and that particular combination of L and M. Alternatively, some smaller, less efficient quantity of A might be produced. Such a solution would be sub-optimal, since some larger quantity of A, A1, can technically be produced with the available budget.
Tangency of I with TC/PL1 – TC/PM1 results in the employment of the minimum quantity of L and M necessary to produce A1, and is, in that sense, the efficient allocation of available inputs, L and M.

It may be noted that the analysis of consumer choice subject to a budget constraint, and of producer choice in the selection of inputs subject to a budget constraint, are identical.

### 3.3.4 Change in Technology

Adoption of a new, lower cost technology, (that is, a larger output of A can be produced from the fixed factor, M, per unit of cost) alters the technical relationship between the inputs Labour and Machinery. Labour, relative to Machinery, has become more expensive, and the relative cost of Machinery has fallen. Given the particular budget constraint, the quantity of M available is now larger; analytically, the budget constraint rotates outwards. This situation is reflected in Fig. 3 by the shift in the available quantity of M from TC/PM1 to TC/PM2, indicating that the available inputs given the budget constraint are now TC/PL1 – TC/PM2. This change in the relationship between the prices of M and L will result in a new solution to the use of inputs M and L in the output of A at L1 and M2, and the new budget constraint, TC/PL – TC/PM2 is now tangent to isoquant I at the higher level of output, A2. It is to be noted that lowering the price of fixed factor M, machinery has expanded output from A to B and increased consumption of the flexible factor L, labour, though the price of labour has not altered.
Some Relevant Applications of Isocost - Isoquant Analysis

The foregoing static isocost - isoquant analysis of the optimum mix of inputs can be employed to demonstrate the effect on economic decision-making of accounting policies and practices followed in respect of capital assets. The analysis that follows indicates that selection of accounting policies has the capacity to alter the perception of costs and displacing perceived cost from actual cost, thereby altering decisions.

i) Perceptions of Cost under the Historical Cost Convention and Falling Prices

Using the analysis developed above, the effect on the perception, or understanding, of cost provided by reference to accounting information under conditions of falling prices is illustrated. (The reverse analysis would apply in the situation of rising prices.) An assumption of falling prices reflects the situation of Britain in the latter decades of the nineteenth century.
Fig 4: Optimum combination of inputs M and L under falling prices

Starting from the budget constraint $TC/PL - TC/PM_1$, the efficient combination of inputs and output of A is determined by isoquant IAA in Fig 4. If prices fall generally, such that the relationship of the price of L and M are relatively unchanged, one against the other, the real price of machinery and labour are, relatively, unchanged, and would continue analytically to be represented by $TC/PL$ and $TC/PM_1$ in Fig. 4.

However, this real position is not that indicated by accounts maintained under the historical cost convention. Accounts maintained on that basis would present an entrepreneur with an illusionary situation that can be described as follows.

The variable factor Labour is hired on an on-going basis, and the entrepreneur’s understanding of labour cost reflected in accounts would be obtained by reference to the current (falling) market price for labour services. In Fig. 4, the price of labour is denoted by $PL$. Since the price level change is a general one, the real relationship between the price of Labour and Machinery has not altered. That is, there is no shift in the real price.
of labour. In this situation, the optimal combinations ought not to alter and would still be at point A on IAA.

But this would not be the situation confronting an entrepreneur considering such an input mix combination under the circumstances of falling prices. Though the nominal price of machinery has fallen in line with the general fall in prices, the price of Machinery under the historical cost convention remains unchanged in the ledger if no adjustment is made to book values, that is, as represented in the accounts the price of Machinery has risen. In Fig.4 the isocost curve apparent to the entrepreneur is TC/PL – TC/PM2, rather than TC/PL – TC/PM1, and the efficient solution is displaced to tangency of the budget constraint – isocost combination, isoquant IAb at L2/M2. That is, the real cost of the fixed factor, M, is perceived to have increased and, accordingly, given the budget constrain, the level of M that can be employed given the budget constraint falls to M2, and the level of output attainable fall as indicated by isoquant IAB. It appears that only isoquant A2 can be attained, and output falls from A to B.

In the situation under analysis, the historical cost convention has produced an illusion about the cost of the fixed factor, M, and the false appearance that fewer resources are available than is the case if the real, rather than nominal value of the fixed factor were referred to. One interesting implication of this illusion is that, in the shift of the budget constraint to TC/PL0 TC/PM2 with tangency with isoquant IAB is that consumption of the variable factor, L, is reduced from L1 to L2.

ii) Contemporary Accounting Policies; Double-account System and Renewal Accounting

The analysis can be expanded to reflect other nineteenth century circumstances with reference to the double-account system of renewal accounting and falling prices. Characteristics of that system have been outlined in Chapter 2. The significant feature of the system to modern eyes was that the initial expenditure on assets was ‘frozen’ and subsequent additions, renewals and replacement costs expensed. In the simplest expression of the system initial expenditure on assets would not be depreciated, and the
cost of the fixed factor in accounts would be demonstrated by expenditure on asset maintenance, renewal and replacement. In the modern understanding of the concepts – as indicated in the definitions of assets and expenses referred to below – assets reported would include consumed assets while expenditure reported against revenue in respect of renewals, repairs and replacement would include both consumed and unused asset potential.

In Fig. 5, the isocost line TC/PL – TC/PM1 represents the cost of inputs as determined under the double-account system, where the cost of the fixed factor M is given, not by depreciation, but by annual expenditure on maintenance, replacement and renewals etc. The resulting equilibrium in the use of L and M is indicated by tangency of the budget constraint with isoquant IA at A in the manner described above. If it is assumed that the asset set is being expanded expenditure on renewals will be growing, overstating the expense of using the fixed factor and understating the financial value of the asset set.

Alternatively, using the cost associated with the employment of fixed assets by reference to depreciation rather than renewal expenditures including expenditure on new capital assets, the relevant isocost line is TC/PL – TC/PM3, which indicates the lower cost in the use of the fixed factor. The relevant equilibrium quantity of L and M is determined by tangency with IAB, at B, and a higher level of M and L available given the applicable budget constraint. Effectively, the use of renewal accounting has increased the apparent cost of using the fixed factor.
Fig. 5: Optimisation of inputs L and M; falling prices and the double-account system

Figure 5 adds to understanding of the effect nineteenth century capital accounting policies by illustrating the implications of the double-account system under an assumption of falling prices. The figure shows that in such circumstances the system alters the perception of cost by overstating the costs of the fixed factor. The effect is similar to that illustrated in Fig. 4. In Fig. 5, falling price levels causes the real cost of the fixed factor represented by renewal expenditures to increase; this is represented in Fig. 5 by a shift in the budget constraint to PT/PM₃, implying higher costs, lower output and, consequentially, lower consumption of M. Again a result is lower consumption of the variable factor L, labour, at L₃ indicated by the intercept of the budget constraint TC/PL - TC/PM₃ at C. These are results consistent with the British economy in the late nineteenth century.

3.3.6 The Fixed Factor in the Long Run

In the short run, the fixed factor of production, M, generally cannot be readily adjusted, and investment in assets such as plant and building is an irrelevant consideration; in respect of investment sunk into inflexible plant it is said, ‘bygones are forever bygones’.
The degree to which investment in plant etc. might be flexible in the short run is a matter of fact in each instance, but analysis in the ‘long run’ is defined as a period in which plant might be replaced rather than by reference to time.\footnote{55} 

In the longer run an entrepreneur must have regard for his survival by protection of his capital, and recovery of his investment in wasting plant is necessary. That is, in the long run, average revenue must cover average costs. Or, as any text on price theory points out, in the long run all costs are marginal and, consequently, the cost of the fixed factor is relevant. But, determination of the cost of the fixed factor to be allocated to a period has been a difficult matter to determine.

Alfred Marshall illustrated analytically, the importance of fixed cost in business decision-making but, as will be argued in Chapter 9, he, and later Keynes, could not indicate how fixed costs might be determined as a practical matter, given the approaches, or allocations, followed by accountants in recording fixed assets at that time. In the late twentieth century in modern conceptual frameworks have provided a definition of expense based on the idea of consumption, or exhaustion, of asset utility – physical or economic. The idea of consumption replacing an allocation, and the distinction between capital and income is the modern one of antithetical states of wealth: an expense is a reduction in wealth. The definitions in modern frameworks are explored in Section 3.4 below.

\footnote{55} Keynes (1936) notes Pigou on traditional relevance of the short run cost of the fixed factor as follows as follows, 

In his *Theory of Unemployment* Professor Pigou expressly assumes that the marginal disinvestment in equipment due to the marginal output can, in general, be neglected: ‘The differences in the quantity of wear and tear suffered by equipment and in the costs of non-manual labour employed, that are associated with differences in output, are ignored, as being, in general, of secondary importance.”

Keynes’ more insightful and sophisticated position of relevance is noted in full in Appendix 2.
3.3.7 Summary; Relevance of Static Analysis

The importance of static equilibrium analysis is the opportunity it provides to explore the profit maximising mix of inputs and outputs under a wide variety of assumptions. Here the assumptions explored relate to changes in accounting information about costs and prices.

In static analysis costs are broken down analytically into variable and fixed components because of their differing characteristics. The fixed component is the cost of employing fixed inputs such as machinery, works and plant etc, the special character of which is that the usefulness is consumed over a long period. The distinction is between capital recovered that way and capital recovered by on selling; as circulating capital.

The model indicates that profit is maximised by expanding production up to capacity by covering marginal cost with marginal revenue, in the longer term all costs are marginal, and if capital is to be protected, fixed costs must be recovered by small charges allocated to units of output. The practical problem is identifying the amount to be added to unit cost and recovered each period. It follows that the determination of fixed costs will affect profitability, and the basis of allocation becomes a matter of consequence.

Application of the analysis in this section illustrates how accounting information, through the perception of cost, alters, decisions and outcomes; that is, it has macroeconomic implications. Here use of the analysis indicates that, where investment is growing, use of renewal expenditures to represent fixed cost will overstate the cost of the fixed factor and reduce output. The analysis shows that under an assumption of falling prices, fixed costs derived from historical-cost-based systems will similarly overstate the fixed costs and reduce output. It is notable that in both cases the analytics indicate employment of a smaller quantity of the variable factor, labour: falling prices and use of renewal accounting characterised capital asset accounting in late nineteenth century Britain.
3.4 Conceptual Frameworks: Accounting Models of Economically Useful Information

The purpose of the following sections is to review the definition of the elements of financial statements contained in modern conceptual frameworks of financial reporting. Particular interest is with the definition of an expense, and its relationship to the definition of an asset.

Conceptual framework projects were conceived in the later part of the twentieth century with the purpose of making the content of financial reports logical and internally consistent. Frameworks are deductively derived constructs based on an asserted value judgment about the purpose of financial reporting. Their content is intended to be logically consistent with the asserted objective. Relevant to the argument being advanced here, this would require that the definition of an asset to be logically consistent with that of an expense: expenses reduce assets.

At the time of completing this study the applicable Australian framework is the Framework for the Preparation and Presentation of Financial Statements, (the Framework) (AASB, July 2004). The Framework replaced the Australian Conceptual Framework for General Purpose Financial Reporting (the Conceptual Framework) with the Australian Financial Reporting Council’s (FRC) decision to adopt the accounting standards of the International Accounting Boards (IASB) from 1st January 2005. The Australian Framework is equivalent to the Framework for the Preparation of Financial Statements issued by the IASB. The Australian Framework is followed here.

Inter alia, the Framework specifies characteristics of financial reporting relevant to the discussion conducted here. These are the objective of financial reports, qualitative characteristics of financial reports, and definition of the elements of financial statements. The nature of the specifications as they are relevant to the study is now discussed.

3.4.1 The Purpose Financial Reporting

The Framework identifies the objective of financial reporting in the following manner,
The objective of financial reports is to provide information about the financial position, financial performance and cash flows of an entity that is useful to a wide range of users in making economic decisions. *(Framework, July, 2004, para.12).*

### Table 3.1: Objective of Financial Statements and Requirements: SAC2

<table>
<thead>
<tr>
<th>Objective</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective of General Purpose Financial Reporting</strong></td>
<td>General purpose financial reports shall provide information useful to users for making and evaluating decisions about the allocation of scarce resources (SAC2, Para. 43)</td>
</tr>
<tr>
<td><strong>Accountability</strong></td>
<td>Management and governing bodies shall present general purpose financial reports in a manner which assists in discharging accountability (SAC2, Para. 44)</td>
</tr>
<tr>
<td><strong>Information to be Disclosed</strong></td>
<td>General purpose financial reports shall disclose information relevant to the assessment of performance, financial position and financing and investing, including information about compliance (SAC2, Para. 45)</td>
</tr>
</tbody>
</table>

**Source:** Statement of Accounting Concepts SAC2 Objective of General Purpose Financial Reporting, AASB, August 1990.

The *Framework* indicates that more detailed information about the objective of financial reporting is contained in Statement of Accounting Concepts, SAC2 *Objective of General Purpose Financial Reporting*, *(the Conceptual Framework, 1990).* SAC2 covers such matters as the meaning of objective, purpose and disclosure. These are indicated in Table 3.1 above.

Relevant to the argument made, SAC2 elaborates the intention that financial reporting should support economic decision-making. It indicates that the purpose of financial reporting is the promotion of ‘…useful (ness) … in making…decisions about the allocation of scarce resources…’ specifically, the Statement acknowledges,

(a general) community interest in the efficient use of scarce resource. … The community interest is best served if scarce resources controlled by a reporting

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56 The accounting literature refers to ‘decision-making about scarce resources’ and the economic literature to ‘economic decision-making’. The two expressions refer to the same idea; rationalising the use of ‘scarce’, or ‘economic’, goods, *(See Fn 7).*
entities are allocated to those entities which will use them in the most efficient and effective manner in providing goods and services. Efficient use of resources raises output and has desirable macroeconomic effects (SAC 2, Para. 12).

The association of financial reporting with broader macroeconomic consequences is noted here.57

Adoption of the objective concerned with the ‘economic usefulness’ of financial information is a value judgment made by standard setting authorities. It begs a question about the character of economically useful information. As the idea is understood here, the idea of economic efficiency finds expression in the static analysis of Marshall outlined in the preceding sections of this chapter. It is concerned with making choices under conditions of scarcity (i.e., economic choices) that optimise satisfaction, in particular, in the use of inputs so as to minimise opportunity costs. In respect of business decisions, satisfaction is taken to be represented by profitability: satisfaction is increased by increasing profit. The analysis requires identification of variable and fixed costs (expenses), and it has been noted above, and discussed further in Chapter 9, that Marshall, though noting the analytical importance of fixed costs, was not able to indicate how fixed cost might be identified as a practical matter because of the nature of contemporary accounting practice. This problem falls away in the definition of an expense followed in modern conceptual frameworks: expenses are the consumption of assets. The nature of these definitions is now explored.

3.4.2 Definition of Accounting Elements

Consistent with the requirement that financial information be useful for economic decision-making, the definitions of the elements of financial reporting are arranged around the definition of an asset, which is conceived of as wealth, or ‘scarce’ usefulness.

57 On reflection, this might well be the only reference the author has noted to macroeconomics noted in reading of authoritative professional literature. As one eminent accounting authority observed on being shown the sentence, ‘using somebody else’s language’.
The *Framework* definitions of assets, liabilities and equity are summarised in Table 3.2, and the definitions of profit, revenue and expenses are summarised in Table 3.3. In addition, definitions of assets, liabilities, revenue and expenses contained in SAC 4 contained in the *Conceptual Framework*, are indicated in Table 3.2 in Footnote 57. The principal difference between the definitions in the *Framework* and those contained in the *Conceptual Framework* is that the term ‘income’ has replaced revenue to denote gross inflows in the *Framework*.

For the purposes of this study it is the definitions of an asset and an expense that are relevant to the identification of capital and income. These definitions are now examined.

i) **Assets**

The *Framework* definition of an asset is indicated in Table 3.3. It refers to the essential character of an asset being the existence of economic benefits defined as access to cash flows. The SAC4 definition of an asset contains a broader notion of economic benefit in which the idea is related to the existence of ‘scarce service potential’, or usefulness, that

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**Table 3.2: Definitions of the Elements of Financial Statements; SAC4**

<table>
<thead>
<tr>
<th>Element</th>
<th>Definition of Element</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assets are;</td>
<td>future economic benefits, controlled by the entity as a result of past transactions or other past events (SAC 4, Para. 14).</td>
</tr>
<tr>
<td>Liabilities are;</td>
<td>future sacrifices of economic benefits that the entity is presently obliged to make to other entities as a result of past transactions or other past events (SAC 4, Para. 48).</td>
</tr>
<tr>
<td>Equity is;</td>
<td>residual interest in the assets of the entity after the deduction of its liabilities (SAC 4,Para. 78).</td>
</tr>
<tr>
<td>Revenues are;</td>
<td>inflows or other enhancements, or savings in outflows, of future economic benefits in the form of increases in assets or reductions in liabilities of the entity, other than those relating to contributions by owners, that result in an increase in equity during the reporting period (SAC 4, Para. 111).</td>
</tr>
<tr>
<td>Expenses are;</td>
<td>consumptions or losses of future benefits in the form of reductions in assets or increases in liabilities of the entity, other than those relating to distributions to owners, that result in a decrease in equity during the period (SAC 4, Para. 117).</td>
</tr>
</tbody>
</table>

has the capacity to ‘create utility and value to provide goods and services that customers and beneficiaries need.’ (SAC 4, Para. 18).  

| Table 3.3: Framework Definitions of the Elements of Financial Statements; Assets, Liabilities and Equity |
|-------------------------------------------------|-------------------------------------------------|
| **Element** | **Definition of Element** |
|------------------------------------------------|
| **Assets** | An asset is a resource controlled by the entity as a result of past events and from which future economic benefits are expected to flow to the entity. *(Framework, July 2004, Para. 49 (a).)*  
The future economic benefit embodied in an asset is the potential to contribute, directly or indirectly, to the flow of cash and cash equivalents to the entity. *(Framework, July, 2004, Para. 53.)*  
See also *Framework*, July 2004, Paras. 50-60. |
| **Liabilities** | A liability is a present obligation of the entity arising from past event, the settlement of which is expected to result in an outflow from the entity of resources embodying economic benefits. *(Framework, July 2004, Para. 49 (b).)*  
The essential characteristic of a liability is that the entity has a present obligation. An obligation is a duty or responsibility to act or perform in a certain way. *(Framework, July 2004, Para. 60.)*  
See also *Framework*, July 2004, Paras. 60-64. |
| **Equity** | Equity is the residual interest in the assets of the entity after the deducting all its liabilities. *(Framework, July, 2004, Para. 49 (c).)*  
See also *Framework*, July 2004, Paras. 65-68. |


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59 The conception of an asset being ‘future economic benefits’ in the SAC 4 definition is robust one capable of sophisticated applications. It, for example, effectively handles intangible intellectual property, ‘The net cash inflows generated by the future economic benefits may include reductions in cash outflows, such as when an entity’s research and development efforts produce a technologically superior production process which lowers the cost of production and thereby reduces the entity’s cash outflows.’ (SAC 4, Para. 19). Such a conception was well beyond the capacity of nineteenth century accountants. Expenditures to reduce costs rather than producing something tangible would have been classified as expenses.
ii) Expenses

The Framework definition of an expense is indicated in Table 3.3. This indicates that the term includes both expenses arising as a consequence of the ordinary activities of the entity and other ‘losses’ of asset usefulness. The nature of an expense is further amplified in SAC4 where an expense is defined as ‘…consumptions or losses of future economic benefits…’ (SAC4, Para. 117), that is an expense is the consumption rather than an allocation of cost, though depreciation is usually explained as a process of cost allocation.

An outworking of the definition of an expense relevant here is whether accounting depreciation is properly conceived of as the consumption of an asset’s usefulness rather than a process of cost allocation. In this study, cost, or expense, including that of depreciation, is associated with the idea of ‘consumption’.

iii) Income

As indicated in Table 3.4, the expression ‘income’ in the Framework refers to gross inflows of resources, that is assets, to an entity and is identified with both ‘revenue’ earned in operations and other gains in wealth. ‘Income’ in the Framework and ‘Revenue’ in the Conceptual Framework refer to the same idea; the gross inflows of financial resources, assets or wealth, conceived in an ‘all inclusive’, or ‘comprehensive’ manner. The character of revenue being further explained in SAC4 to include all increases in assets, or reductions in liabilities (SAC4, Para.117).

iv) Profit

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60 The use of the word ‘cost’ varies in accounting. It has a long history of use interchangeably with expense, and this is how usage appears in the nineteenth century material referred to for this study. But sometimes in a more modern way it is used to refer to an outlay of cash. The modern use of ‘expense’ is with the consumption of assets.
In the *Framework* ‘profit’ is defined (implicitly) from the definition of income and expenses. Profit increases equity. It is noted that profit will depend ‘…in part on the concepts of capital maintenance used … in preparing … financial reports’, (*Framework*, 2004, Para. 69), a point that is consistent with reference to ‘gains and losses’ in the definition of income and expenses.

(In the *Framework* ‘income’ refers to gross inflows and ‘profit’ to net inflows, however, to reflect more general usage in the study the term ‘income’ is generally employed in the net sense see further Fn. 2, Chapter 1 and Fn 157 in Chapter 10. For the purpose of the study, ‘profit’ is synonymous with ‘income’.

v) **Capital Maintenance Adjustment**

Unlike the *Conceptual Framework*, the *Framework* refers to increases and decreases in equity arising from revaluation of assets (the *Framework*, 2004, Para. 81). These revaluations are referred to as ‘Capital Maintenance Adjustments’, which seem to be presented as an element of financial statements, though this is not specifically claimed.

While indicating that such adjustments meet the definitions of income and expense, the *Framework* notes, rather inconclusively, that in some measurement models they are not included in the income statement, and the *Framework* does not unambiguously indicate whether increases in asset values are an increase in capital and losses of asset value are a reduction of capital, though this is would be the logical conclusion of the model being propounded. In respect to changes in the value of assets, the *Framework* does not apply the logic of its own theory.
<table>
<thead>
<tr>
<th><strong>Table 3.4: Framework Definitions of the Elements of Financial Statements; Profit, Income, Expense and Capital Maintenance Adjustment</strong></th>
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<tr>
<td><strong>Profit</strong></td>
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</table>
| **Income** | The definition of income encompasses both revenue and gains. Revenue arises in the course of the ordinary activities of an entity and is referred to by a variety of different names including sales, fees and interest, dividends, royalties and rent. *(Framework, July 2004, Para. 74.)*  
Gains represent other items that meet the definition of income and may, or may not, arise in the course of the ordinary activities of an entity. *(Framework, July 2004, Para. 75.)*  
See also Framework, July, 2004, Paras. 76 and 7. |
| **Expenses** | The definition of expenses encompasses losses as well as those expenses that arise in the course of the ordinary activities of the entity. Expenses that arise in the course of the ordinary activities of the entity include, for example, cost of sales, wages and depreciation. *(Framework, July 2004, Para. 78).*  
Losses represent other items that meet the definition of expenses and may, or may not, arise in the course of the ordinary activities of the entity. Losses represent decreases in economic benefits and as such they are no different in nature from other expenses. *(Framework, July 2004, Para. 79.)*  
See also Framework, July 2004, Para. 80. |
| **Capital Maintenance Adjustment** | The revaluation or restatement of assets and liabilities gives rise to increases or decreases in equity. While these increases or decreases meet the definition of income and expenses, they are not included in the income statement under certain concepts of capital maintenance. *(Framework, July 2004, Para. 81).*  
See also Framework, July 2004, Paras. 102-10. |

v) **Assets and Expenses as Stocks and Flows**

In both the *Framework* and the *Conceptual Framework*, the conception of an asset and income employed is that assets are a stock; profit, or income, are inflows: profit increases the stock of capital. The definitions are therefore consistent with Fisher’s conception of the relationship between capital and income as one of antithetical states. Relevant to the argument being advanced, the *Framework* notes, ‘Profit is frequently used as a measure of performance or the basis for other measures such as return on investment or earnings per share…The recognition and measurement of income and expenses, and hence profit, depends in part on the concepts of capital …’ (*Framework*, 2004, Para. 69, emphasis added).

### 3.5 Summary

This chapter has established a framework to aid understanding of the confusing accounting followed in respect of capital assets in the late nineteenth century. It does so in two ways.

Firstly, the chapter outlines the conditions specified in standard static analysis for economically-efficient-decision making about scarce resources. Attention has been drawn to the necessity of an analytical division of costs between those of a variable and those of fixed character. This study is concerned with the concept of fixed costs.

Secondly, the chapter has described the definitions of assets and expenses contained in modern conceptual frameworks. Attention has been drawn to the logical connection made in these definitions between the definition of an asset as something of economic benefit, or usefulness, and an expense as a consumption of asset usefulness. Distinction between an expense, understood in the modern way, as a consumption of asset benefit, or the result of an allocation of asset cost, as it was in the late nineteenth century, has been stressed.

Certain propositions about accounting information derived from the economic circumstances of the late nineteenth century – the use of renewal accounting and falling
prices – have been examined. These have illustrated that accounting information as prepared at that time had the potential to adversely influence economic decision making. A similarity with the conclusions of the analysis and nineteenth century circumstances has been noted.

It has been observed that the modern definitions are based on the notions of an asset being a stock of wealth and income being a flow of wealth; antithetically related. The rise of this distinction in economic philosophy is now explored.
Chapter 4

Literature Survey; 1

Accounting, the Missing Element

4.1 Introduction

The purpose of this chapter is to indicate the limited attention accorded in economic literature to the role of accounting in the organisation of capitalist economic activity, and to identify the literature that provides the rationale for the study.

4.2 Existing Literature and the Context of the Study

Concern about the concept of capital in nineteenth century financial reporting arises from a complex literature about the role of accounting in the emergence of the industrialisation as a distinctive phase in the evolution of capitalism. The assertion that double-entry bookkeeping played a significant role in the rise of capitalist economic organisation derives originally from the work of the German economist Werner Sombart, and the idea is generally known in the literature as the ‘Sombart hypothesis’, (Yamey, 1949). Though, the idea is sometimes attributed incorrectly to Weber (1927). Whatever the merits of Sombart’s claims, which are explored further in following chapter, his idea
extends the significance of bookkeeping and accounting beyond that of a scorekeeping device. For example, it poses questions about the purpose sought by entrepreneurs in keeping accounts, the techniques employed to secure those ends, and the consequences flowing from the use of the information provided. It also raises questions about the usefulness of a particular technique in the promotion of profit-seeking activities. Sombart’s idea requires attention to the context and consequences of a particular accounting technique; and the potential for a misconstrued accounting method to distort profit, price signals and decisions made on the basis of profit.

The context of Sombart’s claims was of use made of double-entry bookkeeping by mercantile capitalist where the focus in undertaking economic activity was on the acquisition of goods for resale for a profit. It is this issue that has more generally been explored in the literature testing the Sombart hypothesis (Yamey, 1940, 1949, 1964, and Winjum, 1972). However, Sombart’s claim of a rational economic calculus provided by double-entry bookkeeping has provided a starting point for writers exploring the broader significance of accounting information on economic activity: in particular, the development of industrial economic organisation Brief, (1965, 1966, 1967 and 1976), Bryer, (1991a and 1993). It is this employment of the Sombart hypotheses that provides the context for the study.

The central proposition of the Sombart hypothesis is that double-entry bookkeeping provided the rationalising calculus necessary to the organisation of capitalism. As envisaged, ‘scientific bookkeeping’ would promote the acquisition of wealth by providing a calculus that would direct activity on the basis of profit. As noted in Chapter 1, this concept is ‘rational’ in the sense that to do otherwise would result in lost opportunities.

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61 In the title of his 1949 article Yamey labelled such bookkeeping as ‘Scientific Bookkeeping’. 
4.3 **Sombart and Profit Signals**

The Sombart hypothesis involves a complex set of propositions that go beyond the domain of accounting, involving other disciplines, for example, economic theory and economic history. It is from Sombart that the idea derives of misconstrued accounting causing erroneous profit signals, consequentially flawed decision-making and misdirected resources. The broader, macroeconomic, implications of miss-constructed profit signals resulting from flawed capital assets accounting follow. An in principle analysis of such a chain of causation has been explored in Chapter 3 above.

Sombart’s propositions are discussed further in Chapter 5.

4.4 **Observations on the Literature of Economics**

Without question, the revolution in British industrial life, which developed in England from the middle of the eighteenth century, represents one of the great cultural discontinuities in human history and, as such, it has been much investigated. The intellectual discontinuity was characterised by curiosity, innovation and a desire to place decision-making in all forms of life on a rational, or scientific, basis. In economic organisation, decision-making was to be made by reference to the rational rather than by reference to tradition. Over time this came to be understood to involve the minimisation of opportunity cost. Clearly, such a scheme required a valid technique by which ‘cost’ might be identified.

The detail of the nature, chronology and results of industrialisation has been investigated in many ways, in a variety of disciplines and traditions. In the course of the reading for this study, three distinctive literatures concerned with the industrial revolution were identified. These are those of economic history, the history of economic thought and accounting history. Each is a distinctive discipline, with its own origin, perspective and methodology.
Each discipline is formidable large and complex, but in respect of the significance of accounting in the evolution of capitalism, each seems frustratingly incomplete. In general, no association between the changes in economic decision-making caused by a growing economy based on financial investment in new industrial technologies, changing financial organisation and necessary development of accounting practice, were identified for this study. Apart from the discussion noted here, in discussion of the rise of the Industrial Revolution, no particular attention seems to have been paid to the necessary rise of a more complicated accounting and the consequence thereof, or the possibility that the technique might be flawed and adversely influence economic and social activity; the consequences of the model of nineteenth century industrial accounting has not been tested, save in the very limited manner noted below. In the extensive literature concerning the Industrial Revolution, the method by which businessmen rationalised their affairs is unrecognised amid descriptions of industrial techniques and searches for causal factors and linkages that explain economic growth seems ignored. Sometimes accounting technique is described without discussion of the broader context and consequences implied in its use. Yet, the rise in the utility of accounting signified by the development of the profession in the second half of the nineteenth century indicates that accounting information had economic value to contemporaries, and was consequential.

The conclusion here about this omission is of an implicit perception of accounting as a ‘fixed’ rather than a ‘plastic’ technology. Accounting emerges as generally perceived as incapable of consequences, of altering the direction of economic events, of responding to social need. Inescapably, the conclusion here is agreement with Carnegie and Napier’s (1996/2000) observation that accounting historians have found it necessary to argue against the view that ‘accounting is a mere tool’, and their agreement with Hatfield’s remark that accounting ‘…detracts somewhat from the sanctity of the academic halls’ (p. 178).

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62 Even when the conception of ‘accounting, is broadened to that of Miller and Napier’s ‘modes of calculation’, the situation is not much improved.

63 See also Littleton’s defensive introduction, the Respectability of Bookkeeping, to his Accounting Evolution, (1933/1981, pp.3-11).
Observations about the usefulness of each of these bodies of literature to this enquiry are now made.

4.5 Accounting and Economic History

The discipline of economic history can be broadly described as concerned with the historical evolution of institutions and tools which mankind has used to resolve the basic economic problems of ‘what, how and to whom’. To generalise, much of the literature is concerned with the development of economic growth as a consequence of the Industrial Revolution and is concerned to discerning patterns of development. The literature is particularly concerned with the origins and implications of new technologies on the process of economic growth. Technologies identified tend to be those of a physical or industrial character, rather than intellectual as discussed by Faulhaber and Baumol (1988). In this vein, no discussion of the importance of double-entry bookkeeping in the evolution of industrial capitalism has been identified in research for this study in this body of literature. An exception to this generalisation is the important work of Pollins (1956a and b) and Pollard (1965). As identified for the study, after their work, the role of accounting in the industrial revolution seems to be contained in the literature of accounting history.

‘profit and loss’, ‘auditing’ or similar terms. Similarly, a topic index of 13 pages also makes no reference to such topics.64

It is not the purpose of this thesis to attempt an explanation for this gap in the literature of economic history, but one point is worth making. It might be true that scholars working on the role of double-entry in nineteenth century entrepreneurial decision-making might find their work more readily accepted in journals dedicated to the development of accounting; perhaps because of the technical nature of the discussion. So, for example, the extended exploration of accountings implication in the internal management of labour in nineteenth century industrial enterprises has been published in accounting journals (see for example, Hoskin and Macve, 2000, pp.91-148), though this debate concerns the role of accounting in internal management rather than the organisation of finance, and is not relevant to the argument being advanced. But generally this does not account for the lack of attention to the effect of accounting method on the process of industrialisation in the broader scholarly discussion of the process. For example, it is generally accepted that capitalism reached a mature financial form after about 1870, yet little attention appears to have been given to the nature of financial calculations made from that time, the nature of accounting information employed or the composition of financial ‘signals’: that they might be miss constructed and the consequent effect on decision-making. The judgment made here is that it indicates a flawed understanding of the nature of accounting; implicitly, accounting is seen, or understood, as a scorekeeping device. The degrees of freedom involved in complex scorekeeping, and the consequent effect on the allocation of financial resources, and hence social outcomes, are not appreciated.

The historical evidence shows that the role of double-entry bookkeeping expanded with the rise of railway companies from 1830. It was changed by market forces that reflect an appreciation by economic agents, company promoters, directors, managers and shareholders, that it was useful. Implicitly accounting information lowered costs and

64 Similarly, the leading British economist John Kay’s Culture and Prosperity, (2004) contains an equally impressive 19 page bibliography and a 9 page index, but it is also bereft of reference to bookkeeping, accounting etc.
resulted in benefits. The neglect of accounting in the explanation of industrialisation suggests a failure to appreciate the full nature of accounting, of and the effect of accounting calculation on society. This neglect that sits oddly with use of expressions such as ‘finance capitalism’ or ‘rentier capitalism’, to describe the new social order, dominated by finance, that emerged during the nineteenth century, and when the intellectual anti-thesis of Marxism was built on rejection of ‘profit’ as the focal tool of social organisation.

4.6 Accounting and Economic Philosophy

To Roll the history of economic philosophy (or economic ‘doctrine’) is sometimes a ‘…adjunct to economic history, a matter of methodological preference…’ (Roll, 1938/1992, p. 1) But, as with economic history, economic thought is similarly unconcerned with the significance of double-entry bookkeeping in economic organisation.

The history of economic philosophy is a literature concerned with the economic doctrine that separated from the broader discussion of moral philosophy with the publication of Adam Smith’s the Wealth of Nations in 1776. Smith’s work represented a significant intellectual discontinuity with the past. It was the point at which consideration of how man might best organise his economic affairs in his secular life was separated from reference to religious principles and enquiry about the moral and ethical. In Smith, man’s actions are to be based on a pragmatic concern with improvement of material circumstances. Smith’s Wealth was the first expression of a wholly material conception of improvement in man’s secular circumstances.

As Roll explains, the evolution of economic doctrine in the nineteenth century was entwined with the prevailing (though changing) economic order. Amid the turmoil of the Napoleonic wars, English institutions came to be based on the doctrine of economic liberalism. In that system, exercise of public policy and the determination of new institutional arrangements was to be determined by individual choice, freely exercised
and replacing government control and direction.\textsuperscript{65} This direction was one based on profound intellectual introspection. The rise of economic liberalism in the eighteenth century, as articulated by Smith, can be seen as the end point of intellectual turmoil in Europe that followed the collapse of authority based on temporal power at the end of the middle ages.

The great themes in economics following Adam Smith have been value, production and distribution, of which the matter of value is perhaps the most powerful, and is central to the hypothesis advanced in this study. The question of the nature of value arises early in the evolution of capitalism, resulting from the break down of feudalism, to collapse of the temporal authority of the church and the rise of the state dependant on taxation. To the question `what must be taxed` was the natural answer, `wealth`. As to what the nature of wealth was, and hence how it might be created, or sponsored, as a matter of state policy, and taxed, was to be a difficult question. It was not resolved until the marginal revolution in economic theory; the `neo-classicism` of Jevons and Marshall of the 1870s and 80s, and the idea of value as a matter of `subjective marginal utility`.

Visibly, in the writings of first Smith, then Ricardo and later Marx, understanding the nature of wealth became critical to the intellectual understanding of the new economic system as the process of industrial capitalism unfolded. In Marx especially, understanding the essence of value was critical to the formulation of a moral perspective on which to found a political claim of persuasive appeal. The moral implications of the nature of wealth are obvious in Marx`́s critique of capitalism. Was wealth a matter of god’s work as represented in the laissez faire of liberalism argued by Smith, or was it a matter of exploitation as discerned by Marx? The problem, and failure, of Marx`s political conception derives from his acceptance of Smith`s labour theory of value. In time, this was to become the weakest feature of Marx`s conception. Worse, it was irrelevant to the commercial needs of the time.

\textsuperscript{65} But, in reality, economic liberalism never completely triumphed. Railways the arch type institution of nineteenth century industrialisation were regulated by the state with Gladstone's \textit{Railway Act} of 1868.
The particular concern in the study is with understanding the nature of wealth and the derivations of value, capital and income necessary to the determination of profit in an unambiguous way. As described in Chapter 1, the impracticality of the late nineteenth century understanding of capital was producing harm in the management of business enterprises. Visibly, the cases brought in British courts in the late nineteenth century about distributable dividends related to misconceptions about capital and the nature of wealth. Yet in the development of economic concepts recounted in the literature of economic thought there is little appreciation of the contemporary need to establish the distinction between capital and income. Even in Fisher’s 1896 paper there is little to indicate the immediacy of the issue. The importance of Fisher’s distinction to accounting, and hence economic organisation, receives a minor acknowledgement in Schumpeter’s vast compendium of economic analysis, but it goes, seemingly, unrecognised elsewhere in the literature of economic philosophy.

4.7 Accounting History

Accounting history is concerned with the history of accounting, but this begs the question, what is the domain of accounting, and how is it to be explored? Does it, for example, include theoretical reasoning about the concept of capital and its relationship with income explored in economics? Enquiry about the nature of accounting history is partially answered by the American Accounting Association’s Committee on Accounting History (American Accounting Association, 1970) that describes the usefulness of accounting history as ‘intellectual’ and ‘utilitarian’. It is said to be intellectual in that its study promotes the process by which accounting developed, identifies factors that induce change and contributes to a better understanding of the process of change. It is utilitarian in that it yields insights into the solution of modern problems.

The literature of accounting history can be broadly divided between (i) a literature concerned with extant record keeping and the evolution of bookkeeping under changing economic circumstances and (ii) one concerned with methodological approaches, as represented by the work of Hopwood, (1983, 1987/2000), Gaffikin, (1992), Miller and
Napier, (1993/200), Carnegie and Napier, (1996), Funnell, (1996/200), Parker, (1997 and 1999) and Potter, (2003), much of which has been republished in a valuable work by Edwards, (2000). These papers consider a ‘new accounting history’ in which the concern of accounting history is broadened to encompass the purpose, or role, served by accounting in social organisation, rather than being confined merely to identification and explanation of accounting method. Though much of this methodological discussion is concerned with managerial rather than financial accounting issues. It gives rise to a discussion of how accounting can be interpreted to have been employed as a method of control. In particular, Hopwood’s (1983) suggestion that accounting is to be considered in the context in which it arises has been noted in Chapter 1 as relevant here. In this study, his idea is extended to consideration of ‘context and consequence’. Following Hopwood’s idea, the methodological themes that might be employed in consideration of accounting’s role in social organisation are to be conceived in a broad manner.

Much of the exploration of accountings broader role has been concerned with the use, misuse or malevolent use made of accounting information in the organisation of business and gives rises to discussion of methodological constructs. As already noted in Chapter 1, the concern in this study is with the failed conception of income and capital visible in extant accounts and discussions from the late nineteenth century, in particular as the conception related to the determination of profit available for distribution. It follows that the discussion here is concerned with external, rather than internal, financial reporting, though the relevance of the parallel discussion in the late nineteenth century of the important matter of depreciation is referred to in Chapter 10.

As indicated in Chapter 2, the approach adopted in the study is an interpretative one. The theme followed in three disciplines (economic, the law and accounting) in understanding an accounting problem, the causation of which has remained obscure, is the evolution of the concept of capital as an economic idea, during the pressure of industrialisation in the nineteenth century. The view that accounting is an economic calculus that ought to follow economic principles and that this idea might be employed to examine issues in
accounting history has been put by Hopwood (1987 and 1993) and Carnegie and Napier (1996/2000).

Exploration of accounting history by incorporating calculative theories and models from outside the domain of accounting, in particular, development of economic concepts, to answer questions and problems in account has been addressed by Carnegie and Napier (1996). In their paper, they note the existence of two perspectives on the scope of accounting. In one view, accounting is in a constant state of improvement (Carnegie and Napier, 1992, p.181). This, they observe is the Whig view of history, a narrative from past to present, from the primitive to the sophisticated (Carnegie and Napier, 1992, p.175): progress to an ever improving modernity. Understanding the progression from the past to a better future, and the study of its history, might be seen as the identification of the superseded and failed. Carnegie and Napier describe this approach as ‘an antiquarian matter’, the examination of ‘relics of the past’ (Carnegie and Napier, 1992, p181). Inherently, it is imagined, such relics will be accounting relics – books of accounts, minutes and financial statements. This approach has been described by Previts (1990) as narrative history, to be distinguished from interpretive history.

Interpretive history, by contrast, is concerned to explain what is observed, and requires a theoretical perspective as the basis of analysis. Selection of a theoretical basis for interpretation is an open choice, to be made by the researcher. To Carnegie and Napier this selection represents, a ‘foci of conflict’ (Carnegie and Napier, 1992, p.181) in place of a Whig interpretation of progress explored by antiquarian ‘digs’ into the peculiarly accounting archive of journals, ledgers and memorandum, and board papers. Rather, they suggest, the archive of accounting history be considered as ‘a wider space’. To traditional sources accounting historians explore, ‘Documents such as diaries, letters, internal reports…idle scribbles…’ (Carnegie and Napier, 1992, p.198), are added treatise and articles by ‘contemporary accounting writers’. Relevant to this study, the permissible ‘archive’ is also extended to include ‘material on accounting, indeed on economic calculation in a wider sense, by those not who would not necessarily regard themselves as accountants’ (Carnegie and Napier, 1992, p.198). Miller and Napier (1993) note that, in
this new accounting history, ‘The territory of accounting is permeable, and there have been redefinitions of its boundaries and changes in its content’. In both Miller and Napier, and Carnegie and Napier, there is the desire to break the link between accounting and double-entry. Miller and Napier prefer the term ‘calculation’ to ‘accounting’ to denote their ‘broader space’ (Miller and Napier, 1993, p.124) of which they are interested.

In the new accounting history, selection of the theoretical perspective is expanded beyond comparison with modern accounting. ‘If the researcher believes that a particular theory helps explain phenomena under discussion, then there appears to be no a priori reason for excluding that theory from being applied to the domain of accounting history…’ (Miller and Napier, 1993, p.183) Traditions in sociology, philosophy and psychology, as well as, of course, economics, are noted. Carnegie and Napier raise the contentious nature of the relationship between accounting and economics, and the use of economics, in particular, the neo-classical paradigm (and especially the classical assumption of ‘rationality’), noting both the traditional use of the economic model by accounting historians trained in economics and the dissatisfaction of those trained in other traditions, especially those who see accounting as a cultural, rather than economic, phenomenon. But they note that it would be foolish to deny the usefulness of the neo-classical model in evaluating past accounting practices, and cite, for example, Yamey’s (1949 and 1964) evaluation of the Sombart hypothesis (Miller and Napier, 1993, pp.183-4).

Carnegie and Napier raise alternative possibilities about the role of accounting in the past in place of the Whig notion of progress. Alternatively, accounting, or calculation, becomes something, in Hopwood’s (1983) words, to be considered in the context in which it operates. Miller and Napier describe such contexts of disparate calculative technologies as ‘genealogies of calculation’, where genealogies replace teleology (Miller and Napier, 1993, p.123). In defining these genealogies, double-entry is de-emphasized in favour of calculative techniques of economic reasoning, (Miller and Napier, 1993,
Pertinent to this study about the development of concepts wealth, value, capital and income relevant to the management of industrial capital, and Miller and Napier, note ‘a need to look beyond “what practical men were doing” if we are to understand fully how diverse calculative practices came to be given the name accounting.’ and to consider ‘…the way in which calculative practices of a defining sort through the language, vocabulary, ideals and rationales that set out the objects and objectives of calculating…’ (Miller and Napier, 1993, p.140)

Here the interpretive perspective is perceived to be the more powerful method to employ when exploring the context and consequences inherent in the practice of an accounting technique, or mode of calculation. Methodologically it is the more powerful tool, and accordingly it is this approach that is employed in this study to explore the character of capital and income exhibited in nineteenth century financial reporting. The interpretive approach licenses exploration of economic concepts to resolve an accounting issue, and it is this route that is followed here.

### 4.8 Summary

This chapter has noted that the Industrial Revolution has generated a vast literature, but a review of that literature has indicated little, or no, attention to the role of accounting in the organisation of capitalism and the evolution of the Industrial Revolution. It has noted an explicit, though more usually an implicit assumption, that accounting is no more than an inconsequential score keeping device. The chapter has further noted discussion of the broader context and consequences of accounting has been conducted, or confined, to the specialised discipline of accounting history, where the purpose has been to consider the context and consequence of accounting numbers.

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66 In a perceptive footnote Miller and Napier observe, ‘It is appropriate to note…how particular language form our way of interrogating the world. In English, for example, the words calculation and accounting are clearly distinct, though the notion of counting is not far away in both cases.’, (Miller and Napier, 1993, Fn, p.141).
The chapter notes that, methodologically, the palate of accounting history has been defined by writers such as Carnegie and Napier and Miller and Napier, as a wide one, that admits a broad range of analytical methods and discipline traditions in the study of accounting phenomena. Specifically noted here, is the admission of neo-classical analysis and the notion that accounting calculation evolved as the tool of rational, profit maximising, calculation. The evolution of notions of wealth in the neo-classical economic paradigm is the matter of enquiry pursued in this study.
5.1 Introduction

This chapter explores the literature concerned with interpreting the context and significance of double-entry bookkeeping in the rise of capitalism. It explores the proposition that double-entry bookkeeping, or accounting, was a precondition necessary to the development of capitalism. It also examines that proposition in the context of the flawed capital accounting of the late nineteenth century. The papers reviewed in the chapter are those by Sombart, (1928), Yamey, (1949 and 1964), Brief, (1976) and Napier, (1997).

The first argument to be reviewed is Werner Sombart’s original assertion about the role of double-entry bookkeeping in the organisation of a capitalist economy.
5.2 Werner Sombart, (1928), *Der Moderne Kapitalismus*, (Third Edition, in Three Volumes)

Werner Sombart’s work, *Der Moderne Kapitalismus*, is important because it is from this monograph that the idea derives that double-entry bookkeeping played a significant role, perhaps as a necessary precondition, in the evolution of capitalism.

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67 Werner Sombart was born in 1861 in Magdeburg the son of a liberal self-made landowner and member of the Prussian Diet and, from 1867, the German Reichstag. He died in 1941. A comprehensive biography of Sombart is provided by Sutton, (1948). See also Fn 73 below.

68 While frequently cited, *Der Moderne Kapitalismus* does not seem to have been translated into English. This fact is perhaps explained by the size of the work. The first edition of *Der Moderne Kapitalismus* appeared in 1900 to adverse reviews, which promoted Sombart to substantially rewrite the whole work. The first two volumes of the revised work appeared between 1916-17 and the third volume, in two instalments, in 1926 – 27 (Parsons, 1928). The Third Edition was prepared for publication in various forms. The ‘standard’, or settled, format seems to have been of three volumes bound as six. The titles in English were:

Vol. 1. Pre-Capitalism,

- Part i. Introduction, The Pre Capitalist Economy
- Part ii. The Historical Foundations of Modern Capitalism

Vol. 11. Early Capitalism

- Part i. and ii Economic Life of Europe in the Age of Early Capitalism, chiefly the sixteenth, seventeenth and eighteenth-centuries.

Vol. 111. High Capitalism.

- Part i. Foundations and Structure

(Mitchell 1929, Fn, p.303)

In all, *Das Moderne Kapitalismus* amounts to some 3000 pages (Mitchell, 1929, p.304).

Parsons notes of this aspect of his historiography, Sombart ‘digs out and reduces to order an enormous mass of historical material’, (Parsons, 1929, p.643). Mitchell observes, ‘The wide scope of the investigation, the full documentation, the constructive power revealed in organising a vast mass of materials elicit admiration.’ (Mitchell, 1929, p.303).


The digest here is based on a private, unpublished, translation by Kenneth Most of Sombart’s passages concerning the role of double-entry bookkeeping in Sombart’s scheme and secondary comment as cited.
Sombart was a member of the German ‘empirical school’ of historiography and his observation about the significance of double-entry bookkeeping in the evolution of capitalism derives from historical observations of the workings of capitalism, rather than from the application of an analysis to the working of the system. Thus, double-entry bookkeeping exists and capitalism develops; and a causal association is thereby established.

The methodological approach followed in nineteenth century German economic thought was very different to that in the Anglo-American tradition of that time. Throughout the nineteenth century the Anglo-American economic literature was concerned with the evolution of a body of abstract (deductive) theoretical analysis, the constructs of which could be extended generally to matters of economic decision-making. Propositions thus derived could be a matter of demonstration. By the end of the nineteenth century, Anglo-American economics had, in contrast to German economic writing, developed a style distinct to that employed in the writing of history or sociology. Anglo-American economics had developed a set of analytical tools based on marginal analysis derived from the application of differential calculus to economic problems, not withstanding that

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The translation was provided by the Librarian of the Institute of Chartered Accountants in England and Wales. Also, Miller and Napier 2000, cite ‘Sombart on Accounting History’ by Most in an Academy of Accounting Historians Working Paper No 35, but this has not been obtained for this study.

The idea that double-entry bookkeeping provided the necessary precondition to the rise of capitalism is sometimes attributed to Max Weber’s work, *General Economic History*, (1927). Sombart’s observations about double-entry and capitalism occur in Vol. 2. This was published in 1916-17.

The idea that double-entry bookkeeping imparts a logical order to economic organisation is, evidently, a popular one which can be observed elsewhere, and seemingly innocent of association with Sombart. See, for example, John Kay’s observation ‘Double-entry bookkeeping is to economics and commercial life what the second law of thermodynamics is to the physical world, and it has the same role in deflating pretensions of dreamers and fantasists’ (Kay, 2003, p.161). All this to introduce the logical proposition that assets must equal liabilities and spending must match earnings. Kay, like many before him, does not enquire about how people use accounting numbers, how they choose to construct accounting numbers or the consequential effects of different constructs.
an Anglo-American school of institutional, or business, economics evolved based on the writing of the Yale economist Thorstein Veblen and the British political economist Ashley (Napier, 1996, a and b), both of whom favored a descriptive approach to economics. But, by 1890, in the Anglo-American model, economics was a discipline, separate from history; so much so that, in the twentieth century, a derivative sub discipline of economic history arose, and similarly in accounting.

By contrast, in Germany the distinction between the disciplines was much less distinctive. To the Anglo-American eye, there is little to indicate whether Sombart’s writings are in history, sociology or economics. Though Sombart occupied chairs of history his interest was in the analysis of the capitalist economic system. In the Anglo-American tradition he would have been better accommodated in an economics school. His work is perhaps likened to that of Thorstein Veblen of the American Institutional School of economics.  

In Germany, economics involved the rejection of an analytical methodology in favour of an empirical approach of observation of historical ‘fact’, generalisation and conclusion that had been so successfully applied in the study of physical phenomena. Of the methodological origin of German economic literature of the time, Parsons, (1928), notes that it was more heavily influenced by the materialist interpretations of Karl Marx than of the Anglo-American literature. Parsons, explaining the German methodological approach in his review of Der Modern Kapitalismus, observed of German economic thought then that it is difficult for Anglo-Americans to follow (Parsons, 1928). But though this might be so, publication of the third edition of Sombart’s work in 1928 was accompanied in the English speaking literature by generally favourable reviews in important journals (Parsons 1928, Sutton 1928, Mitchell, 1929). While Sombart’s writing was doubtless based on wide reading, when translated into English, it appears highly subjective. In German intellectual life at the time, this approach was described as

‘impressionistic’ and evidently considered legitimate, though it did not involve setting up testable propositions as in the Anglo-American mode.\textsuperscript{71}

Sombart’s views on the significance of double-entry bookkeeping in the rise of capitalism derive from his empirical observation about the context of capitalism. Rooted in empiricism, his approach was to sift through a ‘large mass of observations’ (Parsons, 1928, p.643) seeking to build up a series of generalisations from which theoretical propositions can be advanced. His leading idea is the concept of distinctive ‘economic systems’ that represent particular approaches to the organisation of economic life. The uniqueness of a particular system is determined by three characteristics: a form of organisation, a technique, and a unique mental attitude that determined the characteristic ‘spirit’, or ‘grist’, of an age. The nature of the spirit of each age provides the methodological basis, or technique, for grouping observations, and interpreting their significance in each historical epoch; to Sombart, the science of economics ‘must be a spiritual science’ (Carosso, 1952, p.49).

The capitalist spirit in Sombart’s view is made up of two components: an entrepreneurial attitude, and an attitude of rationality. In Sombart the spirit of enterprise is one not

\textsuperscript{71} Where this methodological approach might lead even in hard disciplines is illustrated in the following quotation.

A number of mathematicians met recently at Berlin University to consider the place of their science in the Third Reich. It was stated that German mathematics would remain those of the ‘Faustian man’, that logic alone was no sufficient basis for them, and that the German intuition which had produced the concepts of infinity was superior to the logical equipment which the French and Italians had brought to bear on the subject. Mathematics was a heroic science which reduced chaos to order. National Socialism had the same task and demanded the same qualities. So the ‘spiritual connection’ between them and the New Order was established – by a mixture of logic and intuition.

The \textit{Times}, 10\textsuperscript{th} November 1933, (quoted in Hodges, 1983, p.86).

As sad and frightening as this might be, perhaps one ought to be content that the Third Reich was less into the pursuit of logic.
limited to capitalism, but is common to most phases of social development. It is creative and reflected in the creation of the modern state, new religion, science and technology: its characteristics worldliness, restlessness, roving and adventure. In capitalism, enterprise is concerned with acquisition and competition. As capitalism develops, making profits becomes the dominating goal of the whole system; subsuming other considerations. This was a feature of capitalistic evolution that was to trouble Sombart in later life, (see footnote 73).

In the scheme, it is the spirit of rationality that orders and directs the impulses of enterprise into further acquisition. As capitalism evolves, acquisition becomes more abstract, the objective is to grow the abstract sum of capital, disconnected from the physical. As the organisation of economic life advances, the rationality of a bourgeois order comes to predominate, destroying the old order; abstractions about capital and profit advance to providing a framework in which larger capitalist enterprise may work. The order of bourgeois rationality is necessary to the development of large-scale industry (Parsons, 1928, p.650), the organisation of which is the defining characteristic of ‘high’ capitalism\(^{72}\); to Sombart the ultimate state of capitalist development. Ultimately, he considered that the qualities of the bourgeois ‘spirit’ are transferred from the individual entrepreneur to the enterprise, and that the enterprise becomes possessed of a will of its own, and capitalism becomes a ‘monster’ system working against the humanity of the individuals that populate the system (Parsons, 1928, p.651).

\(^{72}\) Hochkapitalismus’, or ‘High capitalism’, the period of capitalism that existed in Europe and North America between 1760 and 1914, the primary characteristic of the system being industrial enterprises based on coal and coke and an economy dominated by entrepreneurial activity unmodified by government (Mitchell, 1929). To this it would be added here that it was controlled by financial means and was probably not capable of being understood in anything but the abstract. Speculation about the determining characteristics of ‘hoch’ capitalism was a primary concern of the German historical school.
In his analysis of capitalism, Sombart ends on a disenchanted and depressed note: disillusioned and antagonistic to the system, and to a linear and liberal vision of the prospects of its beneficial progression (Sutton, 1948, p.328).  

The role played by double-entry bookkeeping in such a scheme becomes clear. It provides the necessary agent of clarity and rationality. It is by doing this that double-entry bookkeeping is a necessary precondition to the emergence of capitalism.

It is hard to imagine capitalism without double-entry bookkeeping: they belong together like form and content. And we may well question whether capitalism found in double-entry bookkeeping a tool with which to apply its forces, or whether the spirit of double-entry bookkeeping first gave birth to capitalism. (Sombart, Chapter 10, Most’s translation, undated, p.271)

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73 Sombart’s career and intellectual development seem to mirror that of the intellectual life of Germany in the late nineteenth and early twentieth-centuries. Born to a liberal landowning Parliamentarian, Sombart was educated at Berlin University and on graduation embarked on an academic career in the German tradition. As a young man Sombart developed a reputation as a socialist, speaking and publishing to promote the ideals of socialism. He believed that, because of his socialist activities, his desire to teach in Berlin was blocked and his early academic years were spent in ‘exile’ in the University of Breslau. Sombart gained a position at the Berlin’s Handelshochschule in 1906. In 1918 he gained a chair in history at Berlin University. Sombart’s political views altered sharply about the time of the end of the First World War, becoming increasingly conservative. This is reflected in his writings in which he became progressively antagonistic towards socialism and a linear liberal modern interpretation of history. In his writing he rejected the notion of development towards ever more modern improvement. Instead he joined the move to a romantic view of German culture and invoked the ideal of a traditional Germanic type and the ‘eternal German spirit’. In his work, ‘Deutscher Sozialismus’, Sombart is regarded as having pledged allegiance to the Third Reich (Sutton, 1948, p.329), though the literature does not indicate whether he joined the Nazi Party. Sombart retired in 1931, but, seems to have been regarded as ‘reliable’ by the Party. A review of Sombart’s contribution to National Socialism is provided by Harris (1942). This is an alarming article, both because of the nature of National Socialism as against liberal individualism, and because of Sombart’s contribution to that ideology. Sombart died in 1941 at the age of 80. If he had been younger, it is interesting to wonder how he would have been dealt with in the post World War 11 denazification programme.
What bookkeeping was perceived by Sombart to provide was a framework to manage the complexity of the system. It provided a ‘mechanical’ system of order necessary for economic advancement. In that way, it changed the ‘mental outlook’ of economic agents in the organisation of economic affairs (Sombart, in Most, undated, p.277). His notion is illustrated by his analogy with the mechanisation of time by the Italian cities to replace ‘cannon time’. This came about, according to Sombart, so as to facilitate administration of the city by provision of striking clocks, the chiming of which enabled the better organisation of city life. This was only possible if the day was publicly divided into equal parts, equinoctial hours, to replace canonical hours of flexible duration (Sombart, in Most, undated, p.277).

Sombart was interested to account for the distinctiveness of the capitalist approach to life compared with the attitude to economic life of feudal peasants. To him, it is the mechanical character of double-entry booking brought ‘order’ and ‘strength’ in the organisation of economic affairs; characteristics that increased the desire to save and acquire wealth (Sombart, in Most, undated, p.270). To Sombart, it was the systematic acquisition of wealth that was the defining characteristic of capitalism; one that is distinctive to a feudal approach to economic life; by contrast, unsystematic and attuned to the rhythm of nature rather than profit. It is the order produced by double-entry that allows the ‘good manager’ to check his growing wealth, because of double-entry bookkeeping, conditions were created which permitted the essential ideas of the capitalistic system to be fully developed: the creation of wealth and the idea of rationality. (Sombart, in Most, undated, p.271)

In double-entry bookkeeping, it is asserted, the idea of a wealth-producing sum is depersonalized, separated from all natural objectives of human welfare. In double-entry bookkeeping there is only the objective of increasing wealth that is expressed in quantitative terms.

He who buries himself in double-entry bookkeeping forgets all quantities of goods and work, forgets all organic limitations of the necessity to satisfy human wants, and satisfies himself solely with the idea of wealth…he may not see shoes or ships, corn or cotton, but only sums of money which grow bigger or smaller (Sombart, in Most, p.271)
Following this line, double-entry becomes the source of the idea of capital. ‘Prior to double-entry bookkeeping there was no such category as “capital”. Without double-entry, ‘capital would not exist’…, causing Sombart to conclude, ‘We can in fact define capital as the property of wealth which a double-entry bookkeeping system embraces…’ (Sombart in Most, undated, p.271) In this way, Sombart alludes to the idea that in the duality of double-entry wealth is both made abstract and visible in its physical form.

It is the linkage of double-entry bookkeeping to the concept of wealth-producing capital that is regarded by Sombart as being of the first importance in the development of the capitalist system and the advancement of economic life. He is particularly effusive about this. To him, double-entry is one of the most ‘grandiose and consequential inventions of the human spirit’, the ‘first cosmos of mechanistic thought’. If its significance is correctly understood, it is to be compared with the knowledge built up since the sixteenth-century concerning relationships in the physical world. It comes from the same spirit that produced the systems of Galileo and Newton, and the subject matter of physics and chemistry (Sombart, in Most, Undated, p.271).

While to Sombart double-entry provides the basis of rational economic behaviour of the advanced, high, stage of capitalism, a number of aspects of his hypothesis are less than convincing. Firstly, he is concerned to establish double-entry as a precondition to higher, industrial, economic organisation, and his evidence relates to the use of double-entry in medieval capitalism when bookkeeping principles were rudimentary; and, as concluded by subsequent commentators, irrelevant to the management of mercantile activity at that time.

While Sombart saw double-entry accounts as the basis of understanding of wealth in the growing complexity of capitalist economic activity, he appreciated that information in a ledger is incomplete ‘…from the moment of their entry into the business values may diminish’, and require adjustment from an external inventory if the profit and loss is to be accurate (Sombart, in Most, undated, p.269). The problem of making an inventory was exactly the problem that dogged the development of nineteenth century accounting,
though, in Der Modern Kapitalismus, Sombart shows no awareness of the issue in the advanced system of industrial capitalism of that century.

Sombart’s conclusions are based on observations about the role of double-entry bookkeeping in the development of medieval economic activity. Implicit in his idea is a teleological assumption about the development of accounting: capitalism advances and, by association, double-entry bookkeeping provided the foundation for the rise of industrial society built on finance capitalism. Talcott Parsons, in his 1928 review of Sombart’s contribution to the German historical school’s interpretation of European economic history, remarks of Sombart’s idea of bookkeeping becoming a mechanised process, removing the human or natural element, that Sombart has ‘overstated his case’, but then asks ‘can we say there is nothing in it?’, (Parsons, 1928, p.656). Yamey (1964) is harsher, dismissing Sombart’s propositions as ‘too elaborate and fanciful’ Yamey (1964, p.118). Yamey’s arguments about Sombart’s hypothesis are reviewed in Sections 5.3 and 5.4 below.

Sombart’s argument shows a limited understanding of the bookkeeping process and the potential and limitations that it contains, though he illustrates some appreciation of the importance of the inventory, even in medieval enterprises, that became critical in determination of the financial position of nineteenth century industrial enterprises. What is ‘in’ the Sombart hypothesis is that it draws attention to how double-entry bookkeeping was used in capitalist enterprise as it first developed. That idea draws attention naturally to how it was then transformed by industrialisation, and the consequences of the technical solutions followed at that time. That is Sombart sees double-entry bookkeeping deriving from a context and having a consequence. It is in this way that Sombart, right or wrong, contributed significantly to the scholarship about double-entry bookkeeping. He is a significant ‘prompt’ who drew attention to the place of accounting in the story of industrialisation.
5.3 B.S. Yamey, (1949), *Scientific Bookkeeping and the Rise of Capitalism*

In this article, Yamey reviews the idea ‘that systematic bookkeeping has been essential to the development and rise of modern capitalism’ (Yamey, 1849, p.99). Initially, Yamey ascribes the idea to ‘economic historians’, and refers to Sombart, Weber, Nussbaum, Robertson and Schumpeter as propagators of the idea, but soon takes to referring to ‘Sombart and others’; and the idea is left to lie with its originator; Sombart.

Yamey provides a list of ways in which it has been asserted that double-entry bookkeeping has contributed to the evolution of capitalism. These are;

a) The method created the concept of capital by forcing representation of gain in abstract numerical terms.

b) From a) a rational, maximising behaviour followed. Planning to obtain more followed almost as a matter of course.

c) Systematic organisation inherent in bookkeeping ‘spilled over into the attitudes of entrepreneurs’. Organisation is held to be ‘one of the most powerful agents of economic change’.

d) A concept of business separate from the entrepreneur originates in double-entry, (Yamey, 1949, p.99-100).

These general suggestions are examined by Yamey against the evidence provided by extant accounting manuals, or texts, published prior to 1840, after which he believes the rise of the joint stock company changed practices. He notes that it is not possible to check the manuals against extant accounting records because so few survive, and it is not

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74 In addition to being perhaps the most eminent accounting historian of the middle decades of the twentieth century, Basil Yamey was Professor of Economic at the London School of Economic and, in the 1970s, a member of the British Monopolies Commission. A South African by birth, Professor Yamey, fluent in German and Italian, is eminently qualified to assess the significance of claims of a German historian, not fully translated into English, that double-entry contributed a rational calculus to capitalism, as reflected in the mercantile bookkeeping texts published in English, Italian and German.
possible to say to what extent those that do survive are typical (Yamey, 1949, p.101). With respect to such manuals and texts, Yamey observes that they reflect a striking uniformity in ‘technique…used in illustration’ (Yamey, 1949, p.100). He notes that text writers included businessmen, bookkeepers and teachers, and are suggestive of uniformity between text and practice.

Yamey rejects the Sombart idea that double-entry was employed because it provided an aid to a rational determination of capital, finding instead from the evidence examined that the value of double-entry to the early capitalist merchants lay in the ordered, systematic recording of transactions it brought to their businesses. He concludes that ‘credit dealings were almost certainly responsible for systematic accounting’. Systematic accounting records enabled merchants to keep track of their credit dealings (Yamey, 1949, p. 103). Yamey notes a recurring theme in the texts: that without systematic accounting, merchants could not run their businesses properly and profitable operation would have become impossible. He observes from original sources, ‘none can be poor that keep their books properly’ (Yamey, 1949, p.102). Without the order of accurate accounts ‘confusion reigns’, accurately kept books of accounts ‘devour(ed) Confusion that monstrous Minotaure’ (Yamey, 1949, p.103).

The importance of this article lays in Yamey’s examination of the evidence, from early accounting texts, that double-entry bookkeeping provided the ‘scientific’ accounting that was the initiator, energiser, or stimulating impulse in the development of capitalism. He points out that it is the special property of ‘the double-entry method that the ledger can be use to calculate profit and loss, return on capital and a statement of financial condition (Yamey, 1949, p.105). Yamey’s enquiry is whether the evidence available supports the view that double-entry was used this way. He notes an understanding back to Pacioli that the method could be made to yield profit and loss and capital.

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75 The impression gained from examining some during the research for this study was that they were frequently copied, but this might not be the case.
You will be able to know what is you gain or loss’

And

‘you may always learn what your fortune is

But, he doubts if double-entry was valued for that attribute. Yamey believes if it were, there would be evidence in the texts describing a procedure for that purpose. Instead, he concludes that the evidence he identifies indicates that the practice followed for closing account books relates to the bookkeeping purpose sought in opening of new books, rather than to determining profit and capital. For example, he cites Daforne’s ‘influential English manual’ on when books might need to be closed. This might be when,

1 When the Journall and leager are full written; so that there must be New Books.
2 When a merchant ceaseth from Trading.
3 When the book-owner departeth this world.
(Deforne, quoted in Yamey 1949, p.106).

Yamey finds that frequent reference to closing of accounts encountered in early texts relates to these bookkeeping procedures, and was not related to any interest in profit. An annual closing of books was related to best bookkeeping practice, this is what was done ‘in the best places known, especially Milan’ (Pacioli, quoted from Geijsbeek, op cit, p.69, in Yamey, 1949, p.107). Even where Yamey does find reference to an annual closing of books, so as to determine a merchant’s capital, he finds discussion concerned with bookkeeping matters, and the intention of the calculation, ambiguous (Yamey, 1949, p.107).

The procedures identified by Yamey concerning the intention of the method followed in closing books and determining ‘profit’ observed in early mercantile accounting are interesting; and relevant here. Then concept of ‘profit’ related to the convenience of the bookkeeper in the process of closing accounts rather than an underlying concern with identifying a ‘surplus’ that is familiar to twentieth century accountants.
Yamey finds that, when closing books, bookkeepers might transfer the balances of each ledger account, perhaps 200 or 300 folios, to the new books, a laborious procedure if undertaken item by item. Alternatively, only those ledgers necessary to the new books might be transferred and the remainder of ‘irrelevant’ accounts closed to the profit and loss account.

The articles of stock that lay lately diffused through the whole Ledger, and seemed to possess so large a field, being now separated from the refuse and dregs, shrink again within the narrow limits of the Balance-accompt. (Mair, quoted in Yamey, 1949, p.107)

Yamey finds the accounts necessary to be transferred via the balance sheet were debtors and creditors, property and stock and cash, the remainder, ‘the refuse and dregs…which you should not care to transfer’, (Yamey, 1949, p.107). In this form of accounting, the balance sheet reflected what was required in the new ledger, and the profit and loss account simply eliminates all other balances, and did equate to a modern notion of establishing profit; a gain in wealth. The expression ‘know your position’, frequently encountered in early accounting texts, seems more sensibly interpreted as referring to clarity of the representation of the affairs of the merchant in the books, rather than as a statement about understanding change in the wealth of a merchant.

In Yamey’s view, the balance account was regarded as the medium for a ‘neat and concise’ method of closing one ledger and opening another (Yamey, 1949, p.108). He

76 In his 1964 re-examination of the Sombart hypothesis, Yamey lists the frequency with which books were closed in extant mercantile ledger observed by him. These were

Sir Thomas Gresham (1546-51): not once.
Sir John Banks (1657-99): irregularly, 13 times in 43 years (including three times at termination of ledgers).
Sir Robert Clayton (1669-80): books closed and balanced annually; but there is no separate profit-and-loss account.
Sir Dudley North (1680-91): not once.
Richard Du Cane (1736-44): irregularly, six times in nine years.
Peter Du Caine (1754-58): annually.
notes that, if the purpose of the closing of books was to identify the merchant’s current wealth, it would have been necessary to value all his assets at their worth at the time the balance was undertaken. The evidence he finds was that the practice was ‘rarely carried out’ (Yamey, 1949, p.108).

Yamey’s conclusion as to the role of double-entry bookkeeping prior to the 1840s is that it satisfied the merchant’s need for a clear summary of his position, or wealth. This was provided, not by an abstract summary of ‘…’values’’ assigned to the accounts, but in the detailed description of each item…’ (Yamey, 1949, p.108-9) It was the need for a clear description of their transactions, where the scale and disposition of the merchant’s affairs made reliance on inspection and memory to determine detail impossible that Yamey, finds was the function served by mercantile double-entry bookkeeping: a facility that contained the capacity to promote wealth. The injunction from the authors of early bookkeeping texts that ‘… the entire prosperity and lucrativeness of a merchants business depends (after the blessings of the Lord) upon the regular and accurate keeping of his books’, (Hager, in Yamey, 1949, p.102.) indicated that they were aware that this feature of double-entry brought economic advantage. Yamey establishes that, it was in this sense, that bookkeeping was ‘rational’. He finds little concern with calculation or analysis of profit in the texts.

It is Yamey’s view that merchants were so involved in the detail of their activities, that as a matter of course, they would have been aware of the wealth implicit in their affairs. Only where the scale of an enterprise becomes so large and diverse, or the activities continuous would an entrepreneur require recourse to an abstract representation of his wealth (Yamey, 1949, p.111).

Hence, at this time, there was no need to distinguish between capital and income.


77 This view was confirmed by Yamey in an interview at the London School of Economics. With a smile Yamey mentioned his boyhood in South Africa where he had grown up in a merchant family, none of whom, he said, would have bothered to consult their accounts to determine their wealth.
In this, 1949 article, Yamey establishes that the purpose of mercantile double-entry bookkeeping was unconcerned with the determination of an abstract notion of wealth. The significance of Yamey’s article to the argument advanced is that it reveals the mercantile concept of ‘profit’ contained no technical content similar to that understood in the twentieth century, and, indeed, was not the product of a consistently applied concept, but rather one that depended purely on the bookkeeper’s assessment of what constituted the ‘refuse and dregs’. In Yamey’s words, it was a ‘hotch potch’. Any reliance in economic decision-making on ‘profit’ determined in such a way would have been unlikely to have produced the ‘rational’ outcomes referred to by Sombart. Yamey’s observation that profit in mercantile bookkeeping was determined by reference to bookkeeping conventions, rather than to any larger conception of a rationalising principles connected to wealth-maximising behaviour, raises a question about the basis for classifying of transactions. What determined what came to be classified as ‘refuse and dregs’? The answer to this question seems to be the bookkeeper’s convenience.

5.4 B.S Yamey, (1964), *Accounting and the Rise of Capitalism: Further Notes on a Theme by Sombart*

In this article, Yamey extends his criticism of the ‘theme’ that double-entry bookkeeping possessed the broader economic significance of clarifying the objectives of the business and providing a basis for determining the employment of capital, and making possible the separation of business from owner; ideas indispensable to the rise of joint stock corporations (Yamey, 1949, p.319). Unlike Yamey’s (1949), in this article these ideas are identified exclusively with the work of Sombart, rather than others who have made use of similar ideas.

Yamey first describes the special characteristics of double-entry bookkeeping and then analyses the information required for economic decision-making in a commercial environment. Central to the Sombart hypothesis is the idea that calculation of profit and capital by means of striking a balance was the central to the operation of the capitalist system. In this article, he notes that calculations of profit and capital do not require the use of the double-entry method. All that is required, he points out, is an inventory of
assets and liabilities at balance date, appropriately valued. Profit can then be determined by subtracting opening from closing inventory totals. Like Sombart, Yamey argued that, for the calculation to be relevant, asset, (and, technically, liabilities) must be given current values by a process external to the books (Yamey, 1964, p.321). However, as noted above, Yamey makes no claim that an accounting calculations of capital and income are dependant on accuracy in the classification of transactions as between capital and income according to concepts used now, but which did not then exist.

Yamey considers three decision-making situations that might be faced by the entrepreneur, and shows that in most instances, information about income and capital drawn from a double-entry ledger, or obtained in any other manner, is irrelevant.

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78 Indeed it, it a worthy speculation that this, and recognition that assets derive from liabilities, is all that was necessary to create the double-entry method. One instance where such a set of circumstances would be readily apparent is, of course, in the practice of taking gold on deposit and then lending the gold. Gold on deposit, gold held and gold loaned would require careful inventories to be kept. This was, of course the character of early banking.

79 Yamey, in his 1964 and his 1949 articles, illustrates contemporary bookkeeping practices relating to the classification of transactions that preclude a modern understanding of ‘profit’ from the profit and loss account determined in mercantile books of accounts.

In the 1949 article, commenting on the apparent absence of any attempt to revalue assets, Yamey observes, ‘(An )…example frequently encountered is that of property accounts, where the rents received were deducted from, and the expense paid simply added to, the cost of the property, to represent it is new ‘value’. The balancing of unfinished venture accounts was often performed in a similar fashion.’ (Yamey, 1949, p.108).

Generally there is no reference by Yamey to the problems created by such classification, though doubtlessly he would have been aware of the problem.

In the 1964 article, he observes, ‘In the early practice of double-entry it was usual for separate ledger accounts to be kept for each distinctive lot or consignment of goods, for each separate trading venture or temporary partnership, for each ship and so on…In other words, the detailed composition of the total profit of an enterprise, as disclosed in the balance of the profit and loss account was to be found in the entries of that account or in the various trading accounts. (Yamey, 1964, p.326)
In the first situation Yamey examines, a businessman might consider an untried course of action from a range of alternative strategies. Clearly, in such a situation his accounts can provide no information about likely profitability. For lines already engaged in, potential profitability might be extrapolated, amended as necessary, from past records (Yamey, 1964, p.326). Yamey observes that it is these ‘steps into the dark’ that are at the heart of entrepreneurship and the capitalist system. In contradiction to Sombart’s conception of double-entry bookkeeping providing rationalising information, in this situation, the businessman is ‘necessarily without benefit of accounting records (Yamey, 1964, pp.326 - 7).

The second situation identified by Yamey is one where an entrepreneur is making choices concerning alternative lines of activities, all of which are familiar to him. While accounting records contain information about past experience with the activities, Yamey observes that the relevance of past accounting information to future relative profitability rests on assumptions about the future behaviour of costs and prices. Where costs and prices are expected to change, clearly, accounting records are irrelevant. In such circumstances, decision-making is a matter of entrepreneurial insight, and the situation is similar to that outlined in the first situation (Yamey, 1964, p.327). Accordingly, it is concluded, use of past information derived from accounting records would be of little significance (Yamey, 1964, p.328).

The third situation perceived by Yamey is the same as the second, but costs and prices (and the relationship between them) are expected to remain stable. In this case, accounting information about past performance contains information relevant to selection of profitable lines of activity, but he concludes, ‘wherever such stability were to be found, there would be little need for systematic and continuous recording of trading results.’ In this situation, activities would become routine and accounting information largely unnecessary (Yamey, 1964, p.328).
On the basis of these arguments, Yamey concludes that ‘systematic accounting of past business results has a decidedly limited part to play in business decision-making’, (Yamey, 1964, p.328). Of this conclusion a number of points can be ventured. Firstly, Yamey’s discussion suggest that double-entry accounts provide no assistance to entrepreneurial decision-making, but, in modern, complex business undertakings, management of ongoing activities involves continual assessment of the present via some cost reporting system, and making judgments about the future direction of the process: the ledger is at the centre of decision-making, both with respect to the continuance of activities and adoption of completely new directions. The second point that might be made is that Yamey’s observations relate to the internal rather than external use of the double-entry method. It is argued in this study that it was the demands of external decision-making relating to the allocation of capital that saw the evolution of the double-entry method into ‘financial reporting’, and that the growth of accounting in the nineteenth century implicitly indicates its usefulness in understanding wealth, and the character of accounting information became significant.

5.5 Richard P. Brief, (1976), Nineteenth century Capital Accounting

In this paper, Brief extends Sombart’s idea of the importance of double-entry bookkeeping in economic organisation to the role it played in the organisation of industrial activity in the late nineteenth century. In doing so he explores the nature of capital asset accounting at that time, and considers the consequences of those practices on economic decision-making and, consequentially, economic growth. In doing this he identifies the conceptually confusing accounting followed in respect capital, or industrial, assets at that time.

Specifically, Brief’s study tests the hypothesis that, ‘…capital accounting practices in the nineteenth century rather consistently overestimated profitability as it was defined by

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80 The monograph was originally prepared as a minor thesis for the degree of Doctor of Philosophy at Columbia University and submitted in 1964. Aspects of Brief’s research have been published in journals (Brief, 1965, 1966, 1967 and 1970. See also Brief’s contribution to the debate about depreciation in Brief, 1993).
businessmen. Consequently, business expectations were overestimated...’ (Brief, 1976, p.2) Methodologically, Brief does not undertake a ‘formal test’, but rather argues his case by inferences drawn from observations of extant material (Brief, 1976, p4-5.). Of his methodological approach, Brief, somewhat cryptically, observes,

this Study is not organised for the purpose of proving or disproving a tentative assumption about the economic effects of capital accounting practices. We have structured our material to present a logical description of those practices and the theoretical implications of our findings
(Brief, 1976, p.5)

That is, his argument is a ‘first principles’ one. It is one based on such generalisation as seem reasonable, given the character of available extant material.

Brief study commences with the assumption that the use of accounting by a businessman involved in industrial activity to understand his financial position derives, as a matter of necessity, from a limited understanding of his commercial activities. He observes that a businessman with ‘omniscient’ understanding would know how much better off he was at the end of each period. But since the businessman is not omniscient, ‘accounting conventions’ must be employed to account for capital assets (Brief, 1976, p.2). He recognises that this need becomes critical in an industrial economy because of the difficulty of understanding the economic implications of operating a stock of wasting assets. In such an economy, the ‘fundament’ questions to be addressed by accounting conventions are ‘how were expenses that should be capitalised distinguished from those that are properly expensed in the period in which the outlay is made?’, and, secondly, ‘how was the original “value” assigned to a specific asset, “valued” in subsequent time periods?’, (Brief, 1976, p.1). Though not mentioned directly as a complexity, he understands that this question would be compounded by obsolescence, and the difficulty experienced by accountants and engineers, of the time, in understanding the physical characteristics of industrial plant, and the materials employed in their construction.

Brief asserts that the nineteenth century accounting conventions followed in respect of capital assets overestimated profitability; thereby over stimulating business expectations,
and evidence is advanced by him that in the second half of the nineteenth century investment in capital assets had had not lived up to expectations: he concludes that ‘…accounting practices in the nineteenth century rather consistently overestimated profitability…’ (Brief, 1976, p.2) ⁸¹

The analysis of nineteenth century accounting for capital assets is structured about two themes. Firstly, he identified two broad approaches to the practical and conceptual problem of calculating profit: the inventory method, or, alternatively, matching revenues with expenses. Under the inventory approach, ‘profit’ is determined by subtracting the opening balance of net assets from the closing balance. The nature of profit determined in this manner depends upon how the closing inventory has been valued. This was the approach provided the basis of mercantile accounting, as already noted above. In a mercantile enterprise the ‘stock in trade’ was merely held for resale and the question of erosion of assets did not arise, and no conventions are required to determine stock value. But in an industrial enterprise this becomes the critical issue that was unresolved by nineteenth century accounting. Brief offers observations of contemporary practice in accounting for industrial assets that reveal a considerable diversity of practice, not explained by any doctrine.

As a practical matter, determination of profit using the inventory approach was not a simple matter in a pre-industrial entity without the necessary conventions, and Brief illustrates the fundamental bookkeeping problem that made understanding pre-industrial mercantile accounts without the use of logically based conventions, difficult, if not impossible (Brief, 1976, p.24). ⁸² As noted above, the essence of mercantile capitalist economic activity centred on the organisation of ‘ventures’; discrete economic undertakings, in which entrepreneur might be involved in any number, each involving a lengthy cycle. A venture would involve subscription of capital for undertaking an

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⁸¹ Brief cites Hans Apel, Frank H. Knight, Arthur Lewis, Joseph Schumpeter, J.M. Clark and John Maynard Keynes to demonstrate his proposition that entrepreneurial expectation exceeded results in the nineteenth century. The observation is considered well documented and uncontroversial here.

⁸² Citing examples drawn from Littleton, (1937, see p.209, and p. 256).
activity, for example a long trading voyage, and the eventual liquidation the undertaking, and division of the results. The bookkeeping approach followed in mercantile texts for such ventures was to accumulate and match revenues with expenses to determine the result of each venture. In practice, this was not a simple matter because the product of a venture might take years to liquidate. Alternative, physical division of spoils was difficult, if not impossible, to value and, hence, divide equitably.

Brief goes on to consider accounting for capital, or fixed, assets in the late nineteenth century. Because of the ongoing life of such assets the approach adopted to be adopted to identify gain requires, in principle, the matching of revenues with expenses, and the difficult is to determine the appropriate expense associated with the use of a stock of such assets. Brief provides illustrations of extant material from that time to illustrate the absence of an underlying set of precepts, necessary to identify the expense of asset use. He finds that it was not until after 1880 that there was a concern with technical accounting issues associated with accounting for capital assets (Brief, 1976, p.7), though by 1870s Britain’s economy had reached a state of ‘industrial maturity’. Of the delay he observes that he would have expected these matters to have been discussed earlier, and he finds the delay ‘a striking matter’ (Brief, 1976, pp.5-6). Prior to that date, he notes, accounting texts showed little concern with problems associated with accounting for capital assets. Rather, he finds from a review of the first few volumes of the Accountant, (1874-5, 1876, 1877 and 1878) that the concern of the accounting profession then was with questions about ‘the unsatisfactory state of bankruptcy laws, lawyers complaining of infringement, sham accountants, bankruptcies and legal decisions’ (Brief, 1976, p.6).

Capital-accounting practices observed before 1875 Brief believes, can be characterised as following the inventory approach, and the primary concern is with the ‘valuation’ of capital assets so that a ‘profit’ might be determined. In particular, he considers that discussion of ‘depreciation’ at that time usually occurred in the context of determining asset value. So, for example, considering the recognition by the Grand Junction Railway

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83 Yamey discusses the same problem.
Company of £5,000 ‘…depreciation’ in 1839 was a matter of valuation, ‘since the method was debiting or crediting (as the case might be) the half-year’s receipts with the balance of a comparative (current) valuation…’ (Pollins, in Littleton and Yamey, 1956, cited in Brief, 1976, p.40 parenthesis added)

An alternative possibility noted by Brief, is to interpret nineteenth century practice in respect of capital assets depreciation as being concerned with asset replacement rather than valuation. In this respect, he cites Yamey who has such a view of the purpose of depreciation at this time;

accounting for depreciation was essentially concerned with replacement, and not with the revaluation of assets. The connection with financing of replacement is manifest in company reports and professional discussions throughout the nineteenth century and also later.
(Yamey, in Brief, 1976, pp.68-9)

In relation to Yamey’s view, Brief observes, ‘…depreciation computed for the purpose of asset revaluation is not necessarily different from depreciation calculated for the purpose of replacement…’ (Brief, 1976, p.67)

After 1875, Brief discerns the development of accounting conventions based on the ‘cost principle’, requiring that assets not be valued above cost, rather than ‘current value’, and that attention was directed to how wear and tear might be made good (Brief, 1964, p.76). For example, Mather’s observation (the Accountant, January 8th, 1876) that,

The simplest and broadest principle for regulating the value and depreciation of plant might be its known capacity under normal circumstances to produce profit, subject, however, to its cost being used as the maximum value (Brief, 1976, p.50).84

He appreciates that a corollary of such an approach was the need for a set of fundamental accounting conventions necessary to determine profit and distinguish capital and from

84 Brief also cites similar observations by Guthrie a leading late-nineteenth century accountant, that cost ought to set the upper limit to asset value (Brief, 1976, p.50)
income (expenses). Lacking the necessary doctrine, practice in the later decades of the
nineteenth century exhibit, he believes, a variety of approaches that appear randomly
determined, eclectic in their nature and confusing (Brief, 1976, p.68). As presented by
Brief, the examples presented seem devoid of any underlying logic.

Brief goes on to note that it was not until 1883 that accounting experts begun to refer to
depreciation as a cost. For example, Guthrie is quoted in that year as observing that
depreciation was ‘a cost equal to the value consumed’ (Guthrie cited in Brief, 1976,
p.81), and similar conceptions are noted by Murray, (1887), Matheson, (1883) and
Garcke and Fells, (1893). By 1890, Brief is noting that, ‘…there seems to be general
agreement among accountants that profit should be reckoned net of depreciation…’
(Brief, 1976, p.87) He notes that there was also a tendency to see depreciation expense
as an allocation of profit, and to dispense with depreciation when things became difficult
(Brief, 1976, pp.93 and 106). In practice, he finds that in the last quarter of the
nineteenth century, the preference of directors was for ‘renewal accounting’. 85

Under renewal accounting ‘cost’ was interpreted as ‘wear and tear’ and to be represented
by replacement of lost capacity. In Brief’s view, nineteenth century renewal accounting
was a ‘child of the law’ (Brief, 1976, p.116), deriving from the Companies Consolidation
Act of 1845 that specified the so-called ‘double-account’ system’, a system which flowed
from the mercantilist calculation of profit as outlays subtracted from inflows. The
characteristics of the double-account system have been outlined in Chapter 2, and are
considered further in Chapter 10.

Given the accounting conventions followed, Brief observes;

85 Brief identifies ‘renewal accounting’ as one of two approaches to accounting for asset ‘retirement’. In
the second, ‘retirement accounting’, the original cost an asset is fully charged to income at the time of asset
retirement and the costs associated with asset replacement are charged to the balance sheet (Brief, 1976,
Profits, either realised or expected, determined by these procedures could have been stated in a manner that would be compatible with the calculations of the omniscient observer. That is, they could be ‘perfect’ determinations of past results or future possibilities. This, however, is extremely doubtful. Therefore, these calculations either overstated or understated ‘true’ profits.

(Brief, 1976, p. 189)

Brief’s conclusion about the economic consequences of such procedures is that the cost of employing fixed capital was understated resulting in over-statement of profit and overpayment of dividends (Brief, 1976, p.182). This, he concludes, biased economic activity by encouraging development where should might not, more rationally considered, have taken place (Brief, 1976, p.183 and 189). Assessing the implications generally of this possibility, Brief is somewhat confusing: citing Schumpeter’s observation that an economic system that always fully utilizes its possibilities may in the long run, inferior to a system which never fully maximises its possibilities because this may promote superior performance in the longer run (Schumpeter in Brief, 1976, p.183).

He concludes that the external economies resulting from investment decisions based on the overestimation of profit outweighed internal diseconomies (Brief, 1976, p.190). But he also notes that such discussions of the relationship between profits and investment have usually been conducted without defining, classifying, or empirically determining the composition of profit (Brief, 1976, p.184).

At the start of his study, Brief discusses the idea that investment in the nineteenth century derived from entrepreneurial impulses, rather than from rational calculation. At the end of his study he discusses the responsiveness of investment decisions to profit signals. As a statistician, he reduces the entrepreneurial decision to one of probabilities,

two distinct elements must be considered when investment is analysed; the marginal utility of profit over possible outcomes and the method by which an entrepreneur evaluates the probability distribution of all possible outcomes.
(Brief, 1976, p.186)

But he, as are many others, is uncertain about the responsiveness of even the possessor of omniscient information, preferring to conclude with the metaphysical view that the origin of capitalist enterprise is the ‘first and original activity of life … always spontaneous,
effusive, overflowing, a liberal expansion of the pre-existing energies…” (Gasset, cited in Brief, 1976, p.187)

The general significance of Brief’s study is that his argument, for the first time, links accounting practices to their macroeconomic implications in a plausible manner. To do so, his argument rests, not on general associations of observed features of capitalism, but by associating two understood bodies of analysis: accounting concepts and macroeconomics. In doing so, he refutes Sombart’s idea that the existence of double-entry bookkeeping was a necessary precondition to the rise of capitalism, but suggests that accounting concepts do have broader, macroeconomic implications that are worthy of further consideration.

Brief’s study draws attention to the failed accounting for fixed industrial assets, and his observation that these problems became apparent to contemporaries after 1875, by which time, he (and many other observers) consider Britain had become a mature economy. Reflecting on Brief’s conclusions, the observation is made here that while the technical issues involved in fixed asset accounting became apparent to contemporaries after 1873 it seems clear that what was lacking to them to resolve their problems was an appreciation of the distinction between capital and income necessary to establish accounting doctrine and conventions on a logical basis. As argued here, it was this deficiency that was the source of the flawed accounting for capital assets at that time.

5.6 Christopher Napier, (1997, Unpublished), The British Aristocracy, Capital and Income, and Nineteenth century company accounting

As explained by Napier, the methodological basis for this paper arises from a desire to explore the development of accounting method in ‘an eclectic’ manner, thereby uncovering ‘linkages in which accounting is implicated’, (Napier, 1997, p.1), and

86 The author advises that the paper was last presented at the Ninth Accounting, Business and Financial Conference, Cardiff, 17-18 September 1997. A virtually identical version was presented at the Fifth Interdisciplinary Perspectives on Accounting Conference, Manchester, July 1997. The paper followed here is the Cardiff one.
previously unidentified. The approach envisaged breaks with an evolutionary conception of accounting progress and history that seeks to identify the origin of accounting as it is today in the past (Napier, 1997, p.1). The methodology Napier envisages goes beyond Hopwood’s (1983) ‘trying to study accounting in the contexts in which it operates’, and seeks to understand the circumstances in which accounting was employed in the past, positing that accounting as it is today might not have evolved from the past. That is, what occurred in the past might be relevant to past circumstances, and have no evolutionary connection with the present. The idea is that instances in the past might not be progenitors of the present, but might represent an intellectual, or practical, ‘byway’, ‘that turn out ultimately to be dead ends’ (Napier, 1997, p.17). The thesis is then a methodological rejection of a Whig, teleological, interpretation of history. The ongoing relevance of the idea is that discontinuity, as much as continuity, brings understanding of the present.

In developing this hypothesis, Napier explores two of the great conundrums of nineteenth century capital-income, accounting: the double-account system and the rationale for the decision in *Lee v. Neuchatel*. He does so by showing that the concepts of capital and income that underlie these puzzling issues can be readily understood if considered in the context of the approach to capital and income fostered by the accounting system employed in the management of large estates of the socially dominant landed aristocracy of pre industrial Britain (Napier, 1997, p.3). His argument is that the conception of capital and income, apparent in nineteenth century accounting practice, did not reflect a progenitor of modern concepts, but related to a previously dominant mode of economic organisation in which capital was not the defining characteristic of society or economic organisation (Napier, 1997 p.2): that modern practice represents a discontinuity with the past.

Napier accepts Bryer’s contention that nineteenth century accountants in Britain developed a system of capital-revenue accounting that served the purpose of demonstrating to investors the rate of return on their capital (Napier, 1997, p.2), but notes this assertion does not fit well with the model of corporate reporting practiced in the
nineteenth century Britain. Specifically, Napier notes that the use of the double-account system, and in the decision in *Neuchatel*, does not support Bryer’s argument (Napier, 1997, p.2). Rather, he argues that in both instances the approach to the then novel problems of industrial assets ‘contain the echo’ of the feudal charge and discharge accounting employed in the management of the estates of the landed aristocracy.

To draw the association between nineteenth century capital asset accounting and the practices of estate account keeping, Napier first provides a sketch of system of landed estates that dominated British economic life until the 1850s and its social life until the First World War. He notes that as late as 1820 a third of Britain’s national income was derived from agriculture, a proportion not overtaken by industry until the 1850s. From 1660, land came to be concentrated in fewer and fewer hands, and the degree of concentration is surprising. For instance, by the 1870s, 56.3 percent of the cultivated acreage in England and Wales was held by 4,217 individuals owing estates of over 1,000 acres; with 1,688 ‘great landowners’ holding estates of more than 3,000 acres representing 43.2 percent of the land area of England and Wales. The income of these estates was substantial, and considerable surpluses were produced. For example, Napier notes that in 1873 the Duke of Devonshire held some 139,000 acres and was entitled to an income of £146,000 and the Duke of Northumberland held 186,000 acres (0.06 percent of the land area of Britain) and received an income of £176,000 (Napier, c.2000, p.4).

Unlike the European tradition of partible inheritance, where an estate might be divided up, the British landed estate had, by the eighteenth century, come to be protected by complex social and legal arrangements of primogeniture and the strict settlement that saw estates entailed to the male heir: subject to provision for the family and others. Under the strict settlement, unlike common law freehold, the heir was tenant for life, and could not dispose of the estate. Moreover, the income from estate was not available to be disposed of as the owner saw fit, but was subject to the claims of various relations.
The critical economic feature of the landed estate system involved the receipt and disbursement of cash, and perhaps, the physical product of the estate: capital was a constant. The need for accounting in such an economic system was satisfied by the charge and discharge method of accounting. That system provided by lists of receipts and disbursements, produced by different stewards necessary to the management of an estate. Running repairs and improvements, such as the cost of enclosure, were financed from cash receipts from the estate, and distinction between capital and income unnecessary (Napier, 1997, p.6).

Napier points out that the accounting method followed provided no information about assets and liabilities, because it was not required in the operation of the strict settlement. The purpose of the system was to secure control of land so that it could be passed on to the next generation (Napier, Unpublished, pp.9-10): primarily the strict settlement was a socio-political arrangement, and the question of rational calculation about the use of capital, and its direction to more profitable employment, did not arise. Almost incidental to its socio-political importance, it produced a satisfactory economic surplus. Possession of land was a matter of social and political power, valued for its social prestige, rather than as a tool of capitalist wealth creation: its possession an end in itself. Effectively, capital, in the form of land, was an irrelevant consideration in the operation of the system, and might be safely ignored. This irrelevance was reflected in the charge and discharge system of accounting in which the stock of wealth is ignored. As Napier observes of land, ‘its cost became invisible’ in the system, (Napier, c.2000, p.13). What was economically important was the annual income that it produced, not its opportunity cost; and this was adequately represented in charge and discharge accounting.

To Napier, the features of aristocratic accounting ‘echo’ in the practice of early industrial accounting, as reflected in the double-account system, and in the decision in Neuchatel; alternatively understood as unfathomable ‘blips’ in the progress of industrial accounting to its modern form. Effectively, the double-account system made capital ‘invisible’, as it was in the management of the landed estate. The double-account system, like the charge and discharge system is seen as a cash-based system (Napier, 1997, pp. 14-15).
In this way,

Railway accounting reflected an aristocratic attitude to the difference between capital and rolling stock as if they represented permanent (fixed) capital that generated net revenues through its exploitation, in the same way as land could be regarded as a fixed resource owed in order to yield rents. (Napier, 1997, p.14)

On the estate, short-lived assets and livestock were the responsibility of the tenant, and were an irrelevant matter to the life tenant in the management of his estate. It was the personal decision of the life tenant as to how much, and when, the cash surplus generated by the estate would be spent on repairs or renewals. The principal distinction between the estate and railway was that industrial assets were subject to deterioration, which it has been noted in Chapter 2 was rapid, and the characteristics not understood. While early in the railway age experimentation with depreciation in railway accounts occurred, this essentially ended with the railway crisis of the late 1840s. From that time, the expectation of shareholders was that the full revenue of the railway would be available for dividends. This approach is interpreted by Napier, not as an inconsistency, at odds with the notion of capital maintenance, but as an attitude consistent with the management of the landed estate and the invisibility of capital invested in land.

It was a personal decision of the life tenant how much of this cash flow should be spent on major improvements and how much on consumption . . . , but the principle was that the net cash generated by the estate was the at the life tenant’s disposal, and entered his personal estate over which he had full rights. Similarly, on the railways, shareholders expected the full revenues of the company to be distributed as dividends, and provision for depreciation, indeed any but the most innocuous of profit retentions, would easily have been seen as akin to a preemption by the agent of his master’s right to dispose of the net cash flow of the estate as a master chose. The shareholders might regard themselves as “life tenants” of the company, entitled to all its net revenues. (Napier, 1997, p.15)

To Napier, the decision in Neuchatel is likewise seen to be a reflection of the landed attitude to capital and income. In the nineteenth century, an important legal issue related to the question of whether directors were agents or trustees of shareholders. As an agent,
a director stood in the same relationship to shareholder as a steward stood in relation to his lord. As trustees, directors of companies registered under the Companies Acts were seem as the successors of directors of companies registered under the companies acts; unregistered companies. Such unregistered companies had been arranged as trusts, established under a deed of settlement. Company law, Napier notes, was administered by the Courts of Chancery, the main concern of which was with the settlement and trusts, and it follows, he believes, that the attitudes towards accounting held by Chancery lawyers followed their experience in dealing with trusts and estates. So Napier cites Buckley, Q.C.,

the true principle (is) that Capital account and Revenue Account are distinct accounts, and that for the purpose of determining profits you must disregard accretions to, or diminutions of capital
(Buckley quoted in Cooper, 1888, Napier, Unpublished, p.16\textsuperscript{87}. This matter, and Buckley’s contribution to the debate is returned to in Chapter 10.)

As a trust, a company could allow the wasting of capital by ignoring the consumption of assets, just as a life tenant was allowed to ‘cause waste’ by extracting minerals from an estate, with no obligation to compensate future generations. Of the Court of Appeals decision in Neuchatel, Napier neatly observes ‘the Company was treated by the Court of Appeal in the same way as it would have treated the estate of some hypothetical “Lord Neuchatel” who left a 25 year lease of in trust: the trustee would be allowed to pay the whole net cash revenues of the trust before any remaindemen had the opportunity of benefiting’ (Napier, 1997, p.16).

For the purpose of this study, Napier’s paper is interesting because it advances enquiry about the role of accounting information in the organisation of industrial capitalism in the nineteenth century. The explanation provided lies within the nature of the dominant socio-economic system of pre-industrial capitalism, a system that ended with the rise of industrialisation. The implication of this construct is that early nineteenth century capital

\textsuperscript{87} Napier cites the response of Ernest Cooper, a leading London Chartered Accountant, ‘Mr Buckley adopts as applicable to Companies registered under the Companies Acts, 1862 to 1886, what is known as the ‘Double-account system’, Cooper, (1888), p.16.
accounting practice had no connection with twentieth century accounting for such assets. That it is incorrect to look back at nineteenth century company-accounting to discern an early form of modern accounting. The obvious corollary of Napier’s argument is to investigate how the modern notion of capital and income came to be imparted to financial reporting. This is the issue pursued in this study.

5.7 Summary

The chapter has explored debate in the literature engendered by the Sombart hypothesis that double-entry bookkeeping was essential to the evolution of capitalist economic organisation. The chapter notes counter arguments put by Yamey and Brief and an alternative explanation made by Napier.

The counter argument put by Yamey, rejecting Sombart’s proposition, is that early bookkeeping was concerned, not with providing information for profit maximising calculations, but with the desire of merchants to keep track of increasing complexity in their affairs, in particular, of credit transactions. The inventory was the focus of that bookkeeping, not the determination of profit: of particular importance here is Yamey’s assertion that determination of ‘profit’ in extant mercantile accounts bore no relationship to the modern conception of profit as an increment to wealth, but instead related to narrow bookkeeping ends necessary to close redundant ledgers. Yamey’s observations relate to the use made of double-entry bookkeeping by entrepreneurs until about 1840 when the corporate form of business organisation began to supplant individual and partnership forms of business organisation.

By contrast, Brief’s consideration of the Sombart hypothesis is in the context of the contribution of double-entry bookkeeping and accounting to economic organisation of late nineteenth century industrialisation and focuses on the flawed accounting followed in respect of capital assets. As with Yamey’s observation of mercantile bookkeeping, Brief finds that the accounting followed in respect of distinguishing between capital and income expenditure made in respect of capital assets precluded the rational calculation predicted by Sombart.
Napier’s methodologically exploratory paper considers the flawed approach to the capital asset accounting of the late nineteenth century in the social context that preceded industrialisation. In his argument, capital invested in land was a ‘frozen constant’, and its opportunity cost irrelevant in as society which prized possession of land. In that society representation of capital in accounts was an irrelevance, and ignored in the charge and discharge method employed in the management of estates.

Methodologically, Napier’s paper is of interest because it is built on a rather novel idea of discontinuity rather than evolution in accounting practice. To Napier, management of the estate established an attitude of mind that was irrelevant when taken to the management of the railway age, and the flawed accounting for capital assets represents the inadequacy of that attitude to that task. The conceptual struggle in accounting at that time – most visible in discussions about depreciation – represents the break with past, irrelevant traditions. The question this approach begs is ‘what was the catalyst about which a new accounting method might be based?’ This was a question that went to the purpose of economic behaviour; and the transformation of behaviour from preservation of land to the maximisation of financial wealth.

The articles reviewed in this chapter have been selected because they draw attention to the context and consequence of accounting: they illustrate that accounting method arises in the characteristics of the underlying economic system and suggest it is consequential, confirming the usefulness of Sombart’s hypothesis, though perhaps not in the form he advanced. The vehicle underlying these discussions was the rise of industrial, machine based, manufacture and the discontinuity that introduced into the practice and use of accounting. Methodologically, the articles considered here question whether accounting is explainable by examination of the fragments of extant accounts and bookkeeping texts, or whether the search must be wider, reaching into the context of nineteenth century accounting and considering the consequence of accounting calculus. As already noted, it is the wider explanation explored here.
Chapter 6

Literature Survey 3

A Marxian Interpretation

6.1 Introduction

This chapter reviews a Marxist interpretation by R. A. Bryer of the flawed capital asset accounting followed in nineteenth century Britain.


6.2 Philosophical Observations

Before reviewing Bryer’s papers, some introductory observations about his philosophical position, and his intent in the employment of a Marxist methodology, must be made.
Marx’s field of enquiry was ‘social relations’, of which he took an economic-deterministic view. Marx is acknowledged to have made notable contributions to sociology, historiography and economics, (and to the provision of a methodology used in the social sciences generally). His methodology is based on the famous theory of surplus labour and class conflict over control and use of the surplus. It is also about the potential of technology to effect social organisation; his vision was teleological with improvement driven by technological development. To Marx, political struggle in society is about control of the product of economic activity and, in his analysis, capitalism was an exploitative system in which controllers of the means of production exploited the labour of those dependant on wages as a source of income.

Bryer’s admitted philosophic position is that of a Marxist. In a later article, (Bryer, 1999) he identifies his stance as sharing Marx’s purpose: ‘Marx’s subject was political economy, and so is mine.’ (Bryer, 1999, p. 689), and the purpose of his scholarship is to apply Marx’s method to the role of accounting in the evolution of capitalism as an exploitative system. Like Marx, Bryer is a critic of capitalism, and he writes as an advocate of the exploited: those dispossessed of their ‘surplus labour’. Bryer writes not as an impartial scholar, but to promote his Marxist cause.

As a Marxist scholar, Bryer eschews the various post-Marxist tools of analysis, in particular neo-classical marginalism, and asserts the superiority of a Marxist framework of analysis over these now mainstream approaches (Bryer, 1994). An issue in applying Marx in the late twentieth century is the degree to which Marx’s analysis is technically superior, that is, it permits the attainment of superior outcomes to those obtainable from the employment of newer analytical tools. In Bryer’s work, promotion of efficient outcomes is ignored, and the discussion concerns the dispossesssion of workers, and the manipulation of the system to the advantage of capitalists and rentiers. In that context, evaluating the ability of competing technical apparatuses to improve outcomes is, essentially, irrelevant to Bryer’s purpose.
Bryer (1999) explains his interpretation of the role of accounting in the broader Marxian analysis of capitalism. He observes that, ‘In my interpretation of Marx, an account of capital and its circulation gives investors an objective narrative of the realised rate of return on the capital entrusted to management.’ (Bryer, 1999, p.684) Bryer agrees with the traditional view that, in Marx’s analysis, ‘unpaid labour is unpaid capitalist profit’ (Bryer, 1999, p.687). By this device, accounting is connected to, and given a role in, the Marxian analytical system. In this sense Bryer’s claim is an ambit one: if substantiated it would invest accounting with a role in Marx’s exploitative hypothesis.

The function of accounting is described by Bryer as providing ‘...an essential element of the political organisation of surplus extraction...’ (Bryer, 1999, p.689) Bryer maintains ‘...the principles of accounting that became accepted in late nineteenth century Britain, the core of modern practice, are consistent with the principles of political economy Marx expounded in the volumes of Capital...’ (Bryer, 1999, p.683) While the linkages established between accounting and the Marxian system are plausible, they are Bryer’s interpretation. In his 1994 paper, Bryer examines Marx’s remarks about accounting and notes, ‘Marx has little to say about accounting at all’, and notes that he occasionally refers to ‘bookkeeping’ (Bryer, 1994, p.323). 88 Bryer’s interpretation of Marx’s view of

88 Bryer cites the following passage from Marx:

By way of bookkeeping, which also includes the determination or reckoning of commodity prices (price calculation), the movement of capital is registered and controlled. The movement of production, and particularly of valorization, in which commodities figure only as bearers of value, as the names of things whose ideal value existence is set down in money of account, thus receives a symbolic reflection in the imagination,


Bryer provides a translation into FASB speak,

The financial statements of a business enterprise can be thought of as a representation of the resources and obligations of an enterprise – as a model of the enterprise.


On the difficulty of reading Marx see Fn 137, Chapter 8 below.
accounting is that it serves the ‘critical social role…to impress the generation of surplus value onto the consciousness of management and social capital…’ (Bryer, 1994, p.323) The emphasis is on a nexus between accounting and ‘…the fundamental relations between classes in society…’ a role described by Cooper and Sherer as the ‘political economy of accounting’ (quoted in Bryer, 1991a, p.440)

Marx’s labour theory of value is a distinctive approach to value. It is reviewed in further in Chapter 8, which the reader might wish to review before proceeding here.

6.3 R.A. Bryer, (1991a), Accounting for the ‘Railway Mania’ of 1845 – A Great Railway Swindle?

In this paper Bryer explores the ‘functioning’ of the political economy of accounting in the nineteenth century by examining the role of accounting in the railway mania of 1845, and the subsequent financial crisis of 1847 (Bryer, 1991a, p.439-40). Following Marx, Bryer labels the events he surveys as the ‘Great Railway Swindle’ (Bryer, 1991a, p.442). Notwithstanding Marx’s limited, and cryptic, references to the socio-economic significance of bookkeeping/accounting, ‘accounting’, in Bryer’s construction, the swindle hypothesis becomes the instrument by which a ‘dishonest’, illegitimate, transfer of shares to the London wealthy from the hands of ‘honest’ northern trade is accomplished: a swindle.

It is perhaps worth noting that the only volume of Das Kapital written and published by Marx was volume one. Volumes two and three were edited and published by Engels from Marx’s papers. It is presumed here that this is the most enlightening comment that Bryer can find in Marx about accounting/bookkeeping. To this reader, both in the use of the term bookkeeping and in the nature of the remarks, Marx had a rather traditional notion of bookkeeping as a method of recording transactions to monitor the rate of profit/surplus so as to ensure the delivery of the necessary rate by an enterprise. Marx is not interpreted here as displaying any awareness of the potential to alter accounting numbers through alternative policy selection and of the economic and social consequences implicit in such a potential. It is inferred that Marx would have doubtlessly made much of such possibilities in his scheme had he been aware of them.

89 The article is 47 pages long.
The hypothesis advanced by Bryer is elaborate. It involves a class, described as the ‘London wealthy’, manipulating the institutions of the British state, in particular, Parliament and the banking system and especially the Bank of England, to wrest, or swindle, control of railway shares from’ Northern’ industrialist and tradesmen, who had originally promoted railway construction. Bryer provides a lengthy description of the early development of railways, the method by which they were financed and the workings of the banking system, and the interaction of railway promotion, banking and Parliamentary life and accounting practice in the organisation of the capital market to finance railway construction.

As part of the swindle, Bryer constructs an argument in which accounting for railway assets is manipulated to influence the rate of profit and share value. He acknowledges that the swindle hypothesis requires further research by accounting historians (Bryer, 1991a, pp.483-4). Specifically, the swindle centres on manipulating the cost of consumption of railway plant, both track and way and rolling stock so as to alter the returns on, and value of, railway shares.

Bryer’s evidence about the practices adopted in accounting for railway assets is not new, and, broadly, he notes the same chronology as Brief.\textsuperscript{90} Specifically, these arguments are that,

(i) in the early years of railway development depreciation was recognised, and

(ii) in the 1840s this practice ceased to be followed and was eventually replaced by renewal accounting.

\textsuperscript{90} Bryer cites only Brief’s 1965 paper.
It is Bryer’s contention that the move away from depreciation accounting was related to a need to increase the rate of profitability of railway companies that would appeal to the rentier interests of the London wealthy.

A number of points may be made about the accounting aspects of Bryer’s argument. Firstly, well into his argument, he borrows from Pollins the expression ‘accepted body of accounting doctrine’ and alters this to ‘the fundamental “accounting doctrine”, accrual accounting’, (Bryer, 1991a, p.475). His idea is that the accrual accounting method was a ‘doctrine’ that was full developed at the commencement of the railway age and was capable of ensuring the maintenance of an industrial entity in a ‘steady state’.

Bryer’s view of accrual accounting is outlined at the beginning of his paper, where he observes,

(the) potential, inherent in double-entry bookkeeping, was widely-understood by those concerned with managing and observing investment in railways, as the standard against which to judge accounting practice
(Bryer, 1991a, p.439-40)

Bryer cites Littleton (1939) to indicate that this means that railway accountants had, at the outset of the railway age (i.e. from the early 1830s), in the double-entry method, a technique necessary to classify transactions between capital and income such as to determine a rate of return. He notes Littleton’s view that, joint stock companies, particularly railways, found the,

Italian double-entry bookkeeping, already well developed and in a sense awaiting its destiny, afforded the mechanism for accomplishing the careful separation of capital and income
(Littleton 1939, cited in Bryer, 1991a, p.440) 92

91 Here the following distinction is held: accrual accounting is a ‘method’ (of arranging or organising information), and the accepted body of assumptions the ‘doctrine’, which determines the nature of information.

92 The absurdity that the problems inherent in distinguishing capital from income might have been fully understood in the modern sense by Littleton ought to be apparent to Bryer. A result of conceptual
It is Bryer’s proposition that nineteenth century accountants, especially railway
accountants, understood the intricacies inherent in determining ‘profit’ necessary for the
payment of dividends, consistent with the maintenance of a steady state. For example,

Accrual accounting is based on the postulates of financial capital maintenance
and ‘going concern’. By the late 1830’s and early 1840’s many railway
companies were only just emerging as going-concerns with recognizable “steady
state”. Thus, although there was agreement that depreciation should at least be
charged on rolling stock, there was little technical data about its expected life and
rate of deterioration, and real differences between the extent to which companies
perceived themselves to be in a steady state. Thus, initially there was wide
variation in approach. (Bryer, 1991a, pp.447-8)

framework projects undertaken in the later twentieth century has been that the definition of an expenses has
altered from ‘matching’, in which an expense is dependent on revenue recognition, to the definition of an
expense as the ‘consumption of service potential’. This omission by Bryer seems disingenuous, since it
might be reasonably inferred he ought to be aware of the change, especially since he has published a
Marxian critique of the FASB’s Conceptual Framework Project. (Bryer, 1999).

And further, note Bryer’s reference to Hick’s definition of profit. Hick’s paper is dated 1946, well after
Littleton. (See Bryer 1991, Fn 1 and 1993 Fn 2.)

93 Bryer has the disconcerting habit of making assertions which are questioned by the evidence he employs
in another context. Two examples will suffice:-

Counter to the assertion that accountants had available in double-entry bookkeeping, a method which
enabled the distinction between capital and income to be drawn, Bryer cites the ‘railway king’ George
Hudson telling ‘a stonily silent’ House of Commons that ‘If the House will determine what is capital and
what income – what ought to go to capital and what ought to go to revenue – the directors would have no
difficulty: they would be guided by the strict law of the House’ (Hudson, cited in Bryer, p. 476). Hudson’s,
who it might be imagined was no naïve innocent in reading contemporary railway accounts, suggestion
would be regarded as thoroughly sensible in the twentieth century and, doubtlessly he would be ‘consulted’
on the nature of the fine detail by the relevant standard setting body.

Bryer consistently argues that depreciation was understood from the inception of the railway era, yet he has
occasion to observe, ‘while this evidence is consistent with the view that during the ‘mania’ directors chose
to pay high dividends out of capital, they may still have done so because there was no “consensus” that
depreciation was ‘necessary’ (Bryer, p.457). This acknowledgement of the mainstream view is apparently
necessary due to Edwards well know opposite views of the same events (see pp.457-8 and Footnote p.457).

Bryer’s argument is that railways in Britain had, by the 1840’s reached a ‘steady state’, which, presumably,
would have made estimation of a consistent rate of depreciation possible, but he advances evidence to show
As a general matter, it seems illogical that railways to be regarded as being in a ‘steady state’ in the midst of a railway mania of construction, but as a matter of accounting philosophy, while Bryer notes uncertainty about the engineering parameters of railways, his core contention is that,

> by the early 1840s the principle of charging depreciation on rolling stock, as an essential element in the measurement of sustainable income, was widely understood by those professionally interested in railways.  
> (Bryer, 1991a, p.448)

That is, he does not admit that accounting concepts evolved during the nineteenth century.

The view that the cost-based accrual-accounting model employed by early industrial enterprises was inherited, fully formed, runs through Bryer’s analysis, but this claim is by no means justified by the evidence provided by him. The problem facing nineteenth century railway accountants, and those of other industrial enterprises, were more complex than just recognising that physical assets deteriorated. That contemporaries understood that such assets lost usefulness and value might be taken as a given. Rather, contemporary technical problems in the financial management of an industrial enterprise – such as railways – arose from the need to manage a duality of issues; on the one hand, coming to terms with the character of physical assets and, on the other, the altogether more complex matter of the management of portfolio investment. This later aspect raised issues such as the nature of capital and income, the amount of the distributable dividend, whether depreciation ought to be deducted from profit, or regarded as a return of capital, and a general doubt about the assumption of continuous existence of an entity: should – as in the case of ‘single ship companies – industrial enterprises be regarded as self-

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that technological change and growth in demand (impacting on wear and tear of the fixed factors) makes such a notion unreasonable, for example, ‘rails, sleepers, fixings and track bed all had to be rapidly up graded as the power, weight, speed and frequency of the traffic increased…’, and ‘Railways engaged in heavy replacement expenditures during the late 1840s and early 1850s…’ (Bryer, p.473).
liquidating; in the manner of circulating capital. All these issues were novel matters; to be resolved expediently: practical; not subject to existing convention.

As interpreted here, Bryer’s argument that accrual accounting was full formed at the commencement of the railway era is necessary to his Marxism. Analytically, he could have examined railway accounting from twentieth century conceptual principles and noted the departures and considering the consequences, but this would not serve his ideological objectives. His assertions about the nature of nineteenth century accounting are really a subtly-made assumption passed as a demonstrated fact. The reason for this is clear. Without this assumption, Bryer must explore the evolution of accounting thought in the nineteenth century: if accounting changed under the exigencies of industrialisation, so too might economic (and accounting method) analysis. The superiority of Marxian over marginal analysis of value might then be questioned.

Bryer’s central assumption that the doctrine of accrual accounting, in all its detail, was understood at the beginning of the railway era sits with great difficulty with the debate about railway accounting noted by Bryer, and other observers, to have taken place after 1847, particularly the increased use of renewal accounting and the double-account system imposed by Parliament as a matter of public policy. Like other observers, Bryer is unable to explain the increased recourse to renewal accounting, other than to conclude that the intention was to reduce profits by emphasizing outlays necessary to replace items otherwise charged to capital. In explaining this tendency, Bryer follows Lardner’s view that contemporaries understood that renewal accounting involved incorrectly charging capital items to profit and loss (Bryer, 1991a, pp.473-4), and Pollins interpretation that adoption of renewal accounting flowed from the need to provide funds for capital expenditures from internal sources because of the difficulty of raising funds on the external market (Bryer, 1991a, pp.474-5). To Bryer, this establishes manipulation of practice for ulterior motive – a swindle – rather than representing a struggle with alternative approaches to capital accounting in a world where there was no conceptual basis for determining ‘correct’ practice, and the engineering characteristics were
uncertain. The absence of established practice is, in fact, Pollins’ explanation, as quoted by Bryer,

(that) there was not yet a generally accepted body of accounting doctrine, made it easy for even the most conscientiously conducted company to be influenced by considerations of management policy
(Bryer, 1991a, p. 475)

Bryer acknowledges that Pollins view ‘speaks for many accounting historians’, but his view is that Pollins is unconvincing because ‘fundamental “accounting doctrine”, accrual accounting was widely accepted, if not always practiced’ (1991a, p.475, emphasis in the original).

Bryer’s purpose in this paper is to show that the nineteenth century practices followed in respect of railway assets in the 1840s represented a manipulation of accounting policies to the advantage of particular class interests; specifically swindling London financiers, rather than ‘worthy’ northern industrial interests. To advance this argument it is necessary for him to maintain that accounting doctrine at the commencement of the railway era was ‘fundamentally’ established in its modern form. This assertion, while presented as an established fact, is an assumption by Bryer that is not indicated elsewhere in the literature. For example, it clearly conflicts with Brief’s examination of extant material, and is a conclusion rejected on the basis of the research conducted for this study. It conflicts, also, with late nineteenth century litigation about the composition of profit. In the end, Bryer concedes that his hypothesis remains speculative, though he believes that the evidence available to him is not inconsistent with the swindle hypothesis.

Bryer’s proposition that nineteenth century financial reporting contained a fully formed set of principles at the start of the railway age is continued in the next paper reviewed.

In this paper, Bryer extends, at some length, his Marxist interpretation of the role of ‘modern financial reporting’ as a tool of the organisation of ‘socialised capital’ by capitalist in the nineteenth century. In doing so he touches on nineteenth century capital asset accounting and the question of depreciation accounting in that century.

This is as long and difficult paper, in which Bryer ranges widely and makes radical assertions about the character of late nineteenth century financial reporting. As already noted, the generality of Bryer’s purpose is to integrate nineteenth century financial reporting into Marx’s analytical mechanism of exploitation and social organisation based on ‘profit’; or, in Marxist language, expropriated surplus labour. In this paper, Bryer is concerned to demonstrate that in contemporary financial reporting nineteenth century rentiers possessed a set of precepts permitting determination of a rational, cost-based profit relevant to the management of ‘social capital’,

> the technical practices of accounting must be understood, not as the expression of some transcendental rationality, but as a reflection and reinforcement of social, political and economic relationships (Bryer, 1993, p.649)

His idea involves the assertion that nineteenth century accounting doctrine always contained an appreciation of the need to include depreciation in profit calculations. In Bryer, the cost-based calculation of profit is described as ‘modern financial reporting’. The concern here is with Bryer’s observations about depreciation accounting in the nineteenth century.

Consistent with Marx’s speculation that ‘socialised capital’, always possessed the capacity to provide a rational calculation of profit by including depreciation in its calculation, Bryer examines the role of financial reporting, as it existed at the commencement of the age of joint stock companies. Direction of social capital was

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94 The article is 51 pages in length.
accomplished via ‘modern financial reporting’ that possesses a clear framework, capable of providing investors with useful information. In this way, accounting served the function of ‘…regulating the social relations between fractions of capital…’ (Bryer, 1993, p.685) To Bryer, in Marx, rentiers make profit-maximising calculations that protect their capital: in accounting terms, they allow for depreciation. Specifically, it is necessary to charge the cost of use-values consumed so that the cost of replacing fixed assets is recovered. This idea, to be found clearly expressed in Marx in the early 1860’s, is the foundation of ‘modern’ depreciation accounting, the allocation of the (net) initial cost of a fixed asset over its useful economic life so that, taking into account the pattern of other costs (eg fuel maintenance and market obsolescence) each unit of service provided bears an equal cost.

(Bryer, 1993, p.655)

Both Bryer’s ‘modern financial reporting’ and Marx’s more general analysis, replacement of use-value consumed is required.

The problem Bryer encounters in advancing this hypothesis is that, for much of the nineteenth century, industrial companies determined profit by revaluation of assets and by comparison of the closing balance with the opening balance to determine profit; it is an approach describe by Bryer as the ‘economic income method’. In Bryer’s argument, the widespread use of the economic income approach in the mid nineteenth century is accounted for by the rise of managerial capitalism, in which decision-making was captured by powerful managers who were able to,

manipulate published accounts in its own interests because the accounting authorities did not explicitly conceptualise modern financial reporting within the economic income model.

(Bryer, 1993, p.650),

This idea resembles Chandler’s hypothesis that direction of economic activity in the nineteenth century was a matter of ‘managerialism’. 95 Such managers are exemplified in

95 Chandler,
Ownership became widely scattered. The stockholders did not have the influence, knowledge, experience, or commitment to take part in the high command. Salaried managers determined long-
Britain by Lardner, (Bryer, 1993, p.655). To Bryer, these managers used their power to select accounting principles to suit their objectives,

management was free to choose, and in fact chose, the set of accounting principles and practices that had the highest utility, given the goals the organisation was trying to achieve
(Edwards cited in Bryer, 1993, p.652)

Bryer cites a number of accounting historians who have expressed similar views, for example, Hopwood, Chatfield, Brief, and Yamey, (Bryer, 1993, p.652).

In Bryer’s analysis, the system of managerial control comes to an end in the 1880s with the rise of the large corporation, (Bryer, 1993, p.651), and is accompanied by a change in the accounting literature from a preoccupation with economic income to one concerned with cost-based accrual accounting, (Bryer, 1993, p.654): with the rise of the large corporation, the interests of the shareholder, the controllers of ‘…social capital are best served by modern financial reporting…as envisaged by Marx…’ (Bryer, 1993, p.654)

The concern in this review is not with the position Bryer adopts in respect of the tension between the economic and cost based income approaches, but with his interpretation of the significance of the rise in interest in cost based depreciation after 1880. Of this change, the traditional view has been that interest in cost based depreciation from 1880 was associated with a new conceptualisation of profit that arose from discussion by accountants of the radical interpretation of profit in and arose in Neuchatel.

It is Bryer’s interpretation of capital asset accounting in the nineteenth century that an accounting concept of depreciation existed from the earliest phases of industrial capitalism in the 1840s: to him accounting and financial reporting had always been based

term operating activities. They dominated top as well as lower and middle management. Such an enterprise controlled by its managers can properly be identified as managerial, and a system dominated by such firms is called managerial capitalism.
on cost based depreciation, and the debates and discussions about depreciation, visible in the literature after about 1880, concern something else. He disputes traditional interpretations in which the work of authorities such as Matheson, Guthrie and Murray are understood to be concerned with establishing the principle of depreciation. To him they were concerned with establishing relevant rates of depreciation, a position he supports by quoting Matheson,

> No fixed rules, or rates of depreciation can be established for general use, because not only do trades and processes of manufacture differ, but numerous secondary circumstances have to be considered in determining the proper course’ (Matheson in Bryer, 1993, p.661)

This is a revisionist view: at odds with the traditional interpretation. In the traditional view, the modern conventions concerning depreciation followed from the discussions in the literature from 1880. But to Bryer those discussions were about the necessity to recoup lost capital (Bryer, 1993, p.662), the validity of that interpretation being indicated by an observation in the *Accountant* in 1880: ‘Every cautious trader writes off an annual percentage according to the average wear and tear or depreciation…’ (Bryer, 1993, p.674)

As a Marxist accountant Bryer’s concern is to integrate nineteenth century accounting into Marx’s exploitative analysis of industrial capitalism by demonstrating that it provided the means by which capitalists made calculations about the stock of capital and gains to it. By providing such information accounting becomes important in Marx’s explanation of the working of the capitalist system. Capital in Marx’s analysis is appropriated labour surplus, and in an industrial enterprise, the purpose of capitalist activity is to employ capital as use value rather than as circulating capital: since capital employed for its use value is not returned immediately in a ‘cycle of circulation’, a method of calculating gain or loss from use of the stock of capital is necessary. To do so a concept of depreciation is necessary account form loss of value from wear other causes. Without doing so capital does not reflect the stock of wealth, nor profit changes in the
stock accurately; and a need for a concept of depreciation arises to sustain Marx’s analysis.

As with his earlier papers, Bryer’s argument in this paper is a revisionist one. Modern interpretations of nineteenth century accounting note conflicting approaches to the depreciation problem, asset value and definition of profit, and the suggestion explored in this study is that the confusion was founded on an absence of appropriate concepts. In Bryer, by contrast, a doctrine of cost based accrual accounting had always existed and the all too evident confusion in late nineteenth century financial reporting about the definition of profit is explained as having resulted from the embryonic state of socialised capital, and the existence of numerous owner-managed businesses (Bryer, 1993, p.674). The idea that nineteenth century accounting always possessed a depreciation concept is returned to in Bryer (1998).


In this paper Bryer furthers his Marxist interpretation of nineteenth century financial reporting by examining the accounting conventions concerning the determination of profit, established by judicial decisions between 1849, and the judgment in *Neuchatel* in 1888. Judicial decisions made between those dates, Bryer holds, follow a ‘generally accepted laws of accounting’, which he describes as ‘capital-revenue accounting’. These decisions, he claims, were consistent with Marx’s concept of ‘circuits of industrial capital’, (Bryer, 1998, p.55); a concept that requires a clear distinction between the stock of capital and additions (or subtractions) from it. Bryer acknowledges that it is not the accepted view that accounting in this period possessed such a capacity, (Bryer, 1998, p.57). Like his other papers, this paper represents both a Marxist and a revisionist view of late nineteenth century financial reporting.

The generality of Bryer’s argument made in the body of his literature has already been noted earlier in this chapter. As already noted, Bryer is not simply an academic observer
of nineteenth century society, economic organisation and financial reporting, but a committed Marxist intent on furthering Marx’s critique of capitalism. As such, it is necessary for him to demonstrate the validity of Marx’s economic analysis and, as an accountant, that nineteenth century accounting provided owners of capital with a technique for making rational calculations the stock of capital and profit derived from its use. Without such a rationalising calculus Bryer understands that claims of superiority of Marx’s analysis of the mechanism of capitalist economic and social organisation fails. If capitalists did not possess such a tool other descriptions of the method of controlling nineteenth century capitalism must be considered, and the nature of economic calculation, and the role played by accounting, at that time explored. Marx’s analysis of the capitalist process is weakened; other explanations must be sought. In particular, Marx’s reliance on value deriving from the expropriated surplus labour of workers is weakened, and attention is directed towards value determined as a matter of marginal subjective utility in the neo-classical manner. The exploitative view of capitalism is lost, and a validity of the modern body of economic calculation built on value as a matter of subjective utility becomes a plausible alternative. Marxism looses its claim to analytical, if not moral, superiority: the basis for an emotional critique of capitalism is lost.

Bryer acknowledges that the view of ‘modern scholarship’ is that capital-revenue accounting during the period in question lacked coherence, and notes Reid’s (1987) conclusion that ‘…consistent concepts of asset valuation and income determination were not evident…’ (Reid cited in Bryer, 1998, p.57), but challenges that conclusion. To Bryer, judicial decisions of the time follow the requirements of Marx’s analysis of circuits of capital, rationally determined by profitability. As required by Marx’s analysis, accounting provided a scheme that identifies profit. To him Neuchatel was a discontinuity.

Bryer’s argument, and this assertion, requires explanation of both Marx’s idea of ‘circuits of industrial capital’ and the ‘capital maintenance rule’. Marx’s ‘circuits of capital’ provided the analytical framework employed by Marx to describe the working of the capitalist system whereby money ‘profit’ is extracted from expropriated surplus labour by
capitalists. In this scheme capital ‘functions’ in the ‘circulation sphere’ either as ‘capital of circulation – money capital to purchase commodities for resale for money – or as ‘productive capital’ – capital employed in the ‘sphere of production’, productive capital or industrial capital – where profit occurs after commodities have been sold and capital has been recovered progressively through the sale of products, Bryer, 1998, p.60).

In Marxist analysis the function of accounts is to determine capital and profit: the ‘social accountability’ for capital. As with regular accounting, balance sheet is a statement of sources and uses of capital, and a profit and loss account reports net increases or decreases in capital for the period, (Bryer, 1998, p.60). In Marxian accounting, the ‘value’ of capital is established by the ‘socially necessary’ labour required to produce it. This is the foundation of market price, so that an increase in the socially necessary cost of labour increases replacement cost and increases the price that must be recovered, and a decrease reduces it, (Marx, Chapter 6, cited in Bryer, 1998, pp.60-1), and capital in the sphere of circulation earns no profit, ‘money capital merely returns’; the only source of surplus value is labour in the process of production, (Bryer, 1998, p.61).

This framework indicates the capital maintenance rule necessary for the measurement of capital in the Marxist scheme. In the ‘sphere of circulation’ the value of capital is indicated by the lower of cost or market rule, and evidenced by recoverable amount, or net realisable value. If net realisable value is below cost it is unbiased evidence ‘…that less capital than was advanced can be recovered…’ (Bryer, 1998, p.61) However, ‘it follows’, that where net realisable value is above cost, ‘…this does not provide evidence of a gain…’ because management is only accountable for capital advanced in their control (Bryer, 1998, p.61). This allows Bryer to observe, ‘Thus in Marxist accounting there is no inconsistency. Just writing down to NRV makes management accountable for the capital advanced that is recoverable, so does accounting at cost when NRV exceeds it.’, (Bryer, 1998, p.61). Alternatively, where capital is held for its use value – to be used in production, industrial capital– what is relevant is the recoverability of capital from production, and realisable value is irrelevant, and is to be ignored (Bryer, 1998, p.60). It is in this way, capital must be returned with a surplus. In Bryer’s interpretation, this was
the purpose of accounting between 1848 and 1889 that followed judicial decisions based on these rules, (Bryer, 1998, p.62).

To Bryer, these rules provided ‘a law of accounting’: that profit existed only after capital had been maintained (Bryer, 1998, p.62). This rule, he notes, required ‘factual and unbiased’ representations of the circulations of capital – its advance, expenditure, consumption, recoverability, control, realisation, gain or loss, and current state and employment.’, (Bryer, 1998, p.62). This ‘rule’ forbade ‘…deliberately understating profit, but accounting to preserve capital, to prevent its repayment as dividends…’ (Bryer, 1998, p.62), a rule that he finds was the essence of accounting at that time, until the aberration of the decision in Neuchatel. In support of this view, he notes Littleton’s observation that there was, ‘…for the most part a general agreement with the enunciation of the courts…’ (Littleton, cited in Bryer, 1998, p.62)

To support his hypothesis, Bryer reviews a number of judicial decisions and opinions made between 1849 and 1889 to illustrate that the common law enforced the rule about profit being a surplus after maintaining capital. That the courts held to this view at that time is not a matter in contention in the literature, and Bryer’s point and illustrations are accepted here. However, the point must be made that those decisions concerned the determination of so-called Companies Act companies, or commercial partnerships in which the purpose of incorporation was understood to be to increase wealth, and cannot be said to have applied to all corporate forms in Britain at that time: for example, it did not apply to so-called Companies Clauses Act companies, where the purpose of incorporation related to the provision of utilities, or other forms of public amenity. This is ignored by Bryer.

The cases cited by Bryer follow those noted frequently elsewhere. While the issue of concern to Bryer is the determination of profit by industrial companies that involved the difficult question of identifying profit periodically from the operation of a mass of industrial assets of a long life, the cases cited by him related to commercial rather than industrial matters; and specifically did not concern industrial plant. For example, in
Stringer’s Case concerned a trading company, Glasgow Bank v. Mackinnon concerned the assets of a bank (albeit investments in an American railway), Rishton v. Grissell, the concern was with manager remuneration, in Oxford Benefit and Building Society estimation of future profit on loans, in Newcastle-upon-Tyne Abattoir Company, the concern was with the sale of the only asset, in Flitcroft’s Case, concern was with repayment of capital and in the famous Neuchatel matter the concerned was with the depletion of a mineral concession. Industrial companies are represented in Bryer’s sample, for example, Northern Railways of Buenos Ayres Company, The Great Northern Railway Company and Dent v. The London Tramways Company (1880), but the matters of concern did not necessarily relate to the difficult question of determination of distributable profit derived from depreciating plant.

To Bryer, Neuchatel was ‘anomalous’, and the case ‘shattered’ the existing, understood, rule of accounting; that profit be a surplus. In this view, Bryer rejects several accepted features of capital asset accounting in the late nineteenth century. For example, that depreciation was not a settled matter until the 1880s, and that legal interpretation of the rule was more complicated than is considered by Bryer, being limited to Companies Acts companies; as distinct, for example, to those registered under the Companies Clauses Acts. This distinction is explored in more detail in Chapter 10.

Bryer concludes this paper by noting that background to Neuchatel and its consequences provide important topics for research, a call responded to in this study.

6.5 Summary: Bryer 1991a, 1993 and 1998 Considered Together

Bryer’s papers reviewed in this chapter are part of a larger project by Bryer to integrate accounting into a Marxist interpretation of capitalism; to establish a ‘Marxist accounting’. The three papers reviewed here have been selected because they are concerned with accounting for capital assets in the nineteenth century, and are relevant for that reason.
The purpose of Marxist accounting is to provide a description capital profit consistent with Marx’s idea of a rational rate of return calculation: Marxist accounting provides a description of Marx’s ‘circulation of capital’. In Marx, capital is expropriated labour, and the capitalist purpose is to add to his stock. An approach which is quite different to the modern one based on neo-classical marginalism and a theory of value derived from subjective marginal utility which identifies the demand and supply of factors of production as continuous functions and provides a tool – a calculus – whereby responsiveness to change might be examined. In Bryer’s Marxist accounting capital is expropriated labour, and is represented by money; money buys labour: profit and loss in Marxist accounting represent addition or subtraction to the stock of expropriated labour, denoted in money. Bryer acknowledges that Marx had little, if anything to say about the role of accounting in his analytical scheme of capitalism, and Bryer’s Marxist accounting is his deductive construct, and the purpose of his papers is to illustrate the validity of his construct.

In Bryer’s Marxist terms, the analytical difficulty created by the shift to industrial capitalism was that it altered the character of Marx’s analytical device; the circulation of capital. In mercantile capitalism this cycle involves exchange of money for items (exchange values) that are subsequently exchanged for money. In industrial capitalism money is exchanged for use values, which are exchanged for money progressively as use value is transformed into items for sale production. The transition involves the complexity of understanding to cost of use values consumed in production. In Bryer’s construct, the loss is a cost that must be determined systematically: depreciation is a necessary feature of Marxist accounting; and Bryer describes Marxist accounting as a cost based system. This is conjecture by Bryer, and observation of nineteenth century approaches to depreciation becomes central to the demonstration of Bryer’s argument: does the extant evidence support his view or not? His difficulty is that his construct does not accord with what is understood about capital asset accounting in the nineteenth century, and the generally accepted interpretation that a variety of approaches were followed to account for capital consumed has been noted above. Bryer accepts that his view is a speculative one.
Bryer’s hypothesis in respect of nineteenth century capital asset accounting is that accountant possessed a concept of depreciation from the earliest period of industrial accounting consistent with the requirements of Marxist accounting, but that apparent deviations in its employment are explained by the intervention of circumstances. In his 1991a paper it is a financial swindle, in his 1993 paper the rise of managerial capitalism and a managerial elite manipulating profit and, in his 1998 paper, the ‘anomaly’ of the Neuchatel case. Each argument has been considered here and found wanting.

Methodologically, Bryer’s notion of Marxist accounting provides an interesting set of testable propositions that in his own analysis are found wanting, in so far as they relate to capital asset accounting in the nineteenth century.
Chapter 7

The Evolution of Economic Philosophy; 1

Well-being, Wealth, Value, Capital and Income

the professional public accountant can lay no more secure foundation for the theory and practice of his profession than by acquiring a thorough familiarity with general economic theory; particularly with the classical theory of value and distribution.

David Friday, quoted by John Canning, 1929, p.1

7.1 Introduction to Chapter 7

The purpose of this chapter is to commence a review the development of concepts of wealth and value in classical and neo-classical economics and precursor philosophy. This review is continued in Chapters 8 and 9.

96 Use of the word ‘classical’ sometimes causes confusion in the literature. Schumpeter’s editor, his wife Elizabeth Boody Schumpeter, addressing this problem and the use of the term, observes that Schumpeter noted that the term ‘classic’ formerly referred to the period between Adam Smith and J. S. Mill, but in some uses it came to mean ‘obsolete’. Schumpeter noted that Keynes used the term to denote the teachings of Alfred Marshall. Schumpeter himself used the term ‘Classical Situation’ to denote achievement of substantial agreement after long periods of struggle and controversy (Schumpeter, 1954/1994, p.51, see also notes of a similar nature by Blaug, 1968, Fn. p.154). Here the term ‘classical’ is used in the first of Schumpeter’s senses.
As indicated in Chapter 1, the argument made in this study is that the development of accounting policies appropriate to logical decision-making about the use of capital intensive assets could not occur until the conceptual task of establishing a logical relationship between capital and income had been accomplished, and that the flawed, economically irrational, accounting policies observed in nineteenth century financial reporting in respect of such assets can be attributable to the defect that such a distinction had yet to be made, as a conceptual accomplishment. As has already been noted, this deficiency of economic concept was resolved in its modern form in 1896 in the work of Irving Fisher.

The great themes of economic philosophy revolve around the nature of production, distribution and exchange of wealth. Until the publication by Adam Smith of the *Wealth of Nations* in 1776, these themes were discussed in a moral vein, as part of a discourse in the literature of moral philosophy about the just government of man; a discussion that goes back to the ancient Greeks, to the time of Plato and Aristotle, if not earlier. In these discourses, the place and increase in wealth is linked to the natural, spiritual or ethical inclinations of man and the existence of a ‘natural law’ governing his behaviour.

### 7.2 The ‘Natural Law’

Bonar (1893/1967, p.60) observes that, of the all notions of political philosophy, the notion of a ‘natural law’ is perhaps the most important. A detailed critique of the idea is

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Shove, writing about Marshall, divides English political economy into three distinct epochs – the Classical, the Ricardian and the Marshallian or reformed ‘Ricardian’ (Shove, 1944, p.313).

Most of the works of the classic economic philosophers went to more than one edition and have been the subject of many reprints, and it is sometimes difficult to decide which to refer. A detailed comparison of the distinctions drawn by the authors in their various editions seems overly obtuse, and a matter largely irrelevant to the purpose of the study. The works referred to here are the most frequently cited where it has been possible to discern a preference, for example the third edition of Ricardo’s *Principles* and the eighth edition of Marshall’s *Principles*. On this problem see Shove, (1944), Fn 1, p.294.
not the purpose of this study, but it is necessary to note the role of material wealth in the
notion of the natural law, and the exploration of the concept of wealth that flows into the
literature of moral philosophy\textsuperscript{98} and the modern discipline of economics.\textsuperscript{99}

Put simply, the natural law, is ‘established by benevolent Providence’ and can never be
modified by the ‘positive laws of statecraft’ (F. Quesnay, \textit{Le Droit naturel}, \textit{Eaveres Economues}, cited in Roll, 1938/1967, p.118), and rests on the idea of the ‘naturalness’ of
man’s desire to live in comfort that gives rise to a desire for harmony in relationships,
and a regard for material comfort.\textsuperscript{100} From this assumption, numerous propositions about
the government of the human condition flow. In a political sense, the law promotes the
right to freedom of thought and expression, equality, fairness and justice before the law.
In the material sense, it flows from the natural law that happiness in the human condition
is promoted by material wealth, and that wealth must be taken into account in the good
governance of man. In general, government by a secular prince must be based on a
regard for happiness brought by harmony and wealth. So, for example, Bonar
(1893/1967, p.62) notes that Sir Thomas More\textsuperscript{101} in his \textit{Utopia} is driven into economics
by the social problems of his time, and finds that the ‘commonwealth’ requires
provisioning of wealth in the form of an abundance of ‘necessities and commodities’,

\textsuperscript{98} The role of a notion of a ‘natural law’ in the evolution of economic philosophy, in its various strands, is
well covered in a variety of economic sources. For example, see Blaug, (1968), Bonar, (1893/1967), Roll
(1938/1992) and of course Schumpeter (1954/1994). See also Blaug’s extensive bibliographic note on pre-
Adamite economics (1968, pp.32-37).

\textsuperscript{99} The ethical or moral basis of classical, neo-classical and twentieth century economics – the preference
for freedom of individual action and thought, the right to enjoy the benefits of property and concern for the
real problems of distribution – is frequently ignored. For an interesting discussion on the making of a
moral economist see Skidelsky’s discussion of the philosophical influences on the young John Maynard
Keynes, (Skidelsky, 1983, Chapter, 6.)

\textsuperscript{100} By contrast, Roll also notes the Roman legal doctrine of \textit{ius gentium} that covered those laws common in
the different conquered nations and created by the same historical development as leading eventually to the

\textsuperscript{101} Sir Thomas More, 1478-1535.
distinguished from ‘superfluities and luxuries’. In Machiavelli\textsuperscript{102}, the natural order becomes a matter of human nature and the promotion of self-interest, which is to be constrained by the state by custom and law (Bonar, 1893/1967, p.60). In Quesnay the natural law encompasses the right to enjoy the benefits of property, to exercise one’s labour and to have such freedom as was consistent with the freedom of others to follow their self-interest (Roll, 1938/1992, p.118).

Application of the notion of a natural law to secular life derives from the teachings of scholastic scholars,\textsuperscript{103} or ‘schoolmen’\textsuperscript{104}, who, at the end of the middle-ages, reasoned a philosophy of moral, or ethical, relationship between men on earth that replaced the ‘canon law’\textsuperscript{105} that prevailed in Europe after the fall of Rome. Under canon law, relationships between men on earth were determined by Christian teachings about the road to the salvation of the soul. From the fall of Rome, moral and ethical relationships between men were determined by the teachings of the Church that stressed salvation through pity and disinterest in secular wealth as preparation for the temporal life, (though the Church amassed huge estates and wealth in the promotion of ‘god’s work’).\textsuperscript{106} The rise of scholasticism denoted an awareness of the possibility of an intellectual separation between the secular and the temporal, a separation that led to the rise of secular authority

\textsuperscript{102} Machiavelli, 1469-1527.
\textsuperscript{104} ‘Schoolman’, ‘a master in one of the schools or universities of the middle ages, one of the writers who dealt with theology and philosophy after the methods of ‘scholasticism’, the Macquarie Dictionary, ibid.
\textsuperscript{105} Cannon Law, the body of ecclesiastical law, the Macquarie Dictionary, ibid.
\textsuperscript{106} Bonar (1893/1967) notes that the Church had ‘substantially the old (that is pre Christian) social problems to handle in the economic relationships of man and canon law did not insist on a literal obedience to the natural and divine law, except in the case of the clergy, who as the Lords people forsook all for him. The laity might have private property as a usufruct (the right to use the property of another, the Macquarie Dictionary, 1987) of the Lords freehold. In the formulation of an authoritative view on the economic relations between men, Bonar observes that ecclesiastical law followed Greek philosophy and ‘a law of nature’ (Bonar, 1893/1967, pp.52-53). Combined with the Christian notion of equality before God, this led to objection to enslavement of fellow Christians and the principle that economic transactions must be based on an equivalence between what is given and received, and hence the moral objection to usury.
and the state, and an appreciation of the possibility of material as well as spiritual comfort and a secular, philosophic, interest in the promotion of the material. But, until Smith’s *Wealth of Nations*, wealth was not a question to be analysed in its own right, but was considered as an adjunct to moral government.

Bonar asserts that modern political economy begins,

> with the introduction of taxation as a means of supporting the state, in place of personal services, aids in kind, and revenues from crown property; and taxation begins with the absolute monarch that supercedes the feudal system … political economy begins with the growth of states in their modern form (Bonar, 1893/1967, p.60).

It follows that a concern with increasing revenue (wealth), and a connection to coinage, currency, and its debasement, follow.

But if wealth was a necessary adjunct to the enjoyment of a comfortable and harmonious life, what is the essence of wealth; how was it to be increased? It was this issue that the secular princes of post-medieval Europe were forced to confront in the practical question, ‘what to tax?’ The obvious answer was ‘wealth’, but it begged the larger question, both practical and philosophical, ‘what was wealth, what was its source, and what was the role of the individual in its creation and possession?’ On this matter, high discourse on moral government became, inescapably, entwined with the grubby, but difficult, practical problem of providing the ‘daily bread’. The argument in the study is that the origin of the difficulty in nineteenth century financial reporting about capital assets originated in the technical shortcomings in the then available technical apparatus of moral philosophy. The relevant development of that apparatus is now explored.

### 7.3  Pre-Adamite Economics

#### 7.3.1  The Ancients, Plato and Aristotle

The essential ideas of a natural law based on naturalness, or ‘humanness’, in the pursuit of happiness and comfort, and the role of wealth in the promotion of such a state of
wellbeing, can be traced back in history to the observations by the Ancient Greek philosophers, in particular to Plato and his pupil Aristotle, about the economic aspects of the organisation of society. Both Plato and Aristotle were concerned with describing the character of the ideal state and, in the logical advancement of their respective visions, established the basis of logical reasoning in the deductive mode (Plato) and the inductive (Aristotle), with Aristotle lauded as the father of inductive reasoning and science. On the question of the nature of wealth, Plato’s contribution is minimal, while that of Aristotle is considerable and is followed here.

Aristotle’s surviving contribution to the economic philosophy of government is contained in his *Politics and Ethics*, in which he made observations about the scope of economics; the basis of exchange and money. His reasoning on these topics runs as a thread through the subsequent literature of moral philosophy down to the present. It is his observations about exchange that are important here.

Aristotle divided the economy into two parts, ‘the economy proper’ and ‘the science of supply’. The economy proper is concerned with household management and the government of the home and community. It is the discussion of the science of supply that interests economists because Aristotle enters into an analysis of exchange that has implication for the conception of wealth.

Exchange is classified by Aristotle into two types: ‘natural’ and ‘unnatural’. Natural exchange derives from household needs. Unnatural exchange arises from more complicated social arrangements in which goods are held purely for exchange and gain. In this idea, Aristotle can be seen to provide the basis for the distinction in classical economics between value in use and value in exchange. Natural exchange is akin to barter in which the assumption is of an equivalence, or fairness, in exchange; unnatural exchange occurs for money, and the most unnatural form of exchange is the exchange of money for money, or usury, which gives rise to a discussion of the economic function of money that is not relevant here but, which it might be noted, runs adjunct with discussion of value through much of economic philosophy. This line of reasoning gives rise to a
discussion about the ethical basis of exchange, and the medieval idea of a ‘just price’, that proportionate equality must provide the basis of transactions (Roll, 1938/1992, pp.14-24) that leads naturally to questioning about the basis, or nature, of value, how is it created and the equity of its distribution.

7.3.2 Mercantilism, Bullionism

Gold is a wonderful thing! Who ever possess it is master of everything he desires. With gold, one can even get souls into paradise.

(Christopher Columbus, in a letter from Jamaica, 1503, Marx, Zur Kritik der politischen, cited in Roll, 1938/1992, p.52)

The body of economic thought known as mercantilism grew up from the end of the Middle Ages with the rise of wealth based on capitalist commerce. For the purpose of this study, mercantilism is associated with the confusion that money represented wealth rather than a medium of exchange: the purpose of economic activity was the accumulation of money; a ‘Midas mania’ (Roll, 1938/1992, p.54). To the individual merchant, possession of money, bullion or treasure, enabled the purchase of whatever one desired, and gave rise to power beyond that of a prince. In Roll’s words, the idea led to a ‘fear of goods’ and ‘a fanatically exclusive concern with selling’: the objective of the secular prince was to promote a positive balance of trade’ (Roll, 1938/1992, pp.14-24).

Most of mercantilist economic thought related to the promotion of trade, the organisation of state policy so as to accumulate a positive balance of trade, and the special pleadings of the merchant trading corporations of the City of London, of which the well-known

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107 Roll notes the distinction between mercantilism and bullionism lie in a difference of opinion on how to best achieve the end of increasing treasure, (Roll, 1938/1992, p.56).

108 The first published use of the term is attributed to Misseldon in his tract Free or the Means to Make Trade Florish (1622). However, it seems it was originally coined by Bacon who did not employ it in print until much later (Roll, 1938/1992, p.60).
mercantilist writers were directors. However, a number of ideas indicative of the conception of wealth in this phase of capitalism are of relevance to the hypothesis advanced. For example, Misselden, in *The Circle of Commerce* (1623) claimed that price was determined by the ‘goodness’ of each commodity (Roll, 1938/1992, p.60). The break with the generality of the mercantilists approach to wealth, and the opening to the classical phase of economic thought, comes with Thomas Mun’s *England’s Treasure by Foreign Trade* (1664). In this work Mun does not confuse money and physical capital, noting that while wealth might generally be in money it must be invested in ‘stock’. The idea is explored by Mun in a metaphor that casts back in imagery to feudal production,

> For if we only behold the actions of the husbandman in the seed-time when he casteth away much good corn into the ground, we will rather account him a mad man than a good husbandman; but when we consider his labours in the harvest which is the end of his endeavours, we find the worth and plentiful increase of his actions.  

In this way, Mun opens the way to regarding wealth as a stock of physical items, rather than money capital, leaving the development of a philosophy about the function of money in the operation of an economy to occur as a separate matter, to be considered in its own right: at least until the synthesis provided by Keynes in the 1930s.

The separate characteristic of wealth, as something other than treasure, is taken up by Sir William Petty, perhaps the most significant mercantilist writer. Petty is the first writer to conceptualise wealth in the manner that is to dominate English economic thought until the end of the nineteenth century.

### 7.4 Sir William Petty

Petty seems to be uniformly accepted as a founder, variously, of modern political economy, statistical method and the use of quantitative method in public
administration.\textsuperscript{109} Roll, in particular, places considerable significance on his contribution to economic ideas. Petty lived at the end of the mercantilist phase of capitalism when commerce began to be replaced by manufacturing as the source of wealth (see Chapter 2 above and Nef, 1934); when theoretical attention began to shift from trade to production. Whereas the problem had been of exchange and the nature of a just, or fair, price, attention now was directed to production, value, price and, later, distribution. The theoretical imperative was to understand the nature and creation of value.

Here the interest is with Petty’s contribution to the theory of value, which followed from his discourses on government and taxation. Petty rejected the idea that the King should finance his expenditures from the wealth of revenue derived from Royal lands, preferring, instead, a tax on rent from production of wealth from land. In his discussion of this idea, Petty makes his oft quoted assertion that the origin of all wealth was labour and land, ‘Labour is the Father and active principle of Wealth, as Lands are the Mother’ (Roll 1938/1992, p.88), but it was labour that Petty saw as the ultimate source of wealth, ‘Wealth, stock, or provisions of the Nation’ were the effect of ‘past labour’.\textsuperscript{110} Roll indicates that Petty was led to the significance of labour in creating wealth by his analysis of rent; and its ‘mysterious nature’. To him the true rent of land for any particular year was the difference between the proceeds of the harvest and the seed plus what the


\textsuperscript{110} Roll is definite that Petty had a labour theory of value, ‘For an understanding of his theory it is important to appreciate the emphasis which Petty lays on labour as the source of wealth’ (pp.88 and 90). In this, Roll is at odds with Schumpeter, see Fn 110 below. Here it is Rolls interpretation that is preferred. Roll seems to be better acquainted with Petty, and concerned to redress what he believes to have been the neglect of Petty’s position in the evolution of economic thought (Roll, 1938/1992, p.96).

This idea becomes a theory of value, with great significance for economic thought for the next 150 years or so. When Petty answers the question, ‘how much money this rent is worth?’, his response is ingenious. According to Roll, Petty’s answer was that it was worth as much money as a man producing money can save in the same time beyond the expense of production. In Petty’s words,

> Let another man go travel into a country where is Silver, there Dig it Refine it, bring it to the same place where the man planted his Corn; Coyne it, etc. the same persom, all the while of his working for Silver, gather also food for his necessary livelihood, and procuring himself covering, etc. I say, the Silver of the one, must be esteemed of equal value with the Corn of the other: the one being perhaps twenty Ounces and the other twenty Bushels. From whence it follows that the price of a Bushel of this Corn to be an Ounce of Silver. (Sir William Petty, *Treatise, Economic Writings*, vol. 1, p.43, in Roll, 1938/1992, p.89)  

That is, value is determined by the amount of labour expended in production. The basis of exchange is equitable based on the equivalence of the labour expended in production.

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111 Schumpeter is much less impressed by Petty’s accomplishments than is Roll, observing of Petty’s formulation of value,

> If technological and all other conditions of production and consumption remained severely the same, this procedure might give use the economists philosopher’s stone, the unit of measurement by which to reduce the available quantities of the two ‘original factors,’ land and labour, to a homogenous quality of ‘productive power’ that could be expressed by one figure, and the unit of which might serve as a land-labor standard of value. As it is, this interesting venture, like all similar ones, proved to be a blind ally (Schumpeter, 1954/1994, p.214).

Here the assessment is that Petty’s genius was to ponder the source of value and his enquiry was plausible for his time; his construct was one that enticed many followers seeking the same ‘stone’. Roll’s sympathetic coverage seems to reflect this reality.
Roll, as many have before him, describes this as a labour theory of value. It is an example of the early invention of the idea of ‘opportunity cost’. Its significance here is that it is the precursor to the scheme of value followed in classical economics by Smith, Ricardo, J. S. Mill and Marx; and the intellectual inheritance of late nineteenth century, a conception of capital accepted Jevons and Marshall. Schumpeter, however, is less convinced of the significance of Petty’s reasoning, observing that it was,

no explanation of the phenomenon of value, still less a labor theory of value, still less a labor theory of value—if anything, it was a land theory of value.

It is Roll’s interpretation that seems more reasonable here. Writing at the beginning of the industrial phase of capitalism, it seems to be somewhat unrealistic to expect that Petty would unlock the riddle of value as understood now, or was necessary in the late nineteenth century. But Petty’s attempt to find the source of wealth, rather than its nature, was a significant step forward.

Petty wrote at a time when manufacture was becoming the basis of far greater riches than commerce, yet his approach to value is rooted in ‘exchange’ rather than ‘use’, and his conception is essentially mercantilist. For the purpose of this study, Petty’s illustration mixes ‘stocks’ of capital, labour, land, seed, labour and the mine, with ‘flows’ of income, corn and silver, without making a distinction between a stock and a flow or capital or income. Capital, the land and the mine, are gifts of nature rather than manufactured, and the productive power of land endlessly renewable, whereas depletion of the mine the consumption of an irreplaceable natural endowment. That distinction is unnoticed, and the cost of lost assets ignored.112

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112 Petty does, however, address the question of determining the purchase price of land, which he does through his theory of rent. The answer is, ‘how many years purchase (as we usually say) is the fee simple naturally worth?’ An approach that Roll believes muddled land and labour as determinates in use value and exchange value that Petty could not unravel. ‘Where he speaks of (use-value) he speaks of land and labour, where he is dealing with exchange-value (at any rate explicitly) he speaks of labour alone’, (Roll, 1938/1992, p.91, italics added). This is no doubt the cause of Schumpeter’s dismissal of Petty’s contribution.
7.5 The Physiocrats

The name ‘Physiocrats’,\textsuperscript{113} refers to a ‘school’ of economic thought that developed in France in the middle of the eighteenth century, of which the two most influential members of the group were Quesnay\textsuperscript{114} and Turgot\textsuperscript{115} 116: the mood of which lay in the spirit of the Enlightenment, of Voltaire and Rouseau, (Galbraith, 1991, p.48). Its context was in the decay and corruption of the French monarchy, court and landed aristocracy. The work of the school is sometimes interpreted as a reactionary defence of what was deemed to be worthwhile in that system. Alternatively, it has been interpreted as an intellectual defence of the best of rural French life, the traditional values of which, as Galbraith observed, were not then, as now, without attractive features.\textsuperscript{117}

The Physiocrats argued that agricultural production was the source of wealth, circulating through society and supporting the social structure. As with much of economic reasoning, the doctrine of the Physiocrats is rooted in the natural law which was held to

\textsuperscript{113} While known to the history of economic thought as the ‘Physiocrats’ the School described themselves as ‘Les Economistes’, the first usage of the term ‘economist’, which did not come into general use until after Alfred Marshall in the late nineteenth century, (Galbraith, 1991, p.48).

\textsuperscript{114} Francois Quesnay, 1694-1774. Galbraith, with his customary sense of mischievous fun, records that Quesnay came to economics at the age of 62. Previously, one of the leading physicians of his day, he became the secretary of surgeons in Paris. Much published in that discipline, his works included the practice of bleeding, the management of gangrene and fevers. Quesnay went on to become the personal physician to Madame de Pompadore in 1749 and to Louis XV in 1755. Of this situation, Galbraith observes, ‘No economist since has worked under such favouring auspices.’ (Galbraith, 1991, pp.48-9).

\textsuperscript{115} Anne Robert Jacques Turgot, 1727–81.

\textsuperscript{116} To Quesnay and Turgot, Galbraith adds Pierre Samuel du Pont de Nemours, 1739-1817, who, with his sons Eleuthere, Irenee and Victor, migrated to the United States, fleeing accusations of counter revolutionary tendencies, founding the du Pont Corporation (Galbraith, 1991, p.50).

\textsuperscript{117} To quote Galbraith’s amusing observation, ‘agriculture in France was more than an occupation; it was what with solemnity would now be called a way of life. And it was also in no slight measure an art form. French cheeses, fruits and, of course wines had an accepted personality of their own.’ (Galbraith, 1991, p.46).
rule behaviour. As conceived by the Physiocrats, the law was based on the existence of property, the freedom to buy and sell, to trade and take steps necessary to ensure the defence of the nation. Their argument was that the rule of kings must be consistent with these principles (Galbraith, 1991, pp.51-2).

The value of the Physiocrats’ argument was in their search to explain the process by which wealth might be increased. Wealth, in their view, was found in the surplus of useful goods produced in agriculture, the so-called *produit net* (Roll, 1938/1992, p.113). In arguing this, the Physiocrats transferred the source of wealth from exchange to production: as the name of the group indicates, wealth was composed of physical and useful items.

To the Physiocrats, society was divided into two classes, the ‘productive’ and the ‘sterile’. It was held by the physiocrats that wealth arose in agriculture from the labour of the producer in producing a surplus above his sustenance and seed. This wealth was distributed to other classes in society that were held to be sterile. The sterile classes included the court, landlords or proprietors and, puzzling to the modern reader, manufacturers. The process of circulation of wealth created in agriculture through the sterile classes was explained by Quesnay in the *Tableau oeconomique*. There are various manifestations of this system that are not relevant here, but the position of manufacturers is perhaps relevant to the argument being advanced. Manufacturers were considered to be servants, transforming value created in agriculture into manufactured goods. The exchange of manufacture goods was regarded as involving the exchange of equivalents from which no surplus or wealth could be created (Roll, 1938/1992, p.116).

To Roll, the value of the physiocrats reasoning was that it stimulated theories of value founded on labour and surplus that became the basis of reasoning in the Classical School (Roll, 1938/1992, p.116).
7.6 Summary

This chapter has identified early reasoning about the conception of wealth from the ancient Greeks to the origins of value found in Adam Smith’s *Wealth*.

The chapter has noted that material wealth’ was regarded by the ancient Greeks to be part of a natural law describing human condition: in that idea wealth supplements man’s natural desire to live in harmony with his fellows. It followed that regard for material wellbeing must be taken into account when considering the determinants of good governance, and a need to understand the source and character of wealth follows. The modern interest in the nature of wealth derives from the rise of secular over religious authority in the government of man; the idea that the secular is separate from the temporal and that man was freed from religious constraint to have regard for his material circumstances on earth: indeed it was a responsibility. The rise in the notion of secular authority drew attention to the basis of wealth as a source of tax to provide the means of secular government, and led to consideration of the means by which wealth might be promoted by the state.

It is noted in this chapter, between the rise of secular authority in medieval Europe and publication of Smith’s *Wealth*, the basis of wealth was variously explained as a phenomenon associated with the possession of bullion, from trade, arising from embedded labour, or being derived from agriculture. The importance of the ideas of William Petty on the nature of wealth in particular has been noted. In the next chapter the significance of Petty’s labour theory of value in the development of notions of wealth, value capital and income in eighteenth and nineteenth century philosophic thought will be followed.
Chapter 8

The Evolution of Economic Philosophy; 2

The Classical Economists

Value is a relationship between people. It has no meaning at all for Robinson Crusoe. There never will be a unit for measuring national income that has the same meaning for everyone, still less a unit that means the same thing at different dates or in the settings of different economic systems.

Joan Robinson, 1962, p.34

8.1 Introduction

This chapter explores the concepts of value and capital as they were understood in classical economics from Smith to J. S. Mill, and including Marx, a period of almost one hundred years. The period covered the development of industrialisation of Britain, and the rise of an economy in which economic activity came to be determined by capital seeking a return, and in which a propensity to financial crisis was already apparent.

8.2 A Note on Implicit Assumptions

Classical economic thought, from Petty to Mill and perhaps including Marshall, is based on two implicit, and usually obscure, assumptions. These are,
i) No variability is envisaged in the demand and supply of factors. All production is assumed consumed, (Say’s Law), all labour is employed, and, at the margin receives a wage permitting sustenance. Put another way, the supply and demand for labour was completely inelastic, and equilibrium occurs at the point of full employment. This situation derived from the mode of economic life which was based, mostly, on a peasant agriculture concerned with self-sufficiency. While the assumption is a deductive construct it was one based on observation and adequately reflected the circumstances of the time.

Much difficulty was encountered in the development of the idea of a ‘subsistence wage’. Whether in fact the operative wage was bare subsistence, or whether it reflected a social norm evolved over time is usually left open. (The political implications of the distinction are obvious.).

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118 Say’s Law seems to arise naturally from the annual cycle of production and consumption in an agricultural society; what is produced is consumed naturally. The small investment and maintenance required in farm assets doubtlessly occurred as part of that cycle.

119 The human circumstances are less readily understood in a society in which general productivity is well above subsistence. The starkness of life, marginally above immediate starvation, emerges in the following letter from cousins of the Galbraith family to John Galbraith’s grandfather in the 1850s.

Dear Uncle you wish us to go to that country (Canada), that we would be better off than here. Undoubtedly that is true, if I had the means of going there. But my brother and me has nothing but our daily work and very poorly paid for the same, hardly what will support body, when a man works all day for 1/shilling and 2 pence, and that small sum keep himself and family. I leave yourself to judge how a man can be but poor… If you wish us to go, which we fain wish ourselves, if you would assist us in immigration there, I am of the opinion that we would be able to pay you back but ask us to go there without support is quite impossible. It would be enough for any of us to pay our passage to Glasgow. Time is very hard in this part of the world and poor wadges (wages) and since the potatoes is entirely gone in this place, there is nothing to be got without money and the money you cannot get … every day is getting worse and I am much afraid it is not at its height yet.
ii) The ‘labour theory of value’ is a ‘cost of production theory’. Labour is asserted to be the source of ‘value’, and exchange is held to occur on the basis of an equivalence of labour value. In this form, the labour theory of value is tautological. 120

8.3 Adam Smith

Commentators on the evolution of economic thought seem to agree that the publication, by Adam Smith in 1776, of An Inquiry into the Nature and Causes of the Wealth of Nations 121 (more generally known as the Wealth of Nations, and here the Wealth) represents a decisive point in the evolution of economic literature, though there are significant differences in the evaluations of Smith’s momentous work. Galbraith, for instance, seems laudatory; noting enthusiastically that the Wealth provides,

three essentials, … The first is a view of the broad forces that motivate economic life … The second is how prices are determined and resulting income distributed in wages, profit and rent … Finally there are the policies by which the state supports and furthers economic progress and prosperity.

(Galbraith, 1991, p.63)

It is unrecorded whether the family did migrate to Canada. (Cited in Parker, 2005, p.22)

120 The cause of these assumptions seems readily apparent. Classical economics refers to, or was derived in, an agrarian society in North Western Europe, in which full employment, given the prevailing mode of social organisation, existed, and at the margin provided income just necessary of survival. Real economic expansion depended on expansion of agriculture, and from the fifteenth-century this occurred by colonial settlement in the new world. Commerce was concerned with to the disposal of such agricultural surplus as was produced, organisation of trade and colonial expansion and the management of financial flows were necessary to the functioning of the economy. Industry was an adjunct of agriculture. In such a world, flexibility of demand and supply was probably an unimaginable abstraction, and the deductive construct was based on sound empirical reasoning.

121 Galbraith records that it was published at a cost of £1.16s in an unknown quantity (Galbraith, 1991, p.61).
Roll, however, is more circumspect about Smith’s place in history. He notes that Smith’s academic influence rests in the ‘higher degree of systematic thinking’ he achieved. Adding that ‘A certain detachment from affairs (with a knowledge of them) would almost appear to have been necessary at that stage of development of economic thought in order to complete the transformation of the subject into a science.’ (Roll, 1938/1992, pp.125-6). About the originality of Smith’s analysis, Roll observes, ‘Although the Wealth of Nations contains few references to earlier writers, and hardly any acknowledgement of inspiration received from others, it would be easy to show that none of the main features is original.’ (Roll, 1938/1992, pp.126-7). Evaluating Smith’s contribution to economic thought, Blaug comments that Cantillon or Quesnay have better claims to the foundation of political economy, and that, in economic analysis, ‘Smith is not the greatest of eighteenth century economists’, (Blaug, 1968, p.61). To Blaug, it is in the acute insight and economic wisdom of his explanation of the working of the invisible hand of self-interest to promote the common good, and analysis of the working of the market/price mechanism; that Smith has no equal in the eighteenth and, even, the nineteenth-centuries. To him, it is these aspects of the Wealth that are Smith’s timeless contribution to economic thought, and for which he deserves his reputation, (Blaug, 1968, pp.61-64).

The Wealth is a tour de force of contemporary economic issues. The concern here is not with the generality, but with Smith’s conception of value and its constituents, and in this respect, Smith made important contributions. Publication of the Wealth coincided with the beginnings of the revolutionary industrial changes that occurred in Britain in the later half of the eighteenth century, though in 1786 that process had hardly begun. Smith was aware of the changes though, as Blaug points out, he nowhere mentions the new industrial developments such as Kay’s flying shuttle, Hargreaves’ spinning jenny, Compton’s mule, or Watt’s steam engine, although Smith was a personal friend of Watt (Blaug, 1968, p.39). Instead Smith’s reference is to the precursor stock of archaic

\[122\] Blaug provides an extensive bibliographic note on Smith, noting that the secondary literature on Smith is enormous (Blaug, 1968, p.65).
industrial capital that Nef (1934) writes about. So, for example, Smith refers to the use of charcoal rather than coal in the smelting of iron (Blaug, 1968, p.39).

Smith, however, is alive to the distinction between circulating and fixed capital. ‘Circulating capital’, according to Smith,

> yields no revenue or profit to its employer, while it either remains in his possession, or continues in the same shape. The goods of the merchant yield him no revenues or profit till he sells them for money

and,

> fixed capitals …may be employed in the improvement of land, in the purchase of useful machines and instruments of trade, or in such like things as yield a revenue or profit without changing masters

(Smith, 1788/1970, Book 11, Chapter 1, pp.243-2)

The distinction drawn is descriptive rather than analytical, and this approach causes Smith to define capital as an ability to yield a financial return, rather than as a stock. This is apparent in Smith’s observations about the nature of chattels, or items of capital that do not produce revenue. He observes that a portion of the stock of a country ‘is reserved for immediate consumption, and of which the characteristic is that it affords no revenue or profit.’ (Smith, 1788/1970, Book 11 Chapter 1, p.245) Of this, Blaug observes, it is evident that by ‘wealth’ (Smith) really means not the community’s capital at a given moment of time – a stock – but the community’s income produced during a period of time – a flow – although he did not always adhere consistently to this conception.’

(Blaug, 1968, p.39)

In Smith’s conception, wealth might be capital or income, depending on whether income was produced, which raise the question of how he saw value. Famously, Smith, possibly unwittingly, has two concepts of value; firstly a notion of value determined either in exchange or in use and, secondly, a cost of production theory of value based on a labour theory of value derived from Petty and others. It is Smith’s quest is to find ‘the real measure of exchangeable value’ (Smith, 1788/1970, p.26), which leads him to the
second, and hence inconsistent, notion. His labour theory of value emerges in his discussion of comparative advantage and specialisation. To Smith, where specialisation of economic function has developed, and exchange is an integral part of social organisation, value occurs on the basis of an exchange of equivalents (Postulated as noted above by Aristotle). Alternatively, value might be increased above cost by usefulness in production, and value in exchange differs from value in use. Smith’s addition of value in use seems to derive from an understanding of the usefulness of fixed capital.

Arguing that in all but the most primitive societies, all citizens must be drawn into exchange, Smith rejects mercantilist notions of treasure representing wealth, and argues that labour is the universal characteristic of wealth. Of the fundamental nature of labour as a source value, he observes,

> It was not by gold or by silver, but by labour, that all the wealth of the world was originally purchased; and its value, to those who possess it, and who want to exchange it for some new productions, is precisely equal to the quantity of labour which it can enable them to purchase or command. (Smith, 1788/1970, p.26),

and

> Labour…(therefore)…is the only universal as well as the only accurate measure of value, or the only standard by which we can compare the values of different commodities at all times, and at all places. (Smith, 1788/1970, p.32)

Value is established by the disutility of work, and the basis, or ratio, of exchange is indicated by what is given: the labourers ‘toil and trouble’ (Smith, 1788/1970, p.26). While the labour theory of value was to dominate thinking about value by theorists in the early nineteenth century and, in the hands of Marx, was to have profound, and largely unfortunate, consequences for humanity over the following 200 years, to Schumpeter it is not a particularly momentous conception. To him, all that Smith had accomplished, in the words of Walras, was to employ labour, rather than gold or silver, as the numéraire, (Schumpeter, 1954/1994, p.188).
To maintain this equality, Smith asserts an equality of labour ‘at all times and all places may be said to be of equal value to the labourer. In his ordinary state of health, strength and spirits; in the ordinary degree of his skill and dexterity, he must always lay down the same portion of his ease liberty, and his happiness’ (Smith, 1788/1970, p.28). That is, Smith assumes that the disutility of labour is equal in all cases, an assumption that would later be understood to be unrealistic. Smith’s notion of value, therefore, goes nowhere, and as Schumpeter dismissingly points out, is no more the nature of value than is treasure.

The concern in the study is with the understanding of wealth and value held during the nineteenth century. As will be argued below, the contribution bequeathed by Smith to that century was ambiguous; containing flawed ideas, ideas described by Blaug as ‘a strange approach to value’ (Blaug, 1968, pp.62-3).

Rather than his contribution to the theory of value, Smith is now best remember for his description of the working of the market; and the mechanism of the invisible hand of self-interest working to promote the common good. An insight that provided the intellectual loadstar for the formulation of public policy based on laissez-faire economics in nineteenth century political thought, and the basis of preference for liberal political structures to this day. In respect of Smith’s advocacy of laissez-faire, Galbraith quotes the praise of William Pitt on the role of the Wealth in providing the technical basis for the formulation of public policy,

> extensive knowledge of detail and depth of philosophical research will, I believe, furnish the best solutions of every question connected with the history of commerce and with the system of political economy’

(William Pitt to the House of Commons, quoted in John Rae, Life of Adam Smith, 1895 p.287, quoted in Galbraith, 1991, p.61.)

But the Wealth was published at the beginning of the industrial revolution, an event that Smith did not live to see in anything but its earliest manifestations. Galbraith hales Smith as a prophet of the achievements of the industrial revolution, and a source of its guidance (Galbraith, 1991, p.58).
More broadly, in the Wealth, Smith’s concern is with technical economic questions relating to the promotion of the common wealth, rather than consideration of that objective in the context of moral, ethical or political considerations. Smith’s timeless contribution to economic philosophy was in his methodological separation of the moral from the economic, and in his sophisticated, detached exposition of the purely economic. As Roll summarises Smith’s accomplishment, it was to complete the transformation of economics to a separate science (Roll, 1938/1992, p.126), though as previously noted, much in the Wealth was not original.

8.4 David Ricardo

Ricardo, it seems, is generally regarded as both the founder of the ‘Classical School’ of economics (and centre of the ‘Ricardian School’), and its brightest star. To Marshall, Ricardo was a ‘masterful genius’ (Alfred Marshall, in Roll, 1938/1992, Fn. p.155). To Schumpeter, he was, ‘brilliant’ (Schumpeter, 1954/1994, p.475.). Ricardo was the

123 There is something to suggest that Smith might have reached this position without particular attention to the methodological implications of his approach and his separation of the economic from the moral. Smith was a very well educated man, well versed in the literature of moral philosophy, who occupied the Chair of Moral Philosophy at Glasgow University from 1752. The moral and political context of Smith’s system was published in his The Theory of Moral Sentiments in 1759. It would therefore have been unnecessary for Smith to integrate his economic and moral themes in the Wealth.

124 David Ricardo, 1772–1823.

Ricardo was the son of a successful immigrant Dutch stockbroker. Ricardo made a fortune jobbing stock, tendering for government debt, during the Napoleonic War. He retired early, in 1816, to an estate in Gloucestershire, purchased a seat in Parliament and developed an interest in economic theory. His early death is attributed to blood poisoning resulting from rotted teeth. In even modern texts it seems necessary to mention that Ricardo was born into the Jewish faith. He converted to Christianity as a young man and, apparently, broke with his family on the issue.

125 According to Schumpeter, the Ricardian School included, Ricardo, James Mill and McCulloch. To these names, he adds West and De Quincey, (Schumpeter, 1954/1994, p.470).

126 The work of Ricardo is held in high regard by commentators. Schumpeter’s regard for Ricardo’s importance in the development of economic ideas is perhaps indicated by the length of Ricardo’s entry in the Index in his History; 2 1/2 columns, compared, for example, with Jevons, 1/3, Malthus, 1/3, Marshall, 1
leading theoretical and practical economist of his day, and the theoretical constructs for
which he is remembered were linked to very real contemporary problems. His work was
to dominate economics throughout the nineteenth century and into the twentieth.
Fogarty, in the Foreword to the Everyman edition of the Principles, recounts how
Ricardo, a reticent man and a reluctant speaker, was once called upon to speak in
Parliament on practical economic matters, receiving acclaim from both sides of the
House, (Fogarty, in Ricardo, 1821/1969, p.vi).

Ricardo both extended the work of Smith and provided, in his interpretation of the labour
theory of value, the approach to the exploitation theory of value adapted, without overly
much acknowledgement, by Marx. To Roll, Ricardo ‘carried the work begun by Smith to
the furthest point possible without choosing the road which led out of the contradictions
inherent in it.’, (Roll, 1938/1992, p.155). It is Ricardo’s approach to these contradictions
that is important in this study in following the unfolding sense of capital and income in
the nineteenth century literature of economics.

The context of Ricardo’s life – indeed, the source of his wealth and success in jobbing
government stock – was the Napoleonic War, and the dramatic change in the distribution
of income that the war occasioned, not least, the dramatically improved position of
landlords under the effects of the Corn Laws. These held up the price of corn by
restricting imports and caused significant wealth transfer to landowners, and the cause of
hardship to workers. The size of the transfer is indicated by Barber, who cites a study of
one landlord’s returns between 1776 and 1816 showing a ten fold increase in income,

¼, Marx, 1/4, J.S. Mill, 1 ¾ and Smith, 1. The heights to which Schumpeter is prepared to go in praise of
Ricardo’s accomplishments must be savoured in full. A part may be quoted,

But, what about his contribution to scientific economics? By far the most important one was, I
think, the priceless gift of leadership. He refreshed and irritated. In either case, he shook up. The
fruits of his reasoning intrigued all the people who did not see the mechanics…His teaching, in the
middle and higher layers, established itself as the new thing, compared with which everything else
was inferior, obsolete, stale.

This affection is evidently shared by Blaug, who dedicates his book to his son, David Ricardo.
(Barber, 1970, p.76). The primary concern of Ricardo’s analysis, and his purpose in readdressing Smith’s theory of value, under more realistic contemporary assumptions, was the practical consequences of changes in the distribution of income across the various classes of society. To Ricardo, the purpose of his philosophic enquiry it was the need ‘…to determine the laws which regulate distribution…(that was)…the principal problem in Political Economy’ (Ricardo, 1821/1969, Preface) In this quest, Ricardo’s sympathy is with the poor, and against the Corn Laws. His theory of value is constructed to discuss the distribution of wealth between wages, rent and profit, analysis of which he based on his famous theory of ‘rent’, which is contained in Chapter 2 of the *Principles*, immediately after his comments on value. 127

Ricardo’s notion of ‘rent’ was central to his model of the workings of the complexities of the capitalist economy, and his approach to rent remains the basis of the description of the character of economic rent to this day. In his scheme, the bounty of land is divided between worker and landlord (Ricardo, 1821/1969, p.21). Taking the point where the cost of labour consumed all output, Ricardo described the surplus production on more productive land, the return to the owner of land, as ‘rent’. The wage of labour thus set at the margin determining the general price of labour, and the extent of the surplus, or rent, available to proprietors.

The explanation of profit provided by Ricardo followed, unsuccessfully, along similar conceptual lines. The value in exchange of output involving the use of circulating or fixed capital was shared between labour, earning the socially determined wage, and ‘profit’. In this approach, profit is a surplus, determined after the wages of labour have been deducted. Yet Ricardo also referred to the ‘rate of profit’, implying that the rate was determined exogenously to the enterprise. (In nineteenth century economic thought the distinction between ‘rent’ and ‘profit’ caused considerable difficulty.)

127 Almost all commentators on Ricardo’s work note difficulty with his prose. To the list, this student respectfully adds his name.
Ricardo was also aware that the industrial changes occurring in Britain had dynamic effects with implications for the analysis of value and complicating understanding of the working of the mechanism determining exchange value.

It appears, then, that the division of capital into different proportions of fixed and circulating capital, employed in different proportions of fixed and circulating capital, employed in different trades, introduces a considerable modification to the rule, which is of universal application when labour is almost exclusively employed in production: namely, that commodities never vary in value unless a greater or lesser quality of labour be bestowed on their production. (Ricardo, 1821/1969, p.23-4)

Methodologically, observation of such changes in the economy provided the basis for empirically testing the deductive abstract conclusions of both Smith, and Ricardo.

Ricardo’s *Principles* commences by acknowledging Smith’s accomplishment in establishing that the nature of value lay in the labour embodied in the creation of things.

The value of a commodity, or the quantity of any other commodity for which it will exchange, depends on the relative quantity of labour which is necessary for its production, and not on the greater or less compensation which is paid for that labour. (Ricardo, 1821/1969, p.5, see also p.7)

Smith, as noted above, whilst discussing the most primitive barter economy, made labour the source of value, and the equality of labour embodied in production the determinate of exchange value. In a simple barter economy, in which the creator was the master of his product, the value of exchange was a simple matter which occurred on the basis of embedded labour. But in the more complex case, in which capitalists employed labour, the price paid for labour, or its ‘value’, was less than what it produced. The cost of labour included not only the sustenance of labour but, in addition, the cost of reproduction and an allowance for individual variation in individual consumption patterns (Ricardo, 1821/1969, pp.7-8). As conceived by Ricardo, sustenance might involve more than the bare necessities of life. In Ricardo’s scheme, output was divided between workers and the owners of land or capital. The *Principles* is, at least in part, a critique of the inadequacy of Smith’s labour theory of value in an economy that has evolved beyond
simple barter, and which has come to include, in addition to circulating capital, fixed
capital of varying durability. The obvious issue, if such a scheme was to be followed,
was the rate at which such capital gives up, or discharges, its labour value and how
equivalence in the exchange of heterogeneous sets of labour value, obscured in the
products of industrial activity, is to be established.

Ricardo’s solution was to maintain that the value of commodities was composed, ‘Not
only of labour applied immediately…but the labour also which is bestowed on the
implements, tools and buildings, with which such labour is assisted.’ (1821/1969, p.13,
see also p.14). Moreover, similar quantities of labour embedded in tools might have
differing disabilities,

of the durable implement only a small portion of its value would be transferred to
the commodity, a much greater portion of the value of the less durable implement
would be realized in the commodity which it contributed to produce.
(Ricardo, 1821/1969, p.13)

In this way, the value in exchange would vary due to the differing manner in which
embedded labour is released. Later, Ricardo connects this concept directly to the
economy around him.

There is, however, a vast difference in the time for which these different capitals
will endure: a steam-engine will last longer than a ship, a ship than the clothing of
the labourer, and the clothing of the labourer longer than the food he consumes.’
(Ricardo, 1821/1969, p.18)

Here Ricardo makes no distinction between business assets and personal assets; both are
‘capital’, irrespective of whether financial income is produced. In this respect, Ricardo is
in advance of all economist of the nineteenth century until Irving Fisher’s work on
capital, though he does not extend his insight into distinguishing capital from income.

Ricardo understood that fixed capital is a wasting asset, and must be replenished. In a
discussion, which might be, but has not been, hailed as the first theoretical discussion of
depreciation in economic calculation, he discusses the restitution of assets. Ricardo commences by noting that,

> If fixed capital be not of a durable nature it will require a greater quantity of labour annually to keep it in its original state of efficiency; but the labour so bestowed may be considered as really expended on the commodity manufactured, which must bear a value in proportion to such labour,

he continues by applying the idea to machinery of differing durability’s,

> If I had a machine worth £20,000 which with very little labour was efficient to the production of commodities, and if the wear and tear of such machine were of trifling amount, and the general rate of profit 10 per cent, I should not require much more than £2,000 to be added to the price of the goods, on account of the employment of the machine; but if the wear and tear of the machine were great, if the quantity of labour requisite to keep it in an efficient state were that of fifty men annually, I should require an additional price of goods equal to that which would be obtained by any other manufacturer who employed fifty men in the production of other goods, and who used no machinery at all. (Ricardo, 1821/1969, Section V of Chapter 1.)

Famously, the Third Edition of the *Principles* contains Chapter XXXI ‘On Machinery’, which was not included in the first two editions. That chapter is widely interpreted as reflecting the growing importance, by 1821, of machinery in the British economy, and no doubt this was so. However, Ricardo’s concern in Chapter XXXI is with the effect of machinery on production and employment.

> All I wish to prove is that the discovery and use of machinery may be attended with the diminution of gross produce; and whenever that is the case, it will be injurious to the labouring class, as some of their number will be thrown out of employment, and population will become redundant compared with the funds which are to employ it. (Ricardo, 1821/1969, p.266)

In the Third edition, Ricardo reverses his original opinion that the advent of machinery would not be injurious to the interests of working people, and concludes,

> I am convinced that the substitution of machinery for human labour is often very injurious to the interests of the class of labourers. (Ricardo, 1821/1969, p.264)
The reason for the change relates to an alteration in his views on the dynamics of economic activity under the changing conditions caused by the increase in the use of machinery, and is not relevant to the concepts of wealth, value, capital and income under consideration here.

Ricardo’s great conceptual error was to seek to bend the labour theory of value to meet the changing circumstances occasioned by the rise of industrialisation and a mass of fixed capital, rather than to follow where his own observations about utility might, better, lead him. Ricardo’s presience on the significance of utility is remarkable,

Utility…is not the measure of exchangeable value, although it is absolutely essential to it. If a commodity were in no way useful – in other words, if it could in no way contribute to our gratification – it would be destitute of exchangeable value, however scarce it might be, or whatever quantity of labour might be necessary to procure it. (Ricardo, 1821/1969, p.5)

Musing counter factually, one can only wonder how different things might have been if Ricardo had given up Smith, and followed his own wisdom. The implication of utility in the derivation of wealth, and capital was held over for another 50 years, until the work of Jevons and Marshall discussed in the following Chapter.

8.5 John Stuart Mill

In every department of human affairs Practice long precedes Science: systematic enquiry into the modes of action of the powers of nature is the tardy product of a long course of efforts to use these powers for practical ends

John Stuart Mill,
1848/1973, opening sentence
In a manner that now seems warped, if not cruel and unusual, J. S. Mill was purposefully educated by his father, James Mill, to be the embodiment of classical economic doctrine and liberal philosophy; the fountainhead from which all sought counsel. It was a role that Mill played with erudition and sophistication, limited only by the changing nature of British society, and the limitations of the tools that he possessed. In his work, Mill applied the learning and orthodoxy of Ricardo to questions, especially moral questions, of his day: in matters of economic theory he is not considered to have been an innovator or an original thinker.

In the end, Mill was forced, or perhaps chose as a matter of conscience, to confront inherent contradictions in the philosophical tenets of liberalism, which held, from Bentham, that each was responsible for his own salvation, and the harsh reality of economic liberalism in which society was divided into the comfortable possessors of capital and the squalid worker. Mill’s philosophical interest was with his moral discomfort at the treatment of workers that had emerged as a consequence of liberalism, rather than with the mechanics of classicism and Ricardianism, which, broadly, he continued to accept. Questioning only its reasoning about distribution, but not seeing that this held consequences for the working of the model’s scheme of production; the workings of which he saw no reason to question. His question was with the results not the means of liberalism, a question that continues to this day. It is a matter of irony that Mill’s Principles was published in 1848, ‘the year of revolutions’, the same year as Marx and Engel’s Communist Manifesto.

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128 Mill was reading Greek classics in the original at eight and working on Smith and Ricardo at 14. Later in life he observed that this had given him a twenty-five year head start on his contemporaries, (Barber, 1970, pp.95-6).

129 John Stuart Mill, 1806-73.

130 James Mill, 1773-1836. James Mill was the intimate of Ricardo: his son records that it was his father who caused Ricardo to write his Principles, ‘a book which would never have been written, but for the entreaty and strong encouragement of my father’. Of this, Ashley observes, it is open to interpretation how far Mill snr was a trustworthy interpreter of Ricardo, (Ashley, Introduction, Mill, 1848/1973, pp.v-vii).

131 Though published in 1848, Mill commenced writing his Principles in 1845, and it was ready for the printers in 1847, before the commencement of what Mill described as the ‘great year’ of revolutions in
Passing to the purely economic rather than the moral, the central economic questions that interested Mill were those of production and exchange. In his analysis, Mill accepted the Ricardian model of value based on a labour theory of value, and his central analytical issues seems to have been concerned with the displacement of labour occasioned by the technological changes resulting from growing, yet still far from developed, industrialisation.

Mill’s *Principles* was published in 1848, twenty-five years after the final edition of Ricardo’s work. It was apparent to Mill that industrialisation was altering the technical coefficients of production between labour and machinery, and that labour was being displaced. Inter alia, labour lost employment as more efficient equipment was introduced, and Mill pondered, inconclusively, whether in the longer run it could, or would, be reabsorbed. Similarly, he pondered the implications for the composition of output given the large displacement of labour into railway construction. These are, in themselves, interesting ideas containing, as they do, the seeds of the problems of macroeconomic management of deficient demand that arose after the First World War, but they are irrelevant to the development of a conception of capital and income operationally useful at the level of the firm. Mill, however, was forced to consider the nature of wealth in the new dynamic setting of the early industrial revolution.

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1848. During writing, Mill suspended work on the *Principles* to write on the Irish famine of the winter of 1846–7. There is no doubt Mill was driven to debate in his mind, if not with his conscience, the difference between the application of a theory derived from deductive constructs and one constructed from observation of the grimmer facts of mid-nineteenth century economic life. He seems to have stuck with the deductively derived principles of Ricardo and confined himself to comment on contemporary circumstances (Ashley, Introduction to Mill, Mill, 1848/1972, p.xvii): a choice that, in an obscure way, did much to shape the destiny of the western world. Perhaps Mill’s great contribution to nineteenth century economics was to hold true to the inherent logic of Ricardo until the great revisions of Jevons and Marshall became possible.

132 The sudden shift of a large proportion of the male population into railway construction was quite beyond anything that had occurred in the known economic world. The only comparable event was the displacement of the population into the military during the Napoleonic War.
Given the significance of Mill’s *Principles* throughout the nineteenth century it is significant to note that Mill thought that all that could be said on ‘value’ had been said. Noting both the importance of the existing conception of value in economic thought, Mill observed that

> the question of value is fundamental. Almost every speculation respecting the economic interests of society thus constituted implies some theory of value: the smallest error on that subject infects with corresponding error all our other conclusions; and anything vague or misty in our conceptions of it creates confusion and uncertainty in everything else. Happily, there is nothing in the laws of value which remain for the present or any future writer to clear up; the theory of the subject is complete: the only difficulty to overcome is that of so stating it as to solve by anticipation the chief perplexities which occur in applying it

(Mill 1848/1973, p.436, emphasis added)

Mill opens his *Principles* with *Preliminary Remarks*, in which the concern is with the nature of wealth. ‘Wealth he argues, is the subject of ‘Political Economy’ (1848/1973, p.1). His concern is, initially, to demonstrate that wealth is not money, rather wealth is defined by Mill as ‘have a large stock of useful articles, or the means of purchasing them…’ (Mill, 1848/1973, p.6) On one occasion in his *Preliminary Remarks*, Mill uses the terms capital and profit (income) in their modern, operationally useful sense; ‘From that revenue their capital is periodically replaced with a profit, and that is also the source from which their original funds have almost always been derived…’ (Mill, 1848/1973, p.14) However, the use of these terms, subsequently to become so important and elusive, is past over in the more general discussion of the nature of wealth. In this discussion, Mill approaches the nature of wealth from a variety of directions. Sometimes wealth is income,

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133 Mill died in 1873 after he had edited the seventh edition of the *Principles*, and it seems unlikely that he was unaware of Jevons Theory (1871). The edition of the *Principles* referred to here is that edited by Sir William Ashley in 1908, the Students’ edition that followed the eighth and ninth editions. As published that edition makes no reference to Jevons in the references. Ashley refers to the development of the marginalist approach to value subsequent to Mill, but makes no comment on a response by Mill, (Bibliographic Appendix S, Mill, 1848/1973).
In common discourse, wealth is always expressed in money. If you ask how rich a person is, you are answered that he has so many thousand pounds. All income and expenditure, all gains and losses, everything by which one becomes richer or poorer, are reckoned as the coming in or going out of so much money.
(Mill, 1848/1973, p.3)

In Blaug’s precis this is summarised as ‘income’, it is ‘all things bought and sold in the market place’, (Blaug, 1968, p181). No doubt the emphasis on wealth as income derived from Mills underlying concern with the problem of equitable distribution of income.

Elsewhere, wealth is capital,

Wealth, then, may be defined, all useful or agreeable things except those which can be obtained, in the quantity desired, without labour or sacrifice.’
(Mill, 1848/1973, p.9)

In a fallacious distinction that was to plague attempts to provide an operationally useful definition of capital, Mill observes that wealth relates to the means of exchange,

To an individual anything is wealth, which, though useless in itself, enables him to claim from others a part of their useful or pleasant things.’
(Mill, 1848/1973, p.7)

In Chapter 1 of the Principles, Mill considers the requisites of production. These are labour and appropriate ‘natural objects’ on which ‘a certain amount of labour has been dispensed…” (Mill, 1848/1973, p.23) In Chapter IV, Mill considers the nature of capital. Capital is, ‘a stock, previously accumulated, of the products of former labour’, (1848/1973, p.54). The function of capital is to, ‘afford shelter, protection, tools and materials which the work requires, and to feed and otherwise maintain labourers during

134 And for the particular interest of the accountant, ‘Capital, by persons wholly unused to reflect on the subject, is supposed to be synonymous with money…Money is no more synonymous with capital than it is wealth. Money cannot in itself perform any part of the office of capital, since it can afford no assistance with production.’ (Mill, 1848/1973, p.54).
the process’ (Mill, 1848/1973, p.54). In this chapter, Mill introduces, the notion of ‘unproductive capital’, which is capital expended on unproductive labour. The wealth of the capitalist may be expended variously on his workers, replenishing his stock of material, keeping his buildings in repair and replacing them when worn out, or devoted to his personal consumption. For example, the capitalist stock of wealth may be applied to support work people, or ‘to maintain a pack of hounds, or an establishment of servants’ Capital, ‘is that part of (the capitalists) possessions…which…constitute his fund for carrying on fresh production…’ (Mill, 1848/1973, p.55) The,

distinction…between Capital and Not-capital (lies) in the mind of the capitalist – in his will to employ them for one purpose rather than another…all property, however ill adapted in itself for the use of labourers, is a part of capital as soon as it…is set apart for productive reinvestment (Mill, 1848/1973, p.56)

As will be developed below, the notion of ‘capital and non-capital’ was to bedevil various approaches to the definition of capital subsequently followed by others throughout the remainder of the nineteenth century.

In Chapter V, Mill sets out what he calls ‘Fundamental Propositions Respecting Capital’. In general, these do not concern the argument advanced here. However, Mill’s ‘third fundamental theorem concerned the consumption of capital. In this theorem, he commences by noting what is now understood as the dichotomy between savings and investment, holding that savings are consumed (Mill, 1848/1973, p.70). Moving on, Mill then develops the idea that capital too is consumed and saving is required to repair it.

Most kinds of capital are not fitted by their nature to be long preserved. There are few, and but a few productions, capable of a very prolonged existence…If we except bridges and aqueducts…there are few instances of any edifice applied to industrial purposes which has been of great duration; such buildings do not hold out against wear and tear, nor is it good economy to construct them of the solidity necessary for permanency’, and,

Capital is kept in existence from age to age not by preservation, but by perpetual reproduction: every part of it is used and destroyed, generally very soon after it is produced, but those who consume it are employed meanwhile in producing more.’ (Mill, 1848/1973, p.74)
Here Mill is emphasising to his readers the fragility of industrial capital, and the need for its continued repair and replacement, but there is no indication of a need to operationalise his concepts: how is the value of capital consumed to be identified; a question that might have led to definition of capital and income based on a logical relationship.

Mill was a sophisticated observer of the economic life about him, keen to apply his knowledge to the issues of the day. But his *Principles* indicates that, although by 1848 the railway revolution was well underway, the distinction between capital and income expenditures, implicit in the repair and replacement of industrial capital, had yet to become a problem in the organisation of finance capital on which the process of industrialisation depended. In Mill, wealth, the concepts of capital and income are those of classical economics. Wealth is income and implicitly is separate from capital, which is something made by labour and whose purpose is to support labour in its production of income. Some distance had yet to be travelled before understanding the nature of capital and income became necessary. A particular importance of Mill is in the perpetuation, indeed popularization, of the ideas about wealth, value, capital and income inherited from Petty, Smith and Ricardo; in particular, the notion of the relationship between capital and income.

In the second half of the nineteenth century, the *Principles* became the undisputed bible of economists. While it began to be displaced by Marshall’s work in the 1890s, it was still, in 1900, the basic textbook in elementary courses at both British and American universities. After Mill’s death, the *Principles* it was republished as a text. The 1909 edition referred to here was a ‘student’s edition’, and the sixth edition was popularised by the removal of foreign terms and published as a ‘people’s edition’. It was from Mill, and his interpretation of classical economics, that all but the most sophisticated learned their economics over the second half of the nineteenth century, and it was to the *Principles* that

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135 Galbraith describes Mill’s *Principles* as ‘the first textbook in economics’, and critiques that ‘in literary excellence it would not again be approached.’ (Galbraith, 1991, p.119).
many, if not most, turned, to provide the conceptual tools to resolve the multitude of abstract, technical problems raised in the organisation of the new industrialised society organised around the pursuit of profit.

The significance here is that the Principles perpetuated the old, and excluded what was new in economic thought in the second half of the nineteenth century. In Mill (1909), Ashley, in an attached Bibliographic Appendix, refers to the development after publication of the Principles to the revolutionary ideas contained in marginalist economic thought and, significantly here, developments in the conception of wealth, capital and value; noting in his Introduction that, since Mill’s time, there had been ‘a vast amount of economic writing’, specifically referring to the rise of the German Historical School and the rise of socialist doctrine, though not the work of Jevons and Marshall. Because of the dominance of Mill’s Principles in the popular mind, access to that knowledge by the many was delayed.

8.6 Karl Marx and Value

Marx was an acute observer, and antagonistic critic, of nineteenth century capitalism. His approach to value is generally regarded as being a derivative of the then mainstream labour theory of value. In Marx’s hands that theory became what he regarded as a scientific explanation of value and a central construct in his critique of capitalism as an exploitative system. Marx was a highly intelligent and original thinker who wrote not as a dispassionate academic observer and theorist, but as a polemist, intent on destroying capitalism and replacing it with the better world he believed his scientific critique had identified.

Because his work seems so original and evolved outside conventional, or bourgeois, discourse it is usual to note what are considered his apparent intellectual influences. A summary of these is now provided.
8.6.1 Marx, Life and Intellectual Themes

Karl Marx was born in 1818 in the German city of Trier. His father was a leading lawyer and member of the High Court, and his early life was one of comfort and upper class privilege (Galbraith, 1991, p.127).\footnote{Schumpeter, no friend of Marxism, has a rather different view of the nature of Marx’s circumstances; Marx was the product of a thoroughly bourgeois environment that failed to provide economic independence, and of a thoroughly bourgeois education that made him…an intellectual, a radical, and a scholar – the radicalism being of the bourgeois brand of his time and the scholarship being of the historico-philosophic, as distinguished from the mathematico-physical type, (Schumpeter, 1954/1994, Fn p.386, see also Fn 138 below).} Consistent with this background, the young Marx followed a fashionable German academic career, studying at the universities of Bonn and Berlin. While at university, most commentaries remark on Marx’s contact with Hegelian philosophy\footnote{In Hegel’s dialectic the established order represents a thesis to be challenged by an emerging antithesis, conflict is resolved by the synthesis between the thesis and antithesis. The resulting synthesis provides the basis for a new order, or thesis. In Marx, the antithesis is created by economic (technological) change.}, and ascribe to this the origins of Marx’s economic dialectic, though Marx always rejected suggestions that this aspect of his methodology derived from Hegel. It is a matter of some curiosity that, while Marx spent his life espousing the cause of the dispossessed and downtrodden, he continued to live a comfortable bourgeois life\footnote{Schumpeter draws out the contradictions between the social circumstances of Marx’s birth education and life and the proletarian tenants of Marxism.}, the last thirty years of which, were spent at the centre the capitalist world in London. In the later years of his life after, according to some sources, a period of poverty, Marx resided comfortably in the fashionably intellectual, and particularly pleasant, London suburb of Hampstead supported by his journalism and the financial help of his friend and collaborator, Engels (Galbraith, 1991, p.131). Marx died in 1883 having published only
one of the three volumes of Das Kapital, the remaining two being edited and published by Engels.

While in later life Marx’s radicalism had an economic bent, as a student at university the themes he encountered were nationalistic and liberal in character. The demands of German students and intellectuals were for liberal institutional reform, for the overthrow of princely rule of the many German states, and for their replacement by a federated republican state. Philosophically, political attitudes towards liberalism were influenced by English industrialisation, trade unionism, philosophic utilitarianism and a primitive socialism, and by violent French radicalism. From this background, Marx’s intellectual drift towards economic determinism seems obscure. Roll notes that Marx’s own explanation for his adoption of an economic deterministic approach to history is contained in the Preface to Critique of Political Economy. In this work, Marx indicates that his methodology derived from a need to define his own attitude to current political controversy that he analysed as attributable to German economic backwardness. He was initially concerned to identify the causes of that backwardness and to remove them (Roll, 1938/1992, p.230-1). His purpose, in Blaug’s words, was to project a systematic general account of the ‘economic laws of motion of capitalism’, (Blaug, 1968, p.227). In this task, Marx considered that Hegelian philosophy, dominant in German intellectual life at that time, reinforced the status quo: that Hegel was innately conservative rather than revolutionary.

To provide the required alternative to Hegel, Marx investigated the determinants of political and institutional life. To Marx, these were rooted in the material conditions of social life (Roll, 1938/1992, p.231). Roll notes that it is from these ideas that Marx derived two themes that constitute the sociological basis of his economic analysis: an economic interpretation of history and a theory of class and class struggle (Roll, 1938/1992, p.231). This context explains the paradox of why so often Marx’s methodology is described as ‘Hegelian’ while Marx himself rejected any such suggestion, and claimed that his materialist method was original. Perhaps, in the use of the idea of a
force and counter force, Marx’s method only follows a Hegelian mechanics and not its essential character.

8.6.2 Marx’s Method; Surplus Value and the Exploitation of Labour
Marx’s method derives from the general nature of his work, which was concerned with providing a scientific explanation of what he considered to be an inherently exploitative economic order. When considering Marx’s work it is necessary to remember that, first of all, it is a political statement rather than an academic matter, a polemic rather than an academic matter. Of the technical economic content it is, at the beginning of the twentieth-first century, a historical curiosity, the nature of which is explained in neo-classical terms by Galbraith as follows,

The worker at the margin receives payment in wages reflecting his added contribution to the revenue of the enterprise. That contribution, by the ineluctable operation of the law of diminishing returns, diminishes as workers are added. And the marginal wage sets the wage for all. But those back from the margin, though paid the marginal wage, contribute more, and perhaps much more, to earnings than their wage. They are the infra-marginal, more fruitful stage of diminishing return. This is surplus value they create, and this surplus value accrues, but the capitalist intervenes to appropriate it (Galbraith, 1991, pp.134-5)

The essence of the socio-political arrangements that determine the character of capitalism, as identified by Marx, concern the institutional factors that influenced the manner in which labour is supplied and rewarded. Described briefly, these are that labour is bought and sold, like a commodity. This fact derives necessarily from the nature of labour in an economy that has moved beyond the primitive state of individual self-sufficiency; where production and employment arose from specialisation and comparative advantage. Implicitly, in a world of even limited specialisation, labour must produce both ‘use value’ and ‘exchange value’, and the need to exchange commodities causes production to become a social act and incur inherent social obligations of one person to another. In Marx’s analysis, labour is described as ‘use value’ and is contained in the commodities created by work. Because of specialisation, use value must also be exchanged and the exchange occurs at some equivalence. In Marx’s system, the price at which exchange will occur is determined by equivalence of the ‘socially necessary
labour’ required to create commodities. Exchange occurs in proportion to the ratio of ‘embedded labour’. This exchange is facilitated by the use of a universal medium of money, which is held to have a common relationship to all commodities: money represents labour embedded in commodities.

8.6.3 Surplus Labour and the Source of Marxian Profit

To Marx, the ‘capitalist trick’ is in finding that labour, as a commodity, is the source of ‘profit’.139 Paid the socially-necessary cost of its production (which, as with Ricardo, is institutionally determined and may be greater than a bare subsistence wage); the capitalist buys the use value of labour and consumes it in the process of production. In the organisation of production, the capitalist has expended his capital in the employment and the provision of the means of production, which are but embodied labour (Roll, 1938/1992, p.244). Total capital, $C$, in the Marxian system contains two parts, $c$, the tools of production, machinery and materials, and $v$, variable capital, or labour. The ratio between $c$ and $v$ is Marx’s ‘organic composition of capital’.

The continuous process of giving up exchange value to obtain use value is explained in Marx’s ‘circulations of capital’. In the simplest sense, exchange of commodities occurs in the form of giving up exchange value to obtain use value, in Marx’s terminology, a ‘cycle’ of Commodity-Money-Commodity, or $c\cdot m\cdot c$, such as in a mercantilist trading system. At a more developed level such as the industrial system which Marx observed and which represented to him the high point of capitalism, the cycle becomes more advanced and complicated, and described as of $m\cdot c\cdot m’$. In such a system the purpose of

139 Schumpeter uses the expression ‘interest’ rather than ‘profit’ holding that they reduce to the same idea; The businessman’s profits were in substance, ‘profits of stock’, net returns on a stock of capital goods … And interest, being simply that part of a business’s net receipts which its owner manager hands over to a lender whom he saves the trouble and risk of doing business, also remand a (pure) ‘profit of stock’…since business profit itself was conceived as being, essentially, a return on capital goods, it followed that interest was identical with (not determined by) the net yield of capital goods (Schumpeter, 1954/1994, p.647).
the activity is to increase the stock of $m'$ over $m$ by selling the use value of labour, $c$, for greater than its cost. In Marx, the origin of wealth creation lies in the purchase of the use-value of labour: since by definition exchange involves the exchange of equivalents, the source of the increase of $m'$ over $m$ is surplus labour purchased as wage labour. The point of political antagonism is that ‘surplus’ labour is a commodity ‘captured’ by the capitalist as part of an exchanged process that is inherently unfair, and appropriated by the capitalist to his profit making ends: profit is exploitation obtained from an unfair system. If the analysis were valid in this form, there would be some merit in Marx’s central exploitation proposition. But the analysis is flawed because it rests on the incorrect assumption that value in a market economy is based on the cost of sustaining labour.

Marx’s theory of profit, or income, derives from his theory of production as an exploitative process. The capitalist pays the worker his necessary cost of production, and is free to employ his services in the production of commodities for sale. For example, the socially necessary cost of labour might be four hours per day whereas the worker is available to the capitalist for ten hours, the difference of six hours is Marx’s ‘surplus labour’, $s$, and the exchange value is the identified as $c+s+v$ (Roll, 1938/1992, p.244). Marx identified the rate of surplus as $s/v$ and the annual rate as $sn/v$; in Marxian language this is the ‘rate of exploitation’. This is a matter of extreme logical difficulty. Marx saw that the capitalist would be concerned not with the rate of exploitation, but with the rate of profit on his investment in capital. In Marxian terms, profit, $p'$, is expressed as $p'=s'v/c+s$, that is profit is directly proportional to the rate of exploitation and inversely proportional to the organic composition of capital (Roll, 1938/1992, p.248).

To Marx, consistent with his political economy and his exploitative hypothesis, the concern of his analysis is with the rate of exploitation but, as he notes, the concern of the capitalist is with the rate of profit on his investment in the stock of his capital. Reconciliation of the rate of surplus and the rate of profit is known as the ‘Transformation Problem’, the solution to this problem is not relevant to this study, and is not explored here beyond noting that, in Marx’s solution, total surplus is total profit and
the capitalist earns the average rate on his capital, $c + v$ thereby removing the difficulty (on this see Blaug, 1968, pp.231-8).\textsuperscript{140}

The problem with Marx’s approach to the nature of value being determined by the labour content is that manifestly exchange is not based on labour content, but at prices determined by supply and demand, a problem Marx was aware off (Blaug, 1968, pp.231-3). In determining the character of value, attention in economic philosophy now turned to the rise of an analysis of supply and demand these aspects of this exchange process. An investigation of which was to yield a new and revolutionary approach to the nature of ‘value’.

8.7 Summary

This chapter has explored the understanding of the concepts of wealth, value and income, as classical economists understood them. As has been indicated, the idea that value was derived from labour was the basis of classical theories about the source of value, which in the hands of Marx came to a dead end both as a description of market place behaviour and as an operationally useful tool.

More interesting to the argument advanced here is Smith’s conception of capital. This chapter has noted that Smith held wealth to be composed of two separate components, capital and income. Moreover capital might be ‘productive’ and ‘non-productive’. As will be argued, it was this conception of capital that was to dominate economic thought throughout the nineteenth century, until Irving Fisher.

\textsuperscript{140} Blaug, notes that Marx’s solution involves outputs, Blaug shows that using Marx’s approach a unique solution can be found for inputs and outputs (Blaug, 1968, pp.233-6).
9.1 Introduction

This chapter introduces the work of William Stanley Jevons and Alfred Marshall who revolutionised economics in the late nineteenth century by redefining value in the manner in which it is now understood: as a matter of subjective marginal utility. The chapter also includes a note on the approach to fixed costs by John Maynard Keynes.

It is a matter of interest here that while Marshall published his *Principles* in 1890 they were, famously twenty years in the writing; that is, they were composed during the Great Depression of 1873-1896. While Marshall was at pains to address his economics to everyday business problems, and was dedicated to a practical economics, the *Principles* were written in nominal terms, and ignoring current problems that were the result of

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141 Keynes notes in his obituary that Marshall commenced his serious study of economics in 1867 and had probably started work on what became the *Principles* by 1875, and by 1883 they were taking their final form, (Keynes, 1924, p.327). On Marshall’s inspiration Keynes notes that at that time Ricardo’s analysis was still supreme and that with his mathematical education it would have been natural for Marshall to attempt to write out in mathematical notation Ricardo’s ideas, ‘…turning his attention Ricardo, (he) was bound to play about with diagrams and algebra. No other explanation or influences are needed’, (Keynes, 1924, Fn 2, p.328). See also the discussion about ‘Priority’ in Section 9.3.2 below.
monetary phenomena, though it is surmised it would have been impossible for him to have been unaware of litigation then occurring about the determination of profit available for distribution as dividends and the problems created in that respect by falling prices, (for example, Neuchatel ran between 1888 and 1891). It seems generally understood that Marshall had intended to deal with monetary factors in a subsequent work, but this work was not started, and it was left to Marshall’s student Keynes to provide a theory which synthesised the integration of factor markets and money in the General Theory.

9.2 William Stanley Jevons

Jevons was the man who made the unqualified pronouncement that ‘value depends entirely upon utility’ … ‘Value’, as everyone knows whether he has consulted a dictionary or not, refers to worth, moral or monetary … What twentieth century man holds to be important and worthwhile is usefulness, the profit that my be extracted from an experience or possession.


While Jevons was, clearly, a person of intelligence and outstanding originality, and enduring significance, he is perhaps the most neglected of nineteenth century economists. 142 An intellectual radical, he rejected the labour theory of value of Petty, Smith, Ricardo, Mill and Marx and approached the question of the nature of value afresh, re-examining the question from first principles by collecting an alternative set of propositions (postulates) and analysing their relationship analytically with the use of the differential calculus. His accomplishment was to introduce notions of subjectivity and marginal change into economics, leading to the modern understanding of value as a

142 William Stanley Jevons, 1835–82. Born in Liverpool, Jevons left the University of London at the age of 19 to become the assayer at the newly formed Royal Mint in Sydney. While in Australia, Jevons developed an interest in political economy and, on his return to London, he completed his MA in 1862 and eventually became professor of political economy at University College, London. He died in a drowning accident.
matter of subjective marginal utility, the ‘law of downward sloping demand,’ and of an economics concerned with improvement, or efficiency, in the allocation of scarce resources.

The relative neglect of Jevons place in the evolution of nineteenth century economic thought seems difficult to fathom. He is generally acknowledged to be the originator of the marginal approach to value, the originator of the marginal revolution, and hence the basis of neo-classicism. He is hailed by Schumpeter as ‘… one of the most genuinely original economists who ever lived’, and who describes his work the *Theory of Political Economy* as a ‘performance that was to make him immortal’, (Schumpeter, 1954/1994, p.826). Yet Jevons reputation in this respect lays under the shadow of Alfred Marshall, the acknowledged master of the neo-classical school, who consistently discounted the idea of a ‘Jevonian Revolution’ (Schumpeter, 1954/1994, p.826).

Though a quiet, non-assertive, person, Jevons was frustrated with the little appreciation or understanding that his ideas received, so much so that he once observed that, ‘I am…in the unfortunate position that the greater number of people think the theory nonsense, and do not understand it, and the rest discover that it was not new’, (Jevons, *Letters and Journal*, in Collison Black, *Introduction*, Jevons, 1871/1971, pp.33). Though, subsequently Marshall is said to have relented somewhat, and described Jevons as ‘among the very greatest of economists’.

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143 Marshall in particular seems to have had a less than enthusiastic, even negative, attitude to Jevons and his undoubted accomplishment. Marshall’s first published work was a less than fulsome review of Jevons *Theory*. The reason for Marshall’s attitude has been speculated upon extensively; not least because it is obviously subject to dark interpretation. As a mathematical economist, Marshall’s own early work is said to have been proceeding in the same direction as Jevons, however, the older man, Jevons claim is indisputable, the *Theory*, being based on Jevons 1862 paper, *Notice of a General Mathematical Theory of Political Economy*, submitted to the British Association for the Advancement of Science. Collision Black, suggest a less worthy impulse in the possibility of contempt by Marshall, a Second Wrangler, for Jevons, largely self-taught in mathematics (Collinson Black, *Introduction*, Jevons, 1871/1970, p.34).

144 Collinson Black goes on to record the Jevons examined students for Marshall in 1874-5. Students examined by Jevons are noted to have included Mary Paley, subsequently Marshall’s wife, and John Keynes, Maynard Keynes’, father, (Collinson Black *Introduction*, Jevons, 1871/1970, p.34).
The revolutionary character of Jevons work starts with its domain. Jevons’ economics was concerned with business decision-making rather than the organisation of public policy that occupied Smith and Ricardo. In his *Theory*, Jevons rejects, without much comment, the labour theory of value and turns to constructing an alternative theory from first principles. To do this Jevons turns to Bentham’s utilitarianism, and notions of pleasure and pain. In a short discourse on method (which itself is a worthwhile summary of contemporary methodology in economics), he argues that the science of economics advances ‘deductively from ‘obvious psychological laws’, a process that he envisages to combine observation, deduction and induction. His reasoning was deductive: downwards from the fundamental, obvious, psychological principles that permit prediction of phenomena produced by the psychological law; with predictions confirmed by observation (Jevons, 1871/1970, p.87).

The ‘obvious ‘psychological principle’, from which Jevons derives his alternative approach to value, comes from Bentham’s utilitarian theory that human actions result from a calculus of pleasure and pain. At the grand level, utilitarianism holds that all the forces influencing the mind relate to the promotion of pleasure or the avoidance of pain (Jevons, 1871/1970, p.93). At the mundane level of economics, which Jevons describes as of ‘the lowest rank of feelings’, the calculus of pleasure involves ‘supplying the ordinary wants of man at the lowest cost of labour’, (Jevons, 1871/1970, p.93). From the notion of pleasure and pain, Jevons moved to the capacity, or utility, of commodities to provide pleasure or reduce pain, and his great contribution to economics was to argue that utility is not innate but subjective; a matter of what he describes as degrees of (or as it would now be put, incremental or marginal) improvement. From this apparatus he is able to derive a demand curve in the modern form. The purpose here is not primarily concerned with these matters, but with the definition of capital. Applied to capital, subjective marginal utility leads to the idea that the value of investment relates not to its original cost, but to the present value of subjectively estimated future returns, and the link between cost and value is thereby broken. The notion of incremental improvement in satisfaction being equally applicable to description of capital as it is to consumer
satisfaction. But Jevons did not see the thread, and the Theory does not proceed in that direction.

Jevons is led irresistibly from his discussion of utility and value to a discussion of capital by his observation that the purpose of economic man is to accumulate wealth. Towards the end of the general elaboration of his ideas, Jevons follows with a discussion about capital: this occurs in the penultimate Chapter VII. To Jevons, capital represents a ‘distinctive branch’ of economics’. Rather surprisingly, Jevons conception of the nature of capital remained rooted in the labour, cost of production theories: the ideas of Ricardo and the classical economists, and is not drawn from the incremental apparatus that he applies to value. Jevons agreed with Ricardo that capital consists of wealth employed to facilitate production; that is, Smith’s idea of ‘productive capital’. But also he observes that the lists of articles of wealth considered to constitute capital provided by contemporary economists, such as Mc Culloch’s observation that capital ‘consists of those portions of produce of industry existing in it which may be directly employed either to support human beings or facilitate production’ (Mc Culloch, in Jevons, 1871/1970, p.225), ‘obscure the subject’ of the nature of capital, (Jevons, 1871/1970, p.225).

Capital is defined by Jevons as,

> the aggregate of those commodities which are required for sustaining labourers of any kind or class engaged in work. A stock of food is the main element of capital; but supplies of clothes, furniture and all the other articles in common daily use are also necessary parts of capital. The current means of sustenance constitutes capital in its free or uninvested form. The single and all-important function of capital is to enable the labourer to await the results of any long-lasting work
> (Jevons, 1871/1970, p.226, italics in the original)

After accepting uncritically Ricardo’s notion of capital, much of Chapter VII is devoted to comment on the implications of compound interest on investment of financial capital that is of little consequence here.
The origin of Jevons’ insight about the nature of value is unclear. Perhaps it was just that it was Jevons who first extended into economics the use of the analytical possibilities of the calculus that characterised development in various disciplines at that time. Blaug, alternatively, suggests the possibility of some underlying, historical, force compelling the evolution of economic ideas. The *Theory* was published in 1871, the same year as Menger’s *Grundsätze*, and was followed in 1874 by Walras’s *Elements*, both of which followed a similar approach to value to that taken by Jevons, whose claim to primacy rests on his conference paper, *Notice of a General Mathematical Theory of Political Economy* delivered to the British Association for the Advancement of Science in the autumn of 1862, (Collison Black notes that Jevons had been developing his ideas for some time before this).\(^\text{145}\) Blaug notes that Jevons died in 1882 unaware that Menger and Leon Walras, had mirrored his work on the origin of value. The reality was that, except in the most advanced circles, the dominant conceptual approach to value in economics remained a labour, cost of production, model into the 1890s, until the publication of Marshall’s *Principles*. Though Jevons revolutionised ideas of value, his approach to capital was the standard nineteenth century conception.

The significance of Jevons is that his ideas resolved the long debate about the nature of value. As the idea was subsequently developed it provided the origin in twentieth century economics of an operational calculus concerned with the maximisation of the utility of scarce resources by analysing the effect of small changes in demand and supply, though paradoxically, Sombart’s idea that double-entry bookkeeping provided the means by which rationalising calculations might be made, is not a possibility until after Jevons invention of the idea of marginal subjective utility. But in Jevons capital, and its relation to income, is still in the classical tradition outlined above.

\(^{145}\)Jevons forwarded the paper from Sydney with a second, *The Study of Periodic Fluctuations*. Both were read to Section F of the Conference, but only the second paper was approved, which perhaps indicates something about the value of peer review at conferences. Jevons left his well paid position at the Sydney mint to return to England because he believe the ‘field of social science had been unsatisfactorily tilled by previous writers and he hope to accomplish work of importance’ (Young, 1912, pp.577-8).
9.3 Alfred Marshall

Jevons saw the kettle boil and cried out with the delight of a child; Marshall too had seen the kettle boil and sat down silently to build an engine

Keynes, 1924, p.332

9.3.1 Background

Alfred Marshall\textsuperscript{147} is one of the most significant figures in the economics of any era. From the publication of his Principles in 1890, he exercised a determining influence on the evolution of analytical economics. In many commentaries, his Principles is ranked, with Smith’s Wealth, and perhaps Ricardo’s Principles, as the most significant works of economics published in English. Much of the exposition of marginal utility as the basis of value, the analytical tools of demand and supply, and the organisation of the academic profession of economics in Britain can be attributed to Marshall.\textsuperscript{148} A Cambridge educated mathematician, Marshall was self-taught in economics, coming to its study after reading Mills Principles while engaged in debates with contemporaries about morals and ethics as a young mathematics teacher at Cambridge. He had become excited by the possibility that his mathematical ability would enable him to make important contributions to the discipline, and thereby improve the lot of man. His decision to

\textsuperscript{146}Keynes was Marshall most brilliant student. After completing his degree in mathematics, Keynes was tutored in economics by Marshall. Keynes always held Marshall in great respect and affection. His Memoriam to Marshall written on his death in 1924 is a wonderfully composed tribute. Its reading is recommended both for instruction and interest.

\textsuperscript{147}Alfred Marshall, 1842-1924

\textsuperscript{148}Keynes notes that Marshall was the sole signatory to a proposal circulated on 24\textsuperscript{th} October 1890 to lecturers in the United Kingdom, the Political Economy Club and Section F of the British Association to found an Economics association and journal. Interestingly, the seeds of American superiority in the profession are apparent in the debate as to whether membership should follow the lines of ‘a learned society’, or follow the American Association, and be open to all. The American model of organisation was adopted (Keynes 1924, Fn, pp. 361-2).
follow this course in life replaced an earlier intention to take religious orders and follow a foreign, missionary career.

On his marriage to Mary Paley\textsuperscript{149}, Marshall was forced, as a married man, to give up his fellowship at St John’s College Cambridge and went, as Professor of Political Economy and first Principal, to University College Bristol, newly established by Bailliol College Oxford, where he was involved in lecturing to young businessmen (and Mary Marshall, one of the first group of women to graduate from Cambridge, lectured to young women) (Keynes, 1924, p.325). Marshall retained an interest in the practical application of economics all his life, an interest or obligation he passed to his famous student, Keynes. In 1883 Marshall succeeded Toynbee at Bailliol, but returned to Cambridge in 1885 to the chair of Political Economy left vacant by the death of Fawcett (Keynes, 1944). At Cambridge, Marshall became increasingly involved in influencing economic policy by appearing before Royal Commissions, Parliamentary committees, enquires and writing memoranda on technical issues for government.

\textsuperscript{149} Mary Paley Marshall, 1850-1944; Mary Paley passed the Cambridge Higher Local Examination for Women, instituted in 1869. In 1871 she was accepted for study at Cambridge University, where she commenced in October 1871 with a friend, a Miss Clough. They resided at 74 Regent St. and moved in the following year to Merton Hall, which became the nucleus of Newnham College. Mary was examined for the Moral Sciences Tripos in 1874 with an Amy Bulley. Together they were the first women to be examined for the degree. Two of the examiners awarded Mary a first and two a second, a result recorded on her degree! In 1875, Sidgwick invited Mary to Newnham, where she replaced Marshall lecturing economics to women.

Subsequently, perhaps quixotically, Marshall lobbied strenuously, and successfully, against Cambridge granting degrees to women, a position Keynes gently explains as attributable to ‘a congenial bias, which by a man’s fifty-fourth year of life has gathered secret strength, may have played a bigger part in the conclusion than obedient intellect.’ (Keynes 1924, p.363).

Keynes paints a charming picture of Mary Marshall in her nineties, bicycling to her self-appointed position as librarian at ‘her library’, the Marshall Library, from her home wearing her ‘pre–Raphaelite sandals’ as had been her customary for the past fifty years or so (Keynes, 1944, Keynes obituary of Mary Marshall is also a delight to read).
Throughout his life, Marshall’s economics was characterised by a high-minded concern for the situation of workers and the disadvantaged and to practical, and an aversion to monopoly. Keynes notes that as a young lecturer Marshall sympathised with the labour movement and socialism, inviting working class leaders to his home and speaking at the Social Discussion Society (Keynes, 1924, pp.357-358), but he became deeply skeptical of the possibility of socialism might solve the technical problems of economic organisation and, cutting his links with socialism, turned his attentions to refining the economic calculus, both in his teaching and in the Principles.¹⁵⁰

### 9.3.2 Philosophical Purpose

Marshall’s concern in the Principles was to apply his analysis to the practical problems of business, understanding that there was ‘no absolute economics’, only evolving economic issues that might be amplified by analysis in a manner comprehensible to many, the wide dissemination of which would promote economic organisation and thereby the broad wellbeing. The Principles is structured to examine aspects of economic behaviour that become apparent when subjected to his analysis of supply and demand. The Principles is

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¹⁵⁰ Keynes quotes Marshall from the Preface to Trade and Industry,

For more than a decade, I remained under the conviction that the suggestions, which are associated with the word ‘socialism’, were the most important subject to study, if not in the world, yet at all events for me. But the writings of socialists generally repelled me, almost as much as they attracted me; because they seemed far out of touch with realities…Now…I see on all sides marvellous developments of working class faculty: and in consequence, a broad and firmer foundation than when Mill wrote: But no socialistic scheme, yet advanced, seems to make adequate provision for the maintenance of high enterprise and individual strength of character; nor to promise a sufficiently rapid increase in business plant and other material implements of production.’

(Keynes, 1924, Fn p. 358)

See also Shove,

It was the “administrative side” of socialism, the proposal to substitute public management for free enterprise and individual initiative that he viewed with alarm and which led him…to describe the socialistic movement as “by far the greatest present danger to human well being”…’

(Shove, 1944, p. 317)
written as a practical guided designed to inform, rather than what it was, a revolutionary mathematical interpretation of Ricardo, and Marshall confines obtuse mathematical demonstrations to appendices and to footnotes. The analysis it contained became (and still is) the orthodox technical tool of explaining commercial behaviour. It is probably in this sense that marginal analysis has become known in the English-speaking world as ‘Marshallian’.

The Principles found wide acceptance as a university text and as a standard reference and Shove notes that, in the field which it covers, it became the leading textbook not only in its author’s own university ‘but wherever economics was seriously studied’ (Shove, 1944, p.313). It was also widely read beyond professional economics. At the time of Marshall’s death, in 1924, the Principles had run to eight editions and sales of 37,000 copies, and it continued to sell strongly after his death, (Keynes, 1924, p.349. The copy referred to for this study was is the eighth reprint, of the eighth edition, printed in 1947). It was through the Principles that modern, neo-classical, economic ideas and concepts replaced classical ideas, were communicated to informed opinion: it was from 1890 that the ideas of Marshall began to replace those of Mill. It is noteworthy here that this process of revision commenced from 1890, by which time the crisis of the Great Depression was well advanced. It is the contemporary reliance on Marshall’s Principles as a source of technical understanding that is of interest here because it too contained a flawed definition of capital and its relationship to income: Marshall’s Principles perpetuated the traditional, flawed, nineteenth century orthodoxy about capital and its relationship to income.

Reservations, as will be indicated below, are held about the originality of Marshal’s contribution to economics. By the time of his death, Marshall was a venerated national institution, recognised for making a great technical contribution and accorded great authority and regarded with respect, loyalty and affection by colleagues and students at Cambridge. Marshall’s contribution to economics was his analytical ability, and the diffusion of those dictums among the commercial and economic elite. Shove notes that the Principles also ‘powerfully affected theoretical economics in the United States’
(Shove, 1944, p.313), and, of course, Marshall drew Keynes into serious study of the discipline.

9.3.3 Body of Marshall’s Analysis

The theoretical device at the centre of the *Principles* is the partial equilibrium analysis of demand and supply, the twin blades of the Marshallian scissors, conducted in a static mode with regard to time (the short, medium and long run) using the differential calculus. Marshall, as noted above, was self-taught in economics. His method of self-instruction, as recounted by Keynes (1924) and Shove (1942), was to read, commencing in 1867, Smith, Ricardo and Mill and to mentally reconstruct their argument in mathematical form. A key point in discussing the shift from a Ricardian analysis to an analysis based on the differential calculus is the origins of the change. Marshall’s position among the claimants is discussed in the literature under the heading of ‘Priority’. Priority is generally accorded to Jevons on the basis of his 1862 paper, referred to above. On these facts, Marshall’s contribution in the *Principles*, published in 1890, is one of elaboration and extension of a known idea. But Marshall always claimed independence for his work on the basis that it was underway by 1871, prior to the publication of Jevons *Theory* in 1872; though the Statistical Society published Jevons paper in 1862.

Keynes treatment of this matter in his *Memoriam* to Marshall is sensitive,

The publication of this book (Jevons Theory) must have been an occasion of some annoyance to Marshall. It took the cream of novelty off the ideas which Marshall was slowly working up … Marshall’s references to the question of priority are extremely reserved. He is careful to leave Jevons undisputed, whilst pointing out, indirectly, but quite clearly and definitely, that his own work owed little or nothing Jevons.

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151 Especially since at the time Jevons paper was read to the British Association Jevons had not even graduated, and indeed was living in far off Sydney.

152 According to Keynes, Marshall only wrote two reviews in his whole life, one of which was of Jevons *Theory*, which was Marshall’s first published work. Most reviewers of this review comment that Marshall was less than generous to Jevons.
Shove notes, of Marshall’s use of marginal analysis, that,

How far Marshall hit on the missing equations for himself and how far they were suggested to him by the work of other writers is, in a sense a matter of speculation. On internal evidence alone it is open to anyone to suppose that some of them at least were suggested by Jevons and the Austrians. But there is no need to suppose anything of the kind. After all, there are a great many passages in which Ricardo and Mill recognize that the price of which a commodity can command rises when the quantity offered contracts, and falls when it expands; and from that to a demand equation is a very short step

Shove (1944, p.301).

But, as Shove (1944) makes clear, Marshall rejected the notion that he had broken with that tradition, always maintaining that he was a ‘Ricardian’, and that his purpose had been to fill in the gaps of Ricardian analysis.

Shove on this point observes,

the analytical backbone of Marshall’s Principles is nothing more or less than a completion and generalization, by means of a mathematical apparatus, of Ricardo’s theory of value and distribution as expounded by Mill. Marshall specifically rejected the notion that, in the Principles, he had compromised, or reconciled divergent schools, or had taken over the ‘Jevonian system

(Shove, 1944, pp.295-6)

153 Schumpeter, the Austrian with a national claim through Menger to some priority in the application of calculus to the analysis of demand and supply, offers a soft censor. Accepting, ‘without question’, Keynes’ explanation of Marshall’s claim to ‘subjective originality’, and acknowledging Marshall’s contribution to improving existing doctrine, Schumpeter splits hairs with Keynes, pointing out that there is a difference between acknowledging ‘priority’ and ‘indebtedness’. Of ‘indebtedness’, Schumpeter believes that Keynes and Shove have ‘largely cleared him’, but not of his inadequate acknowledgement of ‘priority’, in particular, to Jevons (Schumpeter, 1954/1994, p.838-9).

154 Shove, (1944, pp.295-300) provides a very clear explanation of the distinction between Ricardo and Marshall and the connection between the two approaches. Notwithstanding, Marshall is conventionally held to have broken with the Ricardian tradition.

155 Shoves paper was written as a retrospective appreciation on the 100th anniversary of Marshall’s birth.
Marshall’s place in the literature of economic philosophy is generally taken to represent a break with the past, opening the era of ‘neo-classical’, marginal, economics; a different world of operational analysis. A distinction is customarily drawn between the character of Ricardian and ‘Marshallian’ analysis. In the Ricardian system, value derives from labour embedded in production, this is what is measured by ‘cost’; the cost of labour is the cost of ‘subsistence’, derived from an implicit assumption of full employment. Says law holds, and all production is consumed. That is, generally, there is no variability in the demand or production functions. In Marshallian, or Jevonian, analysis, demand is conceived as a continuous function with regard to price, which represents consumers’ subjective utility, such that it is possible to say that value is ‘subjectively determined’. In Marshall, supply is a continuous function of production costs, which Marshall analysed in the short, medium and long run, time periods determined by the ability of the entity to adjust its inputs rather than as intervals of discrete time; variability in the supply and demand functions was the revolutionary insight. In this analysis, in the short run no adjustments to inputs is possible, in the intermediate variable inputs, principally labour, are variable and in the long run all inputs, including the fixed factor, plant, are adjustable. The originality of Marshall over Jevons, Fleming Jenkins, Menger and Walras in the employment of the differential calculus to economic analysis lies in the idea of setting the cost or supply curve of the individual firm against its own individual demand curve, the ‘Marshallian scissors’ (Shove, 1944, p.321). Combined with the ideas of ‘substitution’, and ‘at the margin’ Marshall created in this apparatus what Keynes calls

156 Working with notes written by Edgeworth, Keynes identifies the following contributions made by Marshall to equilibrium theory;

Analyser supply with demand.

Establishing the proposition that ‘value’ is determined at the intersection of demand and supply.

Introduction of the element of time, i.e. the short, medium and long run.

The conception of consumer surplus or rent.

Analysis of (the evil) of monopoly.

The concept of elasticity.

(Keynes, 1924, pp.349-53)

In addition Keynes draws attention to Marshall’s originating the use of geometric representation of static analysis.
‘the great working machine’ (Keynes, 1924 p. 332), together a Copernican system in which elements are kept in place by ‘counterpoise and interaction’, (Keynes, 1924, p.350).

9.3.4 Fixed Costs

While this analysis has been much gone over and little new can be said, the concern here is with particular aspects of Marshall’s treatment of the fixed factor.

Adjustment in the long run relates to investment of capital in new plant and buildings etc, the cost of which remains fixed over a range of possible outputs, and over time. Capital invested in such indirect inputs is, sometimes, said to be ‘sunk’, and regarded for some decisions as irrelevant, that ‘bygones are forever bygones’. However, as with circulating capital, fixed cost must ultimately be recovered if the entity is to survive, and investment sunk into plant must be recovered from the sale of outputs, a process accomplished via depreciation. Because of the large investment and relatively small sale price of outputs, may involve long time periods, risk and uncertainty. In conventional accounting investment in fixed assets is distinguished from investment in so-called ‘circulating capital’; usually labour and materials, in which the period of recovery of costs, is much shorter, though the process of cost ‘attachment’ to items may be equally arbitrary. Circulating capital is held to be sold; fixed capital to be used. The proportion of fixed cost attached to products is an important issue in the determination of profit, and an important factor in price competition, particularly under conditions of falling prices that pertained at the time Marshall wrote.

As already indicated, the problem in the organisation of the financial system in the last two thirds of the nineteenth century, as reflected in the litigation concerning determination of profit available for distribution as dividends, was how to rationalise attachment of fixed costs. Marshall’s analysis of fixed cost was therefore important in the context in which he wrote, and to the argument advanced here.
Marshall’s approach to fixed costs is simply handled, and now taught everywhere and has been indicated in Chapter 3. A portion of fixed cost is added to variable cost to determine total costs that are deducted from total revenue to find ‘profit’ but, significantly, Marshall did not indicate how that portion was to be identified as a practical, or operational, matter. To labour the point, profit becomes, inter alia, a function of the accounting assumptions made in determining the fixed costs to be attached to product units, and clearly the allocation of expenditures of the fixed factor is an important issue. Somewhat surprisingly, given the problem that this aspect of the practical determination of profit was causing in commercial life at the time he wrote, in Marshall’s analysis, determination of the portion, or quantum, of fixed costs to be attached to product units has already been made. That is, it is a matter exogenous to the analysis, the intricacies of which are not dealt with by Marshall. The only reference to the problem comes in a footnote, where he observes,

Almost every trade has its difficulties and its own customs connected with the task of valuing the capital that has been invested in a business, and of allowing for the depreciation which that capital has undergone from wear and tear, from the influence of the elements, from new invention, and from changes in the course of trade. These two last causes may temporarily raise the value of some kinds of fixed capital at the time they are lowering that of others. And people whose minds are cast in different moulds, or whose interests in the matter point in different directions, will often differ widely on the question what part of the expenditure required for adapting buildings and plant to changing conditions of trade, may be regarded as an investment of new capital; and what part ought to be set down as a charge incurred to balance depreciation, and treated as expenditure deducted from current receipts, before determining the net profits or true income earned by the business. These difficulties, and the consequent difference of opinion, are greatest of all with regard to the investment of capital in building up a business connection, and the proper method of appraising the goodwill of a business, or its value ‘as a going concern’. On the whole of this subject see Matheson’s Depreciation of Factories and Their Valuation. (Marshall, 1890/1920, [1947], Fn pp. 354-5)

In this passage, Marshall clearly visualises capital as a physical, rather than financial, matter, and indicates no appreciation of the difficulties in arriving at bookkeeping judgments necessary to determine a financial measure of lost physical capital, though, as already observed, Marshall could not help but be aware that this was a problem in contemporary commercial life, the courts and accounting. Though he was noted to be
concerned to apply his economics to real world issues, the comment quoted evidences no indication of association of the problem of allocating fixed costs with the litigation about profit and dividends in the 1880s and 90s. As late as the Eighth Edition no, other reference to the controversy is made in the *Principles*.

Marshall’s approach to equilibrium provided by the intersection of demand and supply was, as noted, in the Ricardian tradition. In Ricardo’s approach, demand and supply occur in a type of barter economy in which money is ignored as a variable with deterministic effect in general equilibrium. In nineteenth century theoretical economics (in the Anglo-American tradition, in any event), money is dealt with as separate phenomenon. Marshall, Fisher, and later Keynes, wrote and, in Marshall’s case, advised extensively on the matter of money, but they did so with money in a separate compartment. In Marshall’s case this seems entirely consistent with his concern for partial equilibrium (ignoring money as an input). Shove writes that the *Principles* was originally conceived as a preliminary volume, and monetary factors were excluded by the assumption that purchasing power was constant. Such an assumption is noted to be consistent with Ricardo’s assumption that ‘money – stuff, the *numaire*,’ is a produced commodity with a constant marginal cost in terms of capital and labour and that the technical coefficients relating to it constitute a kind of norm about which those relating to other commodities are distributed. All this was in the Cambridge and mainstream theoretical tradition, and it was left to Keynes, working in a later crisis of deep economic depression, to illustrate that demand and supply of money were continuous functions, the determinates of which were interrelated to other commodities. Keynes also came up against the practical problem of determining a quantum representing the consumption of fixed cost.

Commenting on the importance generally of money in general equilibrium analysis, Shove observes,

It must suffice to remark that in determining the scale of the whole system of outputs monetary influences...play a leading part, and that therefore a theory of general (as distinct from particular) equilibrium must take them into account if it
is to explain even approximately the forces at work in the real world to determine the relative values of the commodities which make the system and the rewards of the agents used in producing them.

(Shove, 1944, p.326)

He goes on to make a surprising observation,

at a time when the capitalist system had not lost its initial élan and the underlying psychological and technical conditions were making strongly for further expansion, a theory of value and distribution which provisionally ignored the money mechanism did not involve a very serious distortion of contemporary fact. Even so, it was incomplete and lacked a general precision

(Shove, 1944, p.326, italics added)

Leaving aside the assertions about psychological and technical conditions, the first edition of the *Principles* was published in 1890, during the ‘Great Depression of Trade and Industry’. Much of the literature about Marshall stresses his desire for engagement with the real world, and was interested in the technicalities of industrial organisation and management. Marshall gave advice to government on both real and monetary matters in the 1880s, and the exclusion of money from the *Principle* seems better explained as a simplifying assumption. But in his critique of Marshall’s analysis, it is unlikely that Shove, any more than Marshall, would have had in mind that the ‘generality and precision’ included the effect of accounting conventions.

It is of course possible to think of equilibrium and the portion of fixed cost to be attached to total unit cost in real, rather than nominal, terms, but a concept of capital is still necessary. Marshall recognised that he must have a definition of capital, but his vision is wholly Ricardian,

the language of the market-place commonly regards a mans capital as that part of his wealth which he devotes to acquiring an income in the form of money; or more generally, to acquisition…by means of trade. It may be convenient sometimes to speak of this as his trade capital; which may be defined to consist of those external goods which a person uses in his trade, either holding them to be sold for money or applying them to things that are sold for money. Among its conspicuous elements are such thing as the factory and business plant of a manufacturer; that is, his machinery, his raw materials, any food, clothing, and house room that he may hold for the use of his employees, and the goodwill of his business.
And of income Marshall observes,

If a person is engaged in business, he is surely to have to incur certain outgoings for raw materials, the hire of labour etc. And, in that case, his true or net income is found by deducting from his gross income the outgoings that belong to its production.

Here, capital is the Ricardian idea, with a distinction between ‘capital and ‘non capital’: more remained to be gained from applying the conception of differential calculus to Ricardian ideas.

The great importance of Marshall was his derivation of the ‘Marshallian scissors’ that has provided the conceptual tools necessary to identify optimising combinations of inputs and the use of resources in alternative employment appropriate to analysis of a wide range of economic phenomena. His analysis, it hardly seems necessary to note, specifies that profit is to be found after deducting total cost composed of variable and fixed costs. It is surprising to find, Marshall had no method to offer for identifying fixed cost and suggested reliance on the rule-of-thumb employed by the taxation authorities at that time. His understanding of capital and income was wholly Ricardian, and offered no advancement over the traditional nineteenth century conception of capital and income as separate states of wealth that was the source of the flawed distinction in late nineteenth century capital asset accounting.

9.4 A Note on John Maynard Keynes and Fixed Costs

The problem brought to theoretical economics by the inability to practically distinguish capital from income necessary to the determination of the cost of employing the fixed factor is also seen in Keynes General Theory, (1936). While it involves a leap out of the time frame of this study, it is interesting to note the difficulty this problem caused Keynes, and his novel solution.
The life and significance of John Maynard Keynes is well known, and is not reviewed here except as it relates to the argument advanced. Keynes came to the study of economics after completing a mathematics course at Cambridge, and was famously Marshall’s student. Like Marshall, Keynes was concerned with the employment of his economics in the promotion of the public good. Keynes possessed considerable intellectual independence and rejected the mainstream English acceptance of the arguments of Ricardo and James Mill with Thomas Malthus over Say’s law. This holds that supply created its own demand, that markets cleared and that, therefore, unemployment in theory could not occur. In the debates, Ricardo and Mill followed Say, while Malthus argued that there was no necessary equilibrating force; that supply and demand for labour was independent, one from another; as is now the modern understanding.

These differing views came to a head in economic theory in the crisis that followed the Great Wall Street Crash of 1929. Confronted with the experience of employment cycles in the nineteenth century, the orthodoxy was that unemployment was the result of frictional impediments to the smooth working of markets, of imperfections in the system and of institutional actors failing to adjust according to Marshall’s continuous functions; in particular, that the smooth functioning of the labour market was impeded by a downward rigidity in the price of labour: wages. Or, alternatively, it was a matter of more profound failure either not acknowledged, or not understood in contemporary theory: Keynes believed the later.

Keynes, pondering on the cause of the disequilibrium focused of the link between savings and investment decisions. As with Malthus, he saw that there was no necessary reasons for decisions to equilibrate at the full employment level as asserted in Say’s law. While saving must equal investment, saving and investment decisions were independent; savings decisions were a function of income, while investment decisions were a function of expectations about profit, and potentially a source of instability in the level of economic activity. This idea became the focus of his analysis: if investment falls, income fells, savings fell and, with it, aggregate activity fell. Profit, the mainspring of
investment was understood by Keynes to be a function of cost. In the context of an industrial economy, cost will depend on the approach followed to determining fixed costs. Profit, the mainspring of investment, was understood by Keynes to be a function of fixed costs, and the method by which they were determined to be matched against profit became relevant his description of the working of the macro economy and post the World War 1 economic crisis. He understood that a disequilibrium between saving and investment might occur if the real cost of using plant and equipment did not equate to the financial cost since it influenced both profit and asset replacement decisions; that understanding the cost of exhausted assets was relevant to understanding the income, savings investment model. It was an insight that caused Keynes to look at, and disregard, accounting approach to depreciation, and to develop his own approach.

Famously Keynes analysis was contained in his *General Theory* (1936), which is followed here. In the *General Theory* Keynes is interested in constructing a model from which the constituents of economic activity may be explained and, ideally, by which events might be controlled. The details of the model are not relevant here, save that in his discussion Keynes comes up against the vagaries of contemporary accounting practice with respect to fixed capital and the measurement of its consumption in production and its implications for the determination of profit with the macroeconomic implications already outlined, and suggested an alternative approach.

In Chapter 6 of the *General Theory*, Keynes is identifying the constituents of ‘income’ in a first principles way, and is frustrated with the way in which the cost of fixed asset consumption is handled in accounts by accountants, and he begins to build his own model. Doing this, income, he explains, is derived from sales to consumers, and he designates sales ‘A’. In addition, an entrepreneur will have purchased finished output from other entrepreneurs, this he designates ‘A1’. In addition, he reasons that an entrepreneur will finish the period with a stock of capital goods, including unfinished goods or working capital and a stock of finished goods, having the value ‘G’. Some of the stock of G is attributed to the entrepreneur’s opening stock of capital equipment. Income of the current period is found by deducting from A+G-A1 ‘a certain sum’
representing that part of value contributed by equipment inherited from the previous period – that is, to replace consumed capital if capital is to be maintained. Income is to be identified theoretically when, ‘we have found a satisfactory method for calculating this deduction’, (Keynes, 1936/1970, p.52). The interest here is with his approach to valuing the stock of plant and determining that deduction.

The value of capital equipment at the end of the period is reasoned to be the net result of the equipment being, on the one hand, maintained by purchases from other entrepreneurs and by work done upon it by the entrepreneur and, on the other hand, by having exhausted, or depreciated, it through productive use. The sum that might have been expended on maintenance and improvement in this way Keynes calls B1, and having spent this sum the capital stock would have been worth G1 at the end of the period, (Keynes, 1936/70, p.53). He goes on to reason that G1–B1 is the maximum value that might have been conserved from the previous period if the plant had not been used to produce A, that is, there has been no loss attributed to the use of the stock in production, and G-B1 measures what has been sacrificed to produce A. This quantity is identified by the expression, (G1-B1)-(G-A1). This Keynes describes as the user cost of A, the measure of the sacrifice of value involved in the production of A. The prime cost of A is identified by Keynes as the sum of the factor cost paid to the factors of production, ‘F’, and user cost, identified as ‘U’. User cost he defines as ‘…as the reduction in the value of the equipment due to using it as compared with not using it…’ (Keynes, 1936/1970, p.70) Income is then defined as the excess of the finished output less prime cost, (Keynes, 1936/1970, p.53). To user costs Keynes adds another term, this is ‘supplementary’ cost, the cost of involuntary loss from circumstances such as changes in market values, obsolescence, and destruction by catastrophe.

Since Keynes is concerned with developing a practical or applied tool, he is concerned with the how the parameters to represent these terms are to be derived, and this is taken up in the Appendix to Chapter 6 of the General Theory, which is concerned with determining user and supplementary costs. (Relevant passages of Appendix 6, to Keynes General Theory are reproduced in Appendix 1 below)
In that Appendix, Keynes, working in first principles, defines investment, I, as being equal to G-(G1-B1), which is the ‘the increment in value of the entrepreneur’s equipment beyond the net value which he has inherited from the previous period, ‘…the entrepreneur’s current investment in his equipment…’ (Keynes, 1936/1970, p.66)

Amongst other matters, he is concerned with identification of user cost, U, which is composed of factor cost and supplementary cost.

Keynes appreciates that by ‘cost’ he means exhaustion, deterioration wear and tear or economic loss of usefulness, in the income earning capacity of plant rather than cash expenditure, ‘...we still have to allow for the marginal disinvestment in the firm’s own equipment involved in producing the marginal output… (Keynes, 1936/1970, p.67, and the more general discussion, pp.66-70) Implicitly, this is distinguished from an allocation to represent cost; he is concerned with the actual loss of utility of fixed plant. In the short run he notes, is equal to the marginal prime cost, but as a matter of reality, in the long run, the supply cost is equal to the prime cost, supplementary costs, risk costs and interest costs, (Keynes, 1936/1970, p.68). He then asks rhetorically, ‘How then, is the user cost of an act to be calculated by the entrepreneur?’, and his answer is the novel one that, ‘It must be arrived at...by calculating the discounted value of the additional prospective yield which would be obtained at some later date if it were not used now.’, (Keynes, 1936/1970, p.70).

Justifying the use of a first principles approach to determining depreciation, maintenance and investment, Keynes offers the following insight into the usefulness, or relevance, of information drawn from accounts,

If the reader tries to express to express the substance of this otherwise, he will find that its advantage lies in its avoidance of insoluble (and unnecessary) accounting problems. There is, I think, no other way of analyzing the current proceeds of production unambiguously. (Keynes, 1936/1970, p.66, emphasis added)
In determining this cost, at the nexus of economic theory and accounting, Keynes makes the following observation about practicalities,

> the treatment both of what is purchased from other firms and of the wastage of the firm’s own equipment as a consequence of producing the marginal output involves the whole pack of perplexities which attend the definition of income’,

(Keynes, 1936/1970, p.67)

However, as already noted, he is aware that accounting does not indicate this cost, and he notes the prevailing business convention for dealing with this problem is to allocate a ‘cost’ from the value of fixed assets,

> It is a widely approved principle of business accounting, endorsed by the Inland Revenue authorities, to establish a figure for the sum of the supplementary cost and user cost when the equipment is acquired and to maintain this unaltered during the life of the equipment, irrespective of subsequent changes in expectation.

(Keynes, 1936/1970, p.58)

Perhaps the degree of Keynes’ understanding of the practical difficult of the problem comes in his observation that,

> our definition net income comes very close to Marshall’s definition of income, when he decides to take refuge in the practices of the Income Tax Commissioners and – broadly speaking – to regard as income whatever they, with there, choose to treat as such. For the fabric of their decisions can be regarded as the result of the most careful and extensive investigations which is available, to interpret what, in practice, it is usual to treat as net income.

(Keynes, 1936/1970, p.59)

Though, perhaps he had just given up on accounting depreciation.

In any event, this observation provides a context from which to judge the accomplishment modern conceptual frameworks in defining expenses as the consumption of an asset. Significant to the theme followed in this study, Keynes, seeking the causation of the great economic drama he is confronting, understands that accounting representation of fixed cost is central to the central mechanism of economic order in a market economy, and he finds them wanting. He might legitimately have gone on to
describe accounting conventions as part of the problem, but he does not do this, other than as indicated.

### 9.5 Summary

This chapter has indicated the nature of the marginal revolution in economic analysis, and has noted that the revolution involved application of differential calculus to the working of the market. In the hands of Jevons this approach was able to identify the nature of value in the modern way as a matter of subjectively determined utility – rather than of embedded labour. Marshall added a similar analysis to supply to that of demand in his ‘Marshallian scissors’ to explain the optimising profit combination of output and input mix. But neither Jevons nor Marshall extended their attention to the relationship between capital and income, which remained at this point in neo classical economics, the classical definition provided Smith and Ricardo.

The chapter has noted the importance in Marshall’s analysis of specifying a parameter for the cost of employing fixed factors such as plant, and similarly the importance of that information to Keynes struggling to develop a model of macroeconomic activity in which crisis is imposed by failure in investment decisions. Both had a need to specify the cost of employing fixed factors such as industrial plant as an exogenously determined variable in to their models. Each, in one way or another accepted flawed contemporary commercial practice, in the cases of Marshall by accepting information obtained from accounts and Keynes the practice of the income tax authorities. Yet information from such sources was based on the flawed classical conception of capital and income as separate states of wealth, and the idea that one might be adjusted without effect on the other: an approach that became generally accepted after the decision in the matter of *Neuchatel*.

Before turning to Irving Fisher’s solution to the logical definition of capital and its relation income the approach of late nineteenth century accountants to the problem of capital is explored next in Chapter 10.
Chapter 10

Chartered Accounting and Capital, Profit and Dividends

Payment of Dividend out of Capital

This subject is I think, one of the most difficult in the whole range of Company Law. It is one which an accountant has ever to bear in mind, for it involves a proper distribution of capital and revenue, and to be able to discriminate one from the other is one of the essential qualifications for a good accountant.

J. W. Best, Payment of Dividend Out of Capital,
The Accountant, December 6th, 1885, p.7, emphasis added

10.1 Introduction

This chapter explores how capital and its relationship to income were understood in chartered accounting in the latter decades of the nineteenth century. As will be indicated, at that time accounting practice was determined by the requirements of the company law, rather than by reference to an ‘accounting philosophy’.

The chapter finds a structure to the apparent ad hoc accounting for capital assets followed then in the institutional arrangements evolved to govern the new industrial system. The structure identified is a complex, but a discernable one; involving a number of influencing factors. These include the accounting approach to profit inherited by accountants from the traditions of mercantile accounting, the legal doctrine relating to
profit in the ancient law of partnership and the requirements of the company legislation of the mid decades of the nineteenth century. Added to this allowance must be made for limits comprehension of contemporaries to features of the new financial-industrial system; and to the complexity added by falling prices.

The chapter is organised around the central thesis of the study; that the conception of wealth in classical and neo classical economics was inadequate to the task of providing a logical definition of wealth. Indeed, it will be shown that the flawed definition in that philosophy influenced the development of common law at this time; to the detriment of the development of a logical definition of accounting profit.

Evidence of a purely accounting, as distinct from an economic or legal, interest in the nature of profit is identified here in a small technical literature that appeared from the mid 1880s, onwards. In particular, in articles published after 1880 in the *Accountant*, by Best (1885) and Cooper (1888, 1891 and 1894), Moore, 1883, Whelton, 1890, and

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157 These papers are the published versions of paper read to meetings of the Chartered Accountants’ Students Society, in the case of Best, in Sheffield and Cooper, London. The title ‘Student’ seems something of an understatement, if not misnomer. The November 10th 1888 Edition of the *Accountant* records that Cooper’s paper was read before an audience which included Frederick Whinney, in the chair, Arthur Cooper and F.W. Pixley. Evidently, ‘Student Societies’ provided a forum in which contemporary issues of some moment were discussed. At the very least, the audience for Cooper’s 1888 lecture was august one, a point also noted by Kitchen, who observes of that meeting, ‘His (Cooper’s) audience was nominally the Chartered Accountant’s Student’s Society of London, but the chair was taken by the immediate past president of the ICA, F. Whinney, and there were also present the Institute’s Vice President and about a dozen members of the council’, (Kitchen, 1974, p.126). Kitchen indicates that at the time the President of the Institute was W. W. Deloitte who at that time had accumulated 56 years experience and had been ill. Suffice, the lecture was considered important by the practicing Chartered profession.

The meeting concerned the decision in *Lee v. Neuchatel*, the appeals court decision in which had shocked the accounting profession. The implication drawn here about the Cooper lecture, attended by important accounting luminaries of the City is that it was, at least in part, a determined attempt to publicly indicate professional disapproval to the bench.
monographs by Best (1902), Dale, (1894), James, (1901), Snowden, (1908) and Webster Jenkinson, (1910/1912) concerning identification of profit from which dividends might be paid are considered important. This literature has not been identified in secondary sources reviewed in research for this study, and might be described as ‘obscure’.

This literature is not concerned with the tangentially connected discussion that occurred at the same time about the depreciation of wasting assets. The legal debate about the determination of profit available for distribution as dividends affected, as a logical matter, the contemporary debate about depreciation. That debate involved appreciation that the expense of capital assets consumption should be included in the calculation of profit, and how that expense might be best represented in financial statements. That debate – evident in the late nineteenth century accounting literature – is not the concern of this study and is not explored here, though some relevant aspects are noted in Section 10.10.

Cooper’s articles especially are judged to be particularly important. They concern the definition of capital, and raise the nature of the nature of the logical relationship of capital to income as perceived by a chartered accountant at that time. As will be shown, they reflect the prevailing dominance then of the law in the definition of accounting profit. Also they show in Cooper’s argument an embryonic assertion of an accounting, as distinct from a legal or economic, conception of profit. In making his argument, Cooper exhibits intellectual independence of mind, and an ability to formulate principles relevant to accounting, and independent of the contemporary legal opinion and economics. The principles he articulates are based on pre-existing, accounting practice derived from the

Note also the debate held in Glasgow by the Glasgow Institute of Accountant’s Debating Society on the same matter, and reported in detail in the Accountant, December 14, 1889.

158 These articles are by chartered accountants and refer to ‘capital and profit’ rather than the ‘capital and income’ employed generally in this study. ‘Income’ rather than ‘profit’ was used in the economics literature of the nineteenth century and ‘profit’ in commerce, finance and accounting and the difference in term seems to reflect different evolutionary pathways. Because this chapter is concerned generally with accounting arguments of the time, the term employed is profit unless the context makes this difficult. But the perspective from which this chapter is written is that in general the terms are synonymous, in that they mean an increment to capital, (see Fn 1 above).
‘ancient’ law of partnership. In these articles Cooper indicates qualities of professional leadership worthy of further investigation, and a brief biographical noted is included in the chapter.

10.2 The Context of the Late-Nineteenth century Accounting Discussion about Capital and Profit

The accounting literature identified in Section 10.1 above arose from contention within the law and the chartered accounting profession about the outcome of litigation in a number of judgments that occurred after about 1880 concerned with the definition of profit for the purpose of paying dividends. Decisions in those cases allowed profit to be determined and dividends paid without first allowing for the loss of asset wastage and loss of value of physical assets. A contemporary summary of a number such judgments prepared for chartered accountants by Best is contained in Appendix 4, and comments on those judgments made by Best are contained in Appendices 5.159

As assessed for this study, the litigation in question arose as a consequence of the prevailing economic crisis characterised by falling prices of capital assets and, as consequent, pressure on profit. As reasoned here, in such a context profit was squeezed where depreciation was based on historical cost. It caused a search to maintain dividends. That the litigation in question was understood at the time by some chartered accountants to resulting from such a consequence process is indicated by Best, who commented that,

If Mr Buckley had…explained his meaning by the illustration…about…a tramway Company laying its line when materials and labour are both dear, at a cost of twice the amount the same line could be laid now. (Best, 1885, p.574, the significance of Buckley QC opinion will be returned to below)

159 The cases were numerous and the literature is commensurately vast. No attempt is made here to summarise it.
(Best goes on to offers the view that, ‘this kind of accretion to or diminutions of capital should be disregarded in the payment of dividends’.)

These decisions were based on judicial ideas, with no reference to accounting practice or the views of accountants concerning the definition of profit. As will be shown below, the requirements of the differing statutes governing incorporation with regard to determining profit were inconsistent, and the issue in question could not be resolved in a consistent manner by reference to the law. In effect, the decisions were an attempt to solve a matter of accounting or economic concept by legal principles. The argument made in this chapter is that the decisions by the courts were consistent with the nineteenth century understanding of capital derived from the work of Petty, Smith, Ricardo and Mill described above.

### 10.3 Legal Controversy over Capital and Profit

The writer has always understood the true principle to be that Capital Account and Revenue Account are distinct accounts, and that for the purpose of determining Profits you must disregard accretions to or diminutions of Capital.

(H. B. Buckley Q.C., *Companies Acts*, 1887, quoted in Cooper, 1894, p.1034)

Profit is to be ascertained as in an ordinary Partnership, namely by Balance Sheet showing the general results of the Company’s operations to date. That is to say, the Capital Account and Revenue Account are to be treated as one continuous Account.

(F.B. Palmer, *Company Precedents* 1888, quoted in Cooper, 1894, p.1034)

The accounting literature of interest starts with Best’s 1885 article, which is a commentary by a chartered accountant about differences in legal opinion about the composition of profit available for distribution as dividends. That difference is indicated in the above quotation.
Best refers to two matters that, by 1885, had challenged traditional accounting perceptions about the nature of profit. The character of those decisions first became apparent in *Dent v. The London Tramway Company*, in which it was held that holders of preference shares, entitled to a dividend in a particular year, were entitled to a dividend out of the income of any year, after providing for depreciation for the year in which profit is earned, without first making up depreciation not previously expensed. This decision raised the possibility that depreciation and the maintenance of capital might be ignored generally, i.e., depreciation might be ignored providing that income had been earned on the revenue account. The effect being that income might be paid from capital.

The view is apparent in the opinion of Henry Burton Buckley, QC; an eminent contemporary authority on company law. As cited above, Buckley argued that capital and revenue were distinct accounts, and that a loss on capital account might be ignored for the purpose of determining income available for distribution. Buckley’s view was the view taken by Lindley L. J., in both the *Lee v. Neuchatel Ashpalte Company*, (41 Ch. D.1), (*Neuchatel*) and *Verner v. The General and Commercial Investment Trust*, (2 Ch.239), (*Commercial*) cases (Section 10.8 below), and was entirely consistent with contemporary financial reporting requirements, in particular, the double-account system required by the *Regulation of Railways Act* 1868, as noted by Kitchen, (1974, pp.124-125). The significance of *Neuchatel* and *Commercial* cases have been the subject of much, perhaps endless, comment; but no explanation of the logic followed in reaching the judgments has been observed in research for this study.

At the beginning of his paper, Best (1885), establishes the authority of the courts in matters of principle affecting financial reporting: chartered accountants must defer to the authority of law in matters relating to the company law, and in the determination of profit available for dividend in particular. He observes, ‘I am confronted with an opinion far
weightier than my own…’, as an chartered accountant he is respectful, but disagrees, ‘…although it would be a presumption on my part to submit that mine is worthy of consideration, still I cannot, for the life of me, see on what grounds (Buckley) bases his view…’ (Best, 1885, p.8) Best goes on to note that what is profit has been determined by the courts as a matter of legal opinion and authority, rather than accounting tradition, practice or inherent (economic) logic.

Joining this discussion in 1888, Cooper adds the views of another authority on company law, F. B. Palmer. Palmer holds an alternative, opposite, view to that of Buckley. His view is that,

Profit is to be ascertained as in an ordinary partnership namely by a Balance Sheet, showing the general results of the Company’s operations to date. That is to say, the Capital Account and the Revenue Account as one continuous account (Palmer, cited in Cooper, 1888, p.740)

Cooper observes that Buckley’s adopts the ‘Double-Account’ system and Palmer the ‘Single-Account’ system. The difference, and significance, of the two approaches is returned to below.

Initially Cooper sees the chartered accountant’s role in a narrow bookkeeping context, and follows Best’s deference to the legal views about the composition of the content of financial statements and determination of profit,

the question of what is profit of a company and how profit is to be ascertained are of exceptional interest to Chartered Accountants. It is our business as experts in bookkeeping and accounts to draw up Balance Sheets and Profit and Loss Accounts (Cooper, 1888, p.740)

161 Francis B. Palmer, later Sir Francis Palmer, a noted contemporary authority on the company law; author of Private Companies: their formation and advantages, (1877) and Company Law, (1898). A Member, with Buckley, of the Davy Committee concerned with ‘one man companies’ in the late 1890s, (Ireland, 1984). Kitchen notes that Sir Francis and Lord Wrenbury (Buckley) were contemporary authorities and rivals for reputation among company lawyers, (Kitchen, 1974, p.126).
In this, Cooper is putting the orthodoxy of the time about the role of his profession: questions of principle derive from the law; their interpretation is a question for lawyers; their application to accounts the profession of chartered accountants.

Cooper also has doubts about the wisdom of such a subordinating the role of his profession in the important matter of determining accounting profit. Noting recent decisions in the courts, he states ‘…our responsibilities as auditors is hardly less than that of directors, for correctly disclosing the position of a Company whose accounts we certify’, (Cooper, 1888, p.740), and signals the need for a broader professional interest in the matter of profit,

When we find eminent legal authorities to whom we habitually look for guidance upon a matter so closely concerning our profession as Company law, owing to the difference of opinion in relation to accounts, we are driven to look into the matter ourselves.

But the authority of the law is still almost overpowering, and chartered accountants are but spectators. He goes on to observe,

In attempting to do so, I wish to be understood as not expressing final opinions, but … I shall assume the position of an enquirer, expressing only my own present views
( Cooper, 1888, p.741)

But generally it is understood that the rules in respect of profit, derive from the statutes governing incorporation, and are a settled matter for accountants; though to chartered accountants such as Best and Cooper they are inconsistent in their requirements.

Best explains the source of the inconsistency. The law applying to companies registered under the Companies Acts 1862 to 1886 (‘Companies Act companies’), requires that ‘No dividend shall be payable except out of the profits arising from the business of the company’, (Clause 73 of Table A, quoted in Best, 1885, p.7); consequentially Best notes, ‘there is no difference of opinion that the payment of dividend to shareholders out of capital is illegal’, (Best, 1895, p.7). But in respect of another type of company,
companies governed by the *Companies Clause Consolidation Act 1845* (‘Parliamentary Companies’), the opposite position applied. In respect of these companies Best noted that the requirement concerning dividend was that, ‘A Company shall not make any dividend whereby their capital stock shall in any way be reduced…’ (Best, 1885, p.7)

The result was an inconsistency in identification of profit and dividends: on the one hand in respect of Companies Act companies profit was to be determined by reference to revenue and, on the other, in respect to Parliamentary Companies, profit required that capital be maintained. Perhaps the difference now seems obtuse: both approaches might be reasonably deduced to mean that profit is a surplus, but in the light of judgments in the courts, but to Best the difference left open the question, ‘what constitutes a payment out of capital there is a difference of opinion’ (Best, 1885, p.7). In this question, Best identified the source of the then controversy affecting the law and chartered accounting to be inconsistency between the two Acts on the specification of profit.

To Cooper the ambiguity between the requirements of the two Acts caused, in 1888, ‘doubt and uncertainty’. But by 1894 the position had become ‘something like confusion’, (Cooper, 1894). In the interim the *Neuchatel* and *Commercial* cases had been decided, and the distribution of profit by *Companies Act* companies without allowance for wasting assets had become the accepted view of the judiciary, overturning precedent, confounding contemporary accounting, and perhaps some legal, opinion. Of the situation Cooper observes,

> The cases appear to stand alone, and do not profess to rest on any principles, but conflict with the two previously received principles that Capital must not be returned, and that dividend can be paid only out of profit.  
> (Cooper, 1894, p.1034)

Importantly for the analysis that follows, *Neuchatel* and *Commercial* cases referred to *Companies Act* companies. Relevant features of the *Neuchatel* and *Commercial* cases are now outlined.
Lee v. Neuchatel and Verner v. General Commercial Cases

The decision in Neuchatel, in particular, has been extensively discussed in legal and accounting texts, and it is not the purpose here to review that literature; but for the purpose of the argument advanced relevant details of the two cases, and the reasons for provided for the decisions reached are outlined. (Innumerable summaries of Neuchatel are available. For a comprehensive summary of contemporary chartered accounting opinion concerning the case, see the Glasgow Institute of Accountant’s Debating Society, the Accountant, December 14, 1889 and Dale, 1894, pp. 27-9, of secondary sources see the discussion by Kitchen, 1974).

Lee v. Neuchatel (Neuchatel)

The Neuchatel case was originally heard in 1886 and, on appeal, the decision of lower courts was confirmed in 1888. The facts in the case are that Neuchatel was an amalgamation of certain other companies. Its principal asset was an asphalt concession, and its articles contained a provision that it would not be necessary to maintain a reserve

162 The parallel United States case is Eisner v. Macomber, 252 U.S. 189. Though a United States case, the facts and decision in this case is relevant here. These are as follows: Macomber held shares in the Standard Oil Company of California, which, in 1916, declared a stock dividend that was determined to be income by the US Commissioner for Inland Revenue and taxed as income. After she had paid the tax the plaintiff contested the Commissioner’s decision. On appeal to the US Supreme Court the Court confirmed the decision of the lower court and the plaintiff was success. In giving the opinion of the Court Mr Justice Pitney noted in part,

The fundamental relationship of ‘capital’ to ‘income’ has been much discussed by economists, the former being likened to the tree or the land, the later to the fruit or the crop; the former depicted as a reservoir supplied by a spring, the later as the stream outlet, too be measured by its flow during a period of time. For the present purpose we require only a clear definition of the term ‘income’ as used in common speech…After examining dictionaries in common use…’Income may be defined as the gain derived from capital, from labor, or from both combined.

Pitney went on to point out that there was no gain from the issue of a stock dividend, the effect being dilutive of the share price.

While not referring to economic decisions, Putney’s judgment seems to reflect some familiarity with a Fisher type approach to income as gain, but it appears to suggest the separateness of capital and income in the tradition of the nineteenth century approach, rather than an antithetical relationship.
fund against the wasting of the concession. At the end of a year the company found itself
with profit on hand after paying expenses and it was proposed, therefore, to pay a
dividend. An injunction was sought requiring that depreciation should be provided, to
cover the wasting of the concession, effectively reducing the dividend to be paid. The
application was dismissed in the lower court, and on appeal Lord Justice Lindley
confirmed the dismissal. In doing so he observed,

It is obvious with respect to such property, as with respect to various other
properties of a like kind, mines and quarries, and so on, every ton of stuff which
you get out of that which you have bought with your capital may from one point
of view be considered as embodying and containing a small portion of your
capital, and that if you sell and divide the proceeds you divide some portion of
that which you have spent your capital acquiring. It may be represented that this
is a return of capital, it appears to me not to be such a return of capital as
prohibited by law.’
(Lindlay in judgment, quoted in Dale 1894, p.28)

Though the decision in Neuchatel concerned the lease of a mine, rather than an owned
mine, and the articles of Neuchatel expressly gave permission for the directors to ignore
the wasting of assets when determining dividends, these matters were not referred to by
the deciding judges, who, put simply, concluded that if there had been a return of capital,
it was not such as was precluded by the law. Chartered accountants, not unreasonably,
were unable to discern what other type of capital there might be, or whether the court
would, at a subsequent date, decide that the decision did not extend to other types of
assets, and what the basis of such a distinction might be made.

10.4.1 General Commercial and Investment Trust (Commercial)
The Commercial case is less frequently commented upon in the literature, and seems to
have been received with less outrage than the decision in Neuchatel. The facts in this
case were that the income from the company’s investments was several thousands of
pounds greater than its expenses of operation, but this was less than the loss incurred in
the market value of its investments; and the issue was whether this was a loss to be taken
into account in the determination of profit? Before reaching his decision on the facts of
the case Lord Justice Lindley first set down what he considered the general rule.
A dividend presupposes a profit in some shape and to divide, as dividend, the receipts say, for a year, without deducting the expense incurred in that year in producing the receipts would be as unjustifiable in point of law as it would be reckless and blameworthy in the eyes of business men.

(Lindley in judgment, cited in Dale, 1894, p.27)

In allowing payment of dividend, which seemed to confound the understood rules and requirement of the Companies Act, Lord Justice Lindley held that,

fixed capital may be sunk and lost, and yet that the excess of current receipts over current payments may be divided, but that floating or circulating capital must be kept up, as otherwise it will enter into and form part of such excess without deducting the capital which forms part of it will be contrary to law.

(Dale, 1894, p27)

Dale (1894) draws attention to the fact that, in deciding this case, the court was drawing a distinction between investments held permanently for income (investments) and those held for jobbing. The articles of the Commercial Company made clear that its investments were acquired for long-term income-producing purposes, not short term trading. Mr. Justice Sterling in giving his decision in the case, held that his opinion would have been different, ‘…if he had been dealing with an ordinary trading company, e.g. if the object of the company had been to carry on a Stockbrokers business and the investments had been ordinary stock in trade…’ (Dale, 1894, pp.14-5)

Though the decisions in the Neuchatel and Commercial cases were regarded as similar, in that they allowed payment of a dividend without regard for the loss of capital assets, depletion of a leased mine in Neuchatel and loss in market value of shares in Commercial, in neither case was depreciation of industrial plant an issue. However, the dictum in these cases, that profit might be determined without making up wasted capital assets, was extended in 1896 to industrial plant in Re Kingston Cotton Mills Co (No2), (1896, 1 Ch331, cited in Yamey, 1941, p.280). The mid twentieth century English legal commentator Gower observes that Neuchatel marks the point in the evolution of company law where the courts ceased attempting to define profit and concerned themselves with solvency (Gower, 1957, p.111). Significantly, these cases concerned companies registered under the Companies Act.
Best and Cooper’s articles were a reaction to the rise of a new legal doctrine perceived by them to be of an unstable character. As interpreted here, Cooper’s 1894 article marks the point at which chartered accountants began to assert primacy in the definition of the content of financial reports, and to reject the relevance of a legal approach based purely on legal, or Parliamentary, fiat: albeit that Cooper might have been in advance of his fellow colleagues in taking up the task; a task that required establishment of a purely accounting approach to the determination of capital and profit, which in the articles cited, Cooper commences. His case, and his argument with the Neuchatel and Commercial judgments, is now considered. This is preceded by a short biographical note on Cooper.

10.5 Ernest Cooper’s Response to the Controversy: a Chartered Accountants Approach to Capital and Profit (Income)

The following section indicates Ernest Cooper place in the London chartered accounting profession of the time, and establishes his capacity to lead, both in determining the professions view on an important technical issue, but by asserting by argument the primacy of accounting over legal constructs in matters of financial reporting.

10.5.1 Ernest Cooper, a Biographical Note

Ernest Cooper, 1847-1926, was one of the seven sons, of thirteen children, of Emanuel and Elizabeth Cooper.\(^{163}\) The four Cooper brothers who established an accounting practice in 1860 that came to be known Cooper Bros. were William, Arthur, Francis and Ernest. The partnership was established by the eldest brother William in 1854, and he was joined by Arthur in 1858 and Ernest in 1872. Ernest notes that, in addition to the four brothers being partners, his other three brothers and his sisters all worked in the

\(^{163}\) The father, Emanuel Cooper was a failed Quaker banker: the bank was the London and County. In his autobiographic article, Cooper notes only that his father neglected his responsibilities as a banker in favour of the anti-slavery cause. The bank survived the neglect of Emanuel, having a capital of £305m in 1921, (Cooper, 1921, p.553).
business. In an autobiographical note, written at the end of his life, Ernest indicated that he learnt his craft of accounting as an apprentice; observing that it was an education requiring long periods of application, and no doubt wide experience with his craft, (Cooper, 1921, p.554).

The firm of Cooper Bros. was one of the leading firms in the London chartered accounting profession, which, by the time of Ernest’s retirement in 1923, was one of only two original practices surviving from the early days of the profession, (Cooper, 1921). The work of early accounting firms related to bankruptcies and liquidations and, with the growth in popularity of the limited liability company, audit work. In his note, Ernest refers to the principal source of his business was in company liquidations, and indicates the significance of the Bankruptcy Act of 1869 to the business of accountants, (Cooper, 1921, p.559). But adds it was the ‘joint stock principle that was the basis of the profession (Cooper, 1921, p.554)."164

The four Cooper brothers were active in the establishment of professional accounting organisations in London. Ernest was a foundation member of the Institute of Accountants in London that was formed in 1870, and was active in the formation of the English Institute of Chartered Accountants. He was elected to the council of the Institute in 1891, and was president from 1899 to 1901. He went on to be a member of the Institutes council for a further 33 years. Biographies of Ernest Cooper speak of his high standards of probity, commitment to technical excellence and commitment to establishing the profession of chartered accountant. In particular, and as evidenced by the articles referred to here, Ernest Cooper took a leading role in the resolution of the technical issues and the establishment of principles on which his profession came to be based. The Cooper brothers earned reputations for uprightness and honesty in their business dealings, and it is clear from his autobiographic note that Earnest greatly valued this reputation. Clearly, he took great pride in the rise in social standing of the profession, based on

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164 In his autobiographical note Ernest Cooper makes reference to ‘superficial research’ into the origins of the accounting profession, and notes the firm of practicing accountants of Shortney and Milne in 1776 and notes reference to practicing accountants in the seventeenth-century, (Cooper, 1921, p.556).
technical competence, service and the individual rectitude of its members, that the profession had attained by the end of his life, (Edwards, 2004-5, the Accountant, Jan. 1926, p.56).

Ernest Cooper emerges from biographical notes as a somewhat austere man, diligent, experienced and knowledgeable: a man of rectitude. He was a member of the Society of Friends, or a Quaker. He was at the centre of professional activity in London all his professional life, at a time when London substantially ahead of New York in accounting as with a types of financial matters. It followed that in the mid 1890s London was technically the centre of the accounting profession and a transfer of skills from London to New York and America was in process. At that time, Ernest Cooper was a key participant in the discussion and development of technical issues in the London profession.

In the articles reviewed here, Cooper is concerned to explore principle. In contrast, the work of his contemporaries, are concerned with describing legal rulings about ‘profit’, however complex, and indicate their application to the practice of chartered accounting. The character of Cooper’s works was of a different order.

165 After reading and rereading Cooper’s 1888 and 1894 papers, one must confess to being impressed by Cooper. Technically, he is in command of the tools of his profession and he knows that what has gone wrong in a matter of social consequence, he understands the power of ideas and logic, and he is prepared to confront the established order in the form of the power and majesty, not to say arrogance, of the British legal establishment, to say it is wrong, in deferential manner. He is a leader. As well as it could have been at the time, given the necessary legalistic constants he must acknowledge, and the technical tools at his disposal, he solves the problem. From his cool, logical and authoritative prose one is reminded of the picture of late Victorian professional and personal rectitude painted by Goldsworthy in the character of Soames Forsyth. Unexpectedly, Cooper becomes a figure of admiration.

166 Though he had his broadening experiences, to quote,

My record of early years of strict Quakerism, followed by a Roman Catholic School abroad, then an Anglican household, and then a study of Plymouth Brethrenism and finally some thirty years with a Scottish Church helpmeet...'

(Cooper, 1921, pp.560-1)
Cooper’s conception of capital and profit in accounting is now considered.

10.5.2 Cooper’s Analysis of Accounting Capital and Profit (Income)

Cooper commences his analysis about the controversy concerning profit in his 1888 article by warning fellow chartered accountants that recent decisions of the courts contain the possibility of legal consequences for them, ‘…responsibilities of auditors is hardly less than that of directors, for correctly disclosing the position of a Company whose accounts we certify…’ (Cooper, 1888, p.740)

In his 1888 article, Cooper accepts that responsibility for the definition of profit lay with the law and that accounting was concerned with the presentation of financial information. In this article, Cooper is deferential to the law in matters of accounting principle, though seeing it as inappropriately vested. But, like Best (1884) before him, Cooper, reflecting on the decisions in *Neuchatel* and *Commercial*, becomes caught between respect for the authority of the law and the conflict with established accounting principles concerning the definition of profit that the decisions represent. He sees that the decisions have undermined the existing tenants of accounting, and created a conflict about questions of principle.

Cooper was able to separate chartered accountants from the controversy engulfing lawyers. That controversy was a ‘difference of opinion relating to accounts amongst ‘eminent legal authorities’; that it was only of ‘interest to Chartered Accountants’ (Cooper, 1888, p.740). At this point in time, he believes chartered accountants were concerned with accounts, and ‘Accounts’, he notes, ‘are records of facts’; it is the ‘…business as experts in bookkeeping and accounts to draw up Balance Sheets and Profit and Loss Accounts…’ (Cooper, 1888, p.743) The professional responsibility of chartered accountants was to record matters of fact according to the traditional practices of accounting. In his 1894, article he goes further. He abandons deference to the law and moves to discuss principles that governed the definition of ‘profit’ as then understood by
chartered accountants: the matter had evidently assumed a much greater significance to chartered accountants by then.

I shall point out difficulties which arise for accountants in giving effect to the judgments in these two cases...references to law I shall take from Judges and Lawyers, and I shall be as careful possible to apply the references in the same sense as I find them applied by Lawyers. Wanting legal training, I find it impossible to reconcile the statements of Lord Justice Lindley in these cases with statements of Judges in other cases. To this fact neither you nor I would attach any importance. But we find one eminent Judge (Mr Justice Sterling) expresses plainly his difficulty in agreeing whilst giving judgment in the Commercial case....The cases appear to stand alone, and do not profess to rest on any principle, but conflict with the two previously received principles that Capital must not be returned, and that dividends can be paid only out of Profit. I suggest, too, that they are impractical in working, and encourage unsound accounting. (Cooper, 1894 p.1034)

Cooper commences his development of an accounting doctrine of profit by commenting that the disputation about profit in Neuchatel and Commercial is a question of technical accounting, rather than legal opinion. Because the matter has become significant Cooper has become assertive in the need to present, forcefully, the accounting view of what profit and capital comprise. He observes,

The only question seems to have been really, Was there profit? The only way of ascertaining this is by an account. If a properly drawn up account showed profit there would have been no question. Then why should not Accountants have been called to tell the Court how, in practice, accounts are prepared? (Cooper, 1894, p.1039, emphasis added)¹⁶⁷

¹⁶⁷ In the 1888 paper he observes in a similar vein,

...accountants must often have found in the course of their practice, that this state of uncertainty in regard to profit is not unusual with lawyers.

When we find in eminent legal authorities to who we habitually look for guidance upon a matter so closely concerning our profession as the Company law, owing to differences of opinion in relation to accounts, we are driven to look into the matter for ourselves. In attempting to do so I wish to be understood as not to express final opinion, but as the title I have adopted indicates, I shall assume the position of an enquirer, expressing only my own present views.'.

(Cooper, 1888, p.740).
Lawyers have made a mess of things, and as a consequence chartered accountants are at grave professional and personal risk. To him the reason for the confusion was clear; lawyers have overstepped the boundary of their professional skills, and the matters were beyond their technical competence, ‘Unless I am misinformed, Counsel and Solicitors are in doubt how to advise upon questions connected with preparing balance sheets and ascertaining Profit…’ (Cooper, 1894, p.1033) Of the decisions in both cases, he notes pointedly, ‘Wanting legal training I have found it impossible to reconcile the statements of Lord Justice Lindley…with Judges in other cases.’, Cooper, 1894, p.1053). He goes on to observes,

Was there profit? The only way to ascertain this is by an account. If a properly drawn up account showed profit there would have been no question. … I submit that the fact whether in a given case Capital is returned by the Dividend which is paid is an Accountants question to be ascertained by accounts and by no other means. 
(Cooper, 1894, p.1039)

To him, capital, profit and dividends are technical matters of accounting not law, and it is accountants, not lawyers that the courts ought to have listened to, ‘The only way of ascertaining (profit) is by an account … why should not Accountants have been called, to tell the Court how, in practice, accounts are prepared?’ . Because;

the Dividend which is paid is an Accounting question, a question to be ascertained by accounts and by no other means. Then I see little more reason in deciding the question without expert evidence than deciding without expert evidence on the best kind of steam boiler, or the best way of building a ship 
(Cooper, 1894, p.1039)

In his 1894 article, building on his 1888 article, Cooper starts construction of an accounting approach to profit available for distribution as dividends to replace the failed

In the intervening years, no doubt as the technical idiocy in the matter of Neuchatel drew on, Cooper seems to have become assured about the technical superiority of accountants over lawyers, eminent or otherwise, in matters relating to the determination of ‘profit’.
legal model. It is accountants that have the requisite professional skills necessary to this task.

10.5.3 Cooper’s Methodology

Cooper’s methodology was to build, deductively; a first-principles approach to accounting profit that would provide the relevant notion for commercial purposes. In his 1888 article, he rejected, as inappropriate for such purposes, available economic definitions, ‘We are not concerned with the various definitions of Capital adopted by political economist…’ (Cooper, 1888, p.741), though by 1894 he was prepared to allow Mill’s definition that ‘Capital is wealth appropriated to reproductive employment…’ (Cooper 1894, p.1040) (It is an incidental illustration of the pervasiveness Mill’s influence on the popular understanding of economics in nineteenth century commercial life. It also illustrates the idea that capital must be ‘productive’.)

Cooper’s argument starts with the proposition (or observation) that,

> We must…when considering the accounts of Companies Act companies bear in mind that the principles which guide us are mainly derived, not from the Companies Acts, but from general commercial usage,

it is that the company law, in the form of a general right to incorporation and facility of limited liability,

> (was) and extension or development by statute of the ancient law of partnership.’, (Cooper, 1888, p.742)

It follows that Cooper should ask rhetorically, ‘How (then) does a company ordinarily ascertain profit? To this question he provided the following answer,

> If, so is usual, the Books are kept by double-entry, the necessary adjustments are made in the Books and a Balance Sheet is drawn up. The Assets are looked over, waste of leases and the depreciation of assets are written of to Profit and Loss Account. Interest and Commissions are calculated on money borrowed and lent, and these and other earnings and outgoings are credited and debited to Profit and Loss Account. If the result shows that the Assets, after being examined and
adjusted, exceed in amount the Capital brought in and the Liabilities, there will appear a profit. If the reverse, a loss.
(Cooper, 1894, 9.1040)

To Cooper, capital and income emerge from the accounting process in which facts are recorded, ‘Accounts are records of facts’, (Cooper, 1888, p.743), and that, in this process, there is no distinction about the nature of capital and profit between a company or a partnership, (Cooper, 1888, p.741, 1894, p.1036 and 1041). In the bookkeeping process, capital is, ‘…the sum by which the assets exceed in value the liabilities…’ (Cooper, 1888, p.741, 1894, p.1040) It is accounting calculation that indicates the worth of the individual, ‘The Capital of an individual (as of a Company) is that which he is worth…’ (Cooper, 1894, p.1041) The increment to capital is profit: as he observed, ‘…every increment to capital is profit, and every diminution, loss…’ He then added ‘…and inversely I consider every profit is an increase and every loss a diminution of real capital’, but ‘…this view is not universally held by lawyers…’ (Cooper, 1888, p.741) But in making this definition of profit and its relation to capital, he does not appreciate the antithetical nature of the relationship he is describing. Nonetheless, it seems quite modern.

This was what profit and capital meant to an accountant alive to the principles that underlay the work of his profession and his representation seems to have been unique statement; unintimidated by the authority of the law. But what was the difference between the accounting and approaches to capital?

10.6 Accountants’ or Lawyers’ Capital?

Cooper indicates the cause of the difference. He dismisses economist’s definitions of capital, and turns instead to review the source of lawyers’ understanding of a concept that has proved, in the judgments of the courts, that has been so disruptive of the traditional view of chartered accountants about profit. To him the cause was that in accounting ‘capital’ was a technical matter: it emerges from the bookkeeping process. The lawyers view was relevant because it determined what accountants must do, and the law was the source of the radical new approach to capital and profit articulated in Neuchatel that
accountants must follow. Of the accountant’s conception of profit that he outlined, Cooper observes it is ‘not (a view) universally held by lawyers’ or others, (Cooper, 1888, p.741).\textsuperscript{168}

To non accountants ‘capital’ might have differing meanings: what it meant in contemporary commercial usage is summarised by Cooper in the following way. ‘Capital’ might be,

- monies paid up without regard to whether part has been lost or additional funds acquired,
- the uncalled portion of subscribed shares,
- the nominal capital of the company,
- the amount owing on debentures\textsuperscript{169}, or
- ‘capital outlay’ on a factory, ships or a mine,

(Cooper, 1888, p.741, see also James, 1901) \textsuperscript{170}

\textsuperscript{168} This sort of problem with the definition of ‘capital’ and the duality of a balance sheet continued well into twentieth century. For example Pollard observes,

Whatever the current notions of ‘capital’ may have been, industrial accountants seemed to be unable to integrate fixed capital into their scheme of things…the typical firm was a partnership, … Normally a partnership would start with a round sum divided in to fixed sum

(Pollard, 1968, pp.272-3)

Pollard continues his discussion with a description of the sources of funding available to eighteenth century industrialists. As Cooper understood, investment in an enterprise cannot be sourced to particular assets and its is fallacious to imply that a particular source of funds can be said to be destined to be invested in fixed plant and hence labelled ‘fixed capital’. Of course, in the duality of the balance sheet, there are various sources of funds and the assets in to which those funds are invested, some, in an industrial entity, will be ‘fixed assets’.

\textsuperscript{169} It is quite usual at this time to find reference to ‘debt capital’, ‘loan capital’ and ‘debenture capital’.

\textsuperscript{170} Writing three quarters of a century later Gower, the famous authority on the company law of England, noted

‘Unhappily, ‘capital’ is a word of many different applications’, noting, ‘capital punishment, capital letter, capital ship, capital city, capital of a pillar, capital and labour, capital and income and “capital”!’,

(Gower, 1957, p.96)
But, as a matter of general understanding, the notion of capital as wealth has become confused: caught up in the duality of the balance sheet. Therefore, it might mean the stock of financial wealth or the assets of a company, its capital assets, causing misunderstanding by lawyers and others about what must to be maintained. To Cooper the meaning of ‘real capital’ is clear enough. It is a technical expression that arose in the business of chartered accounting. It was the ‘wealth’ of the proprietor. This was represented by,

the Capital Account, Reserve Account, Reserve Funds and Profit and Loss are nominal, accounts, representing, in the case of Companies Act Companies, no real debt of the Company…not representing specific assets…The Capital Account (including reserves and profits) indicates the amount that undivided…belongs to the proprietor.’. Building on this he provides a set of definitions consistent with his definition of capital, ‘Every increment to capital is profit, and every diminution a loss…Revenue’, is ‘…the product of lands, works, or other property.

And

the Capital is the surplus of assets, then when there is profit it is included in and forms part of the Capital, and when there is a loss it reduces the Capital, and it follows that when you pay a dividend you always reduce your capital.

(Cooper, 1894, p.1040)

Cooper appreciated that this was not how capital was the understood in the law, and the resulting confusion caused him to ask in his 1894 article, ‘Which side of a Company’s Balance Sheet is the real Capital on?’, to which, as a chartered accountant, he offered the caution, ‘When there are liabilities the assets are not the Capital.’, and asked rhetorically, what is the Balance Sheet item called Capital Account really? His explanation was that it is ‘…the amount paid or agreed to be considered as paid on the shares…’ that ‘There is no power, without the sanction of the Court, and the formalities of the Acts of 1867 and 1877 to reduce the amount considered as paid on shares.’, (Cooper, 1894, p.1037).

Cooper connects the matter at issue in both Neuchatel and Commercial cases that required that dividends only be paid from profits, which amounted to saying dividends can not be paid from capital. This rule, he notes, only applied to Companies Act companies. It was a rule he notes, was derived from the ‘ancient law of partnership’. 
Cooper goes on to explore the use made of the doctrine by the courts in the regulation of partnerships, and to interpret the intent of the statutes governing incorporated entities in so far as it relates to the maintenance of capital prior to Neuchatel and Commercial. In his 1888 article he noted the observation of Jessel’s in Griffith v. Paget that, ‘…these (Statutory) Companies are commercial Partnerships, and are in the absence of express provisions, statutory or otherwise subject to the same considerations…’ He noted further Jessel’s conclusion that, ‘Articles of Association (are) in effect Articles of Partnership…’

He goes on to note that the law is more favourable to companies than to partnerships in that ‘…it allows members to limit their liability to such an amount as they desire…’

In return for this privilege, the law imposed ‘…for the protection of creditors the condition that…to the extent that the capital of a limited company is subscribed it shall be incapable of withdrawal or repayment, but shall remain as security for the creditor, unless it be lost in the course of the company’s operations…’

Cooper notes that these remarks are not general, but relate to companies formed by registration under the Companies Acts 1862 to 1880, companies he described as ‘Companies Act companies’. Citing Jessel in Griffith v. Padget, he notes such companies are ‘commercial Partnerships’, governed in the absence of express provisions, statutory or otherwise, by the same considerations as partnerships (Jessel, quoted in Cooper, 1894, p.1034), or as ‘Partnerships incorporated by registration…’

Cooper, 1894, p.1037) This was a matter for bookkeeping and chartered accounting.

Cooper, 1894, p.1036) But, Cooper observed that, whatever the law might hold in principle, wanting to find out ‘how you stand’ requires, in the words of Lord Justice Lindley in Neuchatel, that ‘…you must bring your capital into account somehow or another’ To Cooper, wanting to know ‘where one stands’ was the equivalent of ‘…wanting to know what your capital amounts to…’

Cooper notes that these remarks are not general, but relate to companies formed by registration under the Companies Acts 1862 to 1880, companies he described as ‘Companies Act companies’. Citing Jessel in Griffith v. Padget, he notes such companies are ‘commercial Partnerships’, governed in the absence of express provisions, statutory or otherwise, by the same considerations as partnerships (Jessel, quoted in Cooper, 1894, p.1034), or as ‘Partnerships incorporated by registration…’

They are to be distinguished from companies formed by
special Act of Parliament\textsuperscript{171}, and subsequently regulated by the \textit{Companies Clause Act 1845}. Such companies he describes as ‘\textit{Parliamentary Companies}’ (Cooper, 1888, p.741-742).

Taken together, in his 1888 and 1894 articles Cooper shows that ‘profit’, or ‘loss’, is to be understood as a change in capital, though in a conceptual sense, his understanding is in the tradition of nineteenth century philosophy outlined above: ‘capital’ was identified by the production of income and it contained no appreciation that capital and income were the one thing, wealth in antithetical relationship.

In his articles he draws attention to the fact that the contemporary controversy has arisen in the differing accounting requirements of the company law of the time. These are now explored.

\textsuperscript{171} Such companies would include those formed by Royal Warrant, Charter or special act of Parliament. Prior to the granting of a general right of incorporation by registration in 1844, and the granting of the ‘privilege of limited liability in 1854, Parliament allowed incorporation, against the long standing bias against companies following the South Seas Bubble, for the purpose of public works such as canals, turnpikes, railways, water, gas etc., on the basis that they promoting the public good rather than facilitating the pursuit of profit making activities. Since many, if not most of these undertakings were in the form of natural monopolies they, of their character, ran against the popular bias, which flowed from Smith, against monopoly. While some Parliamentary Companies did provide handsome returns their rates and charges were a matter of public concern, if not supervision and they were not viewed by the legislature as primarily profit making concerns. The public policy view seems to be that as monopolies their tariff should be set so as to yield as steady dividend and Parliament, at the high water mark of laissez faire capitalism was prepared to consider the regulation of tariffs. Hence the concern in accounting for such undertakings need not focus on profit, since profit taking was not a relevant feature of the operation of the concern. Rather the emphasis was with the maintenance of the preservation of the works, and capacity to pay dividends of a fixed or agreed amount.
10.7 Incorporation and Institutional Arrangements for the Organisation of Business

Rather than explore a theoretical, or philosophical, explanation of the nature of wealth followed by accountants Cooper’s approach is to follow the concept of capital that flows from the law governing the company law, and, in particular to note the differences imparted by the differing laws governing incorporation at that time. In this respect, his reasoning follows that of his contemporaries indicated in the monographs identified in Section 10.1.

The Acts authorising registration of companies specified differing approaches to the determination of profit: under the reforms of the mid 1840s schemes of incorporation were arranged under two distinctive legislative arrangements, each driving from differing public policy objectives sought by Parliament at that time. In the late nineteenth century, incorporation by registration was still a comparatively recent phenomenon; by 1894 limited liability had been available for only 39 years (Cooper, 1894, p.1036.). At the time, Companies Act companies were widely regarded as ‘incorporated partnerships’; widely understood to be the modern form of an ancient partnership form of business organisation, with matters of company governance to be resolved by reference to the law evolved in the courts to govern partnership – the ‘ancient law of partnerships’. However, that approach did not extend to so-called Parliamentary Companies that served quite different purposes, and which, hitherto, had been governed by quite separate principles indicated in specific Acts of Parliament, or provided in Royal warrant. By the late nineteenth century this distinction had come, as represented in the decision in Neuchatel, to exercise a decisive influence on financial reporting. The distinction is now explored.

10.7.1 The Legal Form of Companies

Gower (1957) describes the evolution by the sixteenth-century of an ancient form of incorporation necessary to achieve common public purposes, such as city governance and the administration of universities, into a commercial form of ‘trading company’, or association of merchant adventurers; conducting commercial ventures with the common purpose of making a profit. In their early form, these were based on possession of some
monopoly privilege granted by the state, for example, the right to trade to a particular region, or in a special commodity. Such ‘companies’ were partnerships in which each member risked their wealth and possessed equal rights and responsibilities to profit and debt. Gower notes an alternative arrangement in Europe where a similar evolutionary path led to the rise of the *commenda*, in which the liability of a silent partner was restricted to the capital, or loan, advanced: an arrangement that introduced the idea of ‘limited’ liability and responsibility for debt.

By the seventeenth-century the company form of organisation had evolved from merchant adventurers trading on their own account or in partnership to joint stock arrangements in which a company of merchant adventurers subscribed capital to a merchant venture, or ‘bought a share’ in a venture, and traded on ‘joint account’ as a company.\(^{172}\) Such ‘companies’, at this point might be recognised by the state – incorporated – or be private arrangements – unincorporated arrangements. By the late seventeenth-century companies had come to be arranged around the subscription of share capital to a venture, and later to the promotion of ongoing activities with arrangements devised for the company to have a continuous life; the exemplar being the East India Company discussed in Chapter 2. According to Gower, the advantage gained by incorporation at this time was principally connected to the possession of a common seal conferring the right to be sued or be sued collectively, rather than the members individually. Gower points out that, surprisingly, limited liability arose without deliberate intent from the legal fact that a member of a corporation could not be sued individually for the debts of the corporation and did not place at risk their wealth, (Gower, 1957, p.24).

The South Sea Bubble, in which a flood of speculation in shares brought down the English financial system, though frequently represented as otherwise, did not bring to an end the evolution of joint stock companies. The legal response to the Bubble was the *South Sea Bubble Act* of 1720. What that Act did was to restrict the formation of new

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\(^{172}\) One notes the linguistic link between ‘in joint company’, and ‘on joint account’.
companies, and outlawed undertakings assuming the guise of a corporate body without legal authority, undertaking practices that ‘manifestly tend to the prejudices of the public trade and commerce of the kingdom’ (Gower, 1957, p.28). It confirmed corporations in existence prior to 1718, and specified that nothing ‘…shall extend … to prohibit or restrain the carrying on of any home or foreign trade in partnership in such manner as hath been hitherto usually and may be lawfully done according to the laws of this realm now in force…’ (Gower, 1957, p.28)

Therefore, the South Sea Bubble Act did not, per se, outlaw joint stock entities, which might still be organised as unincorporated companies using a modified form of partnership. The Act in that way left open the organisation of a joint stock entity, but without the benefit of incorporation; that is, it established the ‘unincorporated entity’, privately entered into associations in which contractual obligations would be enforced by the courts under the common law. Gower notes that at the time professional opinion was of the view that the test of illegality of unincorporated entities related to the transferability of shares, and careful limitation was placed on this feature when unincorporated joint stock entities were formed subsequent to the Bubble Act (Gower, 1957, p.32). The process of transferring partnership shares was achieved by the complex legal arrangement of deeds of co partnership (Gower, 1957, p.24). But effectively, such arrangements were partnerships, or extended partnerships.

Of course, the driving motive for such arrangements was economic; the ever growing demand for financial capital necessary to fund Britain’s expanding economy. By the eighteenth century the demand for financial capital was such that, over time, in Gower’s words, ‘great legal ingenuity’ was brought to bear on the use of partnership to secure the advantage of joint stock companies in an unincorporated form (Gower, 1957, p.32). Deeds of settlement and trusts became, in effect, a routine path by which most of the advantages, including capacity to sue and be sued through trustees, of an incorporated joint stock company were achieved without the benefit of incorporation. By about 1800 the demand for capital, and the difficulty in securing incorporation by the mechanism of Parliamentary acts, had forced company promoters to resort increasingly to the
unincorporated form of company organisation: arrangements that Ireland (1984) describes as ‘economic’ as distinct from ‘legal companies’ (Ireland, 1984). The purpose of Gladstone’s reforming Companies Acts of 1844 and 1845 were to provide a standard arrangement in the form of incorporation by registration (1844) employing standard clauses to replace the many different forms of arrangement that had by then come into use: simplicity and economy must have been an important motivating factor for the reform. The provisions of the 1844 Act was extended to existing joint stock companies (1845) to make this solution to the general defect a common one. Entities covered by these Acts are the so-called ‘Companies Act companies’. Incorporation became generally available in 1856 with the availability of incorporation by registration. This Act introduced limited liability.

The context, therefore, of Cooper’s remarks about accountants experience in determination of profit under the ‘ancient law of partnership’ was that partnership, including ‘partnership’ in the form of an unincorporated joint stock company, provided the principal commercial vehicle in Britain that were the dominate method of mobilizing large sums of capital up until the middle of the nineteenth century. They provided the means whereby the number participants in business ventures might be extended to obtain the necessary capital to finance Britain’s growing capitalist economy. Partnerships as unincorporated joint stock companies existed to increase wealth of the participants, and accountants were well versed both in the determination of profit as a surplus – increasing capital – and were attuned to following court decision.

By contrast, so-called Parliamentary Companies were companies established by Parliament to promote the construction of public works and utilities, such as canals, turnpikes, gas, water sewage and, subsequently, electricity, and a distinction was made between that motive, and a concern with commercial activity in which capital pursued profit: in these companies capital was conceived as ‘liquid’, flowing to where profit might be made in an unconstrained way. Cooper, in both his 1888 and 1894 papers, indicates that the doubt, uncertainty and confusion that then prevailed in the definition of
profit derived from the differing reporting requirements required of these differing company types.

The financial reporting requirements applicable to each type of company are now explored.

10.8 Legislative Arrangements for Incorporation of Companies in the Nineteenth century

In the late nineteenth century, the nature of a joint stock company, and the form in which it reported its financial results, had come to be determined by the Act under which it had been incorporated. Companies in Britain at that time might be incorporated using standard wording provided in *Company Clauses Act 1845* or the *Companies Act 1862 and 1886*. Cooper, describes companies incorporated under the *Companies Acts* as ‘Company Law’, or Companies Act companies and companies registered under the *Companies Clauses Act* as ‘Parliamentary Companies’ (Cooper 1888, p.742; see also Walker 1932 who, explaining the use of the double-account system described these companies as ‘concerns incorporated by special Acts of Parliament’ Walker, 1932, p.81.) Cooper’s terminology is used here.

These differing legislative arrangements derived from different public policy objectives sought by Parliament when allowing registration. As already noted, *Companies Act* were commercial companies established to exploit profitable opportunities. By contrast Parliamentary Companies had been incorporated for public, frequently municipal, purposes, such as the creation of canals, roads (turnpikes) water, gas, sewage, some railways and later electricity companies (Walker, 1932, p.81), in which the public purpose, not profit, was the primary purpose for allowing incorporation. While the purpose of this type of company was not primarily to obtain profit it was understood that contributors of capital would require a return on their capital. Frequently, if not generally, such entities were financed by debt – ‘debt capital’ as it was referred to (and still is in the law) – and the return was, therefore, ‘interest’, rather than dividends. A primary concern with Parliament when dealing with this type of enterprise was that the
fabric of the undertaking, because it had a socially important purpose, it was to be maintained.

As will be explained, each of the differing objectives sought by the Parliament implied differing financial reporting requirements. These led to distinctive approaches to the determination of capital and profits. They are now reviewed.

10.8.1 Distinguishing Companies Acts Companies from Companies Clauses Act Companies

i) The Companies Acts 1862 to 1886: ‘Companies Act Companies’
The right to incorporation by registration, rather than by Royal Charter, Warrant or special Act of Parliament was made generally available by the Companies Act of 1844\(^\text{173}\)\(^\text{173}\). It offered no additional advantages over existing methods of incorporation. To such incorporated vehicles must be added the large number of unincorporated companies referred to above. By providing for incorporation by registration, the Act simply made company formation simpler, and cheaper. The limitation of the liability of subscribers was granted in an Act of 1856, and general availability of limited liability on registration was provided in the Act of 1862, and subsequently amended. As noted, the public policy objective sought in the passing of the Companies Acts was the promotion of commercial, profit seeking, activities, and this has been explored in Section 10.7. In financial reporting in respect of this type of company, the emphasis was on ‘profit’, (though the convention at the time was not to provide a profit and loss account).

\(^{173}\) The Companies Acts of 1844 and 1845 were introduced by Gladstone and are generally referred to as the ‘Gladstone Acts’. It’s perhaps worth observing that Gladstone, the son of a Liverpool merchant, was the first member of the ‘commercial classes’ to reach the office of Prime Minister. Academically brilliant as he was, the acts reflect the needs of his class and no doubt the solution of simple registration and later limited liability they preferred. For a biography of Gladstone and his origins in the commercial world of Liverpool see Roy Jenkins’ Gladstone, (1997). Jenkins pays practically no attention to Gladstone’s reform of corporate organisation, however.
Effectively, Company Law companies were conceived by the legislature to be instruments of everyday commercial arrangement: it has already been noted they were ‘extended partnerships’. In Cooper’s words; they were an ‘extension, or development, of the ancient Law of Partnerships’, (Cooper, 1888, p.742, see also Best, 1903, p.7). As noted in Section 10.7, Cooper identifies Jessel’s observation that such companies were ‘commercial partnerships’, subject to the same conditions as partnerships, and that Articles of Association were to be equated with Articles of Partnership (Cooper, 1888, p.742).

For accounting purposes, the law established by statute, judgment and commercial practice in respect of partnerships was particularly important because of the absence of guidance in the *Companies Acts* in respect to accounting matters. In this respect, Cooper observes in 1888, ‘We are especially thrown upon the law of partnerships in regard to accounts. There is an almost complete absence of provisions relating to accounts in the Companies Acts.’, (Cooper, 1888, p.742). The only reference he can find is to an ‘optional balance sheet’ in the Table A Schedule to the *Companies Act* 1862. As a consequence, he observed, ‘We must therefore when considering the accounts of Companies Act Companies bear in mind that the principles which guide us are mainly derived, not from the Companies Acts, but from the practices in regard to Partnerships, and also from general commercial usage.’, (Cooper, 1888, p.742). With respect to their capital, he goes on, ‘Companies Act Companies have the same power of choosing the manner of dealing with their respected capital in the course of their operations as a partnership…’ (1888, p.742) Unlike partnerships, members of a company could limit their liability as they desired. In return, he points out, the law provided protection to creditors on the condition, ‘that the capital of a limited liability company…shall be incapable of withdrawal or repayment, but shall remain as security for the creditors, unless it be lost in the companies operations…’ A condition, he notes, had been described as ‘the contract entered into with the legislature on behalf of the public as the basis of the grant of limited liability.’ (V.C. Wood in *Mc Dougall v. Jersey, Imperial Hotel Company*, 2 Hem. & M. 528, Cooper, 1888, p.742).
To Cooper (1888), as in Best (1885), the rule that accountants must follow when preparing accounts for Companies Act companies flows from the law of partnerships; it is that dividends must be paid from income and that capital must be maintained. That was the traditional way: it was how accountants had always determined income of partnerships, trading ventures and complex unincorporated joint stock arrangements that followed the *South Sea Bubble Act*.

To both Cooper and Best, the confusion in the courts derived, not from accountants, but from eminent legal authorities, who would upturn accounting understood conventions, and apply to *Companies Act* companies the method required to be followed in respect of *Company Clauses Act* companies. This method was the ‘double-account system’, and its accounting features are now discussed.

### ii) *Company Clauses Act 1845* Companies: ‘Parliamentary Companies’

Companies affected by the *Company Clauses Act* of 1845, or ‘Parliamentary Companies’ were companies that had previously been allowed to incorporate so that public works might be undertaken, rather than for commercial purposes. The intent of the Act was to provide a uniform basis for the regulation of such companies. In effect the Act provided a standard set of clauses that replaced diverse existing arrangements, and this type of company registered after the passing of the Act would have employed the Acts provisions. Typically, this type of company had been originally incorporated by special Act of Parliament on application from promoters seeking to construct public works of a specific nature, such as canals, railways, water, or gas works. Observing the arrangement from the perspective of a chartered accountant, Cooper noted that Parliament’s primary concern when originally authorising such companies had been with the works to be constructed and ‘very secondary with the constitution of the company’ (Cooper, 1894, p.1034). A feature of the Act was that it allowed capital assets to be

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174 It is necessary to be clear about terminology here. The individual Acts authorised ‘private’ capitalists to construct ‘public works’ (Cooper, 1888, p.743). The use of the terms ‘private’ and ‘public’ obtained their present distinction between individual and government economic activity in the twentieth century. Similarly, Cooper’s use of the expressions seems free of ideological content.
Cooper recorded that Acts establishing specific Parliamentary Companies had traditionally conferred two obligations on proprietors: to construct specified works, and to raise capital specifically for that purpose, (Cooper, 1888, pp.742-3), and to achieve that purposes Parliamentary authority to raise money contains two further implications: a limitation on the amount allowed to be raised, and application of money raised to the authorised activities. Like Companies Act companies, Parliamentary companies were accorded limited liability and capital could not to be withdrawn in return. Plant was to be maintained and be kept operational from revenues, and dividends were permissible only after provision for the upkeep of plant; both maintenance and capital replacements, and payment of interest on debentures. Specifically, there was no requirement to determine capital lost in the determination of financial results, because plant was required to be maintained, (Cooper, 1888, p.743, 1894, p.1034). In this regime, ‘profit’, as such, was an irrelevance was concern with the stewardship of contributed capital and the assets it represented inflows of revenue and outflows of expenditure on maintenance and dividends.

By tradition in commercial enterprises the concern was with increasing the stock of wealth, ‘profit’ was the increment to wealth and capital could not, logically, be reduced to pay dividends, but in respect of Parliamentary Companies, the requirement was that capital was be maintained from revenues; capital was separated from revenue; and the distribution to ‘owners’ was by way of a dividend. In most circumstances, the two approaches might be expected to reduce to the same idea: profit was a surplus and capital was to be maintained – with the qualification that the cost of repair, renewal and replacement might, or would, vary. But the Acts were founded on differing purposes, and if the intent with respect to profit had been a common one, it was expressed

differently. In the litigation of the late nineteenth century the differing expressions became the subject of other unintended interpretations. These differences were reflected in the approaches to financial reporting followed in the late nineteenth century.

iii) Accounting Requirements: the ‘Double-account’ System and Renewal Accounting

Initially, no financial reporting requirements were imposed on Companies Clauses Act companies, but the Regulation of Railways Act of 1868 required provision of some financial information to the regulating authorities, and the form in which this was required seems to have become the recognized mode of reporting followed by Parliamentary companies. The form in which information was to be displayed subsequently came to be labeled the ‘double-account system’; a form of ‘renewal accounting. Subsequently, this form of financial reporting was extended to other Parliamentary Companies, and by the late nineteenth century it was the usual method of financial reporting followed by that type of company; for example, railways, and various types of utility companies. Commenting about this system, still in use in the twentieth century, Walker observes, ‘The double-account system (was) first prescribed under the Regulation of Railways Act of 1868… and was evidently promoted by the need of securing uniformity in the method of stating their accounts…’ (Walker, 1932, p.81)

Renewal accounting and the double-account system of accounting have been distinguished from modern accrual accounting in Chapter 2. The particular accounting features of the double-account system are now noted. Understanding of the scheme followed in this system of reporting is necessary for an appreciation of the legal debate about distributable profit and capital at the end of the nineteenth century.

iv) ‘Double-account’ System Accounting

The name ‘double-account’ derives from the characteristic of the system because it required rendering a financial report in two parts or divisions, (Webster Jenkinson, 1910/1912). The double-account system is to be distinguished from the single account system in which results were indicated in a balance sheet, or ‘single account’ (Best, 1903,
It is perhaps necessary to recall that at that time it was not usual for a profit and loss account to be provided at this time; in fact, professional controversy existed then as to whether such an account ought to be circulated.

In the double account system, the first account, or division, indicates the amount spent on the construction of works was ‘balanced’ by authorised capital. Capital might include ‘debenture capital’, more generally known at the time as ‘loan capital’. The second division of the report contained details of recorded revenues and expenditures indicated in schedules. Though not arranged as such, effectively, the second ‘account’ provided information that might be expected to be included in a profit and loss account, save that expenses were represented by ‘expenditures’, and included capital additions to the asset set. Pro forma schedules required in respect of a railway company (from Webster Jenkinson, 1910/1912) are shown in Appendix 8. Jenkinson also includes pro forma illustrations appropriate to other types of Parliamentary companies, such as gas, water and electricity distribution companies. These illustrations show that financial reports prepared following the double-account system were in the form of schedules and, consequentially, bear no resemblance to standard financial reports prepared in the balance sheet and profit and loss form. To the modern eye they seem strange.

To stress what has already been noted in Chapter 2, under the double-account system, as with other types of renewal accounting, expenditures on renewal and replacement were matched against revenue, and no distinction was made in respect to the capital or current nature of items: effectively ‘expenses’ were outflows of cash associated with maintaining plant, rather than depreciation. Though it not noted in the literature reviewed for the study, it is unlikely that a distinction was made between current and future revenue, and revenue was cash received. (Indeed, the argument advanced is that the bases necessary to establish the distinction between capital and income items did not,  

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176 At this time, results were typically recorded in a balance sheet, and, usually, no profit and loss statement was published. Indeed professional discussion during this time often turned to whether such a statement was necessary, and how would it would be presented.
then, exist.) The dividend was determined by matching revenues against expenditures with the imperative to pay the interest on debt, (Walker, 1932, pp.81-82). It follows, that in such a system, decisions about renewal and replacement might be arranged with regard to the need to pay the dividend. Essentially, the system was a cash one, and it seems unnecessary to observe it did not indicate financial performance or position in the modern sense.

The purpose of the double-account system was to satisfy specific legislative objectives in respect to railway companies, and was initially required by the Regulation of Railways Act, 1868. Commenting about the system, Walker, notes it was subsequently extended to other types of Parliamentary type entities, ‘…the practice was evidently prompted by the need of securing uniformity in the method of stating their accounts…’ (Walker, 1932, p.81) But, in practice, the method seems to have been inconsistently applied, and was sometimes applied to Companies Act companies. Cooper provides two examples to illustrate this point, and the complexity brought to late nineteenth century financial reporting by the conflicting capital maintenance requirements of the two Acts. Firstly, is the example of an Indian Railway company incorporated as a limited company under the Companies Acts, the accounts of which were kept, by contract with the Indian Government, in a form similar to the double-account form prescribed by the Railway Act of 1868, thereby ensuring the same outcome with respect to the application of capital and maintenance of the work required by the United Kingdom Parliament in respect of railway companies, though in contravention of the requirements of the Companies Act. Secondly, the opposite situation occurred with respect to tramways companies registered under the Companies Act. While the Railways Act of 1868 included tramways companies incorporated under the Companies Acts, Cooper tells us that the accounts of such companies were only rarely kept in accordance with the double-account provisions of that Act. No tramway company made the required return to the Board of Trade, and the Board did not enforce the Act against such companies (Cooper, 1888, p.743, see also Anon. 1903 and Marsh, 1923, which discuss tramway bookkeeping and indicate the use of a depreciation approach rather than use of the double-account system).
It is now probably impossible to determine the extent to which renewal accounting was employed or ignored where it was formally required. The view formed in research for this study is that such understanding is beyond empirical demonstration and that conclusions must be a matter of experienced judgment. Reflecting on such methodological matters, the view formed is that such understanding is now beyond empirical demonstration, and conclusions must be a matter of informed judgment. But the consequence now is that the nature of accounting practice followed at that time, and examples of extant accounts, must be considered with circumspection because there were so many influences and themes at work; one of which was the contemporary distinction between capital and income.

10.9 The Effect of Legislative Requirements on Financial Reporting

The difference brought to financial reporting and the practice of accounting by the differing public policy objectives sought by Parliament in granting incorporation by registration, rather than from the application of logical concepts in the relationship of profit to capital, was clearly understood early in the debate by aware chartered accountants, such as Cooper and Best. For example, Best notes that, in respect of Companies Act companies, Table A of the Companies Act specified that ‘No dividend shall be payable except out of the profits arising from the business of the company’, whereas in respect of Parliamentary Companies Section 121 of the Company Clauses Consolidation Act, 1845, specified ‘that dividends shall not be paid out of capital’ (Best, 1885, p.7).

In his 1903 summary of the causes of inconsistencies, Best goes on to nail both the cause and consequence of the controversy,

these decisions with regard to losses of capital are utterly opposed to sound commercial finance, and that they are a distinct menace to the continued solvency of limited companies, who may go on depleting their capital, at the same time paying dividends said to be earned out of profits.
And the source of the problem,

Now the decisions by which it is laid down that capital losses may be disregarded are based…on the recognition of the double-account system, under which the Capital Account and Revenue Account are kept distinct.
(Best, 1903, p.17 see Appendix 7)

Best notes,

the double-account system, as applied to limited companies is a dangerous system; and that the decisions of the Court, by which what are called losses of capital may be disregarded, are utterly opposed to sound commercial finance.
(Best, 1903, p.18, see Appendix 7)

It has already been noted that the tradition inherited from the law of partnership was that profit (or loss) was an increase (or decrease) in capital. But the solution applied by the courts after 1880 in the controversy about loss of value in capital assets and the determination of available distributable profit was to treat capital and profit accounts as separate, and ignore capital losses in the determination of profit. As analysed here this solution reflected the double-account system of financial reporting favoured by Parliament in respect of Parliamentary companies. It was a solution based on the idea of separateness of capital from income found in economic reasoning through out the nineteenth century that has been illustrated above. That separation provides a links between philosophic understanding of the relation between capital and income, the intent of Parliament in expressed in the double-account system and decisions of the courts on the matter of profit.

10.10 Depreciation

The question of depreciation is one upon which so many articles have been written and so many opinions expressed that there would not appear to be such more which could be profitably said upon the subject.

The literature on depreciation in the nineteenth century, as might be expected, is extensive. Well known primary sources include, Guthrie (1883), Dicksee, (1892 and subsequent), Garcke and Fells (1893), Ladelle, 1890, Matheson (1884, Fourth Edition, 1910), other, more obscure, primary sources identified in research for this study are

Matheson was an engineer and his work on depreciation was first published in the *Engineer*, and subsequently published in book form in 1894. In defence to criticism from a reviewer in the *Accountant* that, as an engineer, his intrusion into accounting took him beyond his professional expertise, Matheson responded, ‘It was the entire absence, as far as I could find, of any treatise whatever on the subject which I, in common with other engineers, often sought information about, that prompted me to write mine.’, (Letter, the *Accountant*, January 3, 1885). It was an exchange which, for an accountant, places the traditional antagonisms between accountants and engineers in a new context: as an accountant, one is somewhat embarrassed.

See also the *Accountant*’s review of Matheson, 15th, 22nd, 29th, November, 13th, and 20th December 1884. The reviewer seems somewhat irritated that Matheson, an engineer, had, rather than providing useful engineering data about the estimation of rates of depreciation, intruded into the preserve of the professional accountant,

Throughout the whole of the work, with trifling exceptions, the author instead of dealing with his subject from an engineering and practical point of view, and confining himself to the giving of useful examples of a kind which might be expected to fall under the cognizance of an engineer, deals largely, if not indeed mainly, with questions which purely relate to finance and accountancy.’ (the *Accountant*, December 13, 1884).

Matheson’ elegant and dignified response to the grumpy reviewer is contained in his letter to the *Accountant*, 3rd January 1885.

Kitchen (1974) offers an evaluation of the significance of Matheson’s work on depreciation.

Matheson’s remarkable book probably exceeded in its grasp of the nature of the depreciation problem, and especially in the clarity of its presentation and its handling of the related technical, financial and accounting aspects, anything to appear on depreciation in the world of business and accountancy in Britain before the 1930s.

(Kitchen, 1974, p.118), a view concurred with here.

Kitchen notes Littleton’s observation that Matheson’s book, with Pixley’s *Auditors*, provided the foundation of the technical literature on accounting’, (Littleton, *Accounting Evolution*, cited in Kitchen, 1974 p.118). As reviewed for this study, Littleton might have usefully added to his list the works of Cooper and Best noted immediately above.

In addition to these quite well known works the professional literature of the late nineteenth century, in particular the *Accountant*, contain numerous articles concerning many aspects of depreciation.

The purpose here is not to review this literature, or follow the nineteenth century argument, but to examine the origin of nineteenth century approach to depreciation in so far as it aids understanding of the difficulties faced at the time in evolving a logical explanation of the concept of capital appropriate to the management of an economic system based on the use of large sums of financial capital invested in fixed plant. In this respect, Chapter 5 has noted Brief’s investigation of the nature of late nineteenth century capital accounting practices and noted the conceptually confused approach followed then. Chapter 7 has described argument by Bryer that capital asset accounting in the nineteenth century supports Marx’s analysis of the nature of capitalism at that time, in particular, the argument by Bryer (1993) that abandonment of depreciation accounting in the 1840 resulted from swindling behaviour in part of the financial establishment. The interpretation offered here builds on the idea that the immature, or incomplete, understanding of character of the new industrial system: that practice was limited by the comprehension of industrialisation, both of engineering and financial characteristics. Chapter 2 has outlined that this idea was explored initially as an explanation for the flawed accounting followed in the late nineteenth century in respect of capital asset, but that it was found wanting.

180 For example, Johnson, Electric Light Accounting, (1913), Marsh, 1923, Organisation and Administration of the Tramways Department, (1923), L.S. Dicksee, Garage Accounts, (1929).
The revolutionary essence of the late nineteenth century economy was the substantial investment in industrial assets made by joint stock companies, especially in railways, but extending to shipping, manufacturing plant generally and municipal reticulation systems; gas water sewage and, later, electricity. The most general of issues to be resolved by this development was how to adapted the bookkeeping model employed in mercantile capitalism (see Chapter 2) to the continuous life of a joint stock entity necessary to the organisation of the new, industrial, activity; and how to provide for financial capital lost in the consumption of physical assets. This issue raised many points: for example, should an allowance for depreciation be regarded as a return of capital, and not deducted from profit; an approach followed at the time in respect of ‘single ship’ companies. As indicated by various commentaries on extant accounts, the approach followed in the nineteenth century was, initially, to reduce income by an allowance for ‘depreciation’, but after the railway panic of 1845, a tendency emerged for a policy of writing off expenditure on repairs, renewals and replacements to income in the year in which expenditure was incurred, (Brief, 1965, 1966 and 1976, Bryer 1991).

Early use of depreciation accounting by eighteenth century commercial, or mercantile, account keepers is illustrated by Mason. In the introduction to his paper, he observes,

> It would be difficult to believe…that the fundamental facts of depreciation – the exhaustion of capital investment due to the physical exhaustion of the service capability and the necessity of recovering capital investment due to the physical before any profit on a venture could be claimed – have not always been understood by those individuals who regularly engage in business undertakings. If the records were available for inspection, one would expect to find evidence of some understanding of the phenomena of depreciation as far back in history as the origin of written records of business affairs.

(Mason, 1933, p.210)

Mason cites a range of examples dating from 1675 to demonstrate his contention. For instance from *The Gentleman and Lady’s Accompant* of 1744,

> In the journal: ‘Income and Expense Debtor: To House Furniture for Wear and Tare …10/10.0’. In the Ledger account: ‘March 25, 1742, By Wear and Tear…’ The balance of the House Furniture is referred to as ‘the present value.

(Mason, 1933, p.10)
A further example illustrates the philosophy applied to early industrial, rather than mercantile, assets,

In 1835 the ‘Lord Bentick after having been hauled up on the patent slip, and no marks of corrosion were visible. With this protection 20 years are confident assumed for the duration of an iron vessel. The annual depreciation, therefore, on the vessels as well as on the engines, therefore, on the vessels as well as on the engines, has been assumed at five per cent, and on the boilers at twenty percent.’
(Excerpt from a report of a committee formed to shew the prospects of a company established in London for the conducting of inland navigation of India by steam.
(Mason, 1933, p.211)

Here the modernity of expression and conception is striking. Generally, it is apparent that accountants were aware of the need to allow for depreciation as a matter of principle in the determination of income, and it seems necessary to look elsewhere for other explanations for the decline in the use of depreciation accounting noticeable in extant accounts after the 1850s. It is a matter that has caused contention in the secondary literature, as, for example, evidenced in the arguments of Brief and Bryer.

An early understanding of depreciation in its modern form, such as that indicated by Mason, is not surprising. It is, after all, one of the least complicated of economic ideas: that preservation of wealth is an essential of economic wellbeing. It is a simple idea, readily observable in the necessary, careful, husbanding of the fertility of land and provision of seed for the next season’s crop practiced apparent in even the simplest subsistence agricultural economy: that a practical ‘depreciation’ is dictated by survival. In the most elementary economy, a practical regard for the preservation of capital requires it be replaced when lost. The obviousness of this agricultural metaphor carries into modern economics. The Cambridge economist Joan Robinson, establishing the basis for her discussion of the dynamics of capital accumulation and the need to preserve capital in an industrial society, notes of the need to have finance available to renew plant when it reaches the end of its useful life; that an entrepreneur must replace worn capital out as production proceeds (Robinson, 1969, p.5). Robinson goes on to makes the point
that care of the industrial economic estate must be governed by what she terms ‘the morality of the peasant’. Of this she observes:

The morality of a peasant, who gathers his crops according to the rhythm of seasons … so as to preserve productive capacity for the future, not only for his life time, or his children’s lifetime, but for the future as such … to be viable over the long run an economy must be impregnated with the peasant’s morality. This is preeminently true of an industrial economy whose productive capacity consists of largely in a stock of long lived assets which must be maintained by repairs and renewals and which can function only in an environment in which the rules of the game in respect to property, trade and the financial system are accepted and maintained in working order.

(Robinson, 1969, pp.33-34)

Transferring this idea from an agricultural to an industrial setting, was made early in the industrial revolution. Ricardo, in the Third Edition of his Principles, (in which he famously changes his position on the effect of machinery on the employment of labour), notes the necessity of fixed capital as much as circulating capital required replacement, observing ‘The food and clothing in which he works, the implements with which his labour is assisted, are all of a perishable nature.’ (Ricardo, 1821, p.19). Another early observer of this aspect of machine capital was Charles Babbage, professor of Mathematics at the University of Cambridge, and a scientific commentator on the new industrial mode of production. Babbage saw, as an empirical matter, that both wear and tear and obsolescence occurred in the operation of industrial machinery:

The time during which a machine will continue effectively to perform its works, will depend mainly upon the perfection with which it was originally constructed, upon the care taken to keep it in proper repair, particularly to correct every shake or looseness in the axes, and upon the small mass and slow velocity of its moving

181 Interestingly Ricardo also makes the same link as Robinson between agriculture and manufacture,

The wheat bought by a farmer to sow is comparatively a fixed capital to the wheat purchased by a baker to make loaves. One leaves it in the ground and can obtain no return for a year; the other can get it ground into flour, sell it as bread to his customers, and have his capital free to renew the same or commence any other employment in a week.

(Ricardo, 1821, p.19)

Buy perhaps not so surprisingly; as a Cambridge scholar and confident Keynes, Robinson would certainly have been familiar with Ricardo’s work and thought on a matter so relevant to her own work on capital.
parts. Everything approaching to a blow, all sudden changes in direction, is injurious. Engines for producing power, such as windmills, watermills and steam engines, usually last a long time. But machinery for producing any commodity in great demand, seldom actually wears out; new improvements, by which the same operations can be executed either more quickly or better, generally superseding it long before that period arrives: indeed, to make such an improved machine profitable, it is usually reckoned that in five years it ought to have paid for itself, and to be superseded by a better.

(Babbage, 1832, p.231)

With respect to depreciation, little, it seems, is new. But what was new after about 1840 was the need to integrate the replacement of physical capital with the financial implications of the emerging industrial-financial order.

The change from depreciation to replacement accounting, observable in the extant accounts of railway companies from the 1840s, is frequently attributed in secondary sources to the struggle by railway companies to meet shareholders expectation of a 6 or 8 percent dividend in difficult financial times in an era when the distinction between equity and debt was blurred, and profit was frequently reckoned – if not popularly understood – as excess; determined after allowing for the required 6 percent, or whatever, on equity as well as debt. After the crisis of 1845, depreciation practices, as understood from extant accounts, become increasingly individualistic, confusing and difficult to generalise (Brief, 1966, 1976, Kitchen, 1976, Edwards, 1986).

In the secondary literature practice with respect to depreciation are sometimes explained as the product of manipulation of accounts; for example, Foster, in an undated lecture drawing on American experience, refers to manipulation of the depreciation account to derive the required income,

All to frequently the manufacturer regards depreciation from the point of view altogether wrong – that is to say, it is treated as something to juggle with in order to increase or decrease, as may be deemed desirable, the amount of profits for the year. There are very few who give very serious consideration to this most important feature.
But other factors might be seen to have been involved in the decline of depreciation accounting; in particular, the growing complexity of the system, both in its engineering and financial aspects. Complexities raised by the new economic order involved both sides of the balance sheet that came together in the debate about distributable profit that arrive in the courts after 1880 in the form of how lost the financial value of lost asset usefulness was to be accounted for; a debate mirrored in accounting, engineering and management opinion at that time about depreciation. Behind both debates was confusion about the nature of capital and its relation to profit or income.

Do what you can, where you are with what you’ve got.

An old adage

By the 1840s, the British industrial system had probably progressed to a point where comprehension of both the overall system and its more complex components, such as the railways, was beyond of any individual. It was all new, and almost certainly beyond the experience of anyone, including those in whose hands it all rested. It was probably not difficult to be wrong. The financial crisis in 1845, the fall of George Hudson and the subsequent crisis in the Eastern Counties Railway have been the subject of sinister interpretations (Bryer, 1991, McCartney and Arnold, 2000), but it is not clear that the basis for doing better was understood, or understandable, and, as argued here, the necessary conceptual tools were not available anyway.

The practical complexity of managing the evolving railway technology has been noted in Chapter 2. A contemporary account of those difficulties, and their economic implications, has been left in an interesting series of reports prepared by the contemporary railway manager, Capitan Huish, and published in the late twentieth

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182 On suspects this article derives from a somewhat later period, but American practice at this time was derived from, though lagging, the British.
century by Edwards, (Huish, 1848, 1849 and 1853, in Edwards, 1986). In these reports Huish can be seen to be wrestling with intricate technical and financial characteristics of railway operation at about the time that depreciation accounting is accepted in secondary sources to have been abandoned.\textsuperscript{183}

Huish was general Manager of the London and North Western Railway, (L&NW), and has been described by Gourvish (1970), as a ‘pioneer of railway management’. Huish’s reports are interesting because they indicate the difficulty faced by those in responsible positions trying to resolve complex issues, at the intersection of engineering and finance. For example, the reports, Huish reveals that the L&NW workshops, in addition to repairing rolling stock, was constructing stock and has the capacity to build one engine per week, (Huish, 1848, p.12, in Edwards, 1986). The repair establishments operated by the L&NW provided the ‘…means…to prevent it, if deterioration is permitted to arise…’ (Huish, 1848, p.12, in Edwards, 1986) That capacity provided the basis for his view that ‘…the periodic writing off of working capital has found favour with many who regard the continual outlay on new and additional repairs were not keeping pace with the wear and tear…’ (Huish, 1848, p.12, in Edwards, 1986) To Huish, it was the expenditure on facilities to repair and replace engines and other rolling stock that was significant (Huish, 1849, pp.11-12, in Edwards 1986).

When he wrote his reports in 1849 and 1850, Huish believed that considerable experience had been accumulated in the operation of railways, but, in fact, only 19 years had elapsed since the first public railway, the Liverpool to Manchester Railway, had commenced operations. Significant engineering advances were still yet to be made. In particular, he important revolution in steel smelting noted in Chapter 2 (Fn 49) was still 25 years off.

\textsuperscript{183} While he is introducing Capitan Huish as a pioneer of railway management, Gourvish introduces his argument with the observation that, ‘Initially, the railway companies did not show themselves to be masters of the management problems which confronted them’ (1970, p.46). Seemingly, they had been remise, a theme which runs implicitly through much of the literature on nineteenth century financial reporting. But how could Huish and all the other railway managers, and others with similar responsibilities, do otherwise? They were in unchartered territory.
Inadequate engineering and materials ensured that capital assets wore out frequently and unexpectedly and that the distinction between decay and obsolescence blurred. The practical appeal of replacement accounting in the context of the impermanence of plant and the absence of theoretical objections seem obvious; accounting followed the cash.

The position with respect to the permanent way, however, seems to have been somewhat different,

The wear and tear of rails was long considered so very slight that the question of renewing was altogether over looked…rails cannot be repaired; they are all used together and equally…they consequentially will all wear out about the same time. To prevent, therefore, the whole renewal falling in the one year, the annual estimate of “deterioration”…is put aside, till a fund is accumulated which shall do once that which with the plant has been daily and hourly going on for years. (Huish, 1849, p.41 in Edwards 1986, p.257)

The same difficulties, and philosophic impression, are visible in the ideas of the great engineer and railway pioneer Brunel, cited in Edwards (1986). Confronted with the same problems as Huish, Brunel noted the lack of ‘…sufficient experience to form a tolerably approximate estimate of the amount required…’ and doubted the practical usefulness of a depreciation reserve, ‘…but this is simply a question of account, and the sum so allotted, I submit, ought not to be called or looked upon as a “depreciation fund”; it does not form a “fund” in the ordinary sense of the term…’ (Brunel, quoted in Edwards, 1986, p.257)

He went on immediately to observe,

it is assumed that the amount so allotted will each year be about equal to and absorbed by the currant expenditure; and it has no connection with ‘depreciation’ of value, as it represents, on the contrary, the cost of those repairs which are requisite to prevent continued depreciation, and without which the plant would not merely depreciate but would actually be destroyed. (Brunel, Railway Times, 1851, quoted in Edwards, 1986, p.257)

Similar comments, with illustrations from another important contemporary, Lardner, are provided by Pollins (1956b, pp. 343-9).
The double-account system was adopted by Parliament as the basis for the regulation of financial reporting in the Regulation of Railways Act, of 1868, and subsequently adopted for use by other Parliamentary companies; over the second half of the nineteenth century the system was extended to other capital intensive enterprises, for example, canal, water and gas enterprises (King, 1888, Sandell, 1904, Kitchen, 1974). Regulating financial reporting of such enterprises by requiring the double-account method to be used was the response of government to the disorganised state of various aspects of railway operations and financial reporting in the middle of the nineteenth century. Employment of the double-account model in the Regulation of Railway Act clearly, is interpreted here, as reflecting the experience of the times. To invert an adage, ‘it was not a matter of the wrong men in the right place’; rather it was lack of experience, relevant science and engineering and appropriate concepts. Acquisition of these took time; and, of course it includes an appropriate, logical, distinction between capital and income discussed here.

The long run implications of renewal accounting versus a cost based system are well understood: profit will differ; where maintenance of plant is minimal and few items are replaced – such would be the case at the commencement of operations – renewal accounting will overstate cost based profit. Subsequently, the position will reverse. If assets are conceived as stocks of future usefulness – economic benefits – and expenses consumptions of those benefits, financial reports based on renewal accounting will misstate financial position and performance. If the renewal accounting system employed were to be based on the double-account model – permitting no alteration, amendment or adjustment to the balance sheet – scope for the misstatement increases. In their absence renewal accounting might be considered the best alternative available.

The requirement to provide financial returns in the double-account form did not preclude individual companies affected by the requirement making provision for depreciation as a matter of financial management, (Edwards, 1986). As a matter of practical bookkeeping,

184 In addition to works already cited see Norton, 1889, Moss, 1904 and 1905.
such an intention required the establishment of a reserve in the general balance sheet (Hamilton, 1911). Reviewing the significance of the double-account system in 1932, Walker observed that, effectively, the requirement ‘...has a defect in that it can be said to a certain extent to discourage the provision of depreciation which one expects to find in the accounts of a concern where such huge sums are invested...’ (Walker, 1932, p.82)

In the end, it was those engineers with practical experience in the operation, and responsibility for financial management of the result of industrial enterprises, such as Matheson (1884) and Garcke and Fells (1893) who, after observing the financial effect of operating of assets through one or two generation, best understood the financial implications of physical loss, and came to appreciate the need to record the loss as it occurs, rather than as assets were replaced, and to correct the financial fiction of a frozen balance sheet. Research for this study has indicated a general awareness in the professional literature from the 1880s of the necessity of providing for depreciation of industrial plant. Appreciation of the need for financial provision of wasting physical plant seems to be a general matter in the contemporary literature after the 1890s; for example, in addition to the work of Matheson and Garcke and Fells, the discussions of King, 1888, Norton, 1889, the Accountant, 1889, Jackson, 1889, Ladelle, 1890, Turner, 1894, Vigeon, 1897, Dawe, 1898 and Moss, 1905 convey such a view.

These papers argue the case for the cost based model of depreciation that became the norm in the twentieth century; a system in which depreciation is an allocation of cost rather than loss of asset value. Review of evidence considered for this study suggests earlier approaches to the loss of assets are to be understood in the context of novelty and inexperience in the operation industrial plant; in particular, the nature of fixed, rather than circulating capital. As argued above, what was missing included the precepts necessary to understand and control the new system. Fixed capital, as Littleton noted, imposed the need for entities possessed of continuous existence, from which a need to determine profit periodically flowed. The cases about distributable profit in the courts after 1880 noted in this chapter were about that need. Those cases indicate that the available rules described by Cooper – evolved in mercantile commerce – were not sufficient to the new
situation, in particular to the context of falling prices and ‘fluctuations in value’ that was at the centre of *Neuchatel* and *Commercial*.

### 10.11 Depreciation and ‘Fluctuations’ in Value

**DISTINCTION BETWEEN DEPRECIATION AND FLUCTUATION**

**Depreciation** is the diminution in value of an asset due to:

1. Wear and tear, or exhaustion of subject matter.
2. Natural causes, occasioned by effluxion of time.
3. Obsolescence, owing to the progress of Mankind.

**Fluctuation** is an accidental variation due to outside causes, and may either increase or reduce value (M. Webster Jenkinson, 1912, Chapter 12)

Between 1873 and 1896, Britain experienced a long run decline in prices that was entwined with a ‘crisis’ in British capitalism. This has been noted in Chapter 1.

The technical questions posed to accountants by a general change in price levels is how to adjust financial values to reflect the change in the value of money rather than the loss of physical utility in physical assets. As noted in Chapter 1, in the late nineteenth century the problem – which reached the proportion of a crisis – was a fall in prices. The study has already noted that the conceptual tools necessary to manage this situation were not then available: for example, the study of index numbers as a serious academic matter was just commencing – with Irving Fisher, of all people, taking a prominent role – and, of course, the capacity to distinguish profit from capital was not available.

Appropriate accounting for the loss of financial, as distinct from the loss of physical utility, is still, at the start of the twenty first century, a contentious matter in financial reporting. In Chapter 3 it was noted that the Australian *Frameworks* for general purpose financial report, following the IASB *Framework*, now contains, as one of its definitions, reference to ‘Capital Maintenance Adjustments’, which refers to the representation of
price level adjustments in financial statements, (see Table 3.3); though the reference indicates no particular reporting approach to be followed.

Though the British economy had experienced periods of falling prices earlier in the nineteenth century – for example following the Napoleonic Wars – it was as a consequence of the Great Depression that falling prices came, as a technical issue in accounting. By the 1880s the phenomena of changing price levels, if not new, had become an issue of consequence in the operation of a financially organised industrial economy. The importance had various manifestations at the time. In addition to the crisis in Britain and the legal-accounting controversy noted above, bimetallism dominated political debate in the United States, money became a subject to be studied in its own right in economics and schemes of index numbers developed: money, and movements in prices became a topic of intellectual inquiry of the first moment. While the classical economics of Smith, Ricardo, Mill and Marx had been conducted in real terms, money by the close of the nineteenth century was increasing understood to be consequential by its self. Money became a matter of separate inquiry by Marshall, Fisher and later Keynes; to mention only the actors referred to here.

But, in accounting, the end of the nineteenth century it is evident from primary sources that changes in prices, or ‘price fluctuations’, were not appreciated as a separate phenomena having systemic effect. While the ‘depressed’ state of the British trade at that time was a matter of national concern, and a matter of intense discussion and enquiry at the highest levels of British policy-making, in contemporary technical accounting discussion observed in the chartered accounting literature noted for this study, no distinction between price fluctuations and other causes of lost value or changes in ‘market values’ were discussed (Best 1885, 1903, Cooper, 1888, Dicksee, 1892, Webster Jenkinson, 1910/1912). Only passing reference to accounting for general price level changes at that time was noted in secondary sources was observed (Brief, 1976, Kitchen, 1974). No particular attention to the possibility of accounting information, unadjusted for changes in price levels, to systemically disrupt economic organisation was identified. The conclusion here is that in the late nineteenth century accounting is that consequences
of ‘price fluctuations’ were included with other causes of lost value. The effects were usually included in technical discussion concerning depreciation of assets. The observations by Webster Jenkinson noted at the beginning of this section represents first instance of ‘price fluctuations’ being identified as a phenomena warranting attention in its own right.

Before Jenkins, references to price fluctuations in primary sources tend to be anecdotal illustrations that, perversely to the underlying trend, were sometimes concerned with rising, rather than falling, prices, (for example, see Cooper 1888 immediately below and comments by Best, 1903, reproduced in Appendix 6). Of the generality of falling prices there seems to have been a particular lack of appreciation at that time. An observation supported by a comment by Dicksee concerning accounting for falling asset values. The comment was made in the context of the double-account system followed by Parliamentary companies,

Certain Parliamentary Companies, constituted for the purpose of undertaking certain definite public works are, on account of the peculiar circumstances under which they were called into existence, required to render their account in a manner radically different from that of all other undertakings: the system they are required to adopt is called the DOUBLE-ACCOUNT SYSTEM. It being required that all capital raised by these companies shall be expended in the construction of public works … care was taken by the Legislature to see that this provision is duly complied with: hence a special form of account, in which all monies expended in the construction of the work is separated from the General Balance Sheet. Now, in order that this account (the Capital Expenditure Account) might perpetually show that – and how- the capital authorised to raise had actually been spent only upon the authorised purposes … it was necessary that the actual amount expended on the works alone be debited to the account, regardless of any fluctuations in value that might occur

(Dicksee, quoted in Kitchen, (1974), p113, caps in original, italics added)

Such a rule did not apply to Companies Act companies, though this did not mean that book values of such companies necessarily reflected contemporary market values. Revaluation of assets seems to have been an eclectic matter; and they might be under or over valued relative to market value. The general situation was indicated by Cooper in the following observations concerning property assets being undervalued,
The premises of many banks are believed to be undervalued, owing to periodical amounts having been in prosperous years written off premises, when it has been known the premises have been in fact not diminished in value. Similarly many Companies include investments in their Balance Sheet at sums very largely below their real market value ... Companies owning factories built upon sites which have largely increased in value, refrain from revaluing their property, and so allow the factory to remain in the Balance Sheet at only a portion of the real value. (Cooper, 1888, p.744)

A similarly situation is noted of plant and equipment, in respect of which he observes the practice of annual revaluation of such assets to be ‘unusual’, although in his opinion there is no distinction ‘...as regards Capital Account between this and any other class of assets...’ (Cooper 1888, p.744) Nonetheless, he was unsettled by the various complexities of underlying changes in value of industrial assets. ‘Is’, he asks,

a tramway or a Factory Company required to do more than maintain and keep its tramway or factory up to date. That is to say is it to consider for what the factory could be relaced, if destroyed, and then to value no higher than cost of replacement.’, and ‘Again, when a shipping is depressed and ships equal in every respect can be bought at 30 per cent less than the Company’s fleet stands in the books, must the Company write off the 30 percent to profit and loss.’ (Cooper, 1888, p.745)

Answering his own uncertainty, he observes if,

a fall in value that is fairly believed to be temporary need not ... be taken into account in reference to an asset if permanent and non marketable nature, and it would doubtless be contrary to commercial usage in regard to partnerships to do so (Cooper, 1888, p.745)

But if Cooper’s observations showed no particular concern with the problem of price level changes, he discussed the general situation as if prices were constant, which they were not. For example,

if the depreciation is on a fair effort of the asset, and surrounding circumstances considered of a permanent nature, I see no means by which the directors of a tramway or Shipping Company can justify showing profits, or sanctioning the payment of dividends until the loss of value is provided for.
Cooper goes on to asserts that the principle to be followed was indicated Robinson v. Ashton in which Jessel had held, ‘…the rise and fall in value of fixed plant or real estate belonging to a partnership was as much profit or loss of the partnership as anything else …’, (Cooper, 1888, p.744); a conclusion based on the ancient law of partnership noted above, in which profit (or loss) was understood to an increment (or loss) to capital, almost in the modern manner, but neglecting that the change has resulted from an alteration in the value of money, rather than in physical operating capacity. Given the theoretical tools available, it is impossible to think more might have been achieved.

Best, almost 20 years on, reviewing decisions of the courts for accountants and employing an accounting model of profit similar to that followed by Cooper, noted that decisions that capital losses may be disregarded were, ‘…based…on the recognition of the double-account system, under which Capital Account and Revenue Account are kept distinct…’, and offered the opinion that,

Under the single-account system the assets must be fairly and honestly valued; and unless definite rules were laid down that accretions in value of permanent assets should not be treated as profit until realised, or as good as realized., (Best, 1903, pp.17-8, see Appendix 6)

Evolution in the conceptual situation is evident by 1910 in the work of Webster Jenkinson, (1910/12) in which the separation monetary from other phenomena is recognised. As indicated in the quotation at the start of this section, Jenkinson distinguishes, in a modern manner, between ‘depreciation’, or loss of utility from various circumstances, and loss from ‘fluctuations’ of prices. Developing this theme, Jenkins made the following observation,

１８５Webster Jenkinson’s authority is indicated on the title page, where the reader is apprised of his credentials. These were,

First Prizeman, Final Examination, Institute of Chartered Accountants; Author of ‘Elements of Book-keeping, Book-keeping For Retail Grocers, Promotion and Accounts Of A Private Limited Company’, Etc. Etc.

(Webster Jenkinson, 1912, Title Page).

A hundred years on, Webster Jenkinson seems qualified to represent the doctrine of his generation.
Depreciation is a charge against trading profit. Fluctuation is entirely apart from trading, and is a loss (if any) of Capital, and not of Revenue. Depreciation may properly be regarded as an element in the cost of manufacture: it represents the deterioration by wear and tear or decay of the buildings, plant and machinery, loose tools, horses, and other fixed assets employed in the concern, or any reductions in their value arising from their use. As a result of their employment the assets are gradually consumed, the losses being as much an item in the cost of production as the materials used or the labour.

(Webster Jenkinson, 1910/1912, Chapter V, italics added)

Here Jenkinson was distinguishing between differing forms of decay, and prescribing the appropriate form of accounting. Depreciation represented loss of asset usefulness, and the cost was to be deducted from trading income, but ‘price fluctuations’ do not arise as the consequence of trading and their cost was a capital cost; to be represented separately from trading results. In this approach, a trading account records the effect of trading

186 Webster Jenkinson follows this passage with a discussion of ‘Method of Depreciation’ in which he recommends different rates for different types of assets in a manner common for this type of book at this time, for example, ‘Furniture and Fittings’. These depreciate at the rate of 5 to 7% on diminishing value…’. In this section Webster Jenkinson includes a ‘Revaluation System’, in which the following advice is offered,

The assets are revalued from year to year, and any diminution in value, after allowing for additions treated as realized depreciation for the year. Apart from the cost and labour involved, the theoretical objection to this method is the fact that, with the exception of fixed assets of an even market value or small individual value, the charge to Revenue will be uneven owing to the fluctuation in the market price of such assets, and as fluctuation should be treated as quite distinct from depreciation, the method is not satisfactory. In practice, however, a periodic re-valuation is most desirable

At the end of the Chapter Jenkinson includes a short paragraph on ‘Appreciation’ as follows.

Appreciation

Appreciation is the value of assets must not be credited to Profit and Loss Account until realized, and should it be desired to show the assets which has appreciated at higher value in the books, the difference should be credited to a reserve fund.’.

(Webster Jenkinson, 1910/1912, Chapter V, emphasis added).
activity rather than changes in capital, and follows the form of the profit and loss account subsequently employed in twentieth century; a statement of the effect of trading activity; unarticulated with the balance sheet. It is quite distinct from the modern conceptual framework idea, noted in Chapter 2, in which profit and loss indicates all changes in capital; a requirement construed here to logically require changes in the value of financial items as much as changes in the utility of physical assets.

The quotation indicates that accounting doctrine had absorbed the idea of cost based depreciation, and that effect of price level changes had been distinguished for other causes of lost value. But the idea of capital and its relation to income is still that of classical economic: of capital and income as separate states of wealth: the ideas of Fisher about capital are not yet apparent; an absence that raises a philosophical point.

It is 1910, and perhaps 30 years since the professional arguments about depreciation in the 1880s, more than 20 years since Neuchatel, 18 years since the end to the general fall in prices of the Great Depression and 14 years since Fisher’s paper. A generation, perhaps two, has passed, and depreciation has become a matter of accepted accounting doctrine, and the distinction between depreciation as a loss of asset utility and the effect on financial representation of capital of price changes has been established, but a change in accountants understanding of the relationship between capital and income is not apparent. A generation had passed: a period long enough under the pressure of circumstances such as those that pertained at the end of the nineteenth- to cause a search for new ideas, and perhaps change. A lesson is evident. Creation of a new precept, however, relevant to contemporary problems does not secure immediate acceptance. A process of discovery, dissemination debate and agreement must be first worked through. It has occurred in Jenkinson in respect of depreciation and price fluctuations, but not in

\footnote{Indeed as a schedule is how the trading account was probably understood implicitly at the time. A balance sheet indicating a ‘man’s wealth’ was the main source of financial information, and in the late nineteenth century there was a considerable discussion in the accounting literature about the role of a ‘Profit and Loss Statement’.}
the conception of capital. The features of this process idea absorption into accounting doctrine are not apparent. This theme is returned to in Section 11.9.

10.12 Conclusion Cooper’s Approach to Capital and Revenue as Separate Accounts, or?

The purpose of this chapter has been to understand the confused approach to accounting for capital assets in the late nineteenth century by exploring the definition of ‘profit’ followed by chartered accountants at that time. As reflected in secondary sources, the approach lacked theoretical structure and was chaotic, making extant accounts hard to understand in a philosophical sense. The analysis followed here is based on the idea, derived from classical economic theory, that capital and income were separate states of wealth.

The analysis contained in this chapter indicates that the factors influencing accounting for capital were varied and complex, but can be understood within the framework employed here; that is, the practices were not ad hoc or confused. The principles followed by practicing chartered accountants at the time are understood here from the writings of chartered accountants engaged in practice, and the opinions and authority of Best, Ernest Cooper and Webster Jenkinson have been examined. As reviewed for this study, this material has not formed part of the modern discussion of financial reporting in respect of capital assets in secondary sources.

At the start of the age of industrial-finance capitalism, the basis for determining profit from commercial activity by chartered accountants was an inheritance contained in the ancient law of partnership, and had been defined by the courts. It held that profit was a gain in wealth. Such a principle was one of common sense, in that it reflects the purpose of undertaking commercial activity in capitalist society; it was received doctrine, established in the common law over a long period of time, principally from resolving disputes about profit of commercial ventures. The rule was based on common sense, and reflected the logical purpose of commercial activity. In the more complex commercial circumstances of the late nineteenth century commercial circumstances its application
became more complex because the character of commercial activity had changed. No longer was profit made by the resale of assets at a gain, but by the progressive consumption of assets, which necessitated identification of the financial cost of the loss of capital in production. In the late nineteenth century identification of profit by chartered accountants was complicated by the mysteries of industrial assets, the underlying economic circumstance of falling prices and a dominant legal interpretation of profit at odds with accounting tradition.

Confronted with the complexities of industrialisation, accountants continued to follow the requirements of the law in the determination of profit as a matter of commercial activity in the new society, and it was the purpose of writers such as Best and Dale to interpret the accounting implications of legal decisions for chartered accountants. The decisions of the courts about profit were based on constructs derived from legislative requirements of an inconsistent nature: the inconsistency reflecting differing public policy objectives of Parliament in the middle of the nineteenth century. In this study, it is the approach followed in respect to Parliamentary Companies that is of interest. In respect to such companies the concern of Parliament was with the provision of public works and the continued provision of the service they provided once established, and not particularly with the pursuit of profit. The requirement of financial reporting was that the protection of capital must be demonstrated and spending explained. Renewal accounting followed in the form of the double account system.

A generation or so on, under conditions of falling prices, profits of Companies Act companies were squeezed by falling prices, and the principles applied to Parliamentary companies separating capital from income implicitly permitting overlooking lost capital seemed attractive, even thought they involve payment of dividends from capital, in violation of the law of partnership that profit was a surplus. As interpreted here, the decisions were a matter of expedient convenience that avoided the unsettling consequences of upsetting the dividends of the new and increasingly political significant a rentier class. To do otherwise and requiring lost capital to be made up would have reduced the dividends, incomes.
The structuring of arrangements for Parliamentary Companies by Parliament, the consequential accounting for capital assets, and subsequent legal decisions about profit and resulting accounting controversy has been represented in the secondary literature as unstructured and confused; an ad hoc matter, sometimes the subject of sinister interpretation. In the review here, a different conclusion is reached. The idea that capital and income are separate states, derived from the understanding of wealth taught by Smith and Ricardo, and accepted by Mill provides a theme that links the financial reporting by Parliamentary type companies and the decisions by the English courts about profit and dividends, of which Neuchatel is the exemplar case.

The exception identified here was Cooper who argues the tradition approach of chartered accountants to profit from the law of partnership. While acknowledging the responsibility of chartered accountants to follow the company law, he is none the less stirred to note the error of principle that follows from the logic of the matter: profit logically conceived in the world of an accountant is an increment to capital; he understands that capital and income are connected by ‘effect’. In his 1888 article he observes,

My contention being that a company has only Capital and Profits, I consider, of course, that both these expressions are of the same effect.
(Cooper, 1894, p.1039)

But, while Cooper articulates the common sense view that profit is a gain in capital, connection by ‘effect’, his is not the twentieth century understanding of capital as a stock, and income as the flow of wealth, and that in the limiting case income can be converted to a stock and wealth to a flow. Nor does he contemplate that all stocks are wealth and all services income and that the idea that capital is divided into productive and non productive elements is specious. Such distinctions required a conceptual leap employing analytical tools rather than practical experience and common sense, and had yet to be made. It was made two years after Cooper’s 1894 paper, an ocean and a milieu away, by
an American academic not overly concerned with the practical problems of profit determined by British courts. That person was Irving Fisher.

10.13 Summary

This chapter is concerned with capital and profit as the terms were understood in nineteenth century accounting. It has identified, in articles by Ernest Cooper, the view of accounting profit held by chartered accountants in the late nineteenth century.

It notes that, as understood by them, accounting profit derived from the ‘ancient law’ of partnership as evolved in the common law. In that law, profit was an increment to capital. The principle evolved as a matter of logic from the resolution of commercial disputes: it reflected the objective of increasing wealth from commercial activity.

By the late nineteenth century, determination of accounting profit according to this rule was modified by reform of the company law in the middle decades of the nineteenth century, which was based on differing public policy objectives. On the one hand, Companies Act companies were commercial companies, in effect extended partnerships, formed to increase participant’s wealth subject to the traditional rules that defined profit as a surplus after maintaining capital. On the other hand, Parliamentary Companies were deemed by Parliament to be concerned with public purposes, and were not free to amend their capital structure. In effect, these legislative requirements imposed two inconsistent definitions of profit.

The chapter establishes that the legal disputation in the late nineteenth century concerned the imposition of the approach to the determination of profit required in respect of Parliamentary Companies on Companies Act companies, and the chapter has identified articles by the leading contemporary chartered accountants, Cooper and Best, outlining the confusion in legal opinion about the nature of profit. In these articles, especially those by Cooper, indicate the rise of an accounting, rather than a legal, doctrine of profit. That understanding was based on the conception of profit as a surplus, as derived in the law of partnership.
The chapter notes that while Cooper argues an accounting doctrine of profit, derived in this manner, his conception is not the modern, twentieth century one, of wealth composed of capital and income in antithetical relationship. Rather, Cooper’s idea is of capital is still separate from income, composed of two types: income and non-income producing and is consistent with the concept of capital and its relationship to income found in nineteenth century economic philosophy before Irving Fisher.

The chapter has also examined depreciation and ‘price fluctuations’ and the determination of accounting profit in the late nineteenth century, drawing attention to the lack of relevant principles concerning these matters at the time.
Chapter 11

Irving Fisher’s Contribution to the Theory of Capital and Income

Of economic conceptions few are more fundamental
and none more obscure than capital.

Irving Fisher, 1896, p.509

11.1 Introduction

The purpose of this chapter is to introduce the work of the nineteenth century American economist Irving Fisher concerning the nature of capital and its relation to income. As noted in Chapter 1, Fisher’s contribution was to describe that relationship in its modern form as one of antithetical states of wealth. With the exception of a footnote by Kitchen, (1974) and a paper by Mouck, (1995) noting Fisher’s role in introducing economic ideas into accounting and comments made by Schumpeter, Fisher’s work on this topic has gone unnoticed in the twentieth century literature. While Mouck’s paper introduces Fisher economic interpretation of ‘income’ into the accounting literature Fisher’s early work is not identified and his radical interpretation of income and capital is not noted. Identification of Fisher’s contribution to the amendment of the definition of capital is a
principal contribution of this study to the history of nineteenth century financial reporting.

Fisher’s work on the topic of capital is contained in four papers, (1896, 1897a and 1897b and 1904) and one monograph, (1906). In these works Fisher demonstrates a commanding knowledge of the Anglo-American and continental economic and commercial literature on ‘capital, as well as possession of the academic training and originality necessary to resolve the relationship between capital and income in a logical manner that had confounded economic reasoning since Petty and Smith. Somewhat strangely, in these papers Fisher does not refer to the legal controversy then raging in the English courts on the nature of profit, and the issue appears as a derived one that comes to the economic literature as an abstract problem, to be resolved as a matter of logic in its own right. But in the 1906 monograph Fisher applies his solution to the central issue of the contemporary practical problem, the derivation of accounting profit.

It is argued here that, after Fisher, all that was left for the future in the matter of the definition of capital and its relationship to income was to disseminate and use of the idea, and perhaps acknowledgement of Fisher’s contribution. It is a curiosity that, while Fisher’s solution to the nature of capital and income came to be common place in twentieth century accounting and economics, his role in resolving the issue is an obscure feature of both literatures.

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188 The content of the four papers and one monograph can be summarised as follows; the 1896 paper identifies the relationship between capital and income as one of antithetical states, the 1897a paper is concerned with exploring the different senses in which capital has been understood previously in the context of Fisher’s insight that capital and income are linked as antithetical expressions of wealth. In some respects it is a defensive paper. The 1897b paper explores the idea that all capital produces services which are, Fisher argues, income and that under the correct assumptions equates to interest, ‘When the flows are all rendered perpetual and uniform the value-ratio of the income to its capital is identical to its interest,’ (Fisher, 1897b, p.530). In the 1904 paper Fisher examines his definition with earlier usage in economics and business. In the 1906 monograph he seeks to develop an accounting framework based on the idea that capital and income are different expressions of wealth.
Fisher is dismissive of the coherence of the various definitions of capital he had found in the economic literature:

As to economic usage, it must be evident to any one who has compared the various authors that, since Adam Smith, there has been no established usage whatever. On the contrary, the most of what has been written on this vexed subject has consistent in the making existing confusion worse confounded (Fisher, 1904, p.389)

Seeking a ‘common element’ in earlier attempts to define capital, Fisher observes it is the ‘dividing line between wealth which is capital which is not (that) is totally different in each definition’, (Fisher, 1904, p.390). Existing definitions of capital, Fisher finds, are full of inconsistencies; as he notes, ‘If there exists anywhere evidence of established usage among economist, I have not been able to find it’, (Fisher, 1904, p.391).

11.2 Fisher’s Definition of ‘Capital’

Fisher’s approach to the distinction between capital and income became the accepted definition in the twentieth century. His contribution was to identify capital as a stock of wealth and income as a flow of wealth. All stocks of wealth are capital and all flows of wealth are income irrespective of whether a monetary value can be attached: capital and income are antithetical states of wealth, distinguished by time, ‘…present wealth and prospective services are correlative and inseparable…’ (Fisher, 1897b, p.525) 189 Having distinguishing between ‘stocks’ and ‘flows’ in this way, Fisher removed the ambiguity of earlier approaches; providing a practical means of understanding the twin aspects of wealth that had eluded nineteenth century economic theory and accounting. His

\[189\] It is a somewhat metaphysical debate as to whether Fisher ‘corrected’ ignorance or contributed an original theory of capital and income relevant to the needs of his time. Whatever, things were decidedly different after Fisher. Considering the nature of originality in the derivation of economic ideas, Stigler observes, ‘Scientific originality in its important role should be measured against the knowledge of a man’s contemporaries. If he opens their eyes to new ideas or to new perspectives on old ideas he is an original economist in the scientifically important sense’, (George J. Stigler, ‘The Nature and Role of Originality in Science, in Essays in the History of Economics, 1964, p.4.). Fisher’s insights into the nature of capital and income seem to more than pass this test.
distinction between capital and income, unlike all definitions before him, admits no exception, so ‘To buy roast beef is to use it until it is “used up”’, all services represent ‘income’ however trite the example and income includes the service to ‘a lazy man’s receiving income by sitting in an easy chair or lying on a bed.’, (Fisher, 1897b, pp.526-7).

11.3 Irving Fisher; Life and Sources as Themes

Fisher’s contribution to the theory of capital and income seems to have derived from the process of his intellectual development. Some account of these is therefore instructive in understanding that derivation.

In a brief pen portrait of Fisher, Schumpeter observes; ‘Irving Fisher was a Yale man from first to last – one of the two stars of the first magnitude that glorify Yale’s scientific record (Schumpeter, 1954, p.871). Equally laudatory is Galbraith, who observes, ‘There is no question that with Thorstein Veblen, who preceded him by a few years as a student at Yale, Irving Fisher was one of the two most interesting and original of American economists’ (Galbraith, 1991, p.152).

Fisher (like Marshall and Keynes) was a mathematician by training, and his primary contribution to economics was in what would now be described as econometrics and he is widely credited with origination serious academic work on index numbers. Fisher’s

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190 The other identified by Schumpeter being the physicist William Gibbs (Schumpeter, 1954/1994, p.871).
191 Schumpeter’s admiration is but an acknowledgement of a contribution of merit in economic science. Galbraith, ever watchful for personal failings, hubris, dubious entrepreneurship or advocacy of a malignant economic principle working against the public good, is more circumspect with his praise. So, while acknowledging Fisher’s contribution to economic science, he notes, somewhat slyly, Fisher’s advocacy of eugenics and prohibition, the sale of an index card system to Remington Rand and a heavy personal loss in stock market speculation. In being suspicious of Fisher’s character, Galbraith is not alone, (see Fn 196 below).
192 Fisher’s doctoral dissertation is entitled Mathematical Investigations in the Theory of Value and Prices (1892), Blaug describes the dissertation as ‘remarkable’ (Blaug, 1962, p.330) Schumpeter observes that it, ‘…is a masterly presentation of the Walrasian groundwork’, (Schumpeter, 1954/1994, p.875). Fisher seems to have been a man who was inclined to explore the analytical properties of his mathematics rather
early work reflected a strong interest in questions of money. Somewhat surprisingly, given the comparative lateness of his arrival to the discipline, he developed the use of index numbers in economic theory. His contribution to economics includes, in addition to his resolution of the nature of capital and income, development of a method of measuring the marginal utility of income, indifference curve analysis, the theory of interest and analysis (Schumpeter, 1954/1994, p.872) and monetary theory, of which Galbraith notes the ‘deathless’ character of his famous quantity theory of money identity.

Fisher was appointed to the chair of economics at Yale in 1898 at the age of 31 (Galbraith, 1991, p.151-2). Schumpeter was so impressed with the calibre of Fisher’s economics as to note,

then confine himself to the strictures of the conventional wisdom in the discipline of economics as it was then practised. In this respect, his approach was similar to that of Marshall.

In today’s terms, Fisher is probably correctly classified as a ‘monetary economist’. He reflects a monetary tradition in American economics, for example Newcomb’s popular Principles of Political Economy was primarily concerned with money (Fisher, 1896, p.526). The interest of American economists of the later third of the nineteenth century in monetary matters doubtlessly reflected the fact that these were foremost issue in political debate in the United States at that time. While Britain, then the world’s leading financial power, and at the height of its economic power, ‘the great depression of prices and trade’ notwithstanding, was securely and unmovably attached to the gold standard, the conventional wisdom of gold was less certain in the United States after the discovery of abundant supplies of silver in the western states. Political debate was wracked by calls for ‘bimetallism’, or the right to mint silver. The real economic and political issue in that debate was the weight of silver to be minted to the dollar. In an era in which a fiduciary issue of currency was regarded as a revolution matter, the rate at which silver would be minted was a de facto debate between cheap money, favoured by the developing west, and a hard dollar, favoured by the eastern establishment, who had already ‘made it’. As a political movement in the United States, bimetallism is associated with the name of William Jennings Bryan.

VM.TP, see Blaug, (1962, pp.616-7). Blaug provides a summary of Fisher’s place in the development of economic theory, see Blaug, 1962.

Perhaps less of an accomplishment then than it would be now since the life expectancy for a man at the turn of the twentieth century was about 60 years.
This...(Fisher’s academic work)...substantiates the statement that some future historian may well consider Fisher as the greatest of America’s scientific economists up to our own day. (Schumpeter, 1954/1994, p.872)

Although he made important contributions to economics, what Fisher seems to have lacked was recognition, and later acceptance, by his peers. A reformer of the somewhat moralisingly pure type (prohibition, eugenics and an austere form of monetarism), he was regarded, according to Schumpeter, as something of a crank by his contemporaries (Schumpeter, 1954/1994, pp.872-3). His image was not helped by the difficult nature of his work, which was heavily mathematical, and which did not lend itself to ‘popularisation’. It is perhaps because Fisher received so little recognition from his contemporaries, that his contribution to the resolution of the capital problem has received so little attention, in either economics or accounting. Crank or not, Fisher emerges as a man capable of applying his mathematics to abstract conceptual issues, and one not constrained by the contemporary wisdom. That he clearly saw that the problem in late nineteenth century economics was as much one of method as understanding says much for the scope of his intellectual ability and independence.

Fisher’s contribution to the capital-income problem seems to lie in two aspects of his background, firstly his mathematical training and, secondly, his original teaching appointment at Yale. Somewhat bizarrely, this was as an instructor in astronomy. In that domain, Fisher came into contact with Simon Newcomb, a professor of astronomy who dabbled, with considerable popular and some professional success, in economics, preferring to write for the popular market.

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196 Zeff notes a student of Canning’s summary of contemporary opinion about Fisher, ‘…Irving Fisher, who was being pooh-poohed by most economists as a nut with mathematical abilities’, (Zeff, 2000, p.22).

197 His published works included the following, Mathematical Investigations in the Theory of Value and Prices (1892), Mathematical Investigations in the Theory of Value and Prices, (1896), The Purchasing Power of Money, (1922), and The Theory of Interest, (1930) in addition to The Nature of Capital and Income (1906). As noted, Fisher was a pioneer in the development of econometrics in the American profession, when, at the start of his career at least, the dominant school of economics was Institutional. As indicated here, his methodological tastes were analytical, while those of the Institutional School were descriptive, historical and sociological.
rather than the academic literature.\footnote{This having been said, Newcomb (1835-1909) gains several references in Schumpeter’s compendium; (1954/1994, pp.865-6, 1108 and 1115). Schumpeter includes Newcomb, with Charles F. Dunbar, Arthur T. Hadley, William G. Summer\textsuperscript{*} and Francis A. Walker, amongst those ‘general economists’ who prepared the ground of American economics between 1870 and 1914. Of Newcomb, Schumpeter observes Simon Newcomb was an eminent astronomer who also taught, and wrote on, economics but not enough to acquire the influence he deserved. He is chiefly remembered as a sound-money man and a laissez-faire ultra, but his name stands out here because of his \textit{Principles of Political Economy} (1885), the outstanding performance of American general economics in the pre-Clark.-Fisher-Taussig epoch (Schumpeter, 1954/1994, p.866) Schumpeter explains Newcomb’s enlistment from astronomy on the grounds that the availability of fully competent personnel lagged behind the opportunities available. Many of the men who entered the new profession were practically untrained; and they approached their professional activities with their minds full of preconceived ideas that they were not prepared to put through any analytical mill—even the spirit of the old social-science movement kept on reasserting itself and much to do with the success of institutionalism (Schumpeter, 1954/1994, p.864) While the issue in this study is with accounting in Britain that issue is exactly the same as this one, that is, the lack of an analytical basis to the resolution of issues and/or the capacity to do so. Fisher dedicates his work, ‘\textit{The Nature of Capital and Income’}, (1906), in which he applies his distinction between capital and income to accounting, to Sumner, ‘To William Graham Sumner who first inspired me with a love for economic science.’ Schumpeter records, with amazement, that it was Sumner, the historian and sociologist who drew Fisher’s attention to the possibilities of mathematical theory in Economics, (Schumpeter, 1954/1994, p.867).} After arriving at his solution to the problem of capital, Fisher acknowledges the contribution of Newcomb who had employed the concept of stocks and flows in the analysis of the circulation of money in his popular \textit{Principles of Political Economy} (1886) though Fisher notes that Newcomb did not explore application of the idea of stocks and flows in economics generally, or specifically apply it to the problem of capital, (Fisher, 1896, p.526).\footnote{\textit{Principles of Political Economy}, New York, 1886. Fisher quotes Newcomb, No matter how vast the fund, it would in time be all absorbed in the payment of wages; then, were the fund never replenished no more wages could be paid, and society would come to an end. The fund therefore must be continually be replenished. Now this being so, the payment of the wages
The clarity brought by Fisher’s training in mathematics to the problem of defining the nature of capital shines through his 1896 paper. Methodologically, the mathematical distinction between a stock and a flow permits Fisher to analysis the various aspects of wealth as a stock and as a flow, the distinctions thereby drawn are clear, and no room exists in his exposition for ambiguity. The distinction between a stock and a flow requires each item to be tested for one or other of these mutually exclusive qualities. By comparison, as Fisher shows, prior approaches to distinguishing between capital and income were, methodologically, merely descriptive: there would always be a new case to defy classification. None had managed to resolve various ambiguities, in particular, how to distinguish between ‘capital’ and ‘non-capital’. Reviewing these earlier attempts, the results seem laboured and muddled, which, of course, they were. As Fisher asserted, his approach illustrated the power of analysis over description. (A list of nineteenth century definitions of capital provided by Fisher is included in Appendix 3)

### 11.4 Fisher’s Solution to the Nature of Capital and Income

As mentioned above, identification of the nature of capital and income in the modern manner is reached in the economics literature by Fisher in his paper, *What is Capital* (1896). Introducing this paper, Fisher sets the standard of the required definition by noting that a satisfactory definition must produce outcomes in its use from which no mistaken conclusions could be drawn. It must also conform to ‘… those ideas of capital which, though undefined, exist deep-seated in the popular mind.’ (Fisher, 1896, p.509) That is, he was concerned to continue the use of existing terms, but to give them comprehensive and consistent usage in the classification of the components of wealth.

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depends, not upon the magnitude of the fund, but upon the rate at which it is replenished. This rate is not a fund at all, but a flow. It bears the same relationship to a fund that a flow of so many gallons per hour does to a reservoir holding so many gallons of water (Fisher, 1896, p.526).
His search was for a ‘scientific’ definition of capital and income. When challenged, the desired definition must produce no ambiguity in outcome. Of the need for a scientific approach, and the character of such a definition, he notes;

Science is nothing if not explanatory. To be explanatory she must take pre-existing ideas as she finds them, and mould and interpret them to the satisfaction of those who previously held them. To appropriate familiar words to foreign use is simply to shirk the problem which their existence imposes. It is just because we are acquainted with capital in the concrete that we need to define it in the abstract. Our freedom of choice in framing a definition is strictly limited. As all are agreed that specified groups of commodities are capital, any formula for capital must cover these admitted groups, while at the same time it should leave no doubtful cases, and when pushed to its extreme consequences, should not end up in hopeless confusion and self-contradiction. (Fisher, 1896, p.510)

That was exactly what previous attempts had produced. Fisher ventures on to demonstrate his intellect superiority noted by Schumpeter and Galbraith. His accomplishment turns out to be an intellectual ‘tour de force’, one that shapes subsequent understanding of wealth, capital and income into a form relevant to the rational organisation of financial capitalism. It does so by providing a logical conception of wealth composed of stocks and flows; it permits, for example, thinking about wealth in terms of position and performance, and in that way, Fisher’s insights were revolutionary. More will be said about this below.

Fisher’s approach to capital and income is rooted in his mathematics; his solution is to apply the idea of the calculus. While, since Adam Smith, capital has been understood as composed of two components, ‘capital’ and ‘non-capital’, to Fisher wealth has a double aspect differentiated by time. The stock is ‘capital’; the flow is ‘income’ (or outgo). Wealth may be spoken of as a ‘stock of wealth’, or as a ‘flow of wealth’.  

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200 ‘Scientific’, here this is taken to mean that the required definition will produce consistent classification that is comprehensive of all items, that is, classification is ‘predictable’, and ‘explainable’, Fisher’s approach does meets this test.

201 Later in the paper Fisher feels obliged to defend his use of the word ‘stock’,
distinction is crystal clear; ‘Stock relates to a point in time, a flow to a stretch of time.’ (Fisher, 1896, p.514, emphasis in the original, see also Fisher, 1897, p.199) So, food in the pantry is capital, the flow of food through the pantry is income; machinery existing is capital, its annual replacement or increase is income (Fisher, 1896, p.514).

In his 1897 article, Fisher dealt with the distinction between stocks and flows in the marginal case of items produced for rapid consumption, the appropriate classification of such items that had caused others so much difficulty, ‘Capital is (all) wealth existing at an instant of time’ (Fisher, 1897, p.199). The idea he illustrated as follows,

A full view of capital be afforded by an instantaneous photograph of wealth. This would reveal much that has often been called “income”, goods of rapid consumption. It would disclose, not the annual procession of such goods, but the members of that procession that had not yet passed off the stage of existence, however swiftly they might move across it. It would show train-loads of meat, eggs and milk in transit, cargos of fish, spices and sugar, as well as the contents of private pantries, ice-chests, and wine-cellars. Even the supplies on the table of a man bolting his dinner would find a place in our flashlight picture. So also the clothes in one's wardrobe or on one's back, the tobacco in a smoker's pipe, the oil in the can or lamp are capital. (Fisher, 1897, p.199)

Of his conception of the relationship of capital to income, Fisher observed, ‘Capital is … the simplest of conceptions’, and the need to distinguish capital from other forms of wealth “illusionary” (Fisher, 1896, p.514). Fisher feels obliged to indicate why his distinction of wealth in to two state distinguished by time has been overlooked by others.

My reason for employing the word ‘stock’ in preference to fund are: (1) The former is the older and more established term to convey the idea intended; it is more usual and natural to speak of a stock of cloth than a fund of cloth, a stock of books than a fund of books, etc., (2) The word ‘fund’ suggests the value of goods rather than goods themselves. It suggests the common reduction of all goods to ‘pounds sterling’, whereas the primary study of goods must be related to tons yards etc.’ (Fisher, 1896, Fn p. 526)

After at times struggling with matters of vocabulary for this study, it’s reassuring to know that ones betters have suffered similar trials.

202 One hundred years on, and reflecting on the beneficial consequences to economic thought and life generally of Fisher’s distinction, the modesty seems unwarranted.
11.5 Fisher on Earlier Definitions

What remained for Fisher to do is to explain how the concept of capital became so muddled in the first place. Much of the remainder of his 1896 paper is concerned with this task. Since his account is instructive of the nature of the core problem observed in late nineteenth century accounting discussed in Chapter 10, and it is worthwhile to explore his observations in some detail.

Fisher observed that the economics literature (and by 1896 he might have added the accounting, legal literature and legislation) contained ‘a large accumulation of definitions’ of capital, a mere bibliography of which would fill several pages (Fisher, 1896, p.511). Of these numerous endeavours, he notes that none has attracted general acceptance and that the ‘earnest student’ finds none satisfactory, and selection of one over others is ‘only a choice of evils’, (Fisher, 1896, p.510). Of the results of earlier endeavours to define capital, he notes that some authors were frank with the deficiencies of their work, while others reach the same conclusion by recasting and revising their work (Fisher, 1896, p.511); where authors seem to employ the same definition they disagree in the detail he noted, (Fisher, 1896, p.512). Generally, he thought the situation had not improved over the observation by Senior, half a century earlier, that, ‘Capital has been so variously defined, that it may be doubtful whether it have any generally accepted meaning’, (Senior, Political Economy, Encyclopaedia Metropolitana, Vol vi, p.153, quoted in Fisher, 1896, p.510).

The source of the problem of capital in the nineteenth century Fisher thought was in the definition made by Adam Smith in the Wealth of Nations, in which Smith had held capital must produce revenue; that items that did not produce revenue were to be

203 Fisher lists the definitions provide by of Turgot, Adam Smith, Ricardo, Senior, J.S. Mill, Kleinwachter, Bohn-Bawerk, Marx, McCulloch, Knies, Herman, Walras Jevons, MacLeod, J.B. Cark (Fisher, 1896, pp.511-2). Fisher’s summary is reproduced in Appendix 3.
distinguished from other forms of wealth. He refers to Smith’s conception of capital as follows,

But when [a man] possesses a stock sufficient to maintain him for months or years he naturally endeavours to derive a revenue from the greater part of it; reserving only so much for his immediate consumption as may maintain him till this revenue begins to come in. His whole stock, therefore, is distinguished into two parts. That part which he expects is to afford him this revenue is called his capital. The other is that which supplies his immediate consumption; and which consists either, 1, in that portion of his whole stock which was originally reserved for this purpose; or 2, in his revenue, from whatever source derived, as it gradually comes in; or, 3, in such things as has been purchased by these in former years, and which are not yet entirely consumed; such as a stock of clothes, household furniture, and the like. In one, or another, or all of these articles consist the stock which men commonly reserve for their own immediate consumption.

(Adam Smith, *Wealth of Nations*, Book II., Chapter I, quoted in Fisher, 1896, p.518. emphasis added)

A distinction, Fisher appreciates, gives rise to the idea of wealth as ‘non-capital’; to him it is the origin of the conceptual error in nineteenth century thought on the matter. Of the idea, he notes, capital and revenue were ‘contrasting ideas’: not all ‘stock is capital’ (Fisher, 1896, p.519). To him such a distinction is false, but since Smith, the search in economics had been for a method to distinguish ‘capital’ and ‘non-capital’. Smith’s approach to capital had, in Fisher’s view, ‘…turned the discussion of capital from the true road, and converted it into a vain search for some criterion of classifying wealth into capital and income…’ (Fisher, 1896, p.520) The alternative possibility, to call all wealth ‘capital’ would, Fisher believed, ‘…by most persons be pronounced ridiculous at once. What would remain to be distinguished?’ (Fisher, 1896, pp.513-4)

To Fisher, the consequence of the division of wealth into ‘capital’ and ‘non capital’ is confusion that leads to an operational impossibility; the implication of which he illustrated in the following rhetorical question,

According to Adam Smith, capital should produce revenue. A merchant ship is capital. A private yacht is not. But what shall we say of an excursion steamer which carries freight as well; or of a doctor’s gig when used for a pleasure drive, but also for visiting a patient, or a luxurious carriage, employed by the merchant to carry him to his place of business? Are the mahogany desk in the office of a
bank president, or the silver ink-stand, the picture on the wall, the Turkish rug, capital? Why are cooking ranges in a bakery capital, (‘national’ as well as ‘individual’), while the stove in a private kitchen is not capital? Why distinguish between the shears of the tinman and the scissors of the housewife, or the sewing machines under the factory roof from those in a private house? Or, if the home implements be included where shall we stop? At the furnace for heating, the pots and pans for cooking, the knives and forks for eating, the beds for sleeping, the easy chair for resting, the Japanese fans for cooling the face, or tapestries and lace curtains for pleasing the eye.

(Fisher, 1896, p.513)

It is an insightful passage in which Fisher illustrated the consequences of Smith’s approach; distinguishing between items of wealth, the stock of capital, and the service yielded, the flow of income. To Fisher, previous definitions perpetually collapse because the ‘… foundations have not been properly laid…’ To him, every definition, beginning with Smith, has been founded on ‘… the unquestioned assumption that the problem was one in the classification of wealth…’ (Fisher, 1896, p.513, emphasis added)

11.6 Fisher’s Definition and the Business Practice of ‘Capitalisation’

Fisher draws attention to the fact that the reciprocal of the rate of income to capital is the ‘rate of capitalisation’, the rate necessary to convert a flow into a stock. Though the expression is not used by Fisher, income is in the form of an ‘annuity’: the conversion of a flow, or stream, of payments into a capital sum; or visa versa. The rate of capitalisation, he notes, had long been understood, as a practical matter, by men of business, and used ‘…to find what a given income is worth in ready money or what a stock of wealth will be equivalent to a given flow of wealth…’ (Fisher, 1896, p.516) The word ‘capital’, he observes, was originally an abbreviated form of ‘Capitalis pars debiti’ – ‘the principal of the debit’, and it was in this form that it was used in the middle ages (Fisher, 1896, p.517). In this sense, he notes, the anti-thesis, though limited to money loaned, is identical to the anti-thesis between stocks and flows (Fisher, 1896, p.517).

204 One recalls on reading this passage for the first time, after struggling for months with the difficult, logically tangled practices, of nineteenth century accounting and the equally impossible definitions in the literature of economic thought and the puzzling reasoning in Neuchatel, of the intellectual elegance of this passage. One just felt immediately that Fisher new what he was about.
This is common business usage, and Fisher suggests that the definition of capital advanced by him, ‘…is incompatible with any other (definition)…’, (Fisher, 1896, p.516) Perhaps, along with everyone who has surveyed the literature subsequently, Fisher wondered, ‘It is somewhat extraordinary that this business term ‘capitalise’ should never have given economists the requisite hint for defining capital’, (Fisher, 1896, p.516). He seems unaware that ‘businessmen’ and, accountants particularly, also had not drawn the necessary connection between the form of an annuity and financial capital invested in assets.

Fisher, the authority on monetary economics, seeks to provide an explanation for this anomaly. The problem, he senses, is that the underlying similarity between financial and real phenomena has not been appreciated. ‘What has capitalising an income got to do with ‘productive’ goods, “durable” goods”, “goods for future use”, or any one “portion of a man’s stock” rather than any other?’, (Fisher, 1896, p.516). Fisher then seeks to answer his own question by expanding application of the concept of ‘capitalisation’ from money to all goods. He notes that Hume, in his essay on ‘Interest’, shows that ‘…the rate of interest altogether depends, not on the amount of money, but on the amount of riches or stock available…’ (Fisher, 1896, p.517) To Fisher, from this point on, the only thing wanting to complete the association of financial and real phenomena is to call riches, or stock, ‘real capitals’ (Fisher, 1896, p.517). It was this transformation, Fisher believed, that was accomplished by Turgot, who held that capital was savings, and that if this term is used to include all commodities, a conception he thought agreed with his own; though Turgot ‘…meant to exclude all goods of current consumption…’ (Fisher, 1896, p.517)

In a passage, which seems strangely naïve at the start of the twenty-first century, Fisher found it necessary to instruct his peers on the relationship between real and monetary phenomena.

Suffice it to point out that it brings Capital into the simplest and most intimate relation to Interest. When a stock of goods or capital is exchanged for a perpetual flow of goods or income, the ratio of exchange for a perpetual flow of goods or
income, the ratio of exchange constitutes the rate of interest. If £100 will buy an income of £3 per year, or if 100 tons of beef are worth a perpetual supply of three tons annually, the rate of interest is three percent per year. (Fisher, 1896, p.515)

This view, Fisher noted, is in ‘close harmony’ with business usage, which describes ‘interest the value of money’. A usage that he distinguished from the use made of interest in economics, where ‘it has been customary for economists to ridicule this usage, and to point out that the value of money means, not the rate at which it is ‘leant’, but its purchasing power, or the quantity of other things which a unit of money will buy’ and ‘…as Bohm-Bawerk had insisted, capital is not ‘lent’ at interest but sold at interest…’ (Fisher, 1896, p.515 emphasis in the original), though today a distinction between ‘interest’ and ‘rent’ is irrelevant, other than in a strictly technical discussion.

It is clear from this discussion that, in economic theory of his time, the function of money, the ‘money illusion’, over ‘real’ transactions was insufficiently appreciated by economists and, as discussed in Chapter 10, by London chartered accountants. The connection, as he explains, is that ‘… money is merely the “wheel of circulation” and the real proceeds of a loan are the goods purchased with the money…’ (Fisher, 1896, p.517)205 At the beginning of the twenty-first century, it is almost incomprehensible that it would be necessary for this association to be drawn in the Economic Journal.

11.7 ‘Stock and Flows’ and Assessment of Performance

Fisher extended the possibilities inherent in his revolutionary distinction between capital and income by asserting that it provided the basis for assessing performance. He did so by pointing out that the critical matter in understanding performance is the rate of flow over time, relative to the stock. Of the two conceptions, capital and income, he believes,

205 It is interesting to note, and probably relevant to the formation of his appreciation of the similarity between real and monetary phenomena, that Fisher was a ‘hard-money’ man, against fiduciary issues of currency. In this context, it is technically correct to see money as another commodity, and the distinction between real and monetary phenomena dissolves-both are real (which, of course, is what currency is in a balance sheet).
‘… income is the more in need of explanation…’ (Fisher, 1896, p.514): that in assessing performance, it is the rate of flow relative to the stock that ought to be the basis for assessing financial outcomes as it is to assessing other relationships. He went on to observe,

The rate may be variable, but the average rate multiplied by the duration gives the total magnitude of the flow. The rate of a flow is of greater significance in most economic problems than either the duration of the flow or its total magnitude… the annual supply of wheat or the rate of wages are quantities of prime importance in economic statistics and theory. (Fisher, 1896, p.514)

Again, Fisher extends the instruction from the real to financial magnitudes to show their inherent similarity;

The rate of a flow possesses the important property that the value of the flow is proportional to it. … An annuity of £200 a year is worth twice as much as an annuity of £100 a year for the same period; but an annuity for 200 years is not worth twice as much as an annuity for 100 years, at the same rate per annum. … A rentier holds a perpetual annuity of £1,000. The total income to him and his heirs (if the contract be fulfilled) is in this case infinite, but the important item is the rate at which this infinite sum can be obtained.

Thus, behind and more important than the distinction between stock and flow is that between stock and rate of flow. Stock and flow are both measured in pounds, gallons, or tons; but rate of flow is measured in pounds per year, gallons, per month, or tons per day. The distinction is one of dimension, analogous to the distinction between distance and velocity, momentum and force, or work and horse power. If capital be denoted by \(c\), the rate of flow will be \(ct\), where \(t\) stands for time. (Fisher, 1896, pp.514-5)

The implication of this passage is important. Having demonstrated the relevant distinction between capital and income, in this passage he established a conceptually sound basis for comparing the performance of business entities other than by comparison of absolute profitability: the idea of relative performance. In his 1896 paper, Fisher did not offer a practical illustration of this idea: the closest he comes to a practical illustration is in the following illustration.
If one wishes to compare the wealth of the Rothchilds of today and the Fuggers of the fifteenth century, it will not do simply to find the relative mass of real wealth which their accumulations would purchase in a lump; we must know what these stocks are worth in annual real income.

(Fisher, 1896, p.515)

Today such observations about the rate of profit seem trite, and surprising, coming from someone of Fisher’s eminence, and it is necessary to remind ourselves that he was breaking new ground; that in the nineteenth century it was by reference to absolute, not relative profit, that decisions about performance were then, it seems, made. It indicates how much things have changed, and how important of Fisher’s distinction between capital and income has been: its revolutionary nature.

In his 1906 monograph, *The Nature of Capital and Income*, Fisher returned to the relationship between capital and income, and the appropriate manner of evaluating the nature of the relationship in particular circumstances. It is because, he noted, ‘…capital and income are so intimately related, it becomes necessary to examine in detail what their relations are…’ (Fisher, 1906, p.184), and went on to note that the relationship between a stock and a flow can be considered in different dimensions in terms of the physical and value (financial) that must be clearly distinguished. A distinction he believed had four general types of relationships: namely,

1. Quantity of services per unit of time/quantity of capital= physical productivity
2. Value of services per unit of time/quantity of capital = value of productivity
3. Quantity of services per unit of time/value of capital = physical return
4. Value of services per unit of time/value of capital = value return.

(Fisher, 1906, p.186)

Failure to correctly recognise the nature of the distinction between quantity and value, Fisher thought, leads to incorrect conclusions being drawn, and results in confusion. A point he illustrated with reference to the distinction made in nineteenth century economics between ‘rent’ and ‘interest’. Both he notes are a return on capital, the distinction hitherto drawn between them being based on the confusion of rent, a return on a quality, and interest, a return on a value. However, he argued, it was the ‘value return’ that was significant because,
the value return called the rate of interest on “capital” (that is) uniform’. Application to land is exactly the same as ‘capital’ generally, ‘land which yields a high rent will have a correspondingly high value, and, in consequence, the ratio of the rental to the value will be exactly the same as for lower grades (Fisher, 1906, p.187)

Value was the critical idea, because the ‘fundamental principle’ was that the value of a stock of capital was derived from the value of future flow of income capital was expected to yield (1906, p.188): in the everyday matter of business management, he sees that value rather than quality is what is significant.

11.8 Fisher on Repairs, Renewals and Replacements

In the 1906 monograph, The Nature of Capital and Income, Fisher applied his new distinction between capital and income to a description of the organisation of wealth in a financial-industrial economy, and the scope of the monograph was much broader than that of his 1896-7 papers, providing a lengthy discussion of wealth, utility, property capital, income and price. A substantial part of the monograph is concerned with developing a system of ‘national accounting’, or a statistical methodology for identifying the value of final output by summation of individual business accounts. It was for this discussion that Schumpeter observed that The Nature of Capital and Income, ‘…was much admired by Pareto, besides presenting the first economic theory of accounting is (or should be) the basis for modern income analysis…’ (Schumpeter, 1954/1994, p.872) As will be noted below, it was also the source of inspiration for John Bennet Canning, and idea of accounting profit reflecting an economic conception of ‘gain’.

Fisher’s conceptual approach to developing national accounts is to sum individual accounts, and though much of the discussion concerns business accounting, and his main interest with business accounting was with its macroeconomic implications, which is not relevant here. However, his discussion of income and expenses (outgoes) and of repairs, renewals and replacement is relevant.
Fisher describes income as ‘services’ and expenses as ‘disservices’, and hold that either identity must attach to capital: implicitly they affect capital. It is an idea that has about it the flavour of modern *Framework* definition of an asset and an expense, as identified in Chapter 3. Considering the setting of a complex industrial economy, he employs a simple example of an individual home owner, and a housing owning housing association. He holds that repairs, renewals and replacements represent ‘outgoes’ chargeable against income. ‘It will be seen that the cost of reconstructing the house was entered into the accounts in exactly the same way as repairs or other current costs’, (Fisher, 1906, p.124), holding, ‘there may seem to be objection to such a proceeding in the thought that reconstruction appears to be not a part of “running expenses” but a “capital cost”, and belongs, not to income accounts, but capital accounts,’ (Fisher, 1906, p.124). This is a strange conclusion. From his 1896 paper, it ought to have been clear to Fisher that of the items bought to repair, renew or replace houses had the character of stock, and in his system of classification were capital, while the consumption of such items was of the nature of a flow, and therefore were ‘negative income’ or expenses. It was, after all, Fisher who had noted that stocks of items might have a short life – items such as the roast of beef – were capital equally with more durable items; and that their consumption was negative income, (Fisher, 1896, p.514). In while in1896, in 1906 application of the distinction seems lost.

In the decade between 1896 and 1906, Fisher seems to have lost sight of the character of his own distinctions, and joins those who see capital losses, and separateness between capital and income. It is a curious reversal of his ideas, perhaps he has been swamped by the plethora of complex and inconsistent approaches to depreciation adopted at the time.

In his monograph, he does not refer to the cost of consuming existing assets. Assets must be replaced and this is a question of accumulating a sufficient ‘depreciation fund’. In his accompanying Glossary, ‘depreciation’ appears under ‘Fund-depreciation’ and is described as follows,

A fund must be formed by accumulating that part of income which must be turned back into capital to maintain the capital-value intact. It may also be
defined as formed from the difference between real income and earnings, when that difference is accumulated.

If the income is uniform and runs only for a fixed term, the depreciation fund may also be defined as formed from a succession of equal payments out of income, such that if each be accumulated at compound interest, the total will be equal to the original capital at the end of the income term. (Fisher, 1906, p.332)

Similarly, his bookkeeping is difficult to understand. For example, in a discussion about classification of asset cost he observes, ‘It is true that the value of the new house must be entered on the capital balance sheet, but the cost of producing it belongs properly to income accounts.’, and ‘A house is quite distinct from the series of sacrifices by which it occurs’, (Fisher, 1906, p.124, emphasis in the original).

In his 1896-7 papers, and especially the 1896 paper, Fisher’s style is academic, analytical and very clear; the implications of his analysis are carried to their conclusion wherever that might lead, and however novel the conclusion (hence; clothes in the cupboard are capital, their service is income). Ten years later, in Capital and Income Fisher’s domain, style and confidence are very different. Fisher is writing for a different audience: in 1896 it was for academic and professional economists, and his task is to resolve an issue of inconsistency in the literature by selecting understood and relevant tools. By contrast, his

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206 In Capital and Income, Fisher takes recourse to numerous illustrations employing the form of a balance sheet and income statements. His balance sheets are conventional in style with the columns headed ‘Assets’ and ‘Liabilities’, his Income Accounts, are however difficult to comprehend. The columns are headed ‘Income’ and ‘Outgo’ and Income is listed on the LHS and Outgo on the RHS. It is somewhat difficult to understand how to interpret this. It was common in the nineteenth century, especially in Britain, to reverse the listing of Dr and Cr’s so that, for example, Assets would be listed on the RHS (One explanation encountered in the nineteenth century literature for this practice was the view that the balance sheet must be a literal reflection of the ledger and that the balance, for assets, is struck on the Cr side of the ledger etc..). In Fisher’s text, Assets are listed conventionally on the LHS, which seems to have been the practice in the US in the nineteenth century, but Income is listed on the RHS; that is, his exposition is inconsistent. The alternative possibility is that he has in mind that Income and Outgo are recorded in cash, but this does not seem likely.
1906 monograph is addressed to a different, perhaps ‘popular’, audience; it is to ‘business’, ‘businessmen’ and ‘business practice’, and the method employed is descriptive: he is trying to be relevant, popular, and perhaps profitable. The appeal is to conventional wisdom, rather than to radical conclusions derived from first-principle reasoning. Compared to his earlier papers on capital, *Capital and Income* seems bland. Fisher seems to have lost sight of his own understanding of capital, and substituted a description of prevailing orthodoxy.

### 11.9 Fisher’s Capital and Income Evaluated

In searching for academic excellence or in protecting against professional criticism, even the best scholars have spread themselves widely over the important and also the expendable. They cannot have it said that this point or that made by Adam Smith or David Ricardo or Karl Marx was missed. In consequence, the really controlling ideas, rightly or wrongly, have frequently been lost in the mass; what continues to be of interest or relevance in our time has been obscured.

Galbraith, 1991, p.1

Generally, the inference in the literature seems as though the modern distinction between capital and income is one of a timeless inheritance, rather than the product of intellectual effort, derived at a moment in time when it was relevant: a construct relevant to a human problem of its time rather an the discover of an immutable fact.

It is indisputable that it is to Irving Fisher’s 1896 paper that accounting and economics owe the present, the twentieth century, understanding of the capital-income relationship as one of antithetical states of wealth. It is the distinction on which the modern, operational, understanding of wealth is built; it is now understood without reflection on its origin, or contemplation of the consequences of its absence. In his 1896 paper, Fisher also draws attention in the importance of evaluating relative flows of income and duration, in the evaluation of wealth. It is these ‘dimensions’ that have formed the operational basis for the comparative assessment of relative performances in the twentieth century.
Though clearly less heralded, Fisher’s insights into the nature of capital seems as consequential to the organisation and the practical management of modern economic life as, say, Jevons explanation of subjective marginal utility as the basis of value, and the development of a theory of demand, or Malthus rejection of Say’s law of markets that was the origin of Keynes’ recognition of investment as an exogenous variable, independent of saving in the 1930s. Viewed retrospectively, each contribution seems, as put by Fisher, ‘the simplest of conceptions’ (Fisher, 1896, p.514). So ordinary that it is difficult to imagine a time when it was revolutionary; or a time before. But understanding such things, the history of ideas teaches, is simpler in retrospect than as a contemporary matter.

The difficulty of solving contemporary economic problems is illustrated by reflecting about the context of Fisher’s 1896 paper. That context illustrates Galbraith’s observation that ‘economic ideas are always and intimately a product of their time’ (Galbraith, 1991, p.1). As developed in this study, it is clear that by 1880, existing approaches to defining capital based on attempts at classifying capital were unsatisfactory, and had produced disruptive consequences in the operation of the British financial system. A number of notable economists had turned their attention to resolving, unfruitfully, the issue of the nature of capital. In the law, the difficulty is illustrated in the various opinions and judgments in the matter of **Neuchatel**, the logic of which frustrates commentators to this day. In his 1896 paper resolved an issue of contemporary moment.

Of **Capital and Income** Schumpeter observes, ‘Irving Fisher … took a first step towards co ordinating the economists and the accountants work’, (Schumpeter, 1954/1994, p.945). But the view of Fisher’s contemporaries in the world of economics was less favourable, as noted by Schumpeter, ‘The contents of **Capital and Income** were considered by most people as elaborate trivialities’, (Schumpeter, 1954/1994, p.873). Schumpeter’s explanation for this attitude is relevant here: noting of that time, more economists were concerned with affairs of nations then were concerned with the affairs of households and firms, and that practical matters of business were outside, ‘…
sphere and also, perhaps, somewhat below it’, (Schumpeter, 1954/1994, p.945). But Schumpeter goes on to note, cooperation between business and general economics is a primary necessity of both economics and business. In Schumpeter’s judgment, the reality at that time was that, ‘… the explorations of business practice undertaken by business economist failed to inspire general economists as completely as the advances of economic theory failed to inspire business economists ’ (Schumpeter, 1954/1994, p.945)

Following Galbraith’s idea: accounting (and economics) in the twentieth century lost sight of the origin of a relevant ‘controlling idea’ about capital and its relationship to income, and unnecessary controversy about nineteenth century capital accounting has been the consequence. Knowledge of Fisher’s work would have always led to understanding that the present definition of an asset and its relationship to income is a twentieth century phenomenon. A discussion of an ‘Accounting Error’ in nineteenth century capital accounting would then be unnecessary: the nature and origin of the error would have been apparent; a more useful matter for enquiry the effect of nineteenth century accounting practice on business profitability, and the consequences for resource allocation. The ‘loss’ of Fisher’s work on capital, and the consequent confusion in interpreting late nineteenth century accounting illustrates the importance of the continued study of historical matters, even in technical subjects like accounting. Of the distinction between identification of facts and the attention paid to them – and of recalling their origin – it has been well put in another context, ‘The province has been mine to deliver the precepts, the power is in others to execute.’

The roll of historical study of long past issues even in disciplines such as accounting is returned to in Chapter 12.

207 The quotation is from a James Lind on the rejection by the Royal Navy’s Sick and Hurt Board of his understanding of the cause of scurvy in the mid eighteenth century, which he correctly associated with a lack of fresh food, referred to by Ray Parkin in H.M. Bark Endeavour. Lind’s thoroughly correct ideas were rejected by the Navy, and scurvy continued as a scourge until the 1930s, or so.
11.10 John Bennet Canning

accounting was more than just bookkeeping

Canning, Quoted in Zeff, 2000, p.13

The exception to the general neglect of Fisher’s work in accounting is the central, and acknowledged, influence Irving Fisher held in the formulation of the ideas of John Canning, the Stanford University economist, famous for his ideas about the nature of accounting income, which followed Fisher’s 1906 monograph, *The Nature*. Canning was Fisher’s disciple, and it is through Canning that Fisher’s ideas might be said to have entered accounting (Canning, 1929, p.144).\(^{208}\)

Canning holds a strange place in the history of accounting, seldom cited, but undisputedly the originator of the idea that the balance sheet might be recast with values related to the idea of the economic scarcity of assets. His career is interesting, and reflects the flexibility of the American approach to the changing needs of American society for intellectual skills to manage the US economy under the stress of growth, depression and war: its capacity to produce relevant people. Canning was an economist not an accountant, and while he made an important contribution to accounting thought, he did so as an economist concerned with the statistical usefulness of the information he and other economists might derive from financial statements. To quote Canning about his book, *The Economics of Accountancy*, ‘This book is concerned with the statistical nature and meaning of accountants’ results rather than giving instruction in the art of accounting…’ (Canning, 1929, p.206) Canning’s monograph was in fact his PhD dissertation (see below), and Zeff notes that Canning’s topic was a ‘…critical analysis of accounting practice and development of a model to base accountant’s measurements on sound economic reasoning…’ (Zeff, 2000, p.24) The work is notably split between

\(^{208}\) John Bennet Canning, 1884-1962. Bennet was spelt with one ‘t’.
observation of practice and assertion of a preferred approach to accounting measurement from the perspective of an economic user.

Canning was born in Canada in 1884, but his family moved to Oklahoma in 1890 and took up dairy farming. Involved in farming and management of the family farm, Canning did not enter high school until he was 21 and matriculated to the University of Chicago at the age of 24, graduating in 1913. According to Zeff (2000), his undergraduate courses were varied, including French, German, and English, mathematics, political science, sociology, anthropology philosophy and geography. As a graduate student, Canning studied accounting. At Chicago, Canning impressed A. C. Whitaker, a visiting professor from Stanford who secured Canning a junior teaching position in the economics department of that university. At Stanford Canning developed an interest in the teaching of accounting and promoting their professional training. This, it seems, was to be his niche as a young academic. Canning’s approach to the task of educating accountants in the 1920’s was unique; choosing to focus on what he believed would be necessary for an accountant to possess in the role of a principal, rather than routine, accounting procedures, (Zeff, 2000, p.18). In this approach, Canning played particular attention in his advanced course to the valuation of assets, for which Fisher’s 1906 monograph was the set text. In his approach to accounting education, Canning believed that the study of accounting ought to be abased on the three pillars of mathematics, the law and economics. In his instruction, he was interested in teaching the abstract; drawing a distinction between knowing ‘a great deal of accounting without knowing much about accounting’, (Zeff, 2000, p.18).  

209 In a remarkable way parts Canning’s career was to be followed by Galbraith; also a Canadian, a graduate of Stanford’s agricultural economics school, both were motivated in their economics by the depression and worked on economic policy in wartime Washington.

210 Similarly, Canning was evidently not much interested in teaching the mundane aspects of accounting, teaching the advanced units. Zeff notes one doctoral students observations of Canning the teacher, I had reached a more mature age as a doctoral candidate. I found Professor Canning’s courses to be stimulating and filled with new ideas. The undergraduates generally found them dull. No problems or paper work were assigned and the only examination was the final. Professor Canning explained the absence of problems to some of his students by saying that the only aspect of
It is Canning’s combination of economics and accounting that is the source of his influence on the subsequent development of accounting thought, and it is as a coordinator of economics and accounting that Canning gains reference in Schumpeter (this is in a footnote to Schumpeter’s reference to Fisher, (Schumpeter, 1954/1994, p.945). This influence is surveyed by Chambers, (1979) and Zeff, (2000, pp.5-11), and is not explored as such here. Zeff notes that Canning’s interest and connection with accounting waned in the early 1930s, and that he returned to economics, teaching statistics and becoming interested in the problems of employment during the depression, and wartime food production in the following world war. He left Stanford in 1941 and went to the Department of Agriculture in Washington and subsequently to the military government of post-war Germany in Berlin, where he was concerned with food policy.

Canning’s interest in accounting, and his linking of economics to accounting, follows, as understood here, that of Fisher. Canning became impressed with the work of Fisher, in particular the 1906 monograph, while at the University of Chicago, during which time he became interested in matters of asset valuation. It was this interest that provided the basis of his PhD dissertation, and his monograph, the *Economics of Accountancy*. In the

accounting definite enough to make a good problems were not important enough to occupy the students time
(Zeff, 2000, p.22)

an observation that bears striking similarity to ones made about Alfred Marshall as a teacher. By contrast, as noted for this study, Keynes only bothered with the best, or at least the interested. 211 Canning gained his PhD from the University of Chicago in circumstances that can only be described, at least in the context of today’ standards, as flabbergasting. According to Zeff, Canning commenced graduate study in 1914 and, after war service, in which he went to France, and moving to California, he wrote to Viner in 1928 submitting his book as his dissertation on the basis it was already accepted for publication and asking if he might have his oral examination over Christmas since he was coming east over Christmas! Zeff observes,

how much more self-confidence and hubris can a doctoral candidate exhibit? He presented the University of Chicago’s economics department with a finished book: without a supervisor, without a previous notice of its contents…with a deadline some two months hence for delivery of the book to the publisher
Preface to his monograph, Canning sets out his intentions, which determine the character of his analysis. This was to make the ‘…work of the professional accountant more fully intelligible to those in other branches of learning…’ (Canning, 1929, p.iii). Canning indicates that his study of accounting had occurred as the result of study as a professional student of economics, (Canning, 1929, p.iii). What follows, one is not surprised to find, is a normative derived prescript describing how accounting ought to proceed. In this respect, it is generally held that the important issue was his ideas about the description of assets that a balance sheet ought to contain. In Chapter II, he indicates that the importance of assets derives from fundamental accounting equation, A-L=P, (Canning, 1929, p.11), and the first chapter of the monograph consist of a description of accountants practice with respect to this equation.

It is for Canning’s discussion of income in Chapter VIII, that the monograph is remembered in accounting. In his approach to income, Canning follows Fisher, and does not seem to be original, and indeed makes no secret of the fact that ‘his’ model followed Fisher’s. As with Fisher, assets provide services and produce flows of income that can be discounted. To Canning income is the ‘vital central concept’, and his exploration of income forms the core of his analytical contribution. Income is described as being composed of three parts: ‘realised income’, and two ‘derivatives’, ‘capitalised’ income and ‘earned’ income, (Canning, 1929, p.154). Realised income is the ultimate sources of income, and is identified as the ‘desirable events proceeding from a wealth source…expressed in money valuations, the time-schedule of these money transactions constitutes a measure of gross realised income’: subtracting a similarly composed schedule of ‘negatively valued disservices’ the ‘net realisable income’ is obtained, (Canning, 1929, p.154). Discounted, the realised income ‘…is at once the capital value of the item of wealth and the capital value of the income from it…’ (Canning, 1929, p.155) Proceeding further, the difference in capital value can be calculated between the beginning and the end of a period. Conceptually, realised income for a period, plus the

(Zeff, 2000, p.26)

One wonders what Milton Friedman thought of the story.
increase or decrease in capital value during the period, is the earned income of the period; or ‘…net receipts plus appreciation or minus depreciation is the measure of earnings during the period…’ (Canning, 1929, p.155, see also Chambers, 1979, pp.767-70)

The concern here is not with the measurement of income, but with the conception of wealth as antithetical states of capital and income. This is the conception of wealth inherent in the notion of an asset as the present value of future (cash) services, and, as noted, Canning’s work in accounting point to the absorption of the idea into accounting theory, if not practice. Perhaps one illustration of the appreciation of the connection derived from Fisher is sufficient to make this point,

scaling down each future dollar-receipt to an equivalent present money value and to taking the sum of the terms thus scaled down. This sum is at once the capital value of the item of wealth and the capital value of the income from it, the present worth of the money-valued future services. (Canning, 1929, p.155)

As already noted, Canning’s work was not just a normative prescript to accountants, but also a comment about the statistical usefulness of accounting information in the hands of users. Following that theme, the work shifts from the deductive to the inductive. When Canning discusses depreciation he is in inductive mode and the usefulness of Fisher’s stock and flow idea in resolving issues relating to depreciation does not occur to Canning. For example, it is not used as the basis for identifying an expense in the manner of modern Frameworks discussed in Chapter 3 above.

212 So Canning observes,

The term “expense” as used in accounts must always be distinguished from “expenditure” or “disbursement”…The amount of the expense is the value of the consideration paid, or to be paid, for the service enjoyed during a given period (Canning, 1929, Fn 16, p.162, italics added)

Apart from the obvious contradiction the distinction Canning fails to make is between expenditure on, and consumption of, a resource. See also his Fn 17 on p.165.
Zeff charts the influence of Canning’s thought through the work of Paton and Littleton, Vatter, Stabus, Sorter, Horngren, Kenley, Moonitz, Bonbright and Wright, (and perhaps one might add Edwards and Bell), and into important projects sponsored by the profession shaping the key concepts now employed in standard setting, for example the Trueblood Report, and the FASB’s SFAC 1 Objectives of Financial Reporting, (Zeff, 2000, pp.7-10, and also see Fn 6). In his review of Canning’s work, Chambers observes of Canning’s conceptualisations, ‘…when…I became seriously interested in what stood as the theory of the subject (it) delighted me, perhaps because his observations tallied with many of my own…’ (Chamber’s, 1979, pp.764-5) But, like Fisher, Canning’s contribution in introducing the idea of ‘futurity’ has escaped citation in many works that have followed the idea that the value of an asset is related to its future usefulness, (Zeff, 2000, p.10). Canning’s approach to the teaching of accounting by focusing on conception of abstract ideas and deductive reasoning continues to this day. It is a tradition that might be, but is not, described as the ‘Californian’ approach.

After the departure of Canning, the Stanford University economics department discontinued its accounting programme.

**11.11 Conclusion**

Fisher’s conception of capital and income as antithetical states of wealth was derived from the calculus, with income being the change in capital overtime. His work on capital was, therefore, in the tradition of the neo-classical reformulation of classical economic philosophy using the analytical power of the differential calculus that occurred in the second half of the nineteenth century.

Fisher’s reformulation is now an obscure point in the literature of both economics and accounting, and the modern explanation now (if an explanation is required) would be that the relationship is simply the application of logical ideas of stocks and flows, without appreciation of an earlier conception of wealth, and the discontinuity with the modern understanding of what went before passes unnoticed, and the significance thereby lost. The existence of the earlier approach and the consequences in the practice of law and
accounting illustrated in Chapter 10, have been lost in the acceptance with the modern approach. This obscurity is identified in this study as the origin of the controversy in secondary literature about nineteenth century capital accounting practices noted in Chapter 1.

Perhaps obscurity in the origin of ongoing ideas is not unusual. On this Galbraith has observed, ‘…the really controlling ideas, rightly or wrongly, have frequently been lost in the mass; what continues to be of interest or relevance in our times has been obscured…’ (Galbraith, 1991, p.1)

11.12 Summary

This chapter has identified, and outlined the origin of the modern, or twentieth century, understanding of the relationship between capital and income with the work of the Yale economist, Irving Fisher. While the orthodoxy in economics during the nineteenth century was that capital and income were separate states of wealth, in Fisher’s approach they were different expressions of the same identity, wealth in antithetical relationship. The chapter has noted how Fisher employed this new distinction to illustrate that performance was a relative matter, correctly evaluated as rates of increase in income relative to the stock of capital.

The chapter has also drawn attention to the work of John Bennet Canning, the Stanford economist and educator of accountants, and great enthusiast of the ideas of Fisher and there application to accounting. The chapter has noted that it was from the work of Canning that the idea of ‘economic income’ entered accounting.
Chapter 12

Conclusion

12.1 The Topic in Retrospect

The purpose of the study has been to explore the relationship between capital and income as it was reflected in financial reporting in the late nineteenth century. The topic arises as a matter of interest from the confused nature of financial reporting practices followed then in respect of capital assets – the factories, plant, gas and water works, railways and ships – that were the product of Britain’s industrial revolution, and the basis of Britain’s wealth and power in that century.

The topic has been considered in a framework comprised of a troublesome accounting calculation that arose in a context and which was consequential. The ‘accounting calculation’ at issue is the scheme followed is the classification of spending – investment of financial wealth – on durable assets between capital and income accounts and the determination of profit. As interpreted by reference to extant accounts, the accounting followed in respect of such spending reflects a confusing picture, following no readily discernable framework. In particular, the distinction between capital and income followed then is difficult for the modern observer to understand, and seem ad hoc. However, the argument advanced here is that a coherent scheme was followed, and that it was consistent with the contemporary philosophic understanding of the character of wealth, but that it was very different to the modern understanding.
The study has, therefore, explored how the concept of capital, and its relationship to income, was understood in late nineteenth century. Methodologically, the issue is a philosophical one, and the study explores the philosophic development of the nature of wealth, value, capital and income in the eighteenth and nineteenth-centuries. That evolution has been explored beside investigation of the way capital and income (profit) was understood by chartered accountants at the end of the nineteenth century. This investigation has shown that the practice of accounting at that time was heavily influenced, indeed dominated, by the law, and the nature of that influence has also been examined. The way in which capital – in various strands – was understood forms the context of the study.

The consequence of capital asset accounting followed in late nineteenth century is shown in the many cases litigated then about distributable profit. In these decisions capital was regarded as separate from income (rather than in antithetical relationship), and ‘capital’ losses ignored in the reckoning of dividends. The effect inferred of these decisions was that profit was overstated and, where distributed, capital eroded, and accounting practice becomes implicated in the misallocation of resources and undesirable social consequences. In this way, accounting becomes socially consequential; a source of irrationality rather than the rationality argued by Sombart. The argument of the study is that the source of this irrationality was a flawed concept of capital; a flaw not corrected until the redefinition of the concept by Fisher at the end of the nineteenth century. The study notes that the effect of accounting calculation of fixed cost on macroeconomic equilibrium troubled John Maynard Keynes in his analysis of economic failure after the First World War; an analysis that centred on the coordination of savings and investment via the profit mechanism. In the General Theory, Keynes recognised profit in an industrial setting how fixed costs were allocated; frustrated by accountants’ methods of allocating fixed cost he approached the matter for his purposes in a first principles way, which was perhaps too obtuse to survive the General Theory.
The character of profit-maximising decision – economical rationality – was described at the end of the nineteenth century by the economist Marshall. In his analysis, the efficient allocation of resources in both the factor and final markets occurs when marginal revenue, MR, equated to marginal cost, MC; the famous MR=MC. The study concerns the determination of MC in a factory based economic system in which resources are allocated by financial signals. In such a system, it is necessary to represent the stock of industrial wealth and its consumption in an abstract, financial, form. The study is about conceptual basis on which this distinction was made.

Put in this way, the accounting issue of interest here is determination of the marginal cost of using capital sunk into physical plant of a durable nature. Chapter 3 notes that MC is usually discussed as short run matter, with the incremental costs of some incremental activity balanced against the MR thereby derived. But in the intermediate and long term, all costs, including those of a fixed nature, such as the cost of capital assets, are variable or incremental. While an entrepreneur might in the short run undertake activities considering only his short run costs, in the long run his intention will be to remain in business, and he must recover his capital. MC must include the cost of physical capital consumed, and the issue emerges as to how fixed cost will be represented.

Operationalisation of this idea requires the practical identification of ‘cost’. Chapter 3 notes that this question is resolved in modern conceptual frameworks of general purpose financial reporting by defining assets and expenses such that they are internally consistent around the concept of wealth. Assets are stocks of useful wealth and expenses are ‘consumptions’ of wealth; a logical conception, quite different to the ad hoc schemes visible in extant material from the late nineteenth century. Then determination of consumption of wealth represented in capital assets, whether loss of physical or economic usefulness, would, in each instance, be a matter of professional judgment; seemingly ad hoc. At that time, the notion of ‘cost’ was confused: cost might mean expenditure on, an expense of, or an allocation. Though the appearance is of practice without system, of confusion, the argument here is that practice followed the nineteenth century theory of capital composed of separate states: of wealth as separate identities; capital and income.
Exploration economic philosophy here indicates that the theory of capital held until the end of the nineteenth century was one derived from William Petty and Adam Smith, and followed by the great classical economists Ricardo and Mill. Theirs formed the orthodox view of capital throughout that century. It was the conception wealth that formed the basis for Marx’s ‘labour theory of value’, and an exploitative view of industrialisation as a social system. The reformulation of classical economics by Jevons or Marshall did not question that view. As identified in the study, the revolutionary, modern, conception of capital and income as one of antithetical states of wealth originates with the American economist, Irving Fisher in 1896.

In the generally accepted reasoning held in the late nineteenth century, wealth was composed of two separate states: capital and income. Capital existed in two forms, ‘capital’ and ‘non-capital’, the basis of the distinction being that ‘capital’ produced ‘income’, a distinction clearly evident in the litigation about distributable profit in the British courts in the closing decades of the century.

It was this conception of capital and income as separate states of wealth that was contained Mill’s Principles that was the source of the general, or popular, understanding of economic ideas. As identified in this study, it was a view not corrected by Marshall in his Principles that replaced Mill’s Principles in that role after 1890 and on into the twentieth century; they provided the approach followed in the law, and followed in accounting of necessity, regarding the character of capital and its relationship with income. It is the approach evident in Neuchatel, and the other cases concerning distributable profit.

These issues raise the specific research questions posed in Chapter 2.4.

12.2 Answers to Research Issues

Answers to research issues posed in the study are:
Research Question One

How was the concept of capital and its relation to income understood in the nineteenth century?

The central purpose of the study is to establish the way in which the concept of capital, and its relationship with income, was understood in the nineteenth century. The study has established that the way the concept of capital was understood then was quite different to the twentieth century understanding.

This question has been explored in economic philosophy, the law, and chartered accounting of the nineteenth century. Each avenue has provided insights into the troublesome capital assets accounting followed in that century. Conclusions about the approach to capital followed in economic philosophy and chartered accounting are indicated in this section. Conclusions about the legal definition of capital and income in the nineteenth century are noted in response to research question 2 below. The origin of the twentieth century understanding of capital and income is indicated in response to research question 4 below.

i) Economic Philosophy

Research for the study has reviewed the development of the concept of ‘capital’ from the earliest discussions of economic ideas by the Greeks to the ideas of Irving Fisher. Particular attention has been paid to development of the concept of capital in classical and neo-classical economics, and the constructs of Petty, Smith, Ricardo Marx, Mill, Jevons, Marshall and Fisher in that respect. The study has identified Fisher as the source of the twentieth century conception of capital and its relationship with income; his ideas represented break with the classical and neo-classical opinion on this issue. Fisher’s ideas are summarised in the response to research question 4 below.
The ideas of the economists from Petty to Marshall provided the intellectual endowment of ‘neo-classical economics. The philosophic conception of wealth classical and neo-classical economics until Fisher can be summarised as follows.

In the nineteenth century, as a philosophic idea, wealth was divided into two types of capital: productive and non-productive, so-called ‘non-capital’. Non-productive, or ‘non-capital’, was wealth that did not produce income. Productive wealth was understood to be composed of two separate states: capital and income: ‘separate states of wealth’ is distinguished from wealth understood to be composed of capital and income in ‘antithetical relationship’.

ii) Chartered Accounting

The study has identified the manner in which profit was understood by London chartered accountants during the later decades of the nineteenth century. This understanding has been obtained by identifying monographs and articles by accountants at that time about the determination of profit available for distribution as dividends. In particular, articles published in the Accountant by Best, (1885, 1902) and Ernest Cooper, (1888, 1891 and 1894) have been found particularly instructive.

These articles indicate the complexity of determining of profit of registered companies in the late nineteenth century. They indicate that rules followed then to determine profit depended on the legal form of incorporation. The articles also describe an accounting definition of profit; held independent of legal requirements, based on legal rules evolved in the governance of partnerships.

Research has subordinate position held at that time of the opinions of accountants to lawyers in determining questions of principle related to
financial reporting; such as the composition of profit. At that time, legal constructs dominated over those of accounting or economics. Questions of principle concerning profit were then matters for lawyers and the courts, and the role of accountants was to apply the rule of the law in the determination of profit. However, the study has also noted the idea of capital and income as separate states running through Parliamentary imposed double-account system and judgments about profit, such as *Neuchatel*.

The study has also noted Cooper’s radical assertion that it was accountants, and not lawyers, who were best placed to provide expert opinion on the nature of accounting profit. The study therefore draws a distinction between an accounting concept of profit, and the concept of profit accountants were obliged to follow by the differing branches of the company law. The study has identified Cooper leader in the establishment of the modern accounting profession; a person of authority, instrumental in establishing the technical independence of accountants in matters relating to accounting.

As discussed by Cooper and Best, profit, as a matter of accounting philosophy, was understood by accountants to be the excess of revenue over expenses; or the increase in capital resulting from the activities of a period. As discussed by them, this definition was inherited from the ancient law of partnerships. In the late nineteenth century, it was this rule that was followed in determining profit of companies formed under the *Companies Acts*; so-called ‘commercial partnerships’, until the rule was challenged and altered by the judgment in *Lee v. Neuchatel Asphalte Company*. The effect of legal requirements on the determination of profit is discussed in the following subsection. Relevant features of the *Neuchatel* cases are noted in response to research question 3.
iii) Company Law

The study has established that the content of financial reports in the late nineteenth century was a matter of law rather than accounting principle. It has shown that the traditional accounting definition of profit as a surplus was modified by the requirements of the reformed company law in the 1840s. Those reforms established two types of companies: *Companies Act* companies and *Companies Clauses Act* companies; each following differing approaches to the determination of profit. Companies governed by the *Companies Acts*, were in effect ‘incorporated partnerships, and followed the traditional law of partnerships; in respect of this type of company, profit was a surplus. In respect of this type of company, this rule was followed until the judicial decision in *Neuchatel*.

The study has noted the very different attitude to the organisation of financial arrangements and different arrangements followed in financial reporting by Parliament in respect of *Companies Clauses Act*. Such companies were companies established by Parliament to operate utilities such as railways, gas, water, sewage and electricity reticulation; the object of incorporation of such companies being to provide a services rather than profits for their owners, who, generally, were rewarded by interest on their ‘debt capital’. These companies were obliged to maintain their stock of physical capital (capital assets), and the cost of renewal, by way of replacement or maintenance, was expensed against revenue. The study has noted that in such companies the question of depreciation as an expense did not arise, though ‘depreciation’ representing a fund of cash for asset replacement might be established. By the late nineteenth century the financial management of this type of company according to these rules was evidenced by financial reports prepared in the ‘double-account’ form. In the double-account system, capital to be maintained was reported on a balance sheet, and subsequent expenditure was reported against revenue.
In practice, the second account was reported in schedules, examples of which are provided in Appendix 8. However, research has found that in practice the position was more complex than indicated by the formal requirements. For example, tramway companies did not follow the double-account system though formally required to do so and Companies Act companies were formed to operate railways outside the United Kingdom, and not subject to the double-account system. Interpretation of practice from that that time from extant accounts is thereby made more complicated.

Therefore, the rule concerning profit differed between the Companies Act companies and Companies Clauses Act companies. In respect to Companies Act companies profit was a surplus derived after maintaining capital. In respect of Companies Clauses Act companies the position was more subtle. In respect of these companies, ‘profit’ was determined after capital had been maintained, and items of a capital or of a ‘renewal’ nature were charged against revenue. This was the position until the ruling in Neuchatel: the effect of the Neuchatel decision is noted in response to research issue 2.

**Research Question Two**

*Was the flawed distinction between capital and income followed in capital asset accounting in the late-nineteenth century consistent with the understanding of capital held in economic philosophy at that time?*

The study has noted that the definition of profit in economic philosophy and accounting in the nineteenth century were inconsistent, though the
conclusion is that the principles contained in economic philosophy indirectly influence accounting practice.

As indicated in response to research question one, in economic philosophy held that capital and income were regarded as separate states of wealth. It has noted, as articulated by Cooper and Best, as a matter of accounting philosophy, profit was understood as either a surplus after maintaining capital, or as an increase in capital. The study has noted that the accounting definition was a practical one, and that it was derived from the law of partnerships, and was followed for most of the century in the determination of profit earned by Companies Act companies.

The study has also noted the practice of accounting followed the law and has noted that two approaches were followed as a consequence of the differing requirements concerning distributable profit that flowed from the two Acts permitting incorporation. It has noted that in respect of companies governed by the Companies Clauses Act companies – companies incorporated to further public purposes – and subsequent to the Neuchatel decision in respect of companies governed by the Companies Act – companies regarded generally as incorporated partnerships – loss of capital was capital account; a separate in concept from ‘revenue matters.

The conclusion of the study is that practice followed in respect of Company Clauses Act companies, judicial decisions about profit after Neuchatel and accounting practice after that decision was consistent with the separateness of capital and income in nineteenth century economic philosophy, and the inference is that legal – and Parliamentary – opinion was influenced by the principles asserted in economic philosophy.
Research Question Three

Were late nineteenth century judicial decisions about distributable profit consistent with that understanding?

The study has noted the importance of the judicial decision in Neuchatel. In Neuchatel the High Court allowed profit of a Companies Act company to be calculated without regard to the depletion of the company’s asphalte quarry. While Neuchatel concerned the lease of a quarry the rule was subsequently extended to commercial and industrial assets of Companies Act companies, and Neuchatel established a new rule for the determination of profit in these companies. The study has noted that the decision was consistent with widely canvassed – or followed – legal opinion by the eminent authority on company law, Buckley, QC. A variety of similar decisions have been noted. 213

The rule in Neuchatel was, therefore, inconsistent with the traditional view of accountants that profit was a surplus. The study has noted the opinions of Cooper and Best that the decision in Neuchatel was the extension of the approach to profit followed in respect of Companies Clauses Act companies extended, to Companies Acts companies. The study has noted Cooper and Best’s objections.

This was that capital and income were separate, rather than antithetical, states of wealth. As analysed in the study, this view was consistent with contemporary Victorian doctrine that capital and income were separate states of wealth. The study has shown that this was the underlying

213 A list of significant cases and their points of law relevant to the professional concerns of chartered accountants made by the chartered accountant, J. W. Best is provided in Appendix 4.
understanding of the relationship between wealth, capital and income for almost all of that century. For example, it followed the notion wealth Mill’s *Principles* that that provided a widely followed source economic knowledge in the late nineteenth century.

The study has provided a contemporaneous summary of judicial decisions made between 1870 and 1910 concerning the definition of profit available for distribution as dividends, and has noted that they were consistent with the notion of capital held in economic philosophy in the nineteenth century.

**Research Question Four**

**Can the source of the twentieth century definition of capital and income as antithetical states of wealth be identified?**

The study has identified the source of the modern understanding of capital and its relationship to income in the work of the Yale economist, Irving Fisher, specifically in his 1896 paper, *What is Capital*, and subsequent developed by him in a following series of papers; Fisher 1897a, 1897b, 1904, and in a monograph; Fisher 1906. In this work, Fisher develops the modern notion of capital and income as one of antithetical states of wealth. The study has noted that while economics is widely accepted to have been revolutionised by the ‘marginal revolution’ of Jevons and Marshall they, as did other economists of the nineteenth century, held to the classical idea that capital and income were separate states of wealth.

In his first paper, Fisher identifies the nature of capital as the stock of wealth; all stocks of wealth are capital irrespective of commercial prospect. Income is identified as the flow of wealth – services – from the
stock of wealth. Irrespective of the commercial prospects of the flow; all flows are income, however brief the duration. So, for example, a chair is a stock of wealth, the seating it provides is a flow of service, and is income. Whether the stock or the flow has commercial possibilities is irrelevant to the conception. Where consumption of income is not immediately consumed it increases the stock of capital. Whether the stock or the flow has commercial possibilities depends on their utility as evaluated in the market place, and will be a matter of both supply and demand-related factors.

The study has noted that Fisher was trained in mathematics, and that his solution to the definition of capital and its relationship to income reflect the application of differential calculus and notions of stocks and flow. In this respect, Fisher’s solution is methodologically linked to the work of Jevons and Marshall who applied the mechanism to the analysis of value, utility and wealth in the decades preceding Fisher’s paper.

In the twentieth century the relationship between capital and income has been understood to be antithetical: capital is a stock of wealth; income a flow. All stocks of wealth are capital; all capital yields a flow of services; all flows are income, irrespective of whether the flow has a financial value.

Research Question Five

In principle, would nineteenth century capital accounting have precluded a rational accounting calculus of the type asserted in the Sombart hypothesis; corrupting profit signals, and misdirecting entrepreneurial activity?
The study has considered the consequences of capital asset accounting followed in the late nineteenth century on resource allocation decisions, and the implications for economic activity generally.

A simple model employing microeconomic, static analysis was developed and employed in Chapter 3 to examine certain propositions arising from particular capital asset accounting practices. The practices considered were that all capital renewals be charged to income and that capital losses arising from the contemporary decline in price levels be ignored. This analysis indicates that practices followed would, in principle, have lower the quantity of inputs employed and reduced the level of output, thereby lowering the level of general economic activity.

It is argued that these conclusions are consistent with observed circumstances in late nineteenth century Britain because of the following reasons.

i) The double-account system, or other forms of renewal accounting, lowered profit because it was burdened with capital expenditures.

ii) Where depreciation accounting was followed, depreciation based on historical cost would have overstated the real cost of capital asset consumption; again lowering profit.

iii) The underlying deflation would have overvalued assets and, depreciation charges.

Overall, the effect of nineteenth century capital accounting practice was to overstate cost of using fixed assets and lower profit. It is asserted that this effect would not have been uniform, but have been centred on British old,
capital intensive, firms – those that had produced Britain’s wealth in the preceding century.

12.3 Comment

These conclusions indicate that the late nineteenth century approach to capital accounting was not a matter of ad hoc practice, disorganised thought, opportunistic behaviour, or the absence of a structure, but followed a complicated scheme grounded in contemporary doctrine capital. The scheme was arranged around a general philosophic understanding of the relationship of capital to income, and the differing reporting requirements imposed by Parliament in the company law. The separation of capital from income taught in economic philosophy at that time provided the direction in the common law to accountants in their practice of determining profit. By the late nineteenth century, the new rule modified the traditional approach to commercial profit established in the common law in the ancient law of partnerships. Perversely, the replaced rule had more in common with the modern understanding of capital than the rule of separate states of wealth that replaced it; a transposition that perhaps explains the puzzlement of modern observers of extant material of that time.

The evidence reviewed in the study shows that a notion of wealth composed of capital and income as separate states was imported into the practice of accounting by the need to conform to the requirements of the company law. That idea was foreign to the general understanding of accountants derived from the ancient laws of partnership that profit was a surplus. In the debates of the 1880s and 1890s about the composition of profit, had the view of accountants dominated in the legal argument, capital losses would have been expensed against profit; and profit signals would have more accurately reflected economic reality by making explicit the stock of wealth and changes to it. But as Cooper noted at that time, chartered accounting was a new profession, struggling to establish its creditability over the law in accounting matters; especially at that time, the amount available for distribution to shareholders. As reflected in the writing of Cooper, the
argument of chartered accountants had evolved in the common law really as a matter of
logic rather than theory or philosophical reasoning: to regard profit as a surplus preserved
capital, and the idea need not be more complicated. The traditional position competed
with the theoretical scheme of Petty, Smith, Ricardo, J. S. Mill and Marx, Jevons and
Marshall that held that capital was a separate state of wealth to income. When the
necessary theoretical insight was provided to correct this error, it came from a Fisher, a
young American academic and, lacked visibility in the commercial world of London,
though his papers were published there. Absorption of Fisher’s ideas into the mainstream
in accounting and economics appears as a matter of osmosis rather than revolutionary
discontinuity. The break with the past is less visible than, for example, the ideas of the
‘marginalist revolution’ in economics, but equally well established.

The argument presented is one based in an association of accounting practice and
classical, or neo-classical, economic thought. Methodologically, Fisher’s definition of
capital arose from outside accounting; it was not a matter of teleological evolution within
accounting. It represents the intrusions into accounting of theoretical developments in
economics that resulted from applying the differential calculus to economic argument at
the core of the neo-classical revolution, a methodological approach in vogue at the time.

Methodologically, resolving a past accounting issue by moving outside the observation of
accounting practice, rather than, for example, making more observations of the same
type, illustrates the practical usefulness of the assertions by Carnegie, Hopwood, Miller
and Napier that the context of accounting occurs in a human or social context, and it is
the context that modifies that practice: just as accounting modifies economic outcomes
and alters society thereby. A significant illustration of the connection between
accounting, the broader world of economic life and social consequence – economic
dislocation, personal distress and social dislocation – is evidenced in litigation about
distributable profit and resulting revision of the definition of profit in Neuchatel.

The intention here has not been to preclude other, non-economic, influences at work in
the formation of late nineteenth century accounting. For instance, the judgment made
here is that there is much validity in Napier’s argument about the effect of the British, or English, system of aristocratic ownership in the eighteenth and nineteenth-centuries observed by Ricardo. Observation of that society informed Ricardo’s deductive constructs, and, in that society land – capital – was separated by institutional arrangement from income. The idea of capital and income as separate states of wealth was to Ricardo empirically valid one.

**12.4 Modern Relevance**

Life must be lived forwards, but it can only be understood backwards.

(Kierkegaard)

Perhaps unfashionably, the issue of concern in the study is a historical matter about a past problem of accounting calculation; an issue that was closed perhaps one hundred years ago. All that now remains is an ‘echo’ visible in extant accounts and academic comment. Possibly there is a need to justify historical study of a ‘dead’ issue in a discipline primarily concerned with the modern moment. In themselves, historical studies may be justified in a number of ways. Sometimes they give pleasure and satisfaction in their own right, or they may resolve past problems, permit reflection on the wisdom or capacity of past actors, assign responsibility, enable judgment about past causation and, probably always, provide some partial explanation for the present. Or historical study might provide understanding about modern matters that have no relationship to the past. But generally, historical studies are not regarded as of modern relevance. What can the study of a past problem in accounting calculation tell us that are relevant to now?

Historical study provides a space in which consideration of circumstance is broader than the present, and the range of causal factors to be considered is thereby wider. The present is not comprehensible, because it is impossible for an actor to understand all that is happening. Present events are frequently screened from, and unknown to, the contemporary actors and observers. By contrast, historical investigation offers the
opportunity to collect, inform, reflect, to alter perspective, or rework events, over and over: the factors to be understood are thereby broadened; and perhaps difficulty of comprehension increased. History is not a scientific laboratory, but it offers similar possibilities to ponder ‘what if’, in particular to ask what was missing and evaluate the outcome had it been available. It is in this way that historical analysis offers the possibility of a richer analysis than a simple evaluation of present events provides.

So what is relevant today from an investigation of the long-past problem of capital asset accounting? The issue of capital asset accounting arose from the phenomena of industrialisation, when manufacture becoming the dominant means of creating wealth. It arose from a need to describe that wealth, understand where it was, at the moment, being created, and allocate fresh resources to capture economic rents. That world has now past and the dominant mode of wealth creation is the exploitation of intellectual property in various forms. Wealth, in this form, is a less tangible matter than ‘property, plant and equipment’. A problem, perhaps the problem, in modern financial reporting, is in describing wealth in such an abstract form. Hitherto the attempt has been to use the mode of profit and loss and balance sheet, ignoring the fact that these forms were derived to serve the reporting needs of industrial wealth funded by joint stock companies. By contrast, when wealth was derived from the land it was managed with the charge and discharge system of financial reporting, and, similarly, in the management of commercial wealth there was no necessity for an income statement.

Galbraith’s idea that, ‘economic ideas are always and intimately a product of their own times’, (Galbraith, 1991, p.1) is relevant here. The revolution in wealth creation brought by intellectual property seems to be a discontinuity with the past order similar to that involved with the shift to commerce or industry in earlier phases of capitalism. The difference between the tangibility of industrial wealth and the intangibility of intellectual property suggest a reformulation of the balance sheet at least. Galbraith goes on to observe that at any time there will be an absence of answers to economic questions because economic thought has not developed to the requisite level, or questions have not yet arisen, (Galbraith, 1991, p.9). This idea is clearly visible in the reporting of capital
assets in the late nineteenth century. With respect to intellectual property the problems have arisen but the questions have yet to arise, or perhaps are not yet visible.

This study offers, by reference to the experience with capital assets, a number of insights into this modern problem. Firstly: the dysfunction of nineteenth century approaches to distinguishing capital from income was apparent not in accounting; but in commercial life and the law courts; that is as a matter affecting society generally: secondly, its resolution occurred not in professional accounting, but in academia, away from the turmoil of everyday commerce; lastly, the gestation period taken from the start of the growth in demand for anonymous capital required by railway age, say from the opening of Liverpool to Manchester railway, to the publication Fisher’s paper, was some 65 year, or about three generations. On the discovery of new approaches to economic questions, Galbraith offers a compelling, relevant, thought: ‘Progress in the subject matter is made in the abstract; one scholar shows a compelling talent for innovation, and others amend and improve on his work, all without close reference to the economic context.’, (Galbraith, 1991, p.1). This study has illustrated the application of this idea to the development of accounting as an economic tool grounded in contemporary relevance.

The issue explored here, accounting for capital assets in late nineteenth century Britain, is a past conundrum, about an issue that is now no longer relevant. It was an issue relevant to the management of an industrial economy, and concerned the allocation of financial resources. The consequences lie in the direction of industrial activity. The issue that emerges, and that engaged Brief, is the consequences to the direction of economic activity of flawed signals about profit and cost, and the nature of the difference that the modern distinction between capital and income would have produced. The problem is the same today: what is the cost of misconstructed accounting signals about the generation of wealth from intellectual property?

By the late nineteenth century, Britain’s industrial society was ‘mature’, but in a financial sense this was not so. While the late nineteenth century has been described as the age of ‘finance capitalism’: British firms were only just being reorganised from family concerns
into listed, public’ companies and Marshall’s powerful analysis with its emphasis on incremental revenues and costs, and the distinction between variable and fixed costs, was not available generally until 1890. The contribution to the literature made here is to observe that understanding how to distinguish fixed cost from capital was not available until the work of Fisher in 1896, and to note that application of that distinction in accounting was delayed until the development of the definitions of the elements of financial statements contained in modern frameworks of financial reporting.

12.5 Calculation, Context and Consequence

The theme about which this study has been assembled is one that flows from Hopwood’s, (1983), idea that accounting calculation does not exist in a vacuum, but arises from a context and imparts a consequence. It is the context and consequence of accounting calculation that makes accounting a matter of serious intellectual pursuit. The validity of the idea is readily visible in the past in the tailoring of accounting systems, such as the charge and discharge system and mercantile accounting, to the need to understand the consequences of economic activity in differing modes of capitalist activity: accounting evolved as a practical matter. Industrial capitalism was is just another mode with its own characteristics. The idea that accounting systems have consequences is really what the Sombart hypothesis is about. Stripped of ideology, the purpose of an accounting system is to avoid waste and improve outcomes; to behave in a responsible manner in the use of scare resources: that is ‘rational behaviour’.

So in this study, the ‘calculation’ of interest is the illogical approaches to capital asset accounted derived from an inadequate definition of capital noted in the literature. Context is represented by the social need to understand wealth represented in a new and highly abstract way in industrial capitalism. The consequences are what followed from the inadequate calculation, illogical description of profit; irrational decision making and economic confusion visible in litigation about the definition of distributable profit. The potential for flawed accounting to contribute to the economic confusion and ’crisis of late nineteenth century Britain has been demonstrated in theory in the analysis contained in Chapter 3. This indicates that the consequences of accounting misstating of costs is to
misjudge output and use of inputs; and the result is to affect profit. The theory is in agreement with what is known of the crisis of the Great Depression of the late nineteenth century. That crisis centred on Britain’s old, capital intensive industries. It is in such industries that economic calculation concerns investment in capital intensive industries. It is in these circumstances that a systematic distinction between capital and income becomes necessary to understand the stock of wealth and changes to the stock. Chapter 3 has indicated that it is this conception of assets and expenses that provide the conception of modern definitions of those terms followed in modern frameworks of financial reporting. The flawed approaches to capital asset followed in the late nineteenth century accounting lacked this framework, and practices followed were, as understood here, ad hoc, and their cumulative effect on decision-making cannot be discerned in a reliable manner. But the Great Depression concerned a long run fall in prices that suggests capital charges were overstated, with the effect that profit would be understated. This is a conclusion that accords with what is known of the performance of British industry during the Depression: the old, traditions, capital-intensive industries were understood to be ‘unprofitable’. The conclusion suggests that flawed accounting was implicated in the economic crisis that beset Britain after 1870, if not as an initiating agent, at least as an amplifying one.

Context

The study has identified the process of industrialisation as a significant discontinuity in the development of capitalism. Specifically, it involved the generation of wealth via investment of savings in industrial assets, rather than in commercial agriculture or commerce as in earlier forms of capitalism. The new form of capitalism, variously described as ‘industrial’ or ‘finance’ capitalism was organised around the pursuit of gain, understood as an abstract, financial, matter – profit – determined, by accounting calculation. The study has shown the particular, and unique, character of industrial capitalist organisation was the need to determine profit periodically arising from the operation of financial investment sunk into industrial assets of an uncertain physical and commercial character.
Calculation
The study has identified that the profit calculation necessary for the rational management of the system required identification of the stock of wealth and the change in the stock, income, and has noted that this conception was not available until 1896, and was derived as an abstract proposition by the American economist Irving Fisher. In Fisher’s conception, capital and income are antithetical states of wealth.

The capital accounting observed in extant references in secondary sources reflects an earlier understanding of capital and its relationship with income in which the two concepts are separate states of wealth. The study has noted that this `conception was derived in classical economics and has its origin in the writing of William Petty and Adam Smith. The study has noted this conception of capital is consistent with the concept contained in the ‘double-account’ form of financial reporting required by Parliament in respect of Parliamentary companies and judicial decisions concerning capital lost and the determination of profit. In this way, nineteenth century capital accounting is not so much ad hoc, but consistent with an archaic conception of capital.

Consequence
The study has argued that the idea that double-entry bookkeeping is consequential arises from the work of the German historian, Werner Sombart. Investigation of the macroeconomic consequences of capital asset accounting in the late-nineteenth century has been undertaken by Brief, who concluded that financial reporting error would have been randomly distributed, and cancelled out. Reviewed in this study, Brief’s findings are disputed. Here allowance is made for the fact that price levels fell consistently over the last third of the nineteenth century. In that context, this study concludes that, a priori, accounting based on the double-account method, and with no adjustment to reflect falling prices, would have biased the cost of consumption of physical assets and reduced accounting measures of profit.
12.6 Other Research

A number of further research directions are suggested by the study reported here. Investigation of these would extend the argument that has been made. The following issues worthy of further research come to mind:

i) Identification of the definition of capital in nineteenth century economic philosophy identifying capital and income as separate, distinctive, states of wealth provides the basis for structuring, or classifying, new observations of extant accounts or texts, or reinterpretation of existing observation. It provides a basis for testing the scheme followed by accountants at that time, thereby offering the possibility of reducing the impression of accounting at that time as one of schematic incoherence and confusion.

ii) Similarly, the observation that the form of financial reporting followed in late nineteenth century was determined in the company law; that accounting was determined in the law, which imposed different requirements in respect of companies incorporated under the Company Clauses Act – Parliamentary companies – and those incorporated under the Companies Act companies – commercial companies – provides a basis for structuring observation of extant accounts and texts from that time. For example, what type of company do accounts relate to? Coopers observations that while tramways companies were required to follow the double-account system offers an interesting lead in this respect.

As reviewed for this study, this distinction has been invested with little, if any significance in secondary comment about nineteenth century financial reporting, though clearly there were two distinctive financial reporting sets at that time. Possibility of reinterpreting of conclusions about financial reporting on the basis following this distinction therefore exists.
The distinction between accounting for commercial purposes and for public purposes – where the concern was not with profit per se, but with maintaining the operating capacity of utilities – is perhaps a starting point of the idea that ‘commercial accounting’ might be separated from some other form of accounting: that commercial accounting is not appropriate in all circumstances. The distinction has been lost in the modern discussion in which the tendency is to regard the standard accrual accounting model as applicable to all types of entities; and especially, public sector and not for profit entities, and the past has been seen in modern analysis of nineteenth century accounting in that way. The exploration described here draws attention to the attempt at that time in the use of double-accounting model to fashion an accounting model attuned to the distinctive objectives of utilities in the late nineteenth century. The importance of the distinctive objective is visible in the discussions of Best and Cooper. The creation of distinctive of accounting models on based on differing objectives provides a thread that can be developed further; for example, in discussion of public sector accounting issues.

An evaluation of the effectiveness of the double-account model in meeting the objective of Parliament and the needs of users, especially providers of debt capital, is also suggested. Did the double-account system ‘protect’ the capital of Parliamentary Companies?

iii) Identification of the definition of capital contained in nineteenth century economic philosophy as one distinctive from the modern understanding raises the question of the explicit reference to a concept of capital in Parliamentary debate and enquiry about financial, company and accounting matters in the nineteenth century. For example, how did the Parliament come to impose double-account system in the Regulation of Railways Act of 1868? Why, for instance, did Parliament not follow the
concept of capital as a surplus in the ancient law of partnership is a question worthy of further research?

iv) The conclusion that accounting calculation in the late nineteenth century was fundamentally flawed, distorted decision-making and thereby contributing to the crisis in late nineteenth century British economic life warrants further investigation. As noted, inquiry about the role accounting in the development of capitalist evolution seems hardly to have been explored, with accounting ignored or dismissed as a mere passive scorekeeping device, devoid of a broader significance in economic organisation. In particular, the idea that accounting decisions alter profit signals seems to have attracted no attention. This idea provides a starting point for examination of the use of accounting information in business decisions-making, in particular, about the employment of capital assets in any epoch. This is an exciting idea.

The idea gives rise to the need to investigate the character of accounting calculation at that time. In this respect, attention is drawn to Fisher’s discussion of relative rates of profit and the evaluation of enterprise performance described in Chapter 11.

12.7 Summary

The chapter has noted the results of the study to the research questions posed, reflected on the relevance of a historical study of a long gone issue to modern accounting circumstance and suggested avenues for further research that would develop the themes explored here.
Original Contributions Made by the Study

The study is concerned with the confused accounting followed in respect of capital assets at the end of the nineteenth century that has been the subject of discussion and debate in the accounting literature. The intent has been to provide a causal explanation for the accounting then followed in respect of such assets. Methodologically, the approach followed has been to explore the conception of capital held in economics and accounting at that time as a philosophic matter.

This enquiry has contributed the following original insights into accounting for capital assets in the late nineteenth century; it has

1) Identified a coherent, but flawed, conception of capital and its relationship to income consistently held in economic philosophy throughout the nineteenth century. This held capital and income to be separate states of wealth. It has noted that it was inconsistent with the modern, twentieth century understanding in which capital and income are antithetical states of wealth.

Argued that the idea of capital income as separate states of wealth is apparent in the approach to capital required of companies following the Companies Clauses Act, and by Companies Act companies after the decision in Lee v. Neuchatel. It has been argued that the distinction was the conceptual essence of the decision in Neuchatel.
ii) Noted a different tradition established in the law of partnership and followed by accountants in determining profit of commercial enterprises. In that tradition profit was understood to be a surplus, determined after maintaining capital. It was in this tradition that profit was defined by companies formed for commercial purposes under the *Companies Acts* and known in the nineteenth century as ‘company’, or ‘incorporated’, partnerships. The approach has been noted to have been followed by *Companies Act* companies until *Neuchatel* decision.

iii) Identified, in the writings of Ernest Cooper, doubt and uncertainty in the minds of accountants and lawyers as to the correct approach to be followed in the determination of profit after the decision in *Neuchatel*. It has noted Cooper’s desire to assert the authority of accountants over lawyers in matters and his rejection of the approach adopted by the court in that decision and argument that the nature of ‘profit’ for accounting profit was logically understood in the traditional way of the law of partnership as a surplus.

iv) Established that the modern, twentieth century, understanding of capital and income being as of antithetical states of wealth derives from the American economist, Irving Fisher, and that it was first made in 1896.

v) Argued that, in the context of falling prices, that nineteenth century capital accounting practices would have inflated expenses, reduced profits, distorted price signal and thereby corrupted decision making.
Appendix 1

Keynes: Identifying ‘User Cost’

In Chapter 6 of the *General Theory* Keynes is struggling to define income amid the complexities introduced by accounting approaches to the depreciation of plant and changing price levels. To resolve his problem, Keynes approaches the difficulty in a first principles manner, after concluding in the Appendix to his Chapter 6 that, if the reader tries to express the substance otherwise, he will find that its advantage lies in its avoidance of insoluble (and unnecessary) accounting problems, (Keynes, 1936, p.66).

Keynes develops the notion of user cost, supplementary cost and windfall gain and loss as components of factor cost which, with closing stock, is to be deducted from the opening available stock plus current production to find income.

The following is quoted from, J. M. Keynes, the *General Theory of Employment Interest and Money*, Chapter 6, ‘The Definition of Income, Saving and Investment.’

(pp.52-9, italics in the original, underlining added.)

Chapter 6

The Definition of Income, Saving and Investment

During any period of time an entrepreneur will have sold finished output to consumers or to other entrepreneurs for a certain sum which we will designate A. He will also have spent a certain sum, designated by A1, on purchasing finished output from other
entrepreneurs. And he will end up with a capital equipment, which term include both his stock of unfinished goods, or working capital and his stocks of finished goods, having a value G.

Some part, however, of A+G – A₁ will be attributable, not to the activities of the period in question, but to the capital equipment which he had at the beginning of the period. We must, therefore, in order to arrive at what we mean by the income of the current period, deduct from A+G – A₁ a certain sum, to represent that part of its value which has been (in some sense) contributed by the equipment inherited from the previous period. The problem of defining income is solved as soon as we have found a satisfactory method for calculating this deduction.

There are two possible principles for calculating it…

(i) The actual value of G of the capital equipment at the end of the period is the net result of the entrepreneur, on the one hand, having maintained and improved it during the period, both by purchases from other entrepreneurs and by work done upon it by himself, and, on the other hand, having exhausted or depreciated it through using it to produce output. If he had decided not to use it to produce, there is nevertheless, a certain optimum sum which it would have paid him to spend on maintaining and improving it. Let us suppose that, in this event, he would have spent B’ on its maintenance and improvement, and that, having had this spent on it, it would have been worth G’ at the end of the period. That is to say, G’-B’ is the maximum net value which might have been conserved from the previous period, if it had not been used to produce A. The excess of this potential value of the equipment over G – A₁ is the measure of what has been sacrificed (one way or another) to produce A. Let us call this quantity, namely

\[(G' - B') - (G - A₁),\]
which measures the sacrifice of value involved in the production of $A$, the *user cost* of $A$. *User cost* will be written $U$. The amount paid out by the entrepreneur to other factors of production in return for their services which from their point of view is their income, which we will call the *factor cost* of $A$. The sum of the factor cost $F$ and the user cost $U$ we shall call the *prime cost* of the output $A$.

We can then define the *income* of the entrepreneur as being the excess of the value of his finished output sold during the period over his prime cost.

We can therefore define the *income* of the entrepreneur as being the excess of the value of his finished output sold during the period over his prime cost. The entrepreneur's income… is taken to being equal to… his gross profit in the ordinary sense of the term; - which agrees with common sense…

(ii) …the second of the principles referred to above … there may, in addition, be an *involuntary* loss (or gain) in the value of his capital equipment, occurring for reasons beyond his control and irrespective of his current decisions, on account of (*e.g.*) a change market values, wastage, by obsolescence or the mere passage of time, or destruction by catastrophe such as war or earthquake. Now some part of these involuntary losses, whilst they are unavoidable, are – broadly speaking – not unexpected; such as losses through the lapse of time irrespective of use, and “normal” obsolescence which… “is sufficiently regular to be foreseen, if not in detail, at least in the large, including, we may add, those losses to the community as a whole which are sufficiently regular to be commonly regarded as “insurable risks”… let us call the depreciation of the equipment, which is involuntary but not unexpected, *i.e.* the excess of the *supplementary cost*, which will be written $V$…

In reckoning, therefore, the *net income* and the net profit of the entrepreneur it is usual to deduct the estimated amount of the supplementary cost from his income and
gross profit as defined above. Hence we shall not only come nearest to the common usage but will arrive at a concept which is relevant to the amount of consumption, if, in defining aggregate net income, we deduct the supplementary cost as well as the user cost, so that aggregate net income is equal to $A - U - V$.

There remains the change in value of the equipment, due to unforeseen changes in market values, exceptional obsolescence or destruction by catastrophe, which is both involuntary and – in a broad sense – unforeseen. The actual loss under this head, which we disregard even in reckoning net income and charge to capital account, may be called *windfall loss*.

The causal significance of net income lies in the psychological influence of the magnitude $V$ on the amount of current consumption, since *net income* is what we suppose the ordinary man to reckon his available income to be when he is deciding how much to spend on current consumption. This is not, of course, the only factor of which he takes account when he decides how much to spend. It makes a considerable difference, for example, how much windfall gain or loss he is making on his capital account. But there is a difference between supplementary cost and a windfall loss in that changes in the former are apt to affect him *in just the same way* as changes in his gross profit. It is the excess of the proceeds of the current output over the *sum* of the prime cost and the supplementary cost which is relevant to the entrepreneur’s consumption; whereas, although the windfall loss (or gain) enters into his decisions, it does not enter into them on the same scale – given windfall loss does not have the same effect as an equal supplementary cost.

We must now recur, however, to the point that the line between supplementary cost and windfall losses, *i.e.* between those unavoidable losses which we think it proper to debit to income account and those which it is reasonable to reckon as a windfall loss (or gain) on capital account, is partly a conventional or psychological one, depending on what are the commonly acceptable criteria for estimating the former. For no unique principle can be established for the estimation of supplementary cost.
and its amount will depend on the choice of accounting method. The expected value of the supplementary costs, when the equipment was originally produced, is a definite quantity. But if it is re-estimated subsequently, its amount over the remained of the life of the equipment may have changed as a result of a change in the meantime in our expectations; the windfall capital loss being the discounted value of the difference between former and the revised expectations of the prospective series of \( U = V \). It is a widely approved principle of business accounting, endorsed by the Inland Revenue authorities, to establish a figure for the sum of the supplementary cost and user cost when the equipment is acquired and to maintain this unaltered during the life of the equipment, irrespective of subsequent changes in expectation…it is also reasonable in certain circumstances to recalculate the allowance for supplementary cost on the basis of current values and expectations at an arbitrary accounting interval, i.e. annually. Business men in fact differ as to which course they adopt. It may be convenient to call the initial expectation of supplementary cost when the equipment is first acquired the *basic supplementary cost*, and the same quantity recalculated up to date on the basis of current values and expectations the *current supplementary cost*.

...we cannot get closer to a quantitative definition of supplementary cost than that it comprises those deductions from his income which a typical entrepreneur makes before reckoning what he considers his *net* income for the purpose of declaring a dividend (in the case of a corporation) or of deciding the scale of his current consumption (in the case of an individual). Since windfall charges on capital account are not going to be ruled out of the picture, it is clearly better, in the case of doubt, to assign an item to capital account, and to include in supplementary cost only what rather obviously belongs there.
Appendix 2

Keynes on the Cost of the Fixed Factor in the Short

Quoted from, J. M. Keynes, Appendix to Chapter 6,
General Theory of Employment Interest and Money, 1936

In this section of Appendix 6, to the General Theory, Keynes is drawing out additions to the incremental cost that are to be considered in respect of the fixed factor. Attention is drawn to his observations that this is generally assumed to occur at zero incremental cost.

Keynes, 1936, ‘Appendix on User Cost IV’, (pp.74-5.)

In Marshall’s Principles of Economics (6th ed. P. 360) a part of user cost is included in prime cost under the heading of “extra wear-and-tear of plant”. But no guidance is given as to how this item is to be calculated or as to its importance. In his Theory of Unemployment (p.42) Professor Pigou expressly assumes that the marginal disinvestment in equipment due to the marginal output can, in general, be neglected: “The difference in the quantity of wear-and-tear suffered by equipment and in the costs of non-manual labour employed, that are associated with differences in output, are ignored, as being, in general, of secondary importance”. Indeed, the notion that the disinvestment in equipment is zero at the margin of production runs through a good deal of recent economic theory. But the whole problem is brought to an obvious head as soon as it is thought necessary to explain exactly what is meant by the supply price of an individual firm.
It is true that the cost of maintenance of idle plant may often, for the reasons given above, reduce the magnitude of marginal user cost, especially in a slump which is expected to last a long time. Nevertheless a very low user cost at the margin is not a characteristic of the short period as such, but of particular situations and types of equipment where the cost of maintaining idle plant happens to be heavy, and of those disequilibria which are characterised by very rapid obsolescence or great redundancy, especially if it is coupled with a large proportion of comparatively new plant.
Appendix 3

Definitions of capital identified by Irving Fisher (1896)

The following are Fisher’s notes on the various definitions of ‘Capital’ he included in his 1896 paper (pp.511-12, emphasis in all cases in the original).

Turgot ‘Whoever … receives each year more value than he has need of spending, can put in reserve this surplus and accumulate it. These accumulated values (valeurs accumlies) are what is called Capital … It is of absolutely no consequence whether this sum of value or this capital consist of a mass of metal or of anything else, since money represents every kind of value just as every kind of value represents money.’ Reflexions sur la formationet la distribution des richesses LIX

Adam Smith ‘(A man’s) whole stock, therefore is distinguished into two parts. That part which he expects is to afford him this revenue is called his capital.’ Wealth of Nations, Book II., Chapter i.

Ricardo ‘Capital is that part of the wealth of a country which is employed in production and consists of food, clothing, tools, raw materials, machinery, etc., necessary to give effect to labour.’ Principles of Political Economy, 37

Senior ‘[Capital is] an article of wealth, the result of human exertion, employed in the production or distribution of wealth.’ Political Economy, Encyclopaedia Metropolitana, Vol. Vi., p.153.
John Stuart Mill  ‘…besides the primary and universal requisites of production … there is another … namely, stock, previously accumulated, of the products of former labour. This accumulated stock is termed Capital … The distinction between Capital and Not-capital, does not lie in the kind of commodities, but in the mind of the capitalist – in his will to employ them for one purpose rather than another; and all property, however ill adapted in itself for the use of labourers, is part of capital, as soon as it, or the value to be received from it, is set apart from the productive reinvestment.’  *Principles of Political Economy*, Book 1., Chapter iv., Section 1.

Kleinwacher  ‘The conception of capital should be limited to tools of production.’  *Grundlagen des Socialismus*, 1885, p.184.  He excludes raw materials as passive.  They are worked up by means of tools but are not themselves tools.

Bohm-Bawerk  ‘Capital in general we shall call a group of Products which serve as means to the Acquisition of Goods. Under this general conception we shall put that of Social Capital as narrower conception. Social Capital we shall call … a group of Intermediate Products,’  *Positive Theory of Capital*, English translation, London and New York 1891, p.38.

Marx  ‘We know that the means of production and subsistence, while they remain the property of the intermediate producer, are not capital. They become capital only under circumstances in which they serve as the same time as means of exploitation and subjection of the labourer.’  *Capital*, English translation, London, 1887, Vol. ii., p.792.

McCullock  ‘The capital of a country consists of those portions of the produce of industry existing in it, which may be directly employed either to support human beings, or to facilitate production.’  *Principles of Political Economy*, 4th edition, p.100.
Knies “Capital” is to be regarded as a stock of goods which are left over from or cannot be employed for the satisfaction of current present wants and therefore are free to be applied to economic employment at another time.’ *Das Geld*, 2nd edition, 1885, pp.69-70.

Herman [Capital is] every durable source of utility which has exchange value.’ *Staatswirthschaftlicke Untersuchungen*, Munich, 1832, p.59.

Walras ‘I call, as did my father in his *Theorie de la richesse social* (1840), capital in general every kind of social wealth which is not consumed at all or which is consumed only after a long time, every commodity limited in quantity which survives the first use to which it is put in a word, which serves more than one use.’ *Elements d’ economie politque pure*, Lusanne, 2nd and 3rd editions, p.197.

Jevons ‘Capital, as I regard it, consists merely in the aggregate of those commodities which are required for sustaining labourers of any kind or class engaged in work.’ ‘I would not say that a railway is fixed capital, but that capital is fixed in the railway.’ *Theory of Political Economy*, 3rd edition, 1888, chapter vii, pp.222 and 242.

MacLeod ‘Capital is any Economical Element [including land, workman’s labour, credit, incorporated estates such as “the Law”, “the Church,” “Literature,” “Art,” an authors “mind,” “Education,” etc.] appropriate to the purpose of profit or increase.’ *Dictionary of Political Economy*, Article ‘Capital,’ p.331.

J. B. Clark ‘The fund, Capital, resides in many unlike things, but consists of a single entity that is common to them all. That entity is “effective social utility.” So much of this as a business man retains embodied in instruments of production constitutes his permanent capital, however, the instruments may come or go in exchange, and however they may perish or be restored through use.’ *Capital and its Earnings*, publication of the American Economic Association, 1888, p11.
Appendix 4

Best on Divisible Profits of a Company

Key Cases 1877-1900

Quoted from J.W. Best, *The Divisible Profits of Limited Liability Companies, Are the Decisions of the Courts Respecting the Distribution of the Profits of a Limited Company Opposed to Sound Commercial Finance?*, (1903, pp.10-14)

legal decisions have created a wide difference during the last few years between actual profits as defined by economists and business men, and distributable or legal profits of a limited company.

Now what are these legal decisions, and what is their effect?

I have tabulated a number of them as follows:-

Firstly, - As Leaseholds and other Wasting Assets (including Goodwill).

1877 Depreciation of leases must be provided. - (*Knowles & Son, Lim, v. McAdam.*)

1879 Tramway depreciation must be provided. ("Net" profits were mentioned in articles as divisible profits). (*Davison v. Gillies*) - Sir G. Jessell, M.R.

1881 Depreciation of mineral bed must be provided, (*Coltness Iron Company v. Black.*) – Lord Penzance.
1888  Rest entirely with shareholders to decide whether to provide depreciation on wasting assets, and Court have no power to interfere. (Lee v. Neuchatel Asphalte Company, Lim) – Lord Justice Lopes.

1888  No obligation to recoup wasting nature of capital. (Lee v. Neuchatel Asphalte Company Lim) - Lord Justice Lopes.

1891  Assets need not make good share capital. (Was bound by decision in Lee v. Neuchatel.) (Boulton v. Natal Land Company.) – Lord Justice (then Mr. Justice) Romer.

1894  Fixed capital may be sunk or lost, and yet the excess of current receipts over current payments divided, but floating or circulating capital must be kept up. (Verner v. General and Commercial Investment Trust) - Lord Justice Lindley.

1894  Lord Justice Kay appears to dissent from Lord Lindley’s dictm in Verner v. General and Commercial Investment Trust, though not from his decisions, and expresses the opinion that depreciation on investments should be provided and profits ascertained as in a partnership. – Lord Justice Kay.

1895  Depreciation of Goodwill not necessary, as it is fixed capital. (Wilmer v. McNamara & Co., Lim) – Lord Justice (then Mr. Justice) Sterling.

Secondly. – As to what is, and what is not, payment of Dividends out of Capital, and what may be treated as Capital Losses and disregarded.
1864 Payment of interest on share capital during construction, when there was no profit, is payment out of capital. (*McDougall v. Jersey Hotel Company, Lim.*) – Lord Hatherley (then Vice-Chancellor Wood).

1887 Memorandum or articles cannot sanction payment of dividends out of capital. Creditors have a right to rely on capital remaining undiminished, except by loss. (*Trevor v. Whitworth.*) – Lord Herscell.

1888 Companies Act Companies do not require capital to be made up if lost. (*Lee v. Neuchatel.*) – Lord Justice (then Mr Justice) Lindley.

1888 If payment of dividends without proper allowance for depreciation be a return of capital, it appears to me not to be such a return of capital as is prohibited by Act of Parliament, *Lee v. Neuchatel.* – Lord Justice (Then Mr Justice) Lindley.

1892 Capital must be kept intact for creditors and others. (*Lubbok v. British Bank of South America*) Lord Justice (Then Mr Justice Chitty).

1899 Basis of valuation for profits and for capital different. Fixed capital may be lost. (*National Bank of Wales v. Cory*) – Mr Justice Wright.

1899 Loans by a bank to customers and lost may be treated as a loss of capital. (*National Bank of Wales v. Cory*) – Mr Justice Wright.

1899 Profits made one year may be divided without regard to capital lost in a previous year. (*National Bank of Wales*) – Lord Justice Romer.

1899 Insufficient provision (if honestly made) for bad debts need not be charged against future profits, but may be treated as a capital loss.

1899 What loss may be charged to capital and what to income, is a matter for businessmen to determine. (National Bank of Wales v. Cory) – Lord Lindley (then Master of the Rolls).

(Please note, that though the appeal in 1900 to the House of Lords was affirmed, it was affirmed on other grounds, and the Lord Chancellor questioned the grounds of Lord Lindley for the decision in the Court of Appeal.) (National Bank of Wales).

Thirdly. – As to keeping capital intact and what are Capital Profits.

1886 Investment company’s investments may be valued as a basis for ascertaining profits. (Midland Land and Investment Corporation.) – Lord Justice Chitty.

1888 Accretions to and diminutions of capital to be disregarded. (Lee v. Neuchatel Asphalte Company, Lim.) - Lord Justice Lopes

1888 If you treat it as an abstract proposition, that no dividend can be paid out of moneys arising from the sale of property brought with capital, you land yourself in consequences which the common sense of mankind would shirk from accepting. (Lee v. Neuchatel Asphalte Company, Lim.) - Lord (Then Lord Justice) Lindley.

1892 After providing for capital, surplus rightly goes to profit and loss; capital need only be kept intact. (Lubbock v. British Bank of South America.) – Lord Justice (then Mr Justice) Chitty.

(In this case the bank sold part of its undertaking, and the question was, Was the profit on the sale divisible?)
1894 No law requiring capital to be sunk so as to be able to reproduce it, either before or after winding up. *(Verner v. General and Commercial Trust)* – Lord (Lord Justice) Lindley.

1900 A realised accretion to estimated value of one item of capital assets, not profit divisible without reference to the accounts as a whole, but it may be brought into the Profit and Loss Account. *(Foster v. New Trinidad Lake Asphalte Company Lim.)* - Mr Justice Bryne.

Fourthly, - As to the latitude given to Shareholders in determining what are Profits.


1888 Acts of Parliament do not provide how profits are to be reckoned. That is left to the commercial world, and if the company retains assets to pay its creditors there is nothing in the Acts of Parliament to prevent any excess money obtained by working the property over the cost of working it from being divided among the shareholders. *(Lee v. Neuchatel)* – Lord (Then Lord Justice) Lindley.
Appendix 5

Best On Inconsistencies in Decisions on Divisible Profit


In these passages Best provides a commentary on these cases is cited in Appendix 4.

It will be seen that many of these decision and opinions appear quite inconsistent with each other, but in order that we may have before us something tangible to discus and criticise, I submit with reserve the following propositions, which seem to me to define the law as the outcome of decisions not yet reversed by the House of Lords, always subject to the proviso that a company, by its memorandum or articles, has not restricted itself to some special way not contrary to law: but please do not forget that articles of association by special resolution at any time may be varied, and especial provisions as to profits nullified, viz. :-

1) Profits divisible are profits of every kind, whether in respect of Capital or Revenue, regardless of capital losses.

I only complain of this because capital losses may be disregarded.

2) The Capital of a limited company is not ‘money subscribed and risked,’ but ‘permanent assets’ – that is, assets acquired not for sale, but for use in earning revenue – whether acquired with moneys subscribed by shareholders, or with borrowed money, or with any other of the company’s resources.
I hold, in my opposition to Mr. Sidney S. Dawson, but with Mr. James, that *money subscribed or its equivalent value*, is capital, and not assets, and permanent no more than circulating, and that it makes no difference where assets are taken over in exchange for shares; the equivalent cash value of the assets is capital, and should be maintained before there can be any real profit.

(3) Capital Profits are sums realised in excess of cost in respect of fixed or permanent assets.

I do not admit these are *capital profits*. While they are not trading profits, they are ‘profits resulting from the business,’ and provide capital is intact, they would be divisible. The decision in *Foster v. New Trinidad Lake Asphalte Co.* is a wise one – *viz., ‘that a realised accretion to the estimated value of one item of capital assets is not profit divisible without reference to the accounts as a whole’*. It is submitted that *no kind of profit* should be divisible without reference to the accounts as a whole.

(4) Capital losses, which, apparently, may legally be ignored unless a company otherwise provides, are-

(a) Diminution in value of fixed or permanent or wasting assets.
(b) Total losses of or in respect of fixed or permanent assets (as by fire or water).
(c) Losses on trading standing to the debit of Profit and Loss Account at the commencement of a fresh period of trading.

(This (c) was questioned by the Lord Chancellor and rather dissented from by Mr. Palmer, though it appears, in the opinion of Mr. James, to be involved in the decision of the Court of Appeal in the *National Bank* case, subsequently taken to the House of Lords, where it was confirmed, though apparently on other grounds.)
(d) In the case of a bank, insufficient provision for debts.

(This also was questioned by the Lord Chancellor.)

Upon these two points (c and d) Mr. James says that, ‘... it comes apparently to this: if a company loses money in a given year, having no reserves to fall back upon, it cannot properly pay a dividend that year, but as soon as a year comes in which a profit is shown, though no charges may have been made for depreciation of leases, or any other wasting assets, the profit so arrived at may be distributed, the previous deficiency being carried on, perhaps to be increased as the result of later unfortunate years, until it totals up to, or exceeds, the contributed capital of the company, dividends having been fitfully paid in the interval whenever some solitary year has had a balance on the right side.’

If this is the law it seems to me that while capital is limited profits may be unlimited.
Appendix 6

Best’s Opinion on the Causes of Inconsistencies in the Decisions on Divisible Profit

Quoted from J.W. Best, *The Divisible Profits of Limited Liability Companies, Are the Decisions of the Courts Respecting the Distribution of the Profits of a Limited Company Opposed to Sound Commercial Finance?*, (1903, pp.17-6)

Continued from Appendix 5; here Best offers his opinion as to the causes of the inconsistencies in legal decisions.

Most of us agree, I think, that these decisions with regard to losses of capital are utterly opposed to sound commercial finance, and that they are a distinct menace to the continued solvency of limited companies, who may go on depleting their capital, at the same time paying dividends said to be earned out of profits.

Now the decisions by which it is laid down that that capital losses may be disregarded are based, as I have said before, on the recognition of the double-account system, under which Capital Account and Revenue Account are kept distinct.

Under the double-account system, profits recognised as profits on Capital Account would still be capital, and capital is not divisible or returnable (except under the special provisions of the Acts), but it has been laid down (in *Lubbock v. British Bank of America*) that there is no such rule that accretions to capital may not be dividends as profit, thus supporting Mr. Palmer’s contentions that the distinction between loss on Capital Account and loss on Revenue Account has no foundation in principle nor in law. In defending the single-account system, Mr. Palmer appears to differ from Mr. Justice Buckley, who advocates the double-account system.
The single account-system requires the preparation of a Balance Sheet, in which the assets would have to be valued on a common-sense basis; while under the double-account system no Balance Sheet would really be needed, a Revenue Account only being necessary to arrive at profits.

It seems to me that the issue of the Courts should have been, not “Is there a loss on Capital Account?” but ‘What latitude may reasonably be allowed in valuations of fixed or permanent assets, and to what extent may fluctuations of such assets be disregarded?’ And if on these questions as they arose the decisions had been such as would have been given by the economists and businessmen, and applied as they would have been applied in the case of a partnership, on common-sense principles, there would have been less commercial immorality and more protection for creditors.

In the case of assets of a wasting nature, it would not be unreasonable to have to provide for depreciation, and surely, if depreciation be ignored, the declared profit includes a portion of the capital, which the law says must not be returned to the shareholders as dividend.

This single-account system might be said to involve a fair valuation of assets, whether permanent or circulating.

Well circulating assets are valued, as a rule, on reasonable lines and subject to proper allowance for wear and tear or depreciation, the value of assets of a permanent nature might fairly be treated as a cost until realised, or until something had happened which made it certain and beyond doubt that loss had actually occurred, in which case the Act of 1877 would be available to enable the company to charge the loss against Capital, and, if trading profits were being made, to continue to pay dividends.

No doubt it will be argued that expert valuations which would not be necessary under the double-account system would be required under the single account-system, but I submit
that this would not be the case. Valuations in a continuing business would not necessarily on a realisable basis. Permanent assets are bought to keep, and are not for sale, and as ‘fluctuations’, which might be disregarded, and ‘depreciation’ which a business man would always provide.

If excess valuations over book value were not allowable as profits divisible until realisation, or the happening of something as conclusive as a realisation, no harm could be done.

Such a permanent asset for Balance Sheet purposes as ‘Goodwill’ would be difficult to deal with as any, but goodwill *bona fide* purchased at a price afterwards probably unrealisable could, I think, not unfairly be allowed to appear in the Balance Sheet at a cost until realised; for would not this be the practice to which the few exceptions would prove the rule in a partnership? And a business liable to trade fluctuations, how is any loss to be proved permanent and not temporary during the life of a continuing business. Apparently loss in the value of goodwill might be no more than a fluctuation, and be disregarded on this ground, and on the ground that it was a business custom to so disregard it until it became actual. In cases of doubt friendly applications to the Court might, years ago, have resulted in some definite guidelines.

Similar remarks would apply to ‘Patents’, except that the value should be written down during or at the end of the term of to its residual value. I say during or at the end of a term because the loss in value which it brought. But whatever at the end of the term was treated as the residual value ought to be justifiable, either by independent or other satisfactory valuation, and then, being the balance of the cost of a patent, and not goodwill purchased as goodwill, the cost ought to be spread over the period of its valuable life, which might not be coterminous with the life of the business goodwill should be.

The views expressed as to the treatment of permanent assets under the single-account system are, I think, practically in agreement with those expressed by Mr Palmer in his
admirable work, and by Mr James in his lecture, and while what the Courts have defined as capital profit could, under the single-account system be very properly divided if realised or actual, capital losses would have to be made good or cancelled, in accordance with the 1877 Act, before dividends could be distributed. No one would be the worse, but the finances of limited companies would be on much more solid foundation than they are to-day.

As we are not here altogether for purposes of taking sides, let me briefly refer to some of the difficulties connected with the single-account system advocated, which seem to favour the double-account system.

Under the single-account system the assets must be fairly and honestly valued; and unless definite rules were laid down that accretions in value of permanent assets should not be treated as profit until realised, or as good as realised-

(1) Fluctuations in Land, Buildings, Plant etc., if favourable might be used to show a profit when there was a loss, and directors might protect themselves by valuations in connection with which there is so much elasticity.

(2) Plant, and Machinery made by a company for its self might be valued at a price that would have to be paid to purchase it outside, and the more the extensions the greater the profit could be made to be, and the company cannot make a profit out of itself.

(3) Apparent accretions in value in excess of cost or book value of goodwill, or other permanent assets, might be distributed as profit, to be received back as share capital, and a reconstruction, which it is understood the capitalisation of such increased values would require, be avoided.

(4) Profits shown in this way would deceive shareholders and others as to the trading profits of a concern and its dividend-earning capacity, one of the chief tests of its value.
(5) The difficulties in distinguishing fluctuations which might be ignored, from depreciation, which would have to be ignored, from depreciation, which would have to be provided, and the responsibility of directors for keeping capital legally intact, might (though, I think the advantage would far outweigh the drawbacks) to some extent check commercial enterprise.

I have indicated a system of dealing with fixed or permanent assets by which these difficulties would disappear, and I am of opinion that the single-account system, by which actual profits would be shown, and by which, in Mr. Guthrie’s words, the ‘demands of ultimate liquidation would (practically) be fully met’, was intended to be the basis of arriving at the distributable profits of a limited liability company; that the double-account-system, as applied to limited companies, is a dangerous system; and that the decisions of the Courts, by which what are called losses of capital may be disregarded, are utterly opposed to sound commercial finance.
Appendix 7

Applied Monographs Noted


Veley, V. H.  
Depreciation, (1922), Gee and Co., London.*

Walbank and Co.,  
Builders’ Accounts, (1944), Gee and Co., London.*

Williamson, A.  
The British Tin Box Manufacturers’ – Federation – Costing System, (1926), The British Tin Box Manufacturers Federation, London.*

*From the private collection of Mr Phil Cobban, The University of Melbourne.

The Accountants Library; a full list of titles to Series One and Two are given in Johnson.
Appendix 8

Facsimile Pro Forma Double-account Schedules for a Railway Company *(Webster Jenkinson, 1912, pp.55-64)*

### (No. 1.) Statement of Capital Authorized, and Created by the Company

<table>
<thead>
<tr>
<th>Acts of Parliament, or Certificates of the Board of Trade</th>
<th>Capital authorized</th>
<th>Capital created or sanctioned</th>
<th>Balance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Stock and Shares</td>
<td>Loan</td>
<td>Total</td>
</tr>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. (Except where capital powers are comprised in a Consolidation Act, each Act or certificate authorizing capital to be stated here separately in order of date.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
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<tr>
<td>4.</td>
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<td>5.</td>
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<td>&amp;c</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### (No. 2.) Statement of Stock and Share Capital Created, Showing the Proportion Received

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount created</th>
<th>Amount received</th>
<th>Cash in advance</th>
<th>Amount unallocated</th>
<th>Amount unclaimed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>£</td>
<td>£</td>
<td>£</td>
<td>£</td>
<td>£</td>
</tr>
</tbody>
</table>

(State each class of stock or shares in order of date of creation, showing the premium or discount, if any, at which it was issued, the preferential or fixed dividends, if any, to which it is entitled, and any other conditions attached to it.)

Total | £ | £ | £ | £ | £
### THE DOUBLE-ACCOUNT SYSTEM

#### (No. 3.) CAPITAL RAISED BY LOANS AND DEBENTURE STOCK

<table>
<thead>
<tr>
<th></th>
<th>Raised by Loans</th>
<th>Raised by Issue of Debenture Stocks</th>
<th>Amount Raised by Debenture Stocks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>As. per cent.</td>
<td>As. per cent.</td>
<td>£</td>
</tr>
<tr>
<td>Existing at</td>
<td>£</td>
<td>£</td>
<td>£</td>
</tr>
<tr>
<td>Ditto at</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increase</td>
<td></td>
<td></td>
<td>£</td>
</tr>
<tr>
<td>Decrease</td>
<td></td>
<td></td>
<td>£</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>£</td>
</tr>
<tr>
<td>Total amount authorized to be raised by Loans and by Debenture Stocks in respect of Capital created, as per Statement No. 1</td>
<td>£</td>
<td>£</td>
<td>£</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>£</td>
</tr>
<tr>
<td>Total amount raised by Loans and by Debenture Stock, as above</td>
<td>£</td>
<td>£</td>
<td>£</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>£</td>
</tr>
<tr>
<td>Balance, being available Borrowing Powers at</td>
<td>19</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### (No. 4.) RECEIPTS AND EXPENDITURE ON CAPITAL ACCOUNT

<table>
<thead>
<tr>
<th>Dr.</th>
<th>Amount Expended to</th>
<th>Amount Expenditure during Half-year</th>
<th>Total</th>
<th>Co.</th>
<th>Amount Borrowing Powers at Half-year</th>
<th>Amount Borrowing Powers at Half-year</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>£ s. d.</td>
<td>£ s. d.</td>
<td></td>
<td>£ s. d.</td>
<td>£ s. d.</td>
<td>£ s. d.</td>
<td></td>
</tr>
<tr>
<td>To Expenditure—</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>On Lines open for Traffic (No. 5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>On Lines in course of Construction (No. 5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working Stock (No. 5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subscriptions to other Railways (No. 5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Docks, Steamboats, and other special Items (No. 5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Balance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

By Receipts— Shares and Stock, per Account No. 2 |        |                                    |       |       |                                    |                                    |       |
Loans, per Account No. 3 |        |                                    |       |       |                                    |                                    |       |
Debenture Stock, per Account No. 3 |        |                                    |       |       |                                    |                                    |       |
Sundries (in detail) |        |                                    |       |       |                                    |                                    |       |
### PREFERRED AND DEFERRED STOCK

#### (No. 5.) DETAILS OF CAPITAL EXPENDITURE, for Half-Year ending 19

<table>
<thead>
<tr>
<th>Lines open for traffic—</th>
</tr>
</thead>
</table>
| **Particulars—**         | (Showing under separate heads, amount paid for land (purchase and compensation), construction of way and stations, including rails, chairs, sleepers, &c., engineering and surveying, law charges, parliamentary expenses, interest, commission, &c.)  
| **Lines in course of construction—** |  
| **Particulars—**         |  
| **Working stock—**       | (showing each description of stock)  
| **Subscriptions to other railways—** |  
| **Particulars—**         |  
| **Docks, steamboats, and other special items—** |  
| **Particulars**           |  
| **Total expenditure for half-year, as per Account No. 4** |  

#### (No. 6.) RETURN OF WORKING STOCK

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock on the 19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot; on the 19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increase during the half-year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decrease during the half-year</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### (No. 7.) ESTIMATE OF FURTHER EXPENDITURE ON CAPITAL ACCOUNT

<table>
<thead>
<tr>
<th>Further Expenditure.</th>
<th>During the Half-Year ending</th>
<th>In subsequent Half-Years</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lines open for traffic— (Particulars showing principal items.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lines in course of construction— (Details of each line.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working stock— (Particulars.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subscription to other railways— (Specifying lines.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Docks, steamboats, and other special items— (Particulars.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Works not yet commenced and in abeyance (in detail.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other items (in detail)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total estimated further expenditure of capital</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### (No. 8.) CAPITAL POWERS AND OTHER ASSETS AVAILABLE TO MEET FURTHER EXPENDITURE, as per No. 7

|  |  |
| Share and loan capital authorized or created but not yet received |  |
| Any other assets (in detail) |  |
| Total |  |
### THE DOUBLE-ACCOUNT SYSTEM

#### (No. 9.) Dr. REVENUE ACCOUNT Cr.

<table>
<thead>
<tr>
<th>Item</th>
<th>£ s. d.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Expenditure</strong></td>
<td></td>
</tr>
<tr>
<td>To Maintenance of way, works, and stations</td>
<td></td>
</tr>
<tr>
<td>Locomotive power</td>
<td>B.</td>
</tr>
<tr>
<td>Carriage and wagon repairs</td>
<td>C.</td>
</tr>
<tr>
<td>Traffic expenses</td>
<td>D.</td>
</tr>
<tr>
<td>General charges</td>
<td>E.</td>
</tr>
<tr>
<td>Law charges</td>
<td></td>
</tr>
<tr>
<td>Parliamentary expenses</td>
<td></td>
</tr>
<tr>
<td>Compensation (accidents and losses)</td>
<td></td>
</tr>
<tr>
<td>Rates and taxes</td>
<td></td>
</tr>
<tr>
<td>Government duty</td>
<td></td>
</tr>
<tr>
<td>Special and miscellaneous expenses (if any)</td>
<td></td>
</tr>
<tr>
<td><strong>Balance carried to Net Revenue Account</strong></td>
<td></td>
</tr>
</tbody>
</table>

#### (No. 10.) Dr. NET REVENUE ACCOUNT Cr.

<table>
<thead>
<tr>
<th>Item</th>
<th>£ s. d.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Expenditure</strong></td>
<td></td>
</tr>
<tr>
<td>To Interest on Mortgage and Debenture Loans</td>
<td></td>
</tr>
<tr>
<td>Interest on Debenture Stock</td>
<td></td>
</tr>
<tr>
<td>Interest on Calls in Advance</td>
<td></td>
</tr>
<tr>
<td>Interest on Temporary Loans</td>
<td></td>
</tr>
<tr>
<td>Interest on Lloyd's Bonds</td>
<td></td>
</tr>
<tr>
<td>Interest on Banking Balances</td>
<td></td>
</tr>
<tr>
<td>General Interest Account (if in Debit)</td>
<td></td>
</tr>
<tr>
<td>Routes of Leased Lines, Guarantees, &amp;c.</td>
<td></td>
</tr>
<tr>
<td><strong>Details</strong></td>
<td></td>
</tr>
<tr>
<td>Special and miscellaneous payments (if any)</td>
<td></td>
</tr>
<tr>
<td><strong>Details</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Balance, being payment available for dividend</strong></td>
<td></td>
</tr>
<tr>
<td>(See No. 13.)</td>
<td></td>
</tr>
</tbody>
</table>

#### (No. 11.) PROPOSED APPROPRIATION OF BALANCE AVAILABLE FOR DIVIDENDS

<table>
<thead>
<tr>
<th>Item</th>
<th>£ s. d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance available for dividend as per Account No. 10</td>
<td></td>
</tr>
<tr>
<td>Preference Stock</td>
<td></td>
</tr>
<tr>
<td>Ditto</td>
<td></td>
</tr>
<tr>
<td>Ordinary Stock (being at the rate of per cent.)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item</th>
<th>£ s. d.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Balance to next half-year</strong></td>
<td></td>
</tr>
</tbody>
</table>

By Balance brought from last half-year's account

Ditto, Revenue Account, No. 9

Dividends on shares in other companies

Bankers & General Interest Account (if in credit)

Special and miscellaneous receipts (if any)

(Details to be given.)
## A. MAINTENANCE OF WAY, WORKS, &c.

<table>
<thead>
<tr>
<th>Half-Year</th>
<th>£  s. d.</th>
<th>£  s. d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries, office expenses, and general superintendence</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Maintenance and renewal of permanent way</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Wages</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Materials</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Repairs of roads, bridges, signals, and works</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Repairs of stations and buildings</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Special expenditure (if any)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Miles Maintained: Double</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Single</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

## C. REPAIRS AND RENEWALS OF CARRIAGES AND WAGGONS

<table>
<thead>
<tr>
<th>Carriages: Salaries, office expenses, and general superintendence</th>
<th>£  s. d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wages</td>
<td>-</td>
</tr>
<tr>
<td>Materials</td>
<td>-</td>
</tr>
<tr>
<td>Waggon: Salaries, office expenses, and general superintendence</td>
<td>£  s. d.</td>
</tr>
<tr>
<td>Wages</td>
<td>-</td>
</tr>
<tr>
<td>Materials</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>-</td>
</tr>
</tbody>
</table>

## D. TRAFFIC EXPENSES.

<table>
<thead>
<tr>
<th>Half-Year ended</th>
<th>£  s. d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries and wages, &amp;c.</td>
<td>-</td>
</tr>
<tr>
<td>Fuel, lighting, water, and general stores</td>
<td>-</td>
</tr>
<tr>
<td>Clothing</td>
<td>-</td>
</tr>
<tr>
<td>Printing, stationery, and tickets</td>
<td>-</td>
</tr>
<tr>
<td>Horses, harness, vans, provender, &amp;c.</td>
<td>-</td>
</tr>
<tr>
<td>Wagon covers, ropes, &amp;c.</td>
<td>-</td>
</tr>
<tr>
<td>Joint station expenses</td>
<td>-</td>
</tr>
<tr>
<td>Miscellaneous expenses</td>
<td>-</td>
</tr>
<tr>
<td>Special expenditure (if any)</td>
<td>-</td>
</tr>
</tbody>
</table>

## E. GENERAL CHARGES.

<table>
<thead>
<tr>
<th>Half-Year ended</th>
<th>£  s. d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directors</td>
<td>-</td>
</tr>
<tr>
<td>Auditors and public accountants (if any)</td>
<td>-</td>
</tr>
<tr>
<td>Salaries of secretary, general manager, accountant, and clerks</td>
<td>-</td>
</tr>
<tr>
<td>Office expenses ditto ditto</td>
<td>-</td>
</tr>
<tr>
<td>Advertising</td>
<td>-</td>
</tr>
<tr>
<td>Fire insurance</td>
<td>-</td>
</tr>
<tr>
<td>Electric telegraph expenses</td>
<td>-</td>
</tr>
<tr>
<td>Railway Clearing House expenses</td>
<td>-</td>
</tr>
<tr>
<td>Special expenditure (if any)</td>
<td>-</td>
</tr>
</tbody>
</table>
Webster Jenkinson also provides pro forma double-account schedules for gas companies (pp.61-4), and electric-light undertakings, (pp.65-70). A worked example of a half-yearly Statement of Capital Stock for a Gas Consumer Company is also provided, (p.54).
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