

Accounting in a 'New' History: A Disciplinary Power and Knowledge of Accounting

Eko Ganis Sukoharsono

Centre for Indonesian Accounting and Management Research
STIE Malangkececwara
Malang Indonesia

Abstract

There has been a growing number of research studies in accounting history challenging accounting researchers to re-examine extant explanations for the sustained emergence of accounting (eg., Hopwood [1985], Loft [1986], Miller and O'leary [1987], Miller, et al [1991], Stewart [1992], Hopper and Macintosh [1993], and Tyson [1993]). These studies have criticised some traditional histories which are "ahistorical" and "antiquarian" in nature. They have questioned the methodological stance in exploring the history of accounting. This paper explores an alternative way researching phenomena in accounting under a Foucauldian view, *a disciplinary power and knowledge*. With this view, it would open accounting researchers' minds to being aware of the broader context of accounting in social phenomena. Accounting is no longer seen as only a technical and neutral apparatus. Accounting as a disciplinary power and knowledge appears not as a single dimensional aspect, but as a complexity of social, political, and economic phenomena in society.

Introduction

In the past decade, the discipline of accounting history has been revolutionised by new methodologies and new objects of study which fall under the rubric of 'critical accounting studies'. Journals such as *Accounting, Organisations, and Society*, *Critical Perspectives on Accounting*, and *Accounting, Auditing, and Accountability* and *International Journal of Accounting and Business Society* have been the centres of the new concerns. A lot of published articles with the topics ranging from the re-examination of the emergence of accounting (eg., Bryer [1991, 1993], Power [1993], Thompson [1991]) to political disciplinary practice of modern accounting (eg., Hopper and Macintosh [1991, 1993], Hertog and Wielinga [1992]) have risen to prominence over more traditional historical subjects.

Methodologies have been imported from many disciplines of the social sciences.¹ The methodologies included symbolic interactionism, ethnomethodology, Marxism, Habermasism and critical theory, Giddens' structuration, the Gramscian concept, Derrida's deconstructionism, Weberian and Foucauldian perspectives. All methodologies adopted by accounting researchers would share a growing concern about understanding accounting in the social and political context in which it operates, and its positive historical approach. The variety of research topics with the constituent of methodological-based awareness pursued by accounting historians today encourages a rigorous examination of accounting *praxis*, the unity of theory and practice in accounting, and in the social, economic and political world. If the political process of the emergence of accounting, power and knowledge of accounting, and accounting in the broader sense of the social and economic aspects are all valid subjects of research investigation, what are the principles bearing on the knowledge of accounting? How does (did) accounting really work in the social world? Are these criteria, by which a research investigation of accounting in the past had to justify itself, worthy of the development and understanding of accounting as a disciplinary power and as a form of social knowledge? How can it be investigated? These questions present some aspects of seeing and understanding accounting in broader social, economic and political contexts that are much needed today. As has been discussed intensively by Sukoharsono (1995), the virtues of the writings of Foucault are that, by their very difference from social history and others (i.e., the history of ideas and Marxian historical materialism), they raise important theoretical questions in a forceful way, which allows one to investigate the above questions concerning the understanding of accounting.

Methodological Criticisms on Accounting Historical Research

Sukoharsono (1995, 1996) has observed the current methodological issues. His observation has indicated that recently there has been a growing number of research studies in accounting history challenging accounting researchers to re-examine extant explanations for the sustained emergence of accounting (e.g., Hopwood [1985], Loft [1986], Miller and O'leary [1987], Miller, et al [1991], Stewart [1992], Hopper and Macintosh [1993], and Tyson [1993]). These studies have criticised some traditional histories which are "ahistorical" and "antiquarian" in nature. They have questioned the methodological stance in exploring the history of accounting. Miller, et al., (1991) stated that the importance of methodological issues

¹ What I mean by "many disciplines of the social sciences" is all perspectives except 'positivist' or 'functionalist' methodology in the social sciences. Of course, I am aware of the failure of 'positivism' and its collapse, as it has been exclusively attacked from many different angles of philosophical foundations by accounting researchers (e.g., Lowe, Puxty and Laughlin [1983], Sterling [1990], Gaffikin [1987, 1988, 1989], Chua [1986]). Thus, central attention is drawn to the wide-critical accounting perspective in conducting accounting research.

in accounting history is not how the pluralisation of methodologies can be carried out in research, but rather that it is more important to "challenge the ideas of historical objectivity" in which accounting is viewed as limited with regard to social aspects. In terms of methodological issues, the essence of the "ahistorical" criticism is that accounting history has been written within the terms and perspectives of the present. In this "ahistorical" view, accounting tends to be seen in the way in which the "truth" of the present smoothly emerged, in an evolutionary fashion. Accounting history has often been understood as the reflex of the evolution of economic and industrial development. The economic and technical-based analyses have predominantly been the major aspects of accounting in their research orientation. The interplay of social and political forces has been virtually ignored (Tyson, 1993). Hopper and Armstrong (1991), for example, adopt a labour-process perspective criticising traditional historical research of cost and management accounting under which the traditional (that is 'ahistorical') research resulted in undefined segmentation of accounting in practice. They argued that, in the case of North American firms [Johnson and Kaplan (1987) took them as cases in their study of *Relevance Lost: The Rise and Fall of Management Accounting*], historically "accounting controls were not a consequence of economic or technological imperatives, but rather were rooted in struggles as firms attempted to control labour processes in various epochs of capitalistic development" (Hopper and Armstrong, 1991, p.405). This means that there is a fundamental difference in the way Hopper and Armstrong studied how social and political contexts were incorporated in to the analyses.

Another criticism is that accounting history has traditionally been analysed as 'antiquarian' in nature. The criticism is based on its excessive concern with facts being carried out in accounting history research. The accumulation of facts is concentrated on the explanation of *what* happened in the past, rather than the analysis of *how* and *why* accounting practices have developed and influenced society (Stewart, 1992). Thus, the potential of accounting history in relation to the social and political apparatus has not been told and explored in an adequate manner. The truths of accounting practices in the past have been covered over. Hopwood (1987) said that antiquarianism in accounting history research has placed accounting in an 'atheoretical stance', in which the significance for understanding of accounting in the wider social aspects of the organisation has been neglected.

Based on these criticisms, the aim of this study is to develop a comprehensive understanding of history by taking the Foucauldian philosophical concept as replacing the 'traditional history', which is regarded as being "ahistorical" and "antiquarian". Michel Foucault, a French "archaeological-genealogical-historical" philosopher, is acknowledged as one of the great intellectuals of the Post-World War II era. He offers, in my opinion, elements of a coherent and powerful alternative means to the understanding of history. The major thrust of his work is concerned with the task of producing social analyses which are permeated by

philosophical insight (Merquior, 1985). In particular, his major concern with history is related to two epistemological 'techniques': *archaeology* and *genealogy*, in analysing social phenomena. These 'techniques' were used by Foucault as a basis for his series of critiques of social phenomena including mental illness, sexuality, insanity, asylums and prisons (Foucault, 1972, 1977a). He attempted to analyse particular ideas or models of humanity which have developed as a result of very precise historical changes, and the ways in which these ideas have become normative or universal. Nonetheless, his work has been taken up or has impacted upon a wide range of disciplines - philosophy, history, sociology, psychology, politics, linguistics, cultural studies and literary theory, to name a few.

Foucault and Accounting History Research

The flow of Foucault's texts and historical analyses, the way he disturbed the domination of traditional historical analysis, attracted some accounting history researchers. Foucault's writing styles and methodological stance inspired accounting history researchers in looking at the past of accounting discipline not only as technical apparatus, but also as 'architecture of power' in society. How accounting appears as a disciplinary power and a constitutive activity in the broader social and political contexts, is the major concern of Foucauldian accounting research. Merquior (1985) and Poster (1984) acknowledged the way Foucault developed a "new" historical analysis, and both agree that Foucault's methodological and epistemological stance is not engaged in presenting some kind of general history providing a complete and chronological description of a period. Rather, Foucault engaged in a particular analysis of history with tactic and strategic discourses in relation to certain problems which he was concerned with. He was, in fact, diagnosing past history by asking "how the past was different, strange, threatening" (Poster, 1984, p.74). He is an historian who presented a set of configurations of power and knowledge.

During the last two decades, an increasing amount of research on the history of accounting has appeared, which has been influenced by Foucault's methodological and epistemological stances (eg., Burchell, et al [1980, 1985], Hoskin & Maeve [1986, 1988a, b], Loft [1986], Hopwood [1987], Miller & O'Leary [1987], Knights and Collison [1987], Hopper & Macintosh [1990, 1993], Preston [1989], Stewart [1992], Tyson [1993], Miller & Napier [1993], and Knights & Vurdubakis [1993]). Stewart (1992) is one of many researchers who gives an acknowledged expression of Foucault's methodology being entered into accounting fields. He impressively expresses that

[t]he attraction of Foucault to accounting historians and theorists is in the conceptual lenses he has provided particularly as an antidote to positivistic/scientific explanations of accounting. He has provided a theoretical schema within to problematise and question accounting, and break away from the unidimensional picture of its development. Accounting has not been created just by capitalism or industrialisation or ownership or organisational structures. Rather, the emergence and functioning of accounting in its various contexts is a complex phenomena, due to the interplay of many different influences (Stewart, 1992, p.61).

Stewart argues not without evidence. In fact, Foucauldian accounting histories have opened accounting researchers' minds to being aware of the broader context of accounting in social phenomena. Accounting is no longer seen as only a technical and neutral apparatus. The emergence of the discipline appears not as a single dimensional aspect, but as a complexity of social, political, and economic phenomena in society. Loft (1986) has argued that it is time to understand the early process of the emergence of accounting, which is not merely a sophisticated technique for collecting and representing financial data for decision makers. It is a traditional view. Rather, she, with her modern view, using Foucauldian perspective, argued that accounting emerged as fundamentally constitutive activities within society. For her, accounting has no such teleology and her style of telling accounting history does not continue along smoothly with the chronological process of time.

Loft (1986) is not alone in arguing this. Similarly, Hopwood (1987) and Miller and O'Leary (1987) clearly stated that it is the wrong direction to take if we understand accounting as only technical processes and a calculative apparatus. Hopwood (1987) convincingly said in his research paper, *The Archaeology of Accounting System*, that

[r]ather than being perceived as an outcome of processes that could make accounting what it was not, accounting has more frequently been seen as becoming what it should be ... Relatively little has been done to advance our understanding of the pressures that impinge on accounting in practice: we have few insights into how the very practice of accounting might itself create a dynamic for accounting change and reform; and little is known of the precarious and often uncertain relationships which the practice of accounting has with the potential in the name of which it is advanced. Despite the fact that accounting has and still does become what it is

not, despite the fact that accounting can be quite centrally implicated in wider processes of organizational functioning, and despite the fact that accounting gets mobilised in the name of ends that do not enter into its own justification (Burchell, et al 1980), many organizational enquiries into accounting have tended to see and study it in ways that are disconnected from the contexts in which it operates (Hopwood, 1987, p.208).

It is clear that accounting has been waiting for many years to change the meaning and the understanding in which "it operates". The need for an alternative view of accounting in action is significantly necessitated. Using an alternative account of Foucauldian perspective, Hopwood (1987) developed a new understanding of accounting employing three different case studies: Josiah Wedgwood's accounting history in the eighteenth century, the history of M business manufacturing, and Q manufacturing enterprise. It is very interesting to read how Hopwood describes a new understanding of accounting with three cases (ie.. Josiah Wedgwood's company, M business manufacturing, and Q manufacturing enterprise) composed into a report on the history of accounting change ². In the Wedgwood case, Hopwood explicated that, during the eighteenth century, Wedgwood was a successful entrepreneur in coping with the big economic recession in 1772 and had his own way of developing an accounting system for costing.

Wedgwood had the idea that he might better survive the recession if he could lower his prices in order to stimulate demand. Such a view was conditioned, however, by the need to ensure that the price still exceeded the cost ... It was the fact of costing that Wedgwood set out to discover (Hopwood, 1987, p.215).

The emergence of this cost accounting system by Wedgwood was able to give a new spirit of enterprise - a new alternative costing calculation against the recession. 'An economic discourse and rhetoric' became a real aspect in problem solving (Hopwood, 1987). As Hopwood stated, with the intervention of a calculative discourse of accounting, Wedgwood was starting to realise that the 'accounting craft would become a more powerful means' for setting up the development of an organisation. The emergence of Wedgwood's idea of a new cost accounting system began when there was a discrepancy between his head clerk's general financial reports and what Wedgwood calculated they should be. Soon, Wedgwood employed

² In this account, the second and third cases of Hopwood's study are not intended to be explored. The attention is on the first case of Wedgwood's accounting history which provides a focus on the emergence of accounting in its context of Wedgwood's enterprise. For more detail of those two cases, see Hopwood (1987).

a new clerk. The clerk's task was "to put the necessary business of collecting into a way of perpetual motion", a routine of weekly accounts implemented (Hopwood, p.217). However, Wedgwood's idea of a new costing system was not easily implemented. As Hopwood said,

the birth of Wedgwood's accounts had been different and laborious. There had been no easy relationship between the idea of costing and a specific programme of intervention in the organisation conducted in the name of that idea. Cost had had to be constructed rather than merely revealed (Hopwood, p.217).

Gradually, Wedgwood's accounting system was acceptable as a new economic knowledge, intervening and transforming the organisation into awareness of a practical calculative discourse. Wedgwood then continued to extend the use of his costing system to product policy decisions during economic recessions and booms and also found it valuable for observing and disciplining employees in the organisation.

With the same inspiration of a Foucauldian perspective, Miller and O'Leary (1987) conducted research particularly concerned with the genealogical history of accounting in the USA. At the beginning of the account of their study, methodological and epistemological choices appeared as the main issues, and they said that

[a]ccounting has remained remarkably insulated from important theoretical and historical debates which have traversed the social science. Accounting history ... is a context in which one can begin to substantiate this lack of a problematisation of the roles of accounting ... little or no suspicion seems to surface that different methodological starting points could be entertained, which could lead to rather different understandings of accounting's history (Miller and O'Leary, 1987, p.235).

As they were aware of methodological importance, a Foucauldian perspective inspired their research question of how the emergence of standard costing and budgeting in the early part of the twentieth century was related to wider practices of control and power operations in organisations and society, particularly in the case of scientific management and industrial psychology. There is a principle which Miller and O'Leary would strengthen through their research resulting in a new understanding of accounting:

[a]ccounting can no longer be regarded as a neutral and objective process. It comes rather to be viewed as an important part of a network of power relations which are built into the very fabric of organisational and social life. It is a constitutive element in a form of normalising socio-political management whose concern is with rendering visible all forms of activity of the individual in view of their contribution to the efficient operation of the enterprise and of society (Miller and O'Leary, 1987, p.240).

They began the research by examining the existing history of standard costing and budgeting. According to them, there has been too narrow a view of seeing the emergence of standard costing and budgeting. One instance derived from Sowell (1973) is seeing the existing histories of standard costing and budgeting "in a careful and detailed exposition of the ideas and techniques" which flows "in chronological succession, those revealed events, forces, individuals, and ideas" (p.241). A further instance is from Solomons (1968) who sees its development through "the lens progress". On the other hand, Miller and O'Leary place "a different interpretation on the emergence of standard costing and budgeting as a part of the unfolding of a socially useful theoretical-technical complex" (p.241). They examined the early part of the twentieth century accounting systems as a unique era in which a new set of disciplinary, power/knowledge discourse and discursive practices emerged. In particular, the research looks at the first 30 years of the century which saw the emergence of standard costing and budgeting over the whole range of individual, firm and national efficiency. They argued that the project of scientific management in relation to costing and budgeting system helped to render "the discourse of national efficiency". National efficiency was not alone, however; it was constructed by individual and organisational efficiency. In the USA, they illustrated that President Wilson in the early 1900s established a Bureau of Efficiency (the former name was the Presidential Commission on Economy and Efficiency) whose concern it was to put management science and Taylorism into practice, so that it could construct productive national efficiency. The practices were, as a result, followed by engineers, accountants and psychologists in order to produce healthy, happy and productive individuals within the organisation and the nation as a whole.

More recently, there have been still growing numbers of researchers adopting the Foucauldian perspective. They are Preston (1992), Walsh and Stewart (1993), Hopper and Macintosh (1993), Knights and Vurdubakis (1993), Hooper and Pratt (1993), and Miller and Napier (1993). Even though they had different cases and a diverse range of research interests, their issues were similar and they wished to enlighten the understanding of accounting discipline in its social and political contexts. Preston (1992), using Foucault's genealogical method, as in his earlier

research, *The Taxman Cometh*, (Preston, 1989), explored the emergence of transformations of discourses on accounting in the case of US hospitals.

Accounting as a Form of Power--Knowledge

With the growing development of adopting new perspectives on accounting research, the history of accounting today is characterised by no single 'essence' of objects that can be attached to the name of 'accounting' (Hopwood [1987] and Stewart [1992]). The history of accounting is regarded not as simple calculation in the form of chronological evolution, but as accounting changes in the wider social context both in content and form over time. New meanings and significance of understanding accounting have been invented or transferred from one domain to another to enrich the attribution of accounting in existence. As Littleton noted,

accounting is relative and progressive. The phenomena which form its subject matter are constantly changing. Older methods become less effective under altered conditions, earlier ideas become irrelevant in the face of new problems. Thus surrounding conditions generate fresh ideas and stimulate the ingenious to advise new methods. And as such ideas and methods prove successful they in turn begin to modify the surrounding conditions. The result we call progress (Littleton, 1933, p.361).

Littleton has clearly noted that accounting is not static, and it is not chronological development. Accounting is progressive and changing. For him, accounting is changing in response to external factors surrounding progress. Additionally, Littleton's argument is strengthened by Miller and Napier (1993) taking an essential of accounting change in response to internal factors, in accounting knowledge itself. They said that "there is nonetheless an essential core that can continue to be identified as accounting"(Miller and Napier, 1993, p.632). It is accounting knowledge itself.

A self-evidence has come to be attached to particular modes of calculation such as double entry bookkeeping and costing. Whilst locating the emergence of such practices in time and space has preoccupied numerous scholars, there has been a curious inattentiveness to the question of what counts as accounting, to the senses in which particular calculations can be taken to belong to the entity "accounting", and the implications this has for the domain of "accounting history" (Miller and Napier, 1993, p.631).

Miller and Napier (1993) offer new ways of seeing the development of accounting in itself, rather than seeing something else which is regarded as an external factor. Accounting, for them, is not simply the chronology of a particular development, but is seen in the broader context of how it developed in the social world. Traditional accounting history, with its unproblematic differences between the external (i.e., organisation, economy and society) and the internal (accounting knowledge itself) rarely questions the extent of accounting which could emerge and develop as a form of power and knowledge. In this regard, bringing the Foucauldian perspective to some aspect of internal factors which have shaped accounting today will be explored.

The Development of Early Commercial Revolution

Ste. Croix (1956) in his study, *Greek and Roman Accounting*, conclusively explicates that some evidence has been found to indicate the existence of accounting practices at the beginning of the Classical Greek period. However, he clearly shows that, even though there were accounting practices in the period, an essence of double-entry bookkeeping was impossible in the Roman era or in antiquity in the absence of Hindu-Arabic numerals.³ Ancient arithmetical notations lacked a zero, so affording no means of writing numbers with place-values. Even though the idea of numerical notation on coinage systems seems to belong to the Early Roman period (cf. Morgan, 1965), the ancient Babylonians (ca 3,000 BC) had monetary conventions with currency units expressed in 'universally' accepted commodities (cf., Mattessich, 1964). Morgan (1965) noted that in the earliest Babylonian records, there was a legal distinction between 'exchangeable goods' and 'non-exchangeable goods'. The former was identified by goods which could be transferred from one person to another with very little formality. They were gold, silver, lead, bronze and copper, honey, sesame, oil, wine, beer and yeast, wool and leather, papyrus rolls and arms, all of which probably served, in varying degrees, as means of payment. The latter was indicated by a formal transfer. But the general adoption of money as a medium of valuation, and the concept of accounts are phenomena born during the Greek period of the seventh and sixth centuries BC, when Greek society and the military were changing, and the social responsibility of the central government was continuously increasing. Costouros (1979) in his study, *Accounting in the Golden Age of Greece*, reported that Greek society over the centuries had contributed a significant development in changing systems on commercial apparatus. As the Greek government required more revenue for payments to mercenaries, architects and public officials, and the public

³ It is argued that accounting without the double-entry system is difficult to distinguish from mere financial record-keeping, which may not be systematic of debit and credit entries. Baxter (1948) pointed out that the double-entry system of bookkeeping is a unique invention to accounting, and it is only because of its presence that the accounting field and knowledge is treated on its own disciplinary territory.

commercial traders increased their transactions, simplification of all transactions was needed. This came with the recognition of units of currency as simply a medium of exchange. Convenience, therefore, was perhaps the important reason for the general adoption of money.

However, the early development of money as a general medium of exchange, does not mean that systematic 'modern' accounting in terms of double tabulation of debit-credit entries had been adopted. Due to the lack of Hindu-Arabic numerals (especially zero notation), Hoskin and Maeve (1986), who follow the perspective of Foucault's writing in their study, *Accounting and the Examination: A Genealogy of Disciplinary Power*, argued that the discipline of accounting gained much 'advanced' improvement when the Hindu-Arabic numerals allowed a new interrelated writing of words and numbers in what has been described as an 'alphanumeric' system. The alphanumeric system could bring the process of decimal numbers into existence with the addition of a dot (.) in between the numerals. The invention of algebra, using the x, y notation and logarithms by the seventeenth century, has been advantageous in following the latter process of development of the Hindu-Arabic numerals in the developing knowledge of science including accounting. Accounting in the form of tabulation within systematic columns, according to Hoskin and Maeve (1986), is not a sudden process of development. It emerged in the complex process of deciphering 'alphanumeric' systems. For them, the appearance of debit and credit is described as a form of critical re-writing.

The fully-developed double-entry system, with bilateral layout and systematic cross-referencing of debit and credit is a particular form of the new general textuality ... Double-entry is ... the finest expression of this metaphor: it was a mirror-book embodying the balanced and interconnected writing of the equal and opposite signs of debit and credit (Hoskin and Maeve, 1986, p.121).

It is very interesting to follow the study developed by Hoskin and Maeve. The emergence of double-entry bookkeeping was explained in a different way, by looking at what traditional histories of accounting told (eg., Yamey [1964] and de Roover [1974]). Double-entry bookkeeping emerged as opposed to its balances of profit and equity. It emerged due to its usefulness to management as 'a particular form of the new textuality'. Its emergence was the result of the disinterested invention by scholars "... in the service of information-retrieval and knowledge-production", of "new modes of re-writing the social world ..." (1986, p.109). For them, this 'new knowledge elite' firstly applies their skills to the teaching and 'critical inquisition' of their students and produces the first formal examinations in Western history, sometime between the years 1150 and 1190 in Paris and Bologna. Then the practices had spread through clerks and magisters who graduated from the formal

schools/ universities in the church, government administration and eventually private commercial businesses in general, where they produced double tabulation of bookkeeping.

The development of the Hindu-Arabic numerals led to the rise of 'modern' accounting (Ste. Croix, 1956). The introduction of the Hindu-Arabic numerals into Western Europe, through Muslim Spain, began when European scholars adopted Muslim mathematics.⁴ Al-Khwarizmi was the great Persian scholar who influenced Western scholars with the translation of his work on mathematics, entitled *Al-kitab al-mukhtasar fi-hisab al-jabr Wa'l-muqabala* (Diet M Ages). The text was firstly translated by Robert of Chester in 1145 and subsequently by Gerard of Cremona, Plato of Tivoli, and Abelard of Bath (Murray, 1978).

The development of the Hindu-Arabic numeral notation in the Western European countries led to the spread of the new numerals across the world.⁵ Its impact on the development of 'modern' accounting was very remarkable. As Ste. Croix (1956) argued,

I should like to draw attention to two pieces of evidence which have made me suspect that the rise of modern bookkeeping may in fact be bound up with the introduction of Arabic figures.

First, as early as 1299 the rules of the *Arte dei cambi* (the guild of moneychanger) at Florence forbade the use of Arabic numerals in accounts. This shows that Arabic figures were in fact being used in accounting in Florence in the thirteenth century, the very time when commercial accounting was evidently making a great advance, and double-entry was on the point of emerging ...

My second piece of evidence is a very remarkable and highly original book, the *Liber Abbaci*, written as early as 1202 by the greatest mathematician of the time, Leonardo Fibonacci of Pisa he was taught the Hindu-Arabic numerals

⁴ Mathematics originally was an invention by a Persian mathematician, Al-Khwarizmi who in the ninth century AD, wrote an arithmetical treatise in Arabic in which the modern Hindu-Arabic numeral notation was expressed completely by use of calculations. It was adopted by Muslim Spain and then spread into Western Europe.

There are several great names amongst the earliest Western scholars who brought the Hindu-Arabic numerals to popularity. Gelbert of Aurillac, subsequently Pope Sylvester II was credited with introducing the new numerals to the West for use in connection with the abacus. The others were Abelard of Bath and Leonardo of Pisa who also contributed to the spread of the numerals by their writings on arithmetic introducing the Hindu-Arabic numerals (Hodgett, 1972).

(which he calls *figurae Indorum*) by his father ... (Ste. Croix, 1956, p.65).

In this regard it is important to note that the introduction of the Hindu-Arabic numerals changed the complex 'old' knowledge of notation (ie., Greek and Roman numerals) to a new 'simple' logos of numbers. Hoskin and Macve (1986) pointed out that the initial emergence of the new numerals adopted by Western Europe was not as simple as those numerals we understand today. And it was not the sudden proliferation of new ways of writing accounts, particularly in the thirteenth century (when the complex double-entry bookkeeping emerged). It was the Hindu-Arabic numerals which introduced a change in the ecology of numeric symbols to be used in simple calculation. It created the great volume of tables, charts, columns and diagrams to be invented in relation to the new social discourse of the numerals. Its discourse led directly to the development of accounting knowledge. At least, it could easily transform the abstract calculation into a new simple symbol of accounting knowledge. The numerals became a new knowledge elite in accounting, nowadays believed to be the essence of accounting as 'numbers'.

Alphabets: A New Knowledge of Writing

In the recent study conducted by Mattessich (1994), *Archaeology of Accounting and Schmandt-Busserat's Contribution*, he explored some ideas of accounting systems back to the Near East from about 8,000 BC to 3,000 BC in which he believed that there was evidence of "parallels between the shapes of tokens and those of the first signs of writing, establishing accounting as the prerequisite and impetus to writing and abstract counting" (p.5). With this richness of archaeological evidence⁶, he concluded that the development of writing, in the sense of a new disciplinary knowledge, could extend its usefulness to transform 'abstract' knowledge into symbolic writing and record-keeping. However, ancient writing and its effect on the modern knowledge of accounting were long delayed, until a 'new' knowledge elite of Latin alphabets was introduced into the West which consisted of twenty one letters at in the time of Cicero (106-43 BC), ABCDEFGHIKLMNOPQRSTVX (Hooker, 1990). And later, Y and Z were added due to the influence of the Greek spelling *upsilon* and *zeta* about the first century AD. But the social impact of the new development of the Latin alphabets was extremely limited until around the eleventh and the twelfth centuries, when formal education, in the form of the university, grew up in Europe (Durkheim, 1977).

⁶ The term 'archaeology' in Mattessich's study (1994) is different from what has been used by Foucault (1972), *Archaeology of Knowledge*, Hopwood (1987), *The Archaeology of Accounting System*, and Gaffikin (1988), *The Archaeology of Accounting*. Mattessich (1994) used the term "in the sense of *digging out* [and] interpreting prehistoric and ancient objects in the literal sense" (Mattessich, 1994, p.6), whereas they regarded the term in an extended sense as a *metaphoric* way.

The birth of universities⁷ in Western Europe is observed by Durkheim (1977) who argued that the variety of knowledge, including the knowledge of alpha-numeric writing, had been the major breakthrough from the domination of the cathedral school in the Middle Ages. Universities emerged due to the appearance of a new logical-knowledge elite which, according to Durkheim (1977, chap.7), could provide universally accepted 'real' knowledge beyond the church and feudal system in the growing intellectual life of Europeans in the period of the Middle Ages. Latin alphabets were able to gain advantage through this development of the universities. The art of alphabetic writing has become so widespread that it now forms an integral and indispensable part of our culture.

Evans (1977) claimed that it is true to say that the 'advanced' development of theory and practice of arithmetic began when the Hindu-Arabic numerals flourished in Western Europe. The numerals provided an agent of change in computation procedures and practices. He argued that

When a twelfth-century translator came upon Al-Kwowarizmi's *arithmetic* in Spain, he gave to the Latin world a more sophisticated method of calculation which, by reintroducing a symbol for zero, did away with the need for a fixed structure of columns, and enabled the calculator to substitute pen and paper for counters (Evans, 1977, p.115).

Some important points that can be drawn from Evans' findings are that Al-Khwarizmi was a Persian mathematician who made possible the development of Hindu-Arabic numerals with advanced calculus formulation in Western Europe. The Hindu-Arabic numerals and the combination of the Latin alphabets led to new sources of calculus knowledge, a definition of numbers and a fixed structure of columns. These aspects produced a vast new range of pedagogic re-writings of texts, documents and calculative descriptions, i.e., techniques which provided grids in texts both internally and externally in the service of 'information-retrieval' and 'knowledge-production' (Evans, 1977). In the form of information-retrieval, Latin alphabets and Hindu-Arabic numerals became new modes of coalescence into a significant new social discourse. Keeping memory knowledge of past happenings and transferring knowledge to others became possible. And in the form of knowledge-production, Evans (1977) pointed out that handbooks on the use of the Hindu-Arabic numerals began to be written, at first on the use of the abacus and then on the pen-and-paper system known as the Algorism. Thus, it is that the coalescence

⁷ In the birth of universities, the name of Peter Abelard cannot be ignored. He was a great man who pioneered the establishment of centers of education, i.e. the universities (in detailed see Durkheim [1977] and Murray [1978]).

of the Hindu-Arabic numerals and Latin alphabets enters, and then helps to shape a discourse committed to ordering and gridding of a kind never known before.

The emergence of universities and the process of alpha-numeric discourse undertaken by the twelfth century pedagogues need to be seen as a new kind of power-knowledge relationship. Durkheim (1977) identifies a central aspect of this as a shift from the traditional knowledge memory (ie., information based on 'complex' structure of feeling) to formal information-retrieval and knowledge-production. Similarly, Saenger (1982) identifies this aspect through the process of reading 'aloud' (the prestigious mode of reading in antiquity and monastic culture) to silent reading and concurrently a shift in composition from dictation to writing. The scholars of the cathedral schools and universities began to use visual metaphors both to denote reading (*videre, inspicere*) and composition (*scribere* for *dictare*) (Saenger, 1982, pp.386-389). In Islamic law, a new 'critical reading' began to be developed when writing, as the service of information-retrieval, spread amongst the muslims. Reading in the Islamic way depends upon the re-ordering and cross-referencing of four principles of texts as the basis of the Islamic legal system:

1. Al-Qur'an
2. The accepted doctrine of the Prophet
3. The consensus of the Islamic community
4. Analogical reasoning

Similarly, the new 'critical reading' had flourished in Roman law, Cannon law and Theology in Western Europe. The presentation of literary skills had been absolutely necessary to maintain that Christianity was a religion of the Book. Thus, writing and 'critical' reading became important in transforming knowledge of 'truth' by the re-ordering and cross-referencing of authoritative primary texts (ie. the Bible).

Double-Entry as Disciplinary Technique

During the high-point of the development of intellectual awareness of Latin alphabetic and Hindu-Arabic numeric knowledge in the form of formal university education, from about the early twelfth century to the fourteenth century AD, double-entry bookkeeping appeared, apparently simultaneously, in several northern Italian cities⁸ (Ste. Croix [1956] and Chatfield [1977]). Double tabulation, decimal notation, and alpha-numeric combination appeared as new knowledge disciplines. Double tabulation became a new fashion in the process of financial accounts. Decimal notation and alpha-numeric combination sustained the appearance of accounting as a

⁸ Though Muslim Spanish has claimed to have the origin of double entry, largely on the first adoption of the Hindu-Arabic system of numeration, it is probable that it originated in several northern Italian cities, where the practice of double-entry, as well as a form of bookkeeping, was well established in Venice, Genoa, Florence and Perugia (De Roover, 1974).

new social discourse. The processes linking with the process of commercial evolution during the same period after the Dark Ages to the fourteenth century led to a new movement in the development of 'modern' accounting.

Even though the early history of double-entry bookkeeping cannot be traced back with any accuracy, the earliest known examples of the technique are the account-book of Rinieri Fini and his brother of 1296 (De Roover, 1955). De Roover claimed that although it was not clear whether there was "... real balance showing the owners' equity and the composition of assets and liabilities" (p.407), it was certain that invention of the 1296 account-book was to separate the contents of assets and liabilities onto different sides. This difference was classified by debit and credit sides. As De Roover agreed with the view of the leading Italian scholars (ie., Zerbi and Melis) about the importance of double entry bookkeeping on the classification of debit and credit, it was required that

... each transaction be recorded twice, once on each side of the ledger, so that debits and credits, when totalled, always are in balance, provided, of course, that there are no errors. Accounts must also be kept in the same monetary unit or money of account. As a necessary consequence, an integrated system of accounts should include not only personal and impersonal accounts, but also real accounts (*conti elementari o diretti*), as well as nominal accounts (*conti derivativi*), which record operating results and changes in the owner's equity. To record these changes, both authors agree, is the main purpose of any accounting system (De Roover, 1955, p.411).

The importance of De Roover's above arguments is that he puts forward the central idea of the existence of double-entry bookkeeping, creating new categories for classifying and evaluating business transactions, in a modern way. It was a technique that helped to organise and make sense of the business activities in monetary discipline. This included the way of making society aware of arranging a 'new' financial discourse. For example, financial reports can be used in a wider range of social needs, such as labour commitment, capital investment, social awareness, etc.

Moreover, the German economic historians, Weber, Sombart, and Schumpeter, made extravagant claims concerning the importance of double-entry bookkeeping, a system which plays a key technical role in enhancing rationality and furthering the development of capitalist methods of production. All of them claimed that it originated in Italy towards the end of the thirteenth century. Sombart stated that

capitalist without double-entry bookkeeping is simply inconceivable. They hold together as form and matter. And one may indeed doubt whether capitalism has procured in double-entry bookkeeping a tool ..., or whether double-entry bookkeeping has first given rise to capitalism out of its own (ie., rational and systematic) spirit (Sombart, 1902)

In relation to Sombart's statement, Yamey (1978) argued that Sombart has greatly exaggerated the advantages of double-entry bookkeeping and the relevance of those advantages for the economic motivation and commercial performance of business enterprises. With a detailed discussion, Yamey convincingly referred to some histories of international business enterprises which flourished in the fifteenth and sixteenth centuries. They were Andrea Banchi of Italy and Fugger and Welser of Germany. Both cases have been studied which indicated that the enterprises in their activities did not use the system of double-entry bookkeeping. Both could run and manage their business enterprises very well, even though the system of double-entry bookkeeping were invented. From Yamey's findings, it seems that Sombart's thesis is untenable. However, Sombart was not alone in stating the advantages of double-entry bookkeeping. Weber came up with a similar argument to support Sombart's thesis. He, dramatically, also claimed that the emergence and development of accounting, as a practical technique used in business, is closely linked to the emergence of capitalism and the development of rationality. A rational capital accounting is his point which sustains the definition of modern capitalism. He stated that

the most general presupposition for the existence of this present-day capitalism is that of rational capital accounting as the norm for all large industrial undertakings which are concerned with provision for everyday wants (Weber [1927], 1981, p.276).

His argument is strengthened by his later book published in 1956 entitled *Economy and Society*. Rational capital accounting, according to him, involves "the valuation and verification of opportunities for profit and of the success of profit-making activity by means of a valuation of the total assets (goods and money) of the enterprise at the beginning of the profit-making venture, and the comparison of this with a similar valuation of the assets still present and newly acquired, at the end of the process" (Weber [1956], 1978, p.91). Accounting in the form of double-entry bookkeeping makes it possible for capitalists to evaluate rationally the consequences of their past decisions. They could calculate exactly in the form of calculus arithmetical knowledge from the sources available to them (ie. capitalists) and to those who wished to predict the opportunity of their enterprises in the future. Calculation discipline in accounting became an agent for creating new modes of social discourse.

Sombart and Weber did not stand alone in arguing the connection of double-entry bookkeeping in the form of 'new' calculus knowledge in accounting, rationality and capitalism. Joseph Schumpeter, an economic historian, has a similar argument. Like Sombart and Weber, he argued that

Pre-capitalist man is in fact no less "grabbing" than capitalist man ... Capitalism develops rationality and adds a new edge to it in two interconnected ways. First it exalts the monetary unit - not itself a creation of capitalism - into a unit of account. That is to say, capitalist practice turns the unit of money into a tool of rational cost-profit calculations, of which the towering monument is double-entry bookkeeping. Without going into this, we will notice that, primarily a product of the evolution of economic rationality, the cost-profit calculus in turn reacts upon that rationality: by crystallising and defining numerically, it powerfully propels the logic of enterprise (Schumpeter, 1943, p.123).

Schumpeter (1943) emphasised that double-entry bookkeeping contributed to the historical emergence of a 'rational world view'. Business enterprises and other social disciplines that embraced the new method of double-entry tabulation enjoyed a technical advantage that could possibly see a 'transparent' process in financial flows. A modern example can be found in the form of debit and credit used to record every transaction within an institution. Every expense or revenue of the institution recorded twice, as a means of check and re-check, debit and credit are always involved to discipline a process of 'rationality' in accounting knowledge.

Even though the arguments on the superiority of the origin of double-entry bookkeeping, launched by three leading German economic historians, has been challenged by Yamey (1964) and Pollard (1964, 1968)⁹, it gave rise to a curiosity on the importance of the 'calculus' system of double-entry bookkeeping (eg., Carruthers and Espeland [1991]). Without doubt, the calculus knowledge and procedures of double-entry bookkeeping (ie., the calculation of profits and capital of an enterprise) are capital points and important aspects in social discourse. The calculation became a mode of information-production which could reveal reality in 'abstract' counting. Journals of transactions, ledgers, and separate accounts of assets and other financial

⁹ Yamey (1964) and Pollard (1964, 1968) criticised a strong argument of Weber, Sombart and Schumpeter. Yamey (1964) stated that the argument of the superiority of double-entry bookkeeping has been exaggerated in the sense of "releasing, activating, stimulating or accentuating the "rationalistic pursuit of unlimited profits", ... in the capitalistic spirit" (Yamey, 1964, p.117). They are also not without challenge. For example, Mckendrick (1970) rejected Pollard's (1964) argument (see Mckendrick [1970] and Carruthers and Espeland [1991]).

items (eg., capital, liabilities and expenditures) are examples which accounting claims as strategic 'calculative' knowledge. According to Pacioli (1494, 1924), who had claimed to have popularised double-entry bookkeeping into 'modern' practice¹⁰, the calculative system could convince an enterprise to keep the books as both a service of information-retrieval and a form of information-production. More importantly, the system which Pacioli (1924) prescribed could be used to convince sceptics of the legitimacy of commerce in general and the integrity of the business enterprise in particular. Aho (1985), in his study *Rhetoric and the Invention of Double-Entry Bookkeeping*, showed how Pacioli's method of double-entry bookkeeping corresponded in form to classic Ciceronian rhetoric. The elements of an account, as described by Pacioli, were the *inventio* (the inventory), and the *dispositio* (memorandum, journal, and ledger). He suggested that the calculative system of double-entry bookkeeping also answer ethical problems faced by society, firstly, by integrating profit-seeking into the Christian cosmos (thereby avoiding charges of the sin of avarice) and secondly by providing a 'just' explanation of business activity via the system of double-entry bookkeeping which balances debits with credits, advantages with sacrifices, receipts with payments, and so on.

Power of Accounting

Pacioli [(1494), 1924], in his famous book, *Double Entry Bookkeeping*, stated that

[t]he present treatise will serve all their needs with regard to accounts and recording, and for this reason only do I insert it. I therefore intend to give sufficient rules to enable them to keep all their accounts and books in an orderly manner. ... [T]hree things are necessary to one who wishes diligently to carry on business ... [t]he most important is cash, or any other substantial power (facolta) Unum aliquid necessarium est substantia, without which the carrying on of business is very important. ... The second thing looked for in business is to be a good accountant and sharp bookkeeper and to arrive at this, as we have seen above, we have regular rules and canons necessary to each operation, so that any diligent reader can understand all by himself ... The third and last thing necessary is that all one's affairs be arranged in good order so that one may get, without loss of time, all particulars as to the debit and also the credit of all of them, as business does not deal with anything else. This is very useful, because it would be impossible to conduct business without due order of

¹⁰ See Mattessich (1964), Aho (1985), and Thomson (1991).

recording: for without rest, merchants would always be in great mental trouble (Pacioli (1494), 1924, p.11).

This is Pacioli's first argument in his famous treatise on double-entry bookkeeping, published in Venice in 1494. Starting with this idea, Pacioli began to develop the first and most influential textbook on the technique and procedure of double-entry bookkeeping. Thirty-nine chapters had been written up to the completion of the treatise. It is widely recognised that Pacioli popularised the system, but did not invent it. He also did not say that his book was the original invention of it. The technique of double-entry bookkeeping was developed by merchants who were believed to have had 'advanced' knowledge of calculation based on the spread of the Hindu-Arabic numerals and the combination of Latin writing in northern Italy in the twelfth century to the early fourteenth century (Ste. Croix, 1956). The characteristic of double-entry bookkeeping was the fact that all transactions within an enterprise were recorded twice, known as debit and credit sides. As described by Pacioli, the debit side pertained to 'debtor', whereas the credit side pertained to 'creditor' (Pacioli, 1924, p.28). From the treatise, then, the distinction between 'debit' and 'credit' has become 'two faces of a coin' which cannot ignore each other. The debit and credit sides are understood in the accounting field as a unique form of calculus knowledge.

Through the calculus system of debit and credit, double-entry bookkeeping gained a power which could establish its legitimacy and enhance its credibility. In a practical sense, double-entry bookkeeping explicitly recorded and documented the balanced nature of all transactions within an enterprise, thus providing the legitimacy and justness of the business. As Bryer (1933) noted, double-entry bookkeeping has been believed as an ideology where, for "every 'debit' there must be 'credit'" (p.13). Every transaction (or more generally, event) is always recorded twice so as to maintain the balance sheet equation ($\text{assets} - \text{liabilities} = \text{equity}$). Its effect on the equity could reveal the change in net assets, or profit and loss. Aho (1985) observed that "the conclusion of the balance sheet, ... is not simply that such and such is the net worth of our business, but rather that such profit is morally legitimate. And it is so, because it arises from a fundamentally equitable and balanced transaction" (Aho, 1985, p.33).

From Pacioli's text of 1494 to the practice of accounting in the twentieth century, there are relatively few changes in terms of calculus knowledge of double-entry bookkeeping (Winjum [1972] and Chatfield [1977]). However, many changes can be found in establishing the legitimacy and enhancing the credibility of accounting knowledge (Hopwood [1987], Tyson [1993], Miller and Napier [1993], and Chua and Poullaos [1993]). Accounting is understood as a combination of 'calculus' thinking (as a technical aspect) and social and political aspects. Chua and Poullaos (1993) pointed out that

[a]s accounting comes to be seen not as a technical activity but as a social practice that is deeply intertwined with wider socio-political institutions, researchers have focused on the institutional arrangements that represent, regulate and examine accounting practitioners and their work (Chua and Poullaos, 1993, p.691).

Based on this development, accounting practices are remarkably varied. Merchants in the fourteenth and fifteenth centuries were different to the current development of modern business in the form of technical accounting applications (see Pacioli (1494), 1924).

Accounting and the Construction of Individual and Organisational Efficiency

It is possible to identify many tendencies underlying the development of the accounting craft. One could possibly point to particular aspects of emerging bodies of knowledge and practice or to the changing patterns of influence on them. It could be highlighted by seeing accounting in the form of developments which are of organisational and social significance. For the purposes of development, Burchell, et al (1980) gave two particular tendencies sustaining the power of accounting: 'the increasing institutionalisation of the craft and the growing objectification and abstraction of accounting knowledge.' Both of these tendencies play an important role in enhancing our understanding of the accounting craft. Undoubtedly, much accounting change has resulted from such conceptions (cf., Hopwood, 1987). The creation of new forums, both for accounting deliberation and debate, and for the introduction of accounting change, is an example of how accounting could possibly be understood in the organisational context.

The institutionalisation of accounting has occurred at both the organisational and social levels since the introduction of double entry bookkeeping (cf., Yamey, 1978). Within both private (eg., business enterprises) and public organisations (eg., government and state agencies), financial records and all matters of bookkeeping came to take on a new significance and influence as accounting became a more all-embracing form of organisational practice (Chatfield [1977], and Burchell, et al [1985]). As accounting techniques increased (eg., budgeting and standard costing, organisational control, planning and resource allocation), an individual accountant within an organisation came to be an increasingly respected member of the management cadre. Miller and O'Leary (1987) observed that between 1900 and the 1930's in the United States of America, accounting, in the particular case of budgeting and standard costing, provided quite a novel theorisation and technique which could serve to render visible the inefficiencies of individuals within an organisation. Accountants, as individuals, could contribute an organisational efficiency through their ways of setting up budgeting and standard costing.

Accountants created a 'new' notion of efficiency concerning individual and organisational control in relation to the private and public organisations. Miller and O'Leary (1987) pointed out that the notion of efficiency is concerned with 'its pliability and ability' to supply a point of focus for arguments covering a vast range of issues. The notion is extended not only to private businesses and governmental organisations, but also to national and social efficiency. With the new notion of efficiency, Miller and O'Leary believed that the comprehensive power of accounting knowledge emerged for every individual concerned with efficiency. Apart from its effect, accounting departments were created as organisations aware of 'efficiency'. Specialist staff in accounting were then recruited, emergent accounting systems formalised, standardised and codified, links with other forms of management practice established and, in terms of financial information, accounting reports were required. Moreover, accounting itself came to have diverse roles. As accounting developed, a more fragmented endeavour of accounting knowledge was also required to support the growing applications of accounting in diverse forms, such as social responsibility accounting, organisational and social efficiency, and the requirement of separation between the presentation of internal financial information and the management of corporate liquidity and financial structure (cf., Burchell, et al, 1980).

Miller (1990) conducted research on the history of interrelations between accounting and the State by using the case of the 'Colbert period' of Louis XIV's reign, 1661-1683. In the research, the institutionalisation of accounting occurred with regard to a number of distinct elements: "the legal regulation of private enterprise accounting through the Ordinance of 1673; the publication alongside the Ordinance of textbooks explaining and commenting on it, and providing more general advice and instructions to merchants; and the elaboration of specific rationales accounting to which these distinct innovations were articulated and represented" (Miller, 1990, p.321). The power of accounting knowledge penetrated into organisational existence during the Colbert period. Colbert, as a minister, introduced a process of systematic and detailed information flows of accounting from the provinces to the centre in France. The accounting information system was designed according to the ratio of the increase of government administration to social practices. Its contribution can be seen from the way Colbert's system of financial accounts produced detailed information on government and business life. Miller (1990) said that

this derived from the linkages and relays established between the formal requirement to keep books of accounts in certain specific ways, the emergence of pedagogic mechanisms for instructing merchants in the mechanics of accounting, and ways of representing the importance and roles of accounting in terms of a discourse of "order". ... The existences to the reporting systems of the realm took place within a programme of government that sought to identify the characteristics,

processes and regularities of key aspects of economic and social life (Miller, 1990, pp.321-322).

Accounting was one of the most forceful and readily identifiable forms in which the notion of systematic control and efficiency appeared in the late seventeenth century in France. The programs, such as setting out "general principles and detailed requirements for recording and authenticating the financial activities of private enterprises, reforming state finances ...," were the central features of accounting in practice (Miller, 1990, p.323).

The growing development of accounting in the organisational context did not separate it from the professionalisation of the accounting craft. From their early emergence, the professional institutes provided an interface between the growing agencies of the government, business enterprises and society. Chatfield (1977) observed that since the first society of professional accountants, *Collegio dei Rexonati*, established in Venice in 1681, the accountants were involved with the administration of the early commercial codes. In England and Scotland, almost from its birth, the profession played a major part in the consultancy of commercial and industrial lives and regulations (Chatfield [1977], and Loft [1986]). Bankruptcy Acts, Companies Acts and other commercial regulations have been created with the involvement of the profession. Burchell, et al (1980) stated that the profession emerged with complex tasks in relation to commercial organisational lives. In the case of the US, even though the profession emerged at first with no strong foundations in law, in later development it came to flourish on the basis of government intervention. An innovation took place with the establishment of a relationship between the profession, the state and society. In fact, the establishment of the SEC (Securities and Exchange Commission) in the USA, for example, gained a regulatory power in society with the involvement of the profession allowing the investment of the institutional mechanisms, such as "explication, standardisation, and codification of financial practice, which could progress through the Accounting Principles Board to the Financial Accounting Standards Board" (Burchell, et al, 1980, p.7).

The emergence of the professionalisation of accounting generally provided a new atmosphere for the spread of accounting discipline in society. In fact, the profession became a specialised body for the standardisation and codification of accounting practice. The existence of the profession was also recognised as an agent of change in accounting practice and a forum for accounting deliberations and debates. Its power extended not only to technical knowledge, but also to the social interplay between the state and government, business enterprises and society in general. Hopwood (1987) stated that it is no doubt that, as a discipline, accounting has invested a great deal in the articulation of abstract bodies of knowledge concerned with economic and social life. Efficiency is a key word to the articulation

of the knowledge (See also Miller, 1990). In the name of efficiency, accounting has been implicated in the design and application of management practices both in private and public enterprises. Within enterprises, accounting procedures, for example, came to be systematically codified in charts and manuals. Financial risks and uncertainties, which were considered to be important aspects for managerial judgment, were now being quantified, with the decisions taking more of a calculus form of knowledge. Advanced development in the practices of budgeting, standard costing and planning have provided an apparatus for the co-ordination of inter-organisational department activities. Social concerns on environment and social efficiency have been involved in the range of accounting knowledge and discipline.

Accounting and Social Practice

The emergence of accounting discipline cannot be considered purely as an organisational phenomenon (Burchell, et al, 1980), but is embodied within the society of which individuals and organisations are a part. Both phenomena (organisation and society) have come to play major roles in accounting processes. Indeed, many of the important accounting innovations have occurred within numerous organisations and social processes. One way of illuminating the social nature of accounting discipline is through an understanding of its socio-cultural variations. A study by Loft (1986) is an example. She argued that the development of accounting discipline varied amongst societies. The success of Japanese manufacturing enterprises, for instance, has occurred without the same massive commitment to management accounting that has been practiced in Western cultures (ie., the United States of America and the United Kingdom) (see Dugdale, et al, 1992). The difference is not due to the great distance between the East and the West. Amongst Western continental countries, accounting practices have been applied with various emphases. Horowitz (1980), in his study: *Top Management Control in Europe*, found that British management control practices placed more emphasis on financial techniques than those in Germany. Dugdale, et al (1992) stated that British entrepreneurs had more experience in managerial control. It can be argued that societal variations have influenced the way accounting practices. Thus, one society may vary to another in the application of accounting. It depends upon the interaction and discourse of both society and accounting itself.

A multitude of different social significances has been embodied in the development of accounting (Burchell, et al [1980], Hopwood [1987], and Knight and Collinson [1987], Miller et al [1991]). For Hopwood, accounting served as a dynamic phenomenon. Over time, it has changed repeatedly. New ways of sustaining integrity, legitimacy, effectiveness and power of the accounting have emerged in response to social practices. It has been called upon to serve an ever greater variety of different and changing purposes. A variety of information has been served to organisational activities, processes and outcomes. Different accounts have also been

created to follow and create the social and environmental patterns and different emphases have been incorporated into accounting practices¹¹. Robson (1991) stated that since its emergence, accounting has had multiple roles in social activities. With the three interrelated concepts, 'political, economic or theoretical discourses and rationales', he described historically the process of accounting changes in relation to the various types of accounting practices. Over time, accounting practice has been implicated in the creation of very different patterns of problems in society. With the case of the genesis of the standard setting programme in the UK, Robson (1991) indicated that three major accounting disciplines appeared as social power in rational discourse. These were (i) industrial policy and corporate mergers; (ii) finance, investment knowledge and company accounts; (iii) the Accounting Profession, Professional Regulation, and Accounting Standards. In such developments, accounting has been seen as implicated in the operationalisation of dominant economic and social lives.

¹¹ There was a contradiction of the view of accounting and social change between Gilling (1976) and Wells (1976). Gilling claimed that accounting changes occur with response to environmental change, whereas Wells (1976) argued that accounting has power to affect changes in environment. However, out of these contradictions both recognised implicitly something of the 'duality' of accounting changes (see also Burchell, et al. 1985).

References:

- Aho, JA., "Rhetoric and the Invention of Double-Entry Bookkeeping," *Rhetorica*, Vol.3, 1985, pp.21-43.
- Bryer, RA., "Accounting for the "Railway Mania of 1845 - A Great Railway Swindle?", *Accounting, Organisations and Society*, Vol.16, 1991.
- Bryer, RA., "Accounting for the "Railway Mania of 1845 - A Great Railway Swindle?", *Accounting, Organisations and Society*, Vol.16, 1991.
- Bryer, RA., "Double-Entry Bookkeeping and the Birth of Capitalism: Accounting for the Commercial Revolution in Medieval Northern Italy," *Critical Perspectives on Accounting*, Vol.4, 1993.
- Bryer, RA., "Double-Entry Bookkeeping and the Birth of Capitalism: Accounting for the Commercial Revolution in Medieval Northern Italy," *Critical Perspectives on Accounting*, Vol.4, 1993.
- Burchell, S., C. Clubb, AG. Howood, "Accounting in Its Social Context: Towards a History of Value Added in the UK," *Accounting, Organizations and Society*, Vol.10, No.4, 1985, pp.381-413.
- Burchell, S., C. Clubb, AG. Howood, J. Hughes, and J. Nahapiet, "The Roles of Accounting in Organizations and Society," *Accounting, Organizations and Society*, 1980, pp.5-27.
- Carruthers, BG., and WN., Espeland, "Accounting for Rationality: Double-Entry Bookkeeping and the Rhetoric of Economic Rationality," *American Journal of Sociology*, Vol.97, No.1, July 1991, pp.31-69.
- Chatfield, M., *A History of Accounting Thought*, Revised Ed., New York: Robert E. Krieger Inc., 1977.
- Chua, WF., "Radical Developments in Accounting Thought," *The Accounting Review*, 1986, pp.601-632.
- Costouros, GJ., *Accounting in the Golden Age of Greece: A Response to Socio-economic Changes*, Urbana, Ill.: Center for International Education and research in Accounting, 1979
- Durkheim, E., *The Evolution of Educational Thought*, London: Routledge & Kegan pane, 1977.
- Evans, G., "From Abacus to Algorithm: Theory and Practice in Medieval Arithmetic," *British Journal for the History of Science*, 1977, pp.114-131.

- Ezzamel, M., K. Hoskin, and R. Macve, "Managing It All By Numbers: A Review of Johnson & Kaplan's Relevance Lost," *Accounting and Business Research*, Spring 1990, pp.153-166.
- Foucault, M., "The Subject and Power," in Dreyfus, HL. and P. Rabinow (Ed), *Michel Foucault: Beyond Structuralism and Hermeneutics*, New York: Harvester Wheatsheaf, 1982.
- Foucault, M., *Discipline and Punish*, Harmondsworth: Allen Lane/Penguin, 1977a.
- Foucault, M., *Language, Counter-Memory, and Practice: Selected Essays and Interviews*, New York: Cornell University Press, 1977b.
- Foucault, M., *Madness and Civilization*, Tavistock, 1967.
- Foucault, M., *Power/Knowledge: Selected Interviews and Other Writings 1972-1977*, The Harvester Wheatsheaf, New York, 1980.
- Foucault, M., *The Archaeology of Knowledge*, London: Tavistock, 1972.
- Foucault, M., *The Birth of the Clinic*, Tavistock, 1973.
- Foucault, M., *The History of Sexuality*, Allen Lane, 1981.
- Foucault, M., *The Order of Things*, Tavistock, 1970.
- Gaffikin, MJR., "The Methodology of Early Accounting Theorists," *Abacus*, Vol.23, No.1, 1987.
- Gaffikin, MJR., "Legacy of the Golden Age: Recent Developments in the Methodology of Accounting," *Abacus*, Vol.24, No.1, 1988.
- Gaffikin, MJR., *Accounting Methodology and the Work of R.J. Chambers*, Garland, 1989.
- Gaffikin, MJR., "The Archaeology of Accounting," *The Fifth World Congress of Accounting Historians*, The University of Sydney, 1988.
- Hertog, F.den and C. Wielinga, "Control Systems in Dissonance: The Computer as an Ink Blot," *Accounting, Organisations and Society*, Vol.17, No.2, 1992.
- Hodgett, GAJ., *A Social and Economic History of Medieval Europe*, Methven, 1972.
- Hooker, JT., *Reading the Past: Ancient Writing from Cuneiform to the Alphabet*, The British Meseum, 1990.

- Hopper, K., and M. Pratt, "The Growth of Agricultural Capitalism and the Power of Accounting: A New Zealand Study," *Critical Perspectives on Accounting*, Vol.4, 1993, pp.247-274.
- Hopper, T., and NB. Macintosh, "Management Accounting as a Disciplinary Practice: Theory, Case Analysis, and Implication," *Paper Presented at the Second European Management Control Symposium*, HEC, Paris 9-11 July 1992.
- Hopper, T., and NB. Macintosh, "Management Accounting as a Disciplinary Practice: The Case of ITT under Harold Geneen," *Management Accounting Research*, Vol.4, 1993, pp. 181-216.
- Hopper, T., and P. Amstrong, "Cost Accounting, Controlling Labour, and the Rise of Conglomerates," *Accounting, Organisations, and Society*, Vol.16, 1991, pp.405-438.
- Hopwood, AG., "The Archaeology of Accounting Systems," *Accounting, Organizations and Society*, Vol.12, No.3, 1987, pp.207-234.
- Hoskin, KW., "Boxing Clever: For, Against, and Beyond Foucault in the Battle for Accounting Theory," *Critical Perspectives on Accounting*, Vol.5, No.1, 1994, pp.57-86.
- Hoskin, KW., and RH. Macve, "Accounting and the Examination: A Geneology of Disciplinary Power," *Accounting, Organizations and Society*, Vol.11, No.2, 1986, pp.105-136.
- Hoskin, KW., and RH. Macve, "Reappraising the Genesis of Managerialism: A Re-examination of the Role of Accounting at the Springfield Armory 1815-1845," *Accounting, Auditing, and Accountability*, Vol.7, No.2, 1994.
- Hoskin, KW., and RH. Macve, "The Genesis of Accountability: The West Point Connections," *Accounting, Organizations and Society*, Vol.13, No.1, 1988a, pp.37-73.
- Hoskin, KW., and RH. Macve, "The Genesis of Managerialism and Accountability: Springfield, Tyler, and West Point," *The 5th Congress of Accounting Historians*, Sydney, 1988c.
- Hoskin, KW., and RH. Macve, "Cost Accounting and the Genesis of Managerialism: The Springfield Armory Episode", Paper presented at the Second Interdisciplinary Perspectives on Accounting Conference, Manchester, 1988b.
- Johnson, HT., and RS. Kaplan, *Relevance Lost: The Rise and Fall of Management Accounting*, Boston: Harvard Business School Press, 1987.

- Knights, D., and D. Collinson, "Disciplining the Shopfloor: A Comparison of the Disciplinary Effects of Managerial Psychology and Financial Accounting," *Accounting, Organization and Society*, Vol.12, No.5, 1987, pp.457-477.
- Knights, D., and T. Vurdubakis, "Calculations of Risk: Towards an Understanding of Insurance as a Moral and Practical Technology," *Accounting, Organisations and Society*, Vol.18, No.7/8, 1993, pp.729-764.
- Littleton, AC., *Accounting Evolution to 1900*, New York: American Institute Publishing Company, 1933.
- Loft, A., "Towards a Critical Understanding of Accounting: The Case of Cost Accounting in the UK 1914-1925," *Accounting, Organizations and Society*, Vol.11, No.2, 1986, pp.137-169.
- Loft, A., *Understanding Accounting in Its Social and Historical Context: The Case of Cost Accounting in Britain, 1914-1925*, New York: Garland Publishing Inc., 1988.
- Mattessich, R., *Accounting and Analytical Methods: Measurement and Projection of Income and Wealth in the Micro- and Macro-Economy*, Houston: Scholars Book Co, 1964.
- Merquior, JG., *Foucault*, London: Fontana Press, 1985.
- Miller, P., "On the interrelationships between Accounting and the State," *Accounting, Organization and Society*, 1990, pp.315-338.
- Miller, P., and C. Napier, "Genealogies of Calculation," *Accounting, Organization and Society*, Vol.18, No.7/8, 1993, pp.631-647.
- Miller, P., and T. O'Leary, "Accounting and the Construction of Governable Person," *Accounting, Organizations and Society*, Vol.12, No.3, 1987, pp.235-265.
- Miller, P., T. Hopper, and R. Laughlin, "The New Accounting History: An Introduction," *Accounting, Organisations and Society*, Vol.16, No.5/6, 1991.
- Miller, P., T. Hopper, and R. Laughlin, "The New Accounting History: An Introduction," *Accounting, Organizations and Society*, Vol.16, 1991, pp.395-403.
- Morgan, EV., *A History of Money*, Penguin Book Ltd., 1965.
- Murray, A., *Reason and Society in the Middle Ages*, Oxford, 1978.
- Pacioli, FL., *Treatise on Double-Entry Bookkeeping*, Translated by Pietro Crivelli, London: Institute of Book-Keeper, (1494), 1924.

- Pollard, S., "Capital Accounting in the Industrial Revolution," in M. Chatfield (eds), *Contemporary Studies in the Evolution of Accounting Thought*, Belmont California: Dickenson, 1968.
- Pollard, S., "Fixed Capital in the Industrial Revolution in Britain," *Journal of Economic History*, Vol.24, 1964, pp.299-314.
- Pollard, S., *The Genesis of Modern Management*, Harmondsworth: Penguin, 1968.
- Poster, M., *Foucault, Marxism and History: Mode of Production versus Mode of Information*, Oxford: Polity Press, 1984.
- Power, MK., "From Common sense to Expertise: Reflections on the Prehistory of Audit Sampling", *Accounting, Organisations and Society*, Vol.17, 1992
- Preston, AM., "The Birth of Clinical Accounting: A Study of the Emergence and Transformations of Discourses on Costs and Practices of Accounting in US Hospitals," *Accounting, Organisations and Society*, Vol.17, No.1, 1992, pp.63-100.
- Preston, AM., "The Taxman Cometh: Some Observations on the Interrelationship between Accounting and Inland Revenue Practice," *Accounting, Organisations and Society*, Vol.14, No. 5/6, 1989, pp.389-413.
- Robson, K., "On the Arenas of Accounting Change: The Process of Translation," *Accounting, Organization and Society*, Vol.16, No.5/6, 1991, pp.547-570.
- Robson, K., H. Willmott, D. Cooper, and T. Puxty, "The Ideology of Professional regulation and the Markets for Accounting Labour: Three Episodes in the Recent History of the U.K. Accountancy Profession," *Accounting, Organization and Society*, Vol.19, No.6, 1994, pp.527-553.
- Roover, R. de., *Business, banking and Economic Thought*, Chicago, University of Chicago Press, 1974.
- Roover, R. de., "New Perspective on the History of Accounting," *The Accounting Review*, Vol.30, No.3, 1955, pp.405-420.
- Roover, R. de., "Partnership Accounts in Twelfth Century Genoa," In AC. Littleton and BS. Yamey (Ed), *Studies in the History of Accounting*, New York, Arno Press, 1956.
- Roover, R. de., "The Development of Accounting Prior Luca Pacioli According to the Account Books of Medieval Merchants", In AC. Littleton and BS. Yamey (Ed), *Studies in the History of Accounting*, New York, Arno Press, 1956.
- Roslender, R., *Sociological Perspectives on Modern Accountancy*, London: Routledge, 1992.

- Saenger, P., *Silent Reading: Its Impact on Late Medieval Script and Society*, *Viator*, 1982, pp.367-414.
- Schumpeter, J., *Capitalism, Socialism, and Democracy*, New York: Harper Torchbooks, 1943.
- Smart, B., *Michel Foucault*, England: Ellis Horwood Ltd, 1985.
- Solomons, D., "The Historical Development of Costing," In Solomons, D. (Ed), *Studies in Cost Analysis*, 2nd Ed., London: Sweet & Maxwell, 1968, pp.3-49.
- Sombart, W., *Der Moderne Kapitalismus*, (transl) Leipzig: Duncker & Humblot, 1902.
- Ste. Croix, de GEM., "Greek and Roman Accounting," in AC. Littleton and BS. Yamey (Ed), *Studies in the History of Accounting*, New York, Arno Press, 1956, pp.14-74.
- Stewart, RE., "Pluralizing Our Past: Foucault in Accounting History," *Accounting, Auditing, and Accountability*, Vol.5, No.2, 1992, pp.57-73.
- Sukoharsono, EG., *A Study of the Relationship between Individual Psychological Differences of Indonesian Accountants, Professional Job Behaviour and Financial Reporting Alternatives: An Empirical Investigation*, Unpublished Honours Master Thesis, the University of Wollongong, 1991.
- Sukoharsono, EG., and MJR. Gaffikin, Power and Knowledge in Accounting: Some Analyses and Thoughts on Social, Political, and Economic Forces in Accounting and Profession in Indonesia 1800 - 1950s, Working Papers Series No. 4, University of Wollongong, 1993b.
- Sukoharsono, EG., Accounting, Colonial Capitalist, and Liberal Order: The Case of Accounting History in Indonesia during the Dutch Colonial Period of the Mid-to-End of the 19th Century, *The 1994 AAANZ Conference - Pacioli 500 years On*, University of Wollongong, 1994.
- Sukoharsono, EG., A Power and Knowledge Analysis of Indonesian Accounting History: Social, Political and Economic Forces Shaping the Emergence and Development of Accounting, PhD Dissertation, University of Wollongong, Australia, March 1995.
- Sukoharsono, EG., Accounting in the Coming of Islam: Early Ritual and Administrative Affairs in Indonesia, *New York Conference on Interdisciplinary Accounting Research*, New York, 26-29 April 1996a.
- Sukoharsono, EG., Peran Manajemen Informasi dalam Penelitian Ilmu Eksakta, *Penataran Metodologi Penelitian Ilmu Eksakta - BM PTSI Kopertis VII*, Universitas Islam Malang, 15-16 Juli 1996b.
- Sukoharsono, EG., Paradigma Riset Akuntansi, *Lokakarya Riset Metodologi Akuntansi*, Universitas Muhammadiyah Malang, 11-15 Nopember 1996c.

- Thompson, G., "Is Accounting Rhetorical? Methodology, Luca Pacioli and Printing", *Accounting, Organisations and Society*, Vol.16, 1991.
- Tyson, T., "Keeping the Record Straight: Foucauldian Revisionism and Nineteenth Century US Cost Accounting History." *Accounting, Auditing, and Accountability*, Vol.6, No.2, 1993, pp.4-16.
- Walsh, EJ., and RE. Stewart, "Accounting and the Construction of Institutions: The Case of a Factory," *Accounting, Organisations, and Society*, Vol.18, No.7/8, 1993, pp.783-800.
- Wells, MC., "A Revolution in Accounting Thought," *The Accounting Review*, 1976.
- Weber, M., *General Economic Theory*, Translated by F. Knight, New Brunswick, 1927.
- Yamey, B., "Accounting and the Rise of Capitalism: Further Notes on a Theme by Sombart," *Jurnal of Accounting Research*, 1964, pp.117-136.
- Yamey, B., *The Historical Development of Accounting: A Selection of Papers*, New York: Arno Press, 1978.