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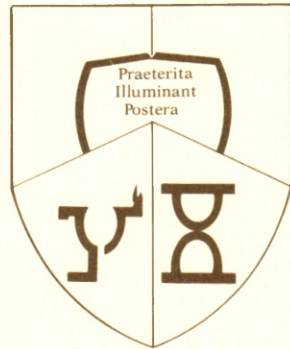
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December 1989
Volume 16, Number 2

Research on the Evolution of Accounting Thought and
Accounting Practice

The Accounting Historians Journal

December 1989

Volume 16, Number 2

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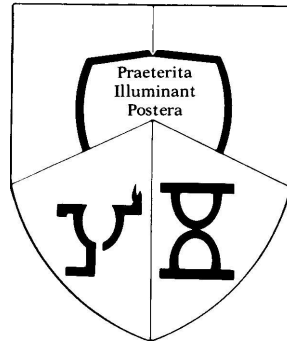
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The Accounting Historians Journal

December 1989
Volume 16, Number 2

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THE ACCOUNTING HISTORIANS JOURNAL

Semiannual Publication of
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Volume 16, Number 2

December 1989

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1. Manuscripts should provide a clear specification of the research issue, problem and/or hypothesis being addressed, an explanation of the derivation of the issue and a plan to address these.

2. Authors should develop a statement about the method employed in the research, including a full indication of the extent and the manner in which the methodology is used and the degree to which the research plan is achieved by means of the method. Such a statement should include a specification of the original materials or data collected or employed and a statement of the rationale employed in selecting the source material(s). A description of the evidential data used in conducting the final phases of the evaluation and which support the reported findings should be clearly stated.

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Barry E. Cushing
THE PENNSYLVANIA STATE UNIVERSITY

A KUHNIAN INTERPRETATION OF THE HISTORICAL EVOLUTION OF ACCOUNTING

Abstract: Distinct parallels exist between the historical evolution of scientific disciplines, as explained in Thomas Kuhn's *The Structure of Scientific Revolutions*, and the historical evolution of the accounting discipline. These parallels become apparent when accounting's dominant paradigm is interpreted to be the double-entry bookkeeping model. Following this interpretation, the extensive articulation of the double-entry model over the past four centuries may be seen to closely resemble the "normal science" of Kuhn's theory. Further parallels become apparent when Kuhn's concept of the disciplinary crises that precede scientific revolutions is compared to developments in the accounting discipline over the past 25 years. This portrayal of accounting's evolution suggests an uncertain future for the accounting discipline.

The purpose of this paper is to examine the historical evolution of the accounting discipline from the perspective of Thomas Kuhn's classic, *The Structure of Scientific Revolutions* [1970a]. Kuhn's book offers profound insights into the evolution of scientific disciplines, and therefore may help us to better understand past and present trends in the accounting discipline. This paper cites many aspects of the historical evolution of accounting which may be interpreted in ways that are consistent with a detailed examination of Kuhn's theory. This exercise in historical interpretation offers a new and interesting perspective on the history of the accounting discipline, and is also suggestive of some alternative ways in which accounting might evolve in the future.

The historical evolution of scientific disciplines has been addressed by a number of philosophers in addition to Kuhn, including Lakatos [1970] and Feyerabend [1975]. This is not an appropriate forum for addressing the question of which of these

I wish to express my appreciation for helpful comments by seminar participants at Case Western Reserve University, Columbia University, McMaster University, Ohio State University, Penn State University, and the University of Utah. The specific comments of Haim Falk, Gary Previts, Bob Sterling, and Steve Zeff were particularly helpful.

works is more credible. However, Kuhn's work was chosen as the basis for this paper because it is more widely known, it has had a substantial influence on thinking in numerous other academic disciplines,¹ and it has spawned a small body of literature (to be reviewed in the next section of the paper) examining its implications for accounting. I leave it to others to draw out the implications for accounting (if any) of the works of Lakatos, Feyerabend, and other historians of science.

According to Kuhn, the evolution of a scientific discipline, as practiced by members of a scientific community, may be characterized by the following stages:

1. Pre-paradigm stage, during which a body of phenomena is examined by scientists espousing competing schools of thought, with no common body of belief,
2. Development of paradigm consensus, or a common body of belief among practicing scientists within the field,
3. Normal science, in which the paradigm is further articulated to better explain the subject body of phenomena,
4. Crisis associated with anomalies, or observable facts that are unexplainable within the existing paradigm,
5. The appearance of a new paradigm incommensurable with the old, followed by debates between advocates of the rival paradigms,
6. Revolution, in which the consensus associated with the old paradigm is replaced by consensus on the new paradigm,
7. Resumption of normal science based upon the new paradigm,
8. Recycling through stages 4 to 7.

A slightly more extensive summary of Kuhn's thesis is presented by Wells [1976, pp. 471-2].

This paper is organized as follows. The first section reviews previous literature which has applied Kuhn's theory to accounting. The next section addresses the question of whether Kuhn's theory of disciplinary evolution in *science* may be usefully applied to *accounting*. Given an affirmative answer to this question, the third section addresses two closely related questions: (1) what is accounting's paradigm? and (2) at what stage in Kuhn's evolutionary cycle is accounting at this time? Based upon the answers to these questions, the fourth section interprets recent developments in accounting in terms of Kuhn's

¹For example, Gutting asserts that Kuhn's *Structure* "has had a wider academic influence than any other single book of the last twenty years" [1980, p. v].

theory of the crises and responses to crisis that occur in scientific disciplines prior to the emergence of a new paradigm. The fifth section examines possible future directions for accounting. A final section briefly summarizes the paper and its most significant conclusions.

LITERATURE REVIEW

References to Kuhn's work on the history of science first appeared in the accounting literature in 1966. Chambers [1966, pp. 373-376] suggested that "the development of accounting thought seems to have distinct parallels with the development of pre-Copernican astronomy" and expanded this idea with reference to Kuhn's *The Copernican Revolution*, published in 1957. The gist of Chamber's argument was that the ideas in his book, *Accounting, Evaluation and Economic Behavior*, could have an impact on traditional accounting thought analogous to the impact of Copernican ideas on astronomy. However, this analogy was not developed very far, and furthermore the scope and power of the ideas presented in *The Structure of Scientific Revolutions* were only dimly apparent in *The Copernican Revolution*.²

The first edition of Kuhn's *The Structure of Scientific Revolutions* was published in 1962, and this work was first referenced in the accounting literature by Sterling [1966, 1967, 1970a, 1970b]. Sterling's works during this period frequently make brief references to Kuhn's ideas in order to support a line of argument such as "a new theory usually arises as a result of 'anomalies' in the old theory" [1970a, p. 444]. However, Sterling did not attempt to more fully draw out the analogy that he so often suggested between developments in accounting theory and Kuhn's ideas.³

The first relatively comprehensive attempt to interpret developments in the accounting discipline in terms of Kuhn's theory was provided by Wells [1976]. He suggests that paradigm consensus in accounting evolved during the period from 1900 to 1940, and coalesced with the publication of the classic works of

²For Kuhn's personal account of the development of his ideas, see his *The Essential Tension: Selected Studies in Scientific Tradition and Change* (The University of Chicago Press, 1977), especially its preface.

³An important qualification to this statement is that Sterling's participation on the American Accounting Association Committee that prepared *Statement on Accounting Theory and Theory Acceptance* [1977] almost certainly accounts for the emphasis given there to Kuhn's theory as a way of interpreting the existing state of accounting theory.

Gilman [1939], Sanders, Hatfield and Moore [1938], and Paton and Littleton [1940]. The central feature of this accounting paradigm in Wells' analysis is the historical cost basis of accounting valuation. The period from 1940 to approximately 1960 is treated by Wells as a period of normal science. A period of crisis then arose which he attributes to:

one class of anomaly that has proven to be intractable. The historical-cost based system fails to take account of changes in asset prices and changes in the purchasing power of the monetary unit [p. 476].

The accounting discipline's response to this crisis included a period of professional insecurity accompanied by ad hoc modification of accounting rules, attempts to define the fundamental assumptions (postulates) and objectives of the discipline, and the emergence of alternative paradigms. Wells identifies four schools of thought associated with what might generally be referred to as accounting for changing prices, and concludes that "accounting is emerging from a state of crisis" [p. 480] which could be expected to lead to a shift of allegiances in favor of one of the competing schools of thought culminating in the emergence of a new paradigm.

A major theme of Wells' analysis is his defense of *a priori* research in accounting from the increasing criticism it was receiving, for example, from Nelson [1973] and Gonedes and Dopuch [1974]. Kuhn's theory predicts that a paradigm shift will be accompanied by attempts by advocates of competing paradigms to persuade their opponents to their view. Such attempts are usually unsuccessful due to the incommensurability of competing paradigms — that is, each paradigm assumes standards of evaluation (of paradigms) that are not compatible with the standards of the competing paradigm. Thus, paradigm debates often appear to have abandoned the standards of scientific evaluation in favor of emotional appeals. As a result, paradigm debates invite criticism such as that cited by Gonedes and Dopuch [p. 50]: "it has seemed possible, using this [a priori] approach, to declare the superiority of just about any set of accounting procedures, depending upon the particular a priori model adopted." In contrast, Wells defends a priori research in accounting by viewing it as an essential step in a Kuhnian paradigm shift which, according to his analysis, was in progress in accounting during the 1960s and 1970s.

Flamholtz [1976] develops the implications of Kuhn's theory in a way that has some parallels to Wells. She equates the

period prior to 1930 to Kuhn's pre-paradigm stage, and identifies the 1930s as the period during which an accepted accounting paradigm was developed. However, her analysis, unlike that of Wells, has a heavy institutional flavor, in that she defines accounting's paradigm in terms of the pronouncements issued by the accounting profession and the SEC. Thus, normal science consisted of the continuing development and promulgation of accounting rules following the 1930s by the Committee on Accounting Procedure, the Accounting Principles Board, and the Financial Accounting Standards Board. According to her analysis, the existence of a crisis was apparent by 1970 in that the accepted accounting paradigm failed to reflect economic reality in a variety of ways, including a failure to deal adequately with price-level changes, with the increasing complexity of economic transactions, and with the need to account for human resources. She suggests that a new paradigm which will address these issues is likely to emerge through a combined effort of government and the accounting profession, but does not describe the possible nature of such a paradigm.

The American Accounting Association's *Statement on Accounting Theory and Theory Acceptance* (SATTA) was published in 1977, but represented the culmination of a project begun in 1973 and intended to yield "a statement that would provide . . . [a] survey and distillation of current thinking on accounting theory" [1977, p. ix]. Instead, SATTA identified three alternative theory approaches and attributed the extant lack of consensus regarding the "correct" approach as attributable to the existence of a Kuhnian paradigm debate. The three alternative theory approaches identified by SATTA were labelled (1) classical approaches to theory development, (2) the decision-usefulness approach, and (3) information economics.

SATTA does not attempt an historical interpretation of the evolution of accounting thought in terms of Kuhn's stages. Rather, in Chapter 4, it focuses on an interpretation of the existing lack of theory consensus in terms of one specific stage of Kuhn's theory — the stage of paradigm debate. Only briefly does the document imply that a paradigm consensus ever existed in the accounting discipline: "the apparent consensus on the 'matching and attaching' approach to theory formation is disintegrating" [p. 41]. SATTA does not describe the nature of normal science carried out under this paradigm, or explain the kinds of anomalies that may have led to the crisis of disintegrating consensus. Thus it is a static application of a specific Kuhnian concept, rather than a dynamic application of Kuhn's entire

theory. Of course the purpose of SATTA was to summarize *current* thinking on accounting theory. In that light, SATTA's failure to offer an account of the evolution of accounting theory is better understood.

SATTA was reviewed by Hakansson [1978] and by Peasnell [1978]. Hakansson expresses disagreement with SATTA's suggestion that its three "alternative theory approaches" might be treated as competing paradigms, and suggests instead that accounting's paradigm

would seem to me to have to be closely related with the structure of modern corporate accounting: a focus on assets, on claims to these assets, and on periodic changes in both, with each dimension associated with a *unique standardized number* [p. 722].

In his view, the disenchantment of the 1960s should be attributed to "the shortcomings of relying on the single-number (nominal currency point) estimates to which the double-entry system naturally leads us" [p. 722] rather than to dissatisfaction with the prevailing matching-attaching paradigm. Hakansson interprets SATTA's three alternative theory approaches as attempts to resolve the anomalies of the existing accounting paradigm, which he asserts "has not come close to being overthrown and may yet be repaired" [p. 722]. As Hakansson's objective is to critique SATTA, his Kuhnian interpretation of accounting's evolution goes no further than this. Despite its brevity, his interpretation is noteworthy in that it provides a quite different perspective than does SATTA, Wells, or Flamholtz.

Peasnell critiques SATTA from two points of view. First, he suggests that Kuhn's theory is not applicable to accounting because it "is intended to apply only to the sciences" [1978, p. 219] and "Accounting is not a science, it is a service activity" [p. 220]. Second, he argues that SATTA's identification of the classical and decision-usefulness approaches as competing paradigms cannot possibly be correct because, under Kuhn's theory, "there is little likelihood of an individual scientist accepting more than one conflicting (as contrasted with complementary) paradigm" [p. 221]. To support this view he argues that a number of prominent accounting scholars could easily be associated with either "paradigm" [pp. 222-223].

Previts [1980]⁴ applied Kuhn's concepts to his analysis of

⁴This is the published version of Previts' 1972 Ph.D. dissertation at the University of Florida.

the evolution in accounting thought from a pure historical cost paradigm to a modified cost paradigm early in the 20th century. According to Previts, the pure historical cost paradigm “rested almost exclusively upon the concept of historical cost qua exchange price, as found in the doctrines of prominent Classical economists” [p. 192]. This paradigm was challenged and eventually transformed “into a modified cost paradigm characterized by important formulations of theories for depreciation, amortization and appreciation” [p. 192].

Laughlin [1981] presents a critique of the Kuhnian analyses of both Wells and SATTA in an attempt to show that Kuhn’s theory “just does not fit the present accounting phenomena” [p. 330]. Like Peasnell, he questions whether accounting is a science suitable for analysis using Kuhn’s theory. His answer consists of an assertion that

it seems to be somewhat fanciful to suggest that the practice of accounting since the 1940’s could, in any way, be classified as normal science. Or that the double-entry equality, the realization and matching principle etc. can be considered to be the contents of a paradigm/disciplinary matrix of accounting science [p. 335].

According to Laughlin’s interpretation of Kuhn, “the main hallmark of normal science is the making of ‘good predictions’ from the ‘practice of the field’” [p. 335]. He reviews the literature dealing with the prediction of corporate failure, as well as the efficient markets literature, and argues that these fail to qualify as normal science. He then suggests that the natural sciences may be a poor model for accounting scholars to follow in attempting to make the accounting discipline more scientific. The anarchistic theory of knowledge proposed by Feyerabend [1975] is a better model for the evolution of the social sciences, Laughlin asserts, than is Kuhn’s theory. The remainder of his paper pursues the implications of this view.

Glautier [1983] uses Kuhn’s concepts of paradigm and crisis to present a broad theory of how the nature of accounting at various stages of history has been determined by the degree of concentration or dilution of political power. He examines four periods of history, (1) the world of antiquity predating the invention of money, (2) the Roman world, (3) the Middle Ages, and (4) the Modern Age. He hypothesizes that strong forms of centralized power are associated with accounting systems having a paramount concern with control, while the dilution of centralized political power tends to be associated with multiple

accounting systems designed to achieve different objectives. His analysis supports these hypotheses. Glautier's work is noteworthy in the following respects, (1) he examines a much broader period of history than any other author cited here, (2) he suggests that accounting has gone through several stages of paradigm consensus and revolution, and (3) he implies that double-entry bookkeeping is the central feature of accounting's extant paradigm. One limitation of his analysis, however, is that he does not attempt to describe the evolution of accounting in terms of the specific benchmarks of Kuhn's theory; indeed, he makes only one tangential reference to Kuhn's work.

Butterworth and Falk [1986] suggest that much of the accounting literature of the past 60 years reflects a controversy between a "valuation paradigm" and a "stewardship paradigm." The valuation paradigm, associated with the works of Canning [1929], Chambers [1966] and Sterling [1970b], "assumes that the primary role of accounting is to provide investors and other interested parties with an estimate of the collective value of the rights to future services owned by a specific accounting entity" [p. 12]. In contrast, the stewardship paradigm, associated with such authors as Paton [1922], Sanders, Hatfield and Moore [1938], Mattessich [1964], and Ijiri [1967], views the accountant "as a processor of market values who is not concerned with their prediction" [p. 13]. Butterworth and Falk suggest that the recent capital markets research literature in accounting has its roots in the valuation paradigm, whereas the recent agency research literature in accounting has parallels with the stewardship paradigm. The implication is that accounting is presently in a stage of paradigm debate. To reconcile the conflict between these two paradigms, they propose a "contracting paradigm," which assumes "that a principal objective of accounting reports is to provide an efficient basis for financial contracts between management of a business enterprise and the firm's owners and creditors" [p. 22]. Their analysis is noteworthy in that its primary focus is on the evolution of accounting research paradigms.

In summary, the literature provides a variety of views concerning how the evolution of accounting corresponds to Kuhn's ideas about the evolution of scientific disciplines. There is no agreement on the nature of accounting's current paradigm, on the nature of "normal science" in accounting, or on the possible features of a future paradigm. It is interesting that most of the authors cited suggest that accounting is presently in a state of paradigm debate or crisis.

This paper attempts to augment the existing literature by drawing upon a much more detailed analysis of Kuhn's ideas. While other authors provide only a limited number of references to his work, this paper uses over 30 specific quotations from Kuhn [1957, 1970a, 1970b] to build an interpretive framework within which the historical evolution of accounting may be critically examined. This approach provides more persuasive evidence of the correspondence between the evolution of scientific disciplines and the evolution of accounting. It also offers a unique perspective on the past, present, and possible future of accounting.

DOES KUHN'S THEORY APPLY TO ACCOUNTING?

Is it appropriate to apply Kuhn's theory of the evolution of scientific disciplines to accounting? Specifically, if Kuhn's theory is based upon the historical evolution of *scientific* disciplines, can it say anything pertinent about other disciplines supposedly not within its purview, such as accounting?

It is first necessary to define what is meant by "accounting" as the term is used in this paper. Because revolutions in a Kuhnian sense often result in fundamental shifts in the nature of a discipline, it is necessary to use a very broad definition that will not inhibit thinking about the possible future evolution of accounting. With this in mind, accounting is considered here to deal with making sense out of the economic performance of individuals or groups who are responsible for the utilization of economic resources, for the purpose of exerting control over those utilization activities. When references are made to "the accounting discipline," as it was constituted during a particular era, this refers to the body of knowledge about accounting held in common by leading accounting thinkers of that era. At various times in the past, these accounting thinkers may have been merchants, textbook writers, practicing accountants, teachers, scholars, or a mixture of these.

If this definition of accounting is accepted, then Peasnell's contention that accounting is not a science because it is a service activity must be rejected. Making sense out of reality is very much a scientific activity, and is also often performed for the purpose of controlling certain features of reality. An example is the field of medicine, which is a service activity that is solidly based in scientific research. Therefore, given the definition of accounting used here, the resemblance between accounting and other scientific disciplines may be sufficient to permit the use of

Kuhn's theory to learn something useful about the evolution of accounting.

However, Kuhn appears to believe that his theory has meaning only for a special category of disciplines he calls sciences: "My methodological prescription is, however, directed exclusively to the sciences . . ." [1970b, p. 243]. Furthermore, he clearly intends to exclude social sciences, such as accounting, from his thesis,

I claim no therapy to assist the transformation of a proto-science to a science, nor do I suppose that anything of that sort is to be had. If . . . some social scientists take from me the view that they can improve the status of their field by first legislating agreement on fundamentals and then turning to puzzle solving, they are badly misconstruing my point [1970b, p. 245].

But the objective of this paper is not inconsistent with these views. This paper seeks neither a "methodological prescription" nor an "improvement in status" for accounting. The objective of this paper is to enhance our understanding of accounting's evolution, and Kuhn's ideas may contribute to this objective.

Kuhn also asserts that,

though scientific development may resemble that in other fields more closely than has often been supposed, it is also strikingly different . . . One of the objects of [this] book was to examine such differences and begin accounting for them [1970a, p. 209].

Thus even Kuhn would acknowledge that the evolution of accounting may resemble that of the sciences in some ways. But the rest of this passage is puzzling, because Kuhn's book does not systematically examine the historical evolution of "other fields" (e.g., non-sciences). Furthermore, it does devote a chapter (Chapter II) to the transition of fields to sciences, a subject that would seemingly be very relevant to many "other fields." Thus, Kuhn apparently offers no support for his position that his theories cannot be usefully applied to forms of intellectual inquiry other than those he calls sciences.

In assessing, Kuhn's work, philosopher Larry Laudan asserts that,

there is no fundamental differences in kind between scientific and other forms of intellectual inquiry. All seek to make sense of the world and of our experience. All theories, scientific and otherwise, are subject alike to empirical and conceptual constraints . . . The quest for a specifically scientific form of knowledge, or for a

demarcation criterion between science and non-science, has been an unqualified failure [1981, p. 153].

Following this line of thought, it is concluded here that accounting as an intellectual discipline may resemble Kuhn's "sciences" in important ways. As pointed out above, even Kuhn would acknowledge this. Therefore, Kuhn's theories may be pertinent to an understanding of the historical evolution of the accounting discipline.

Evidence that Kuhn's theories may be usefully applied to intellectual disciplines other than the "sciences" abounds in the recent literature of such disciplines. Philosopher Gary Gutting has assembled an enlightening anthology of articles from a variety of disciplines, each of which examines the discipline's history from the perspective of Kuhn's *Structure*. In addition, Gutting's bibliography lists 119 "Works About Thomas Kuhn" in the fields of sociology, political science, economics, psychology, history, theology, art and literature, and education. If Kuhn's ideas have been enlightening to scholars in such diverse disciplines as these, then surely they must have some relevance to the accounting discipline.

Kuhn's *Structure* helps put the accounting discipline in perspective by creating an awareness that it may have important similarities with other intellectual disciplines. For example, progress in the accounting discipline may be noncumulative; accounting thinkers may be influenced in their views of the nature of accounting by dominant ideas that they are only dimly aware of; and there may be times in the development of the accounting discipline when it is necessary to identify these dominant ideas, question them, and perhaps discard them in order to assure that the discipline will achieve further progress.

WHAT IS ACCOUNTING'S PARADIGM?

A serious obstacle to those who seek to use Kuhn's thesis to identify the paradigm of a particular discipline is that he never defines exactly what a paradigm is. In a paper discussing the first edition of *Structure*, Margaret Masterman identifies 23 different ways in which Kuhn uses the term [1970, pp. 61-65]. Kuhn's response [1970b], which was partially incorporated into the postscript of the second edition of *Structure* [1970a], is helpful and is probably a good place to start.

In his postscript Kuhn says that "a paradigm is what the members of a scientific community share" [1970a, p. 176], and a "scientific community consists . . . of the practitioners of a sci-

entific specialty" [p. 177]. Thus the way to identify a paradigm is to identify the practitioners of a particular specialty and then scrutinize their behavior. However, "communities in this sense exist, of course, at numerous levels" [p. 177]; thus at one level are all natural scientists, at a slightly lower level are physicists, chemists, and other major groupings, at the next lower level are subspecialties such as organic chemistry and high-energy physics, within these subspecialties are smaller groups working on relatively specific problems. "Paradigms are something shared by the members of such groups" [p. 178]. But if the groups exist at different levels, then paradigms also exist at different levels.

With respect to accounting, it would be a simple matter to develop a taxonomy of specialties and subspecialties analogous to Kuhn's. However, this is not necessary, because the purpose here is to identify an accounting paradigm that encompasses the entire discipline, and that deals with the subject matter of accounting at its most elementary level. If such a paradigm exists, it must be one that, to paraphrase Kuhn, all members of the accounting community share. Note that this assumes that accounting does have a paradigm that is agreed upon by all members of this community, and is not in the pre-paradigm stage which Kuhn believes is characteristic of many social sciences. If this assumption is incorrect, then readers should have no difficulty in falsifying it by identifying subgroups within the community of accountants who do not accept the paradigm. The accounting paradigm that is identified here passes this test.

In identifying the paradigm shared by a scientific community, Kuhn cautions against equating paradigm with theory: "Scientists themselves would say they share a theory or set of theories . . . however, 'theory' connotes a structure far more limited in nature and scope than the one required here" [1970a, p. 182]. He also states that the members of a scientific community may at times diverge into separate "schools" that "approach the same subject from incompatible viewpoints" [p. 177], suggesting that the views held by such schools are not paradigms. These comments suggest that, in isolating a discipline's paradigm, it is necessary to examine the subject matter of the discipline; that is, the body of phenomena of concern to its practitioners.

Against this backdrop, it appears that none of the previous literature that attempts to apply Kuhn's theory to accounting has succeeded in capturing the essence of his concept of a

paradigm. Specifically, the competing paradigms identified by Wells, SATTA, Previts, and Butterworth and Falk all represent theories or schools of thought that approach the same subject matter from incompatible viewpoints. Thus, none of these are paradigms in a Kuhnian sense. Flamholtz equates accounting's paradigm with the accounting rules promulgated by accounting regulatory bodies, but it is hard to imagine that consensus ever existed with respect to these. Glautier's association of the nature of accounting with the degree of centralization of political control in society perhaps comes closest to Kuhn's meaning, but Glautier never fully enumerates the specific features of an accounting paradigm.

Kuhn's attempts at clarification finally lead him to substitute the term *disciplinary matrix* for paradigm. The disciplinary matrix of a field, according to Kuhn [1970a, pp. 182-7], has four components, (1) symbolic generalizations, which are expressions, deployed without question by group members, in a logical form such as an equation, (2) shared commitments to certain fundamental beliefs about the subject matter of the discipline, (3) shared values for judging theories, predictions, etc., and (4) exemplars, or shared examples of problem-solutions encountered by students of the discipline as a means of learning-by-example how their discipline is practiced.

Accounting's paradigm is identified here by following the guidelines suggested by this discussion. First, the community of interest is defined as consisting of all accountants. Second, in order to avoid equating schools or theories of accounting with accounting's paradigm, the subject matter of the accounting discipline is broadly defined as that body of phenomena associated with the economic performance of individuals or groups responsible for the utilization of economic resources. Third, Kuhn's more precise definition of a paradigm as a disciplinary matrix consisting of four major components is used.

Following these guidelines, accounting's paradigm is identified as a set of symbolic generalizations, shared commitments, shared values, and exemplars associated with the double-entry bookkeeping model. As defined here, double entry refers to a bookkeeping system in which (1) data concerning property and equity are recorded according to the rules of debit and credit [Paton, 1917], (2) an equilibrium of debits and credits is constantly maintained, (3) a capital account is used to record owner's equity, and (4) nominal accounts (revenues, expenses, etc.) are used to record changes in capital, whether or not there is a periodic calculation of income [Winjum, 1971].

The double-entry bookkeeping model is rich with symbolic generalizations. Perhaps the most basic, dating back at least to Pacioli [1494], is:

$$\text{Debits} = \text{Credits}$$

As accounting evolved, other symbolic generalizations became pervasive, such as:

$$\text{Assets} = \text{Liabilities} + \text{Net Worth}$$

which is often first attributed to Sprague [1908], and:

$$\text{Net Income} = \text{Revenues} - \text{Expenses}$$

which is more contemporary. At a less general level, a variety of additional symbolic accounting generalizations exist and are readily formalizable as equations. All accountants understand them and can easily develop them and apply them to the solution of accounting problems.

The exemplars of accounting consist of the standard accounting problems that all students encounter in the introductory accounting course. As we all know these take on a variety of forms. Their primary objective is to familiarize the student with the terminology of accounting, with the interrelationships among accounting variables within the framework of the double-entry model, and with the manipulations of those variables that are necessary to the solution of accounting problems.

The shared values of accounting are easily identified, for they are a common subject of accounting literature. They include such familiar concepts as "relevance" and "objectivity". Accounting students are usually formally introduced to such values early in their intermediate accounting course by a chapter in their text discussing 'accounting principles' or 'accounting theory'. An excellent taxonomy of accounting's shared values appears in Snively [1967].

Accounting's shared commitments represent the fundamental assumptions underlying the double-entry bookkeeping model. As these assumptions became generally accepted hundreds of years ago, it is not necessarily easy to identify them. Some are readily found in the literature, for example "accounting data are based on prices generated by past, present or future exchanges which have actually taken place or are expected to" [Moonitz, 1961, p. 53]. Others are generally unstated. For example, it is implicit in double entry that the accounting process is inherently prone to error, and therefore that the redundancy of debits and credits is necessary in order to provide opportunities for checking and rechecking the accounting data at various stages in the accounting process. It is also implicit in double entry that the primary purpose of a commercial venture is to

enhance the wealth of its owners, and therefore that the primary social role of accounting is to provide the owners with measures of wealth and changes in wealth.

These three fundamental assumptions — that exchange transactions represent accounting's primary data source, that internal check is critical to the accounting process, and that accounting exists primarily to serve owners' interests — seem entirely appropriate for the age in which double-entry bookkeeping developed. But are they appropriate for the age we now inhabit? And if not, then should the appropriateness of the double-entry accounting paradigm itself be reevaluated? A major purpose of this paper is simply to raise this question. But first the correspondence between the historical evolution of the double-entry accounting paradigm and Kuhn's general theory of disciplinary evolution is examined.

Most accounting historians accept the view that double-entry bookkeeping was developed in Italy during the 14th century [de Roover, 1955; Lee, 1973; Nobes, 1982]. It is more difficult to establish when a consensus emerged that the double-entry system represented the cornerstone of accounting. According to de Roover, by the date of publication of Pacioli's *Summa* [1494], double entry was well developed and widely used in the Italian city-states. According to Chatfield,

In the first 100 years after its appearance the *Summa* was translated into five languages, and books by Italian, English, Dutch, and German authors presented descriptions of double entry bookkeeping based on [it], spreading knowledge of the "Italian Method" throughout Europe [1974, p. 49].

Thus the 16th century could be taken as the time when a consensus on the double-entry accounting paradigm began to emerge. The best evidence that paradigm consensus was firmly established consists of the failure of the new system of bookkeeping proposed as a direct challenge to double entry by Edward Thomas Jones in 1796. According to Brown [1905, p. 168], "The complete failure of Jones' 'English Book-keeping' has established double-entry once and for all as the only method of recording commercial transactions with completeness."⁵ By 1911, Hatfield would state that,

Accounting in all the modern world has developed from the same simple beginnings. Pacioli's *Tractatus*,

⁵For more on the failure of challenges to double entry bookkeeping by Jones and others, see Yamey [1980].

either in the original or in translations or adaptations, spread through all Europe, and is the basis upon which modern accounting rests [p. 170].

Kuhn's theory says that paradigm consensus is followed by a period of "normal science" that continues until the discipline enters a "crisis". It is suggested here that, after the 16th century, leading accounting thinkers were engaged in activities analogous to the "normal science" of Kuhn. The year 1960 will be taken as the approximate point of transition from normal science to crisis, but more will be said about accounting's crisis in the next section of the paper.

If the double-entry model is to be taken as accounting's paradigm, and if it is to be acknowledged that paradigm consensus in accounting was achieved approximately four centuries ago, then it is necessary to establish that the historical evolution of accounting during the past four centuries resembles Kuhn's concept of normal science. To accomplish this, superficial interpretations of what Kuhn meant by normal science, such as that embodied in Laughlin's assertion that it is fanciful to suggest that accounting could have been engaged in anything resembling normal science, must be avoided. Certainly accountants were not engaged in anything remotely resembling the practice of physics or chemistry, but leading accounting thinkers were engaged in activities very closely resembling Kuhn's concept of normal science. This becomes clearer upon examination of what Kuhn meant by the term.

According to Kuhn,

Normal science consists in . . . extending the knowledge of those facts that the paradigm displays as particularly revealing, by increasing the extent of the match between those facts and the paradigm's predictions, and by further articulation of the paradigm itself [1970a, p. 24].

In chapter IV, Kuhn equates normal science with "puzzle-solving," for example:

Bringing a normal research problem to a conclusion is achieving the anticipated in a new way, and it requires the solution of all sorts of complex instrumental, conceptual, and mathematical puzzles. The man who succeeds proves himself an expert puzzle-solver, and the challenge of the puzzle is an important part of what usually drives him on [p. 36].

A brief review of the history of accounting following the development of double-entry bookkeeping reveals that the

double-entry model has evolved in ways that closely resemble these descriptions of normal science by Kuhn. These include the following:

1. Development of special journals for recording different types of transactions, around the 16th century [Yamey, 1962, pp. 26-27].
2. Evolution of the practice of periodic income determination and financial statement preparation, during the 16th and 17th centuries [Littleton, 1933, pp. 123-140].
3. Extension of the application of double-entry to organizations other than mercantile firms, such as monasteries and states, between 1559 and 1795 [Peragallo, 1938, p. 54].
4. Development of separate accounts to keep track of different types of merchandise inventory, around the 17th century [Yamey, 1962, pp. 28-29].
5. Application to corporations with many shareholders, beginning with the East India Company in the 17th century [Irish, 1947; Littleton, 1933, Chapter XIII; Winjum, 1972, Chapter X; Chatfield, 1974, Chapters 7-8].
6. Emergence of alternative methods of valuation of fixed assets, in the 18th century [Yamey, 1962, p. 34].
7. Development of depreciation accounting, evidenced as early as 1588, but maturing in the 19th century [Littleton, 1933, Chapter XIV].
8. Evolution of systematic cost accounting methods in the 19th century [Littleton, 1933, Chapters XX-XXI; Garner, 1954].
9. Development of systematic means of accounting for prepayments and accruals to enable careful calculation of periodic profit, in the latter half of the 19th century [Yamey, 1962, pp. 36-37].
10. Development of funds statements, in the latter 19th and early 20th centuries [Rosen and DeCoster, 1969].
11. Development of methods of accounting for mergers and consolidated entities, and methods of accounting for inflation, both in the 20th century.

Each of these developments contains elements that represent a "further articulation" of the double-entry accounting paradigm by its application to new sets of facts, or "extending . . . knowledge of those facts" by continual refinement of ways in which they are represented within the double-entry model. In addition, the term "puzzle-solving" seems a particularly apt description of the process by which these extensions of double-entry book-

keeping arose and were refined. Furthermore, these developments represent a more or less continuous evolution and refinement of the double-entry bookkeeping model over the past four centuries. It is therefore concluded that, during this period, accounting evolved in ways that closely resemble "normal science" as that term is defined by Kuhn.

Reflecting on this, one cannot help but be struck by the resiliency of the double-entry accounting paradigm. Over a period of four centuries, as the very nature of business enterprises changed and the complexity of business transactions increased, accountants were able to incorporate all of these developments within the framework of the double-entry paradigm. Every new development provided a puzzle requiring further articulation of the paradigm, and the paradigm provided the means to solve every such puzzle. The account by Lee [1975] of the development of British accounting, in response to the industrial revolution and the rise of the limited liability company between 1760 and 1900, provides a classic example of this point.

This interpretation of accounting's history is also consistent with a number of Kuhn's views about the nature of the paradigm. For example, consider his definition of paradigms as "universally recognized scientific achievements that for a time provide model problems and solutions to a community of practitioners" [1970a, p. viii]. The double-entry model has certainly come to be universally recognized and accepted among the international community of accountants (recall Hatfield's reference, cited above, to Pacioli's work as the source of accounting "in all the modern world"). Moreover, the double-entry model provides a framework for defining the nature of accounting problems and a method for approaching the solution of those problems.

Furthermore,

Effective research scarcely begins before a scientific community thinks it has acquired firm answers to questions like the following: What are the fundamental entities of which the universe is composed? How do these interact with each other and with the senses? What questions may legitimately be asked about such entities and what techniques employed in seeking solutions? [pp. 4-5].

The double-entry model provides accountants with universally accepted answers to these basic questions. The "fundamental entities" of accounting's universe are assets, liabilities, revenues

and expenses. They interact with each other according to the rules of the double-entry model. They interact with the senses through the observation and recording of transaction data. Legitimate questions involve such matters as recognition, valuation, and classification; and the double-entry model both identifies these as relevant questions and suggests the nature of the techniques that must be used in seeking answers.

Kuhn continues in this vein:

answers (or full substitutes for answers) to questions like these are firmly embedded in the educational initiation that prepares and licenses the student for professional practice. Because that education is both rigorous and rigid, these answers come to exert a deep hold on the scientific mind . . . [normal] research [may be described] as a strenuous and devoted attempt to force nature into the conceptual boxes supplied by professional education [p. 5].

The parallels between these statements and contemporary accounting education and accounting practice are apparent. Regarding accounting research, parallels exist with respect to the development of the double-entry accounting paradigm over the past four centuries, as outlined above. That such parallels are not as apparent with respect to contemporary accounting research is indicative that accounting is no longer in a normal science stage, but has instead entered a crisis stage.

Kuhn also describes how a paradigm limits the boundaries of a discipline in the minds of its practitioners:

one of the things a scientific community acquires with a paradigm is a criterion for choosing problems that, while the paradigm is taken for granted, can be assumed to have solutions. To a great extent these are the only problems that the community will admit as scientific or encourage its members to undertake. Other problems . . . are rejected as metaphysical, as the concern of another discipline, or sometimes as just too problematic to be worth the time [1970a, p. 37].

The double-entry accounting paradigm provides such a criterion. Within the framework of the double-entry model, the only problems that are relevant involve accounting for exchange transactions between the business entity and another independent entity, or for events that can be interpreted as analogous to exchange transactions (e.g., depreciation, accruals, or cost allocations).

Kuhn elaborates on this point as follows,

A paradigm can, for that matter, even insulate the community from those socially important problems that are not reducible to the puzzle form, because they cannot be stated in terms of the conceptual and instrumental tools the paradigm supplies. Such problems can be a distraction . . . [p. 37].

For example, accountants paid no attention to the problem of accounting for human resources until it was shown how this problem could be addressed within the framework of the double-entry system [Flamholtz, 1974].

In summary, this section has compared the historical evolution of double-entry bookkeeping to Kuhn's description of the nature of paradigms and normal science. It is concluded that the double-entry bookkeeping model has the features of an accounting paradigm, as that term is used by Kuhn, and that the historical evolution of accounting from approximately the 16th century until about 1960 resembles the normal science of Kuhn's theory. It has also been suggested that accounting has recently entered a crisis stage. In the next section, this interpretation of accounting's evolution is further articulated by comparing current developments in accounting thought with Kuhn's description of the crisis stage of the evolutionary cycle.

ACCOUNTING'S CRISIS AND RESPONSE

According to Kuhn, the crises that eventually lead to scientific discoveries and revolutions begin "with the awareness of anomaly, i.e., with the recognition that nature has somehow violated the paradigm-induced expectations that govern normal science" [1970a, pp. 52-53]. The role of expectations is crucial. The paradigm induces all scientists to expect that any new problem can and will eventually be solved through the puzzle-solving process of normal science. It is the violation of such expectations that represents an anomaly and that, if not resolved in some way, will eventually plunge the discipline into a state of crisis.

The description of accounting's crisis and response to crisis presented here resembles Kuhn's general theory in many ways; these are made explicit in this section. However, there is one fundamental difference that must be made clear at the outset. Kuhn's theory focuses on how a discipline's crisis is resolved through the emergence of a new paradigm and the occurrence of a revolution. However, no competing paradigm for accounting

has yet emerged, and no other potential solution to accounting's crisis is being pursued. This divergence of accounting's evolution from the path Kuhn describes presents some problems of interpretation. Kuhn simply doesn't discuss how a discipline's crisis might deepen when no competing paradigm emerges.

While the interpretation presented here follows Kuhn's theory as closely as possible, it has been necessary to improvise somewhat. Specifically, it is suggested that accounting's crisis has consisted of two separate stages. The response to the first stage of its crisis was a failure. Gradual recognition of this failure precipitated a deeper and more fundamental crisis. Accounting is presently in this second stage of crisis, which is growing more severe and showing no signs of eventual resolution. In the remainder of this section, an attempt is made to build a case in support of this interpretation.

By the early part of the twentieth century, accountants had established a firm set of expectations concerning how any accounting problem would be resolved. Specifically, practicing accountants would experiment with various alternative accounting methods, and then they (or those who employed them) would select whatever such methods best suited their purposes. Over time new methods would become more widely known, and some alternative methods might be discarded while others became more popular. Accounting writers would explain the more commonly used methods, thus legitimizing them and causing them to be viewed as generally accepted.⁶ Virtually all of the historical developments in accounting listed in the previous section occurred in a manner similar to this.

A natural byproduct of this approach to solving accounting problems was the proliferation of alternative methods of accounting for similar phenomena. This would generally not be an acceptable result of puzzle-solving in a scientific discipline, but accountants then gave no thought to emulating the pure sciences. Indeed the flexibility of the double-entry accounting paradigm was one of its greatest strengths — it offered accountants and business managers numerous choices, and provided a framework within which most such choices could be reasonably explained and justified.

As it evolved in this manner, a central feature of accounting was that it existed almost exclusively to provide the managers of businesses and other organizations with information relevant to

⁶For example, see the descriptions by Chandler [1977] of the development of railroad accounting [pp. 109-120] and cost accounting [pp. 278-9, 464-5].

managing the daily operations of their enterprises. Thus, accounting methods were chosen primarily to satisfy the needs of management.

This pattern of resolution of accounting problems started to collapse in 1907 when the Interstate Commerce Commission (ICC) began to prescribe uniform methods of accounting for railroads. Other regulatory bodies were soon created, and these followed the ICC's lead. According to Hendriksen, "regulation and the demand for uniformity have brought about a stifling of independent research and experimentation by the independent companies" [1977, p. 44].

The establishment of the corporate income tax in 1913 also had a significant effect on accounting. Businessmen were required to prepare financial statements as prescribed by the tax law for the purpose of determining taxable income. According to Chatfield, "for the first time accounting options and accounting theory became important to many outside the profession" [1974, p. 207].

By 1934 the Securities and Exchange Commission had been created and given the authority to prescribe accounting procedures for corporations under its jurisdiction. The SEC generally has not exercised this authority directly, but rather has deferred to standard setting bodies established by the profession, such as the Accounting Principles Board and the Financial Accounting Standards Board. The idea that uniformity of accounting procedures is desirable carried over from the industry regulatory agencies to the general standard setting bodies. Commenting on the formation of the Accounting Principles Board, Spacek [1961] fiercely attacked flexibility in accounting and defended uniformity as essential to fairness. That this view of accounting standard setting has come to be generally accepted is reflected in the AICPA's discussion of comparability [1973, pp. 59-60], together with their assertion that comparability is a qualitative characteristic that financial reporting "should possess", and that this was "obvious" and "implicit in any intelligent reporting of information" [p. 57].

The idea that accounting standards should be established by society, should be imposed upon business organizations, and should be relatively uniform, represented a violation of the paradigm-induced expectations that had previously governed accounting's evolution; that is, it was an anomaly. Though it was not immediately apparent, the impact of this development was profound, for it meant that accounting would no longer evolve in the way that it had for the previous four centuries.

Both the purpose of accounting, and the people who assumed responsibility for its development, had been radically transformed. The development of accounting concepts and techniques would no longer be primarily an activity engaged in by corporate accountants and managers to serve their own ends, but became an activity dominated by standard setting bodies seeking to serve social ends.

The combination of government regulation and the commitment to uniformity has led to a buildup of unresolved accounting issues that perhaps more closely resemble the anomalies of Kuhn's theory. These include accounting for leases, pensions, foreign currency translation, inflation, deferred credits, executory contracts, and numerous other topics addressed but not adequately resolved by accounting standard setters during the past 20 years or so. Over the previous four centuries, in the absence of a uniformity constraint, accountants had proven capable of resolving issues of this sort within the framework of the double-entry accounting paradigm. That such issues can no longer be resolved effectively is evidence that the discipline is presently in a crisis stage.

The accounting discipline's response to accounting regulation has been examined by Watts and Zimmerman [1979]. Regulation created a demand for accounting theories justifying alternative accounting methods; accounting scholars responded to this demand by creating "accounting theory." The U.S. Securities Act of 1933-34 had two major effects on the accounting literature, according to Watts and Zimmerman [pp. 295-300]. First, the importance of management as a primary user of financial statements began to be downplayed, and the primary objective of accounting was taken to be providing information for external users of financial statements. Second, the acts stimulated a "search for accounting principles," commencing with discussions in the literature of the nature of accounting principles and leading to theoretical attempts to derive such principles from a philosophical base with little reference to existing practice (for example, Chambers [1966]).

The search for accounting principles has continued beyond the period cited by Watts and Zimmerman. In the 1960s its focus was the development of principles based upon postulates, as exemplified by the works of Moonitz [1961] and Sprouse and Moonitz [1962]. In the 1970s the focus shifted to establishing the objectives of financial statements, beginning with AICPA [1973, 1974]. The search continues to this day with the conceptual framework project of FASB [1985]. Most of the important

milestones in this process are summarized from an institutional perspective by Pacter [1983].

In summary, government intervention into the centuries-old process by which accounting methods developed and evolved represented an anomaly that radically changed the purpose of accounting and its manner of development. Never before had the business community been instructed by a central authority on how to keep its accounts. The occurrence of this anomaly, and the accounting discipline's response, in the form of the search for accounting principles, represents the first stage of the accounting discipline's crisis.⁷ This stage possesses several of the characteristics of the crisis stage of a scientific discipline identified by Kuhn. These are now enumerated.

First, Kuhn suggests that a discipline's crisis is often aggravated by external social pressures. For example, he cites the social pressure for calendar reform in the 16th century as a factor contributing to the urgency of the crisis in astronomy that eventually culminated in the Copernican Revolution [1970a, p. 69]. In the 20th century society has placed an analogous demand upon accounting. Society demands measures of income and wealth that can provide an objective basis for performance measurement, taxation, contracting, and related activities that are essential to our economy. The search for accounting principles has been accounting's response to this demand. In the 16th century it gradually became apparent that effective calendar reform could not be achieved by further ad hoc modification of the Ptolmaic geocentric view of the universe. Today it is gradually becoming apparent that effective reform of accounting will not be accomplished by the search for accounting principles.

The parallel between accounting's 20th century crisis and astronomy's 16th century crisis is striking in other ways. In *The Copernican Revolution*, published in 1957, Kuhn describes in detail attempts by astronomers over many centuries to explain the movements of celestial bodies through an ever more complex series of ad hoc adjustments to the methodology of the Ptolmaic paradigm. In the modern era, it may be observed that the Financial Accounting Standards Board, and its predecessor, the Accounting Principles Board, have sought to reform accounting by means of an increasingly complex series of ad hoc

⁷The assertion that regulation triggered a crisis in the accounting discipline is not intended to represent a criticism of regulation per se, which may have been a perfectly appropriate societal response to the prevailing conditions. The point is that accounting regulation led to fundamental and profound effects on accounting as a discipline.

adjustments to the methodology of the double-entry accounting paradigm. According to Kuhn, "Copernicus himself wrote in the Preface to the *De Revolutionibus* that the astronomical tradition he inherited had finally created only a monster" [1970a, p. 69]. Evidence that contemporary accountants have similar reservations about our present accounting tradition is found in the following statement recently made by two accountants involved in standard setting, "Wide segments of the business community and the accounting profession have become increasingly concerned about, and critical of, the proliferation over the past several years of complex and detailed accounting standards" [Hepp and McRae, 1982, p. 52].

The parallel continues: "Throughout the Middle Ages and much of the renaissance the Catholic church was the dominant intellectual authority of all Europe. . . . before the tenth century and again after the sixteenth the church's influence was, on balance, antiscientific" [Kuhn, 1957, p. 106]. Similarly, accounting thought has been dominated over the past 25 years by institutions such as the AICPA, the SEC, and now the FASB. Although these institutions have been anything but antiscientific, their approach to accounting reform is influenced much more heavily by political considerations than by scientific theory or evidence.

There are other parallels between Kuhn's general theory of crisis and accounting's contemporary crisis. According to Kuhn, wherever an anomaly is highly resistant to attempts to resolve it, "More and more attention is devoted to it by more and more of the field's most eminent men. If it still continues to resist, as it usually does not, many of them may come to view its resolution as *the* subject matter of their discipline" [1970a, pp. 82-83]. This description easily fits the accounting discipline of the 1960s and 1970s. The search for accounting principles came to be viewed by many accounting scholars as *the* subject matter of financial accounting. Eminent scholars whose works reflected a strong commitment to the quest for a theoretical foundation for accounting included Bedford [1965], Chambers [1966], Devine [1960, 1985], Ijiri [1967, 1975], Mattessich [1964], Moonitz [1961], Sprouse [with Moonitz, 1962], Staubus [1961, 1977], Sterling [1970b, 1979], and many others.

Still another parallel is that "proliferation of versions of theory is a very usual symptom of crisis" [Kuhn, 1970a, p. 71]. Accounting theories certainly proliferated during this era. Wells [1976, p. 478] identifies four schools of thought that are essentially different versions of accounting theory: price-level ad-

justed accounting, replacement cost accounting, deprival value accounting, and net realizable value accounting. Wells mentions a fifth possibility, present value accounting. Together with historical cost accounting, this provides a total of six versions of accounting theory.

A final parallel stems from Kuhn's assertion that "frequent and deep debates over legitimate methods, problems, and standards of solution . . . recur regularly just before and during scientific revolutions" [1970a, pp. 47-48]. Debates of precisely this kind in accounting are documented by SATTA; the three "paradigms" it identified were not paradigms at all, but alternative approaches to accounting theory development. These debates have been underway in the accounting literature for many years, according to SATTA [Chapter 2], beginning with the split between deductivists and inductivists in the 1920s and 1930s, and becoming much more pronounced with the emergence of behavioral accounting, capital markets research and information economics in the 1960s and 1970s. These debates certainly are concerned with the legitimacy of alternative methods of theory development and standards of solution of the theory development issue.

In summary, the first stage of accounting's contemporary crisis, labelled here (following Watts and Zimmerman [1979]) the search for accounting principles, has a number of parallels with the crises in scientific disciplines described by Kuhn [1957, 1970a]. The effects of the search for accounting principles on the accounting discipline are now examined.

One important byproduct of the search for accounting principles has been a commitment on the part of many accounting scholars to a more scientific approach to their discipline. This was perhaps first manifested by the deductivist-inductivist debates mentioned above. It gathered momentum in the 1960s and early 1970s as prominent accounting scholars such as Mautz [1963] and Sterling [1975] advocated a more scientific approach to accounting. And it has culminated in the past 20 years with an explosion of empirical research in accounting, research that attempts to emulate as closely as possible the methods followed by more mature sciences. It is clear that today's most active accounting researchers identify with the ideals of science and would like to be considered as scientists.

In other important respects, however, the search for accounting principles has been a failure. As this search proceeded through years and then decades with few signs of a successful

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outcome, two things gradually became apparent to accounting scholars. The first is that even if an ideal set of accounting principles or standards could somehow be derived from "theory" or "science," it was very unlikely that these would be implemented. The establishment of accounting principles and standards had become firmly entrenched in the realm of politics [Solomons, 1978]. The clash of competing interests would often determine the outcome [Zeff, 1978]. The role of traditional accounting theories was merely to provide excuses or propaganda that competing interests could use to advance their causes [Watts and Zimmerman, 1979]. Indeed, in this environment, rational selection of normative accounting standards was impossible [Demski, 1973, 1974].

Another thing that became apparent to accounting scholars was even more unsettling, and contributed to the deepening of accounting's crisis. It was that accounting was inherently arbitrary. Generally accepted accounting principles had grown into a network of rules, increasingly resembling income tax regulations in length, complexity, and arbitrariness. Traditional approaches to the selection of accounting principles lacked rigorous theoretical underpinnings [Gonedes and Dopuch, 1974]. Thomas [1969, 1974] argued convincingly that the allocations central to conventional financial accounting are irremediably arbitrary. If these things were true, then the attempt to forge a link between science and accounting theory *could not succeed!* Accounting scholars aspired to be scientists, but there could be no science of accounting for them to practice!

These conditions — the politicization of accounting, the impossibility of accounting standards within the existing milieu, the inherent arbitrariness of accounting, and the interpretation of the role of accounting scholars as manufacturers of excuses — represented fundamental anomalies for accounting scholars by the mid-1970s. They gradually led accounting scholars to realize that the development of accounting concepts and techniques within a regulatory context dominated by political considerations was incompatible with the application of scientific methodology to accounting.⁸ In essence, the further development of accounting thought along traditional lines was now irreconcilable with the ideals of science that accounting scholars had fervently embraced. The malaise engendered by

⁸Kuhn makes the same point: "One of the strongest, if still unwritten, rules of scientific life is the prohibition of appeals to heads of state or to the populace at large in matters scientific" [1970a, p. 168].

this realization was exacerbated by growing discontent with the increasingly complex and arbitrary labyrinth of official accounting pronouncements. These conditions led the accounting discipline into a deeper and more severe state of crisis, which is here labelled the second stage of accounting's crisis. This stage resembles in some ways Kuhn's description of a scientific discipline's response to crisis [1970a, Chapter VIII]. These are now enumerated.

According to Kuhn, "All crises begin with the blurring of a paradigm and the consequent loosening of the rules for normal research" [1970a, p. 84]. Accounting has certainly experienced a change in the rules for normal research during the past 25 years. In the 1960s normal accounting research involved articulating the double-entry paradigm, often referred to as *a priori* research (Nelson, [1973]). In the 1980s the rules concerning what constitutes "normal" accounting research are certainly much looser, encompassing behavioral experiments, information economics, and empirical studies of capital markets. The relationship of such research to the double-entry accounting paradigm is also less clear than it was for the research of the 1960s.

Kuhn goes on to say that "research during crisis very much resembles research during the pre-paradigm period" [p. 84]. Earlier in *Structure* he had described research during the pre-paradigm period as follows:

all of the facts that could possibly pertain to the development of a given science are likely to seem equally relevant. As a result, early fact-gathering is usually restricted to the wealth of data that lie ready to hand. The resulting pool of facts contains those accessible to casual observation and experiment together with some of the more esoteric data retrievable from established crafts [p. 15].

Contemporary accounting research bears some resemblance to pre-paradigm research as described here. It uses readily accessible data, such as that obtained from published financial statements, security prices, surveys, and experiments. All such data seem equally relevant, because there is no scientifically accepted accounting paradigm that identifies certain kinds of data as most relevant.

Kuhn elaborates on the work of a scientist during a disciplinary crisis:

He will, in the first place, often seem a man searching at random, trying experiments just to see what will happen, looking for an effect whose nature he cannot

quite guess. Simultaneously, since no experiment can be conceived without some sort of theory, the scientist in crisis will constantly try to generate speculative theories . . . [1970a, p. 87].

If one examines empirical accounting research studies published within the past 20 years, one often observes a discussion of "theory development" that provides a rationale and a framework for the empirical work. An American Accounting Association publication on research methods includes theory development as one of eight steps that should be performed in empirical work on an accounting research problem [Abdelkhalik and Ajinkya, 1979, p. 10]. Thus there is a resemblance between contemporary accounting research and Kuhn's description of research during crisis.

One other effect of crisis, according to Kuhn, is that "some men have undoubtedly been driven to desert science because of their inability to tolerate crisis" [1970a, pp. 78-79]. This comment gives rise to an important insight concerning the nature and depth of the accounting discipline's current crisis. Contemporary academic accountants have not deserted science, but they have in a fundamental sense deserted accounting. The majority of the research in today's leading academic accounting journals applies the research paradigms of economics and psychology within the institutional setting of accounting. Accounting scholars have committed themselves to science, but having come to realize that accounting has no scientifically valid paradigm to provide a basis for scientific research, have chosen to practice other sciences that do have such paradigms.

This assertion is supported by a comparative analysis of the papers published in the 1988 and 1960 volumes of *The Accounting Review*. Of the 19 research papers appearing in the "Main Articles" section of the 1988 volume, none could be classified as based primarily upon an accounting research paradigm, as compared to twelve that applied an economics paradigm, and three that applied a psychology paradigm.⁹ A comparable analysis of the 1960 volume of *The Accounting Review* identified

⁹For purposes of this analysis, a paper was classified within an accounting research paradigm if it purported to contribute to a theory explaining the economic performance of business entities. A paper was classified within an economic research paradigm if it purported to contribute to a theory explaining the behavior of market participants subject to resource constraints. A paper was classified within a psychology research paradigm if it purported to contribute to a theory explaining the behavior of individuals in terms of their personal characteristics and environmental influences.

34 of 40 major articles as associated with an accounting research paradigm.¹⁰

Thus, many contemporary accounting scholars appear to believe that scientific accounting research involves the application of scientific research paradigms from related fields to the study of accounting practices and institutions. The epitome of this approach to accounting research is seen in the statement by Watts and Zimmerman that "The objective of accounting theory is to *explain* and *predict* accounting practice" [1986, p. 2]. Years ago, Sterling referred to such an approach as the "anthropological theory of accounting" and properly criticized it as "not a theory about accounting or a theory about the things to be accounted for; instead it is a theory about accountants" [1970a, p. 449].¹¹ Watts and Zimmerman's positive accounting theory utilizes the paradigm of neoclassical economics, rather than an accounting paradigm. Positive accounting research has certainly yielded some interesting, and perhaps important, insights regarding the behavior of practicing accountants, but it tells us little about the behavior of the phenomena that accounting has traditionally been concerned with: the economic performance of business enterprises.

This interpretation is helpful in explaining why accounting's crisis does not resemble certain key features of Kuhn's disciplinary crises. For example, Kuhn describes the crisis period as "a period of pronounced professional insecurity" [1970a, pp. 67-68]. This description may have been applicable to the accounting discipline in the late 1960s and early 1970s when many leading accounting scholars were committed to the search for accounting principles but were also unsure of its ultimate success. However, it does not seem equally applicable today. The reason is that the majority of contemporary accounting scholars have acknowledged that accounting is inherently unscientific, have chosen to practice other sciences instead, and have experienced some success. Accounting scholars have shed their insecurity along with their discipline; they have found

¹⁰Vasarhelyi, Bao and Berk [1988] present results of a similar, but more comprehensive, trend analysis. They report a significant decrease in published articles dealing with an accounting theory "school of thought" over the period 1963-1984, but a significant increase in published articles using accounting as a "foundation discipline." Because they do not explain their classification criteria, it is difficult to interpret their results with respect to the issue addressed here.

¹¹More recently, Christenson [1983, pp. 3-6] makes precisely the same criticism of Watts and Zimmerman and other positive accounting theorists.

security by practicing normal science within the more highly developed paradigms offered by other disciplines related to accounting.

Similarly, Kuhn argues that a scientist in crisis "will push the rules of normal science harder than ever to see . . . just where and how far they can be made to work" [1970a, p. 87]. Recall that what formerly passed for normal science in accounting was the manipulation of the double-entry model to fit new kinds of transactions or conditions. Again, Kuhn's description may fit what many accounting scholars were doing until approximately 1970, and it may also describe what the FASB is doing today,¹² but it certainly does not describe what the majority of today's leading accounting scholars are doing. For the most part, today's accounting scholars have gone beyond the point of attempting to solve accounting's problems within the framework of the double-entry accounting paradigm.

In summary, the second stage of accounting's crisis has two key features. First, most leading accounting scholars have embraced a scientific approach to research. Second, this has led many of them away from studying the phenomena of traditional concern to accounting (e.g., the economic performance of business enterprises), in favor of research within the normal science paradigms of disciplines related to accounting. Thus the discipline's leading scholars no longer display a paramount interest in the fundamental issues that distinguish accounting from other fields. This suggests that accounting's present crisis is not only severe, but possibly fatal to accounting as a viable branch of knowledge.

THE LESSONS OF HISTORY: HOW CAN ACCOUNTING RESOLVE ITS CRISIS?

Kuhn offers some insightful observations concerning how the crises in scientific disciplines are resolved. This section offers some reasoned speculation concerning how the lessons of Kuhn's history of science may provide insight to the possible future evolution of the accounting discipline.

¹²It could be argued that even the FASB has deserted the traditional accounting paradigm, in that more and more accounting issues are resolved by recommending additional disclosures (as recommended by Beaver [1973]) rather than by imposing one of many alternative methods of reporting a transaction within the conventional financial statement framework.

Kuhn asserts that,

all crises close in one of three ways. Sometimes normal science ultimately proves able to handle the crisis-provoking problem despite the despair of those who have seen it as the end of an existing paradigm. On other occasions the problem resists even apparently radical new approaches. Then scientists may conclude that no solution will be forthcoming in the present state of their field. The problem is labelled and set aside for a future generation with more developed tools. Or . . . a crisis may end with the emergence of a new candidate for paradigm and with the ensuing battle over its acceptance [1970a, p. 84].

Each of these three possible ways of resolving accounting's crisis is now briefly examined.

First, is it possible for accounting to resolve its problems within the framework of its existing normal science paradigm, the double-entry model? One possibility is to reform the accounting standard-setting process to provide greater participation by management, and to permit greater flexibility in accounting method choice. This has been proposed by Flegm [1984], whose explanation of how regulation triggered accounting's current problems is similar to the analysis presented in this paper. This is a reactionary solution that would attempt to solve the crisis by restoring the conditions that existed prior to it. There is no reason to expect that any such "reform" of accounting standard-setting is likely.

Another possibility is to adapt scientific methodology to the double-entry model. Specific proposals for doing this have been put forth by Mattessich [1964] and Sterling [1979]. Mattessich suggests that accounting should be a management science, and presents a set of eighteen basic assumptions which he asserts are "rigorous enough to form the key to a *general theory of accounting*" [p. 426]. Sterling suggests that a science of accounting must "adopt the objective of reporting figures that represent empirical phenomena" [p. 213], and recommends accounting for exit values as a means of accomplishing this.

A third possibility is for accountants to focus their attention on the design of accounting systems to serve management. Such an approach has been suggested by Johnson and Kaplan, who argue that management accounting systems have been subverted by attempting to extract information for management planning and control from the financial accounting system that is designed to satisfy external reporting and auditing require-

ments [1987, p. 261]. This approach is promising because it offers accountants an opportunity to develop useful accounting methods without concern for the political constraints imposed by the standard-setting process. Taken to its extreme, this approach would view financial accounting standards in much the same way that tax accounting rules are now viewed — as important for a narrowly defined purpose, but as essentially unrelated to accounting's central role of providing useful information to management.

A fourth possibility is to implement the "data-base approach to corporate financial reporting" proposed by Beaver and Rappaport [1984, p. 16]. Under this approach, public corporations would record the data needed to prepare conventional financial statements and other analyses in a data base accessible to external users, who could then employ their own individual methods of valuation, aggregation, etc., in order to evaluate the corporation's activities.¹³ By vastly expanding the empirical data set available to public examination, this approach would make it possible to address many fundamental accounting issues on a scientific basis. This approach therefore has much promise as an avenue for accounting to emerge from its present crisis, though its implementation may not be politically feasible.

A second matter in which a crisis may end, according to Kuhn, is for the problem to be set aside for future generations. In the previous section of this paper, it was argued that accounting's crisis is not only severe, but possibly fatal to accounting as a viable branch of knowledge. Therefore, this would not seem to be a satisfactory way to deal with the crisis.

Finally, Kuhn says that a crisis may end with the emergence of a new candidate for paradigm. Recent accounting literature furnishes two possible candidates to replace the double-entry accounting paradigm. One is Ijiri's [1982] triple-entry bookkeeping. However, Ijiri frequently refers to his proposal as an extension of double-entry bookkeeping, and so it probably lacks the essential features of a competing paradigm.

Another possible candidate is matrix accounting, as suggested by Mattessich [1957], Corcoran [1964] and Koshimura [1988]. This approach proposes to alter much of the traditional double-entry processing methodology. However, it retains the

¹³The theoretical basis for this proposal was provided by Sorter [1969]. The possible consequences of such an approach have recently been examined by Cushing [1989].

fundamental logic of the double-entry accounting paradigm, including the treatment of transactions as the phenomenon of primary interest, the equality of debits and credits, and the use of the balance sheet and income statement equations as an underlying framework for analysis of the economic performance of business entities. Thus it is also properly viewed as an extension of double entry, rather than as a competing paradigm.

If the double-entry bookkeeping system is the basis of accounting's current paradigm, then presumably a new paradigm would not be based on double entry. But is it possible to conceive of accounting without the double-entry bookkeeping system? Double-entry ledgers certainly provide a suitable method for keeping track of cash, receivables, payables, and other similar items, and it is likely that they will continue to be used to account for such items. But is double entry the only way to address accounting's more general problem of making sense out of the economic performance of individuals or groups responsible for the utilization of economic resources?

Double entry may have been well-suited to the bookkeeping problems of 16th century merchants, but is it equally well-suited to the accounting problems of large, complex corporate enterprises in the 20th century? Do the concepts of net worth and net income that are the focus of contemporary application of the double-entry accounting paradigm have any meaning for large, complex corporate enterprises? Or do they more nearly resemble what Kuhn [1970a, p. 104] refers to as the "occult qualities" often associated with dying paradigms? The latter view is consistent with the conclusions of Beaver and Demski, who suggest that the case for the accrual concept of income is "problematical" [1979, p. 45]. Does the logic of the double-entry model reflect a general scientific truth underlying business operations, as suggested by Mattessich [1984, p. 408], or does it more nearly resemble the "metaphysical speculation" that Kuhn [1970a, p. 103] also associates with dying paradigms?

It is helpful in answering these questions to note that the double-entry model is not essential to the proposals of Johnson and Kaplan [1987] or those of Beaver and Rappaport [1984]. Both of these proposals imply that the data most relevant to managers or external users will be processed in whatever way makes the most sense to those users. The relevant data may be obtained in transactions and other economic events, but transactions would not necessarily be the dominant source of data. Furthermore, the method of processing these data could employ scientifically valid methods of explaining and predicting

phenomena of interest to management. Thus, either of these proposed approaches would enable accounting scholars to apply their newly embraced skills in scientific methodology to the development of a new accounting paradigm that would supersede the double-entry bookkeeping model. Accounting scholars wishing to practice as scientists would then no longer have to settle for refining the paradigms of related disciplines within an accounting context.

To pursue this idea one step further, accounting may be redefined in scientific terms as the science that attempts to explain and predict the economic performance of individuals or groups responsible for the utilization of economic resources. In the context of a public corporation, relevant performance variables would include cash flows, stock prices, dividends, bankruptcies, mergers and acquisitions. Relevant explanatory variables would encompass various features of the corporation's human, physical, and financial resources, its environmental context, and its managerial strategies and policies. The science of accounting would employ the tools of scientific research methodology, including logic, mathematics, controlled observation, and statistical inference. A primary criterion for judging the relevance of research variables to the science of accounting would be whether or not they represent real and empirically verifiable phenomena. Because traditional accounting constructs such as net income or net worth do not meet this test, the double-entry bookkeeping model could not be the central focus of this accounting science.

Is this definition of accounting consistent with accounting's traditional objective of providing useful information to management? Is it consistent with accounting's contemporary objective of providing useful information to investors and creditors for such purposes as predicting cash flows and evaluating management stewardship and performance? Of course! Surely a science that could offer accurate explanations and predictions of the performance of managers and corporate organizations would be of great relevance to accounting's traditional and contemporary objectives.

Kuhn offers the following insight to the transition from old to new paradigm:

the reception of a new paradigm often necessitates a redefinition of the corresponding science. Some old problems may be relegated to another science or declared entirely "unscientific." Others that were previously non-existent or trivial may, with a new

paradigm, become the very archetypes of significant scientific achievement [1970a, p. 103].

If the double-entry paradigm were to be displaced by a new science of accounting, the traditional accounting problems of recognition, allocation, classification, valuation, etc., would be recognized as unscientific and would fade in importance. Research using traditional accounting variables such as net income, net worth, depreciation, goodwill, and allocated costs would no longer be accepted as scientifically valid, because these variables do not correspond to any real, empirically verifiable phenomena. Instead, a new constellation of accounting variables would be defined, perhaps encompassing some of the variables now incorporated into the double-entry model, but also going beyond double-entry to include such factors as organization structure, reward systems, leadership styles, competitive strategies, corporate cultures, and related variables that may contribute to explaining the economic performance of individuals or groups responsible for the utilization of economic resources.

Describing the 19th century revolution in chemistry, Kuhn identifies one of the primary effects of a scientific revolution as follows: "The data themselves had changed. That is the last of the senses in which we may want to say that after a revolution scientists work in a different world" [1970a, p. 135]. This suggests that an accounting revolution in which the dominance of the double-entry paradigm is overthrown is not only possible, but is also consistent with the pattern of evolution of other scientific disciplines documented by Kuhn.

SUMMARY AND CONCLUSIONS

Careful study of *The Structure of Scientific Revolutions* to identify the essence of Thomas Kuhn's concept of a discipline's paradigm leads to the conclusion that the accounting concept which most closely resembles a paradigm is the double-entry bookkeeping model. By exploring the implications of this insight, the following conclusions are obtained.

First, a brief examination of accounting's history indicates that the double-entry model has been remarkably resilient. It has proven capable of assimilating major changes in economic conditions and patterns of commercial activity over a period of four centuries. In the absence of the government intervention into accounting standard setting that has characterized the 20th century, the double-entry model may well have been capable of

assimilating current and future developments for an indefinite period.

Second, the advent of accounting standard-setting radically transformed the nature of accounting, and precipitated a crisis in the accounting discipline. Accounting's initial response to this crisis was the "search for accounting principles." This was followed closely by a growing commitment to empirical science on the part of leading accounting scholars. The failure of the search for accounting principles led to a more severe crisis that presently holds sway. This crisis is characterized by four fundamental problems that cannot be resolved in a scientifically acceptable manner within the context of the double-entry accounting paradigm. These are that (1) accounting is inherently arbitrary [Thomas, 1969, 1974], (2) accounting has been politicized [Solomons, 1978; Zeff, 1978], (3) rational selection of normative accounting standards is impossible [Demski, 1973, 1974], and (4) the role of accounting scholars has been to supply "excuses" to competing groups seeking to influence accounting standards to further their own interests [Watts and Zimmerman, 1979]. The most devastating effect of these conditions has been that many of today's leading accounting scholars no longer display an interest in addressing the fundamental issues of accounting, but have instead gravitated toward the more scientifically satisfying study of paradigms in other disciplines that are related to accounting.

Third, there exist some promising avenues by which accounting's present crisis could be resolved. Many of these are already being explored. But perhaps the most intriguing possibility is the occurrence of a revolution in which the double-entry bookkeeping model would be discarded as the central feature of accounting's paradigm, and accounting would be redefined as a true scientific discipline.

Fourth, it is concluded that Kuhn's *Structure of Scientific Revolutions* is profoundly relevant to accounting, indispensable in helping us to understand the history of the accounting discipline and to comprehend how it might evolve in the future.

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EARLY ACCOUNTING: THE TALLY AND CHECKERBOARD

Abstract: How could our ancestors do accounting while they were still illiterate and had no paper? The answer is that they used the tally and the checkerboard. In medieval Europe, the tally was normally a short stick on which notches were cut to represent numbers; different number units could be shown by notches of different sizes. The two parties to a deal could get a fraud-proof record by splitting the tally into matching "foil" and "stock" (hence our "stock market"). Counting was done by moving counters onto and off a surface ruled like a chess-board. These devices were central to medieval finance, e.g., the English exchequer issued stocks like bills of exchange. The exchequer clung to tallies long after they had become obsolete; but in 1834 it decided to destroy its tallies by burning them, and the resulting blaze destroyed Parliament too.

TYPES OF TALLY

History shows us (or so historians claim) how mankind once coped with conditions that now seem impossibly adverse. Certainly this is true of accounting history. It shows how accounts could be kept when paper was still unknown or costly, coins were scarce and bad, and most men were illiterate.

In these straits, our ancestors made good use of two devices. To record numbers, they cut notches on tallies. To calculate, they used the abacus, notably in its form of the checkerboard.

Meanings of "Tally"

The word "tally" suggests various things:

- (1) A simple record of numbers, such as notches on a stick or chalk marks on a slate.
- (2) An object divided into two interlocking bits, thus giving proof of identity, e.g. a split seal or die.
- (3) A combination of (1) and (2), such as a stick that is first notched to show e.g. the number of £'s lent by A to B, and then is split to give both A and B a record.

I have received much help from M. T. Clanchy and A. Grandell. I am grateful also to: G. de Ste. Croix and D. Wormell (classical references); G. Tegner (Scandinavia); D. Forrester and M. Stevelinck (France); F. E. L. Carter and C. Coleman (England).

All three types have in the past helped business, but (3) — the split tally — probably has been by far the most useful.

Wood's Importance for Records

Most of the tallies described below were bits of wood. ("Tally" comes from the Latin *talia*, a cutting, rod, or slip for planting.)

To us, wood must seem a clumsy material for records. But our ancestors were short of alternatives. The most obvious was parchment (sheep or calf skin); but this was costly. Such paper as was used in Europe came from the outside till the twelfth century, when its manufacture started in Italy or Spain; Britain had to rely on imports till the late sixteenth century.¹ And wood was in fact a surprisingly suitable means of recording. It could take ink and seals, and was for long regarded as the most important writing material after parchment. Even lengthy documents such as charters could be written on birch bark.²

A wooden tally had many virtues. It cost practically nothing. It was easy to score. It was intelligible at a glance to both the literate and illiterate. Its harder varieties withstood rats and decay better than paper and parchment; on many survivors, every notch is as clean and true as it was six hundred years ago. And, as we shall see, it could serve as a flexible aid to sophisticated systems.

The Many Roles of the "Carved Stick"

Marked sticks have been able to fill many roles in many lands — e.g. management records in Sweden,³ and "message sticks" (mnemonic aids for messengers) in ancient Greece and among Australian aborigines, etc.⁴ The counting tally must be seen as only one part of a wide range of "carved sticks".

Scandinavia in particular has kept many specimens of the *karvstock*, chiefly for their value as a "rich and subtle" form of folk art. A few date back to the Vikings, but some examples in

¹D. C. Coleman, *British Paper Industry*, Oxford: Clarendon Press, 1958, p. 4. Alex. Murray, *Reason and Society*, (1978), p. 301 and 475.

²M. T. Clanchy, *From Memory to Written Record*, London: Edward Arnold, 1979, p. 95.

³Scandinavian examples (mentioned on this and later pages) are in museums in Stockholm and Helsinki; many are described in Alex Grandell, *Karvstocken*, Ekenas, 1982, *Tidskrift for Svensk Antikvarisk Forskning*, No. 2, 1986, *Daedalus*, Swedish Technical Museum, 1987, and *Historiska studier i folkliv*, Abo Academic Press, 1989. (Swedish with English summaries.)

⁴Horniman Museum, London.

museums at Stockholm and Helsinki were still in use in the mid-nineteenth century. They have been aptly described as “neglected bearers of a cultural tradition” because of their importance for administration as well as counting.⁵ For instance, some aided village headmen: the “alderman” had a rod on which was recorded the mark — such as a variant of the swastika — of each household; he had also a ceremonial staff of office (cf. the university’s mace and the magic wand?). Some were used by tax-gatherers to note receipts in cash or kind. Some long and slender survivors were measuring rods (e.g. for checking labour on fencing). Some are carved roughly, others with loving care; thus one ell-stick has been pared into a basket-like frame enclosing loose balls of the wood.

The Reckoning Tally

Such measuring rods, etc., had more-or-less permanent markings and functions. But a stick used for recording numbers might from time to time get extra notches, e.g. to note additional payments; and it might have only a brief life.

The unsplit tally (function 1 of the list on page 43) was a handy means for recording both physical quantities and money. Thus an English monastery used a tally to note milk yields.⁶ Surviving specimens show e.g. numbers of seals caught (Sweden), reindeer herded (Siberia), and loaves baked (Albania).⁴ The tally’s role in cargo checking is recalled by our use of “tally-man”.

Crude examples of the unsplit counting tally might be no more than a rough stick on which (an English survivor) a wood-cutter scratched a line for each bundle of faggots made, presumably because he was paid by piece-rate.⁷ A slight improvement gave a short notch to each unit (e.g. bundles of hides handled at Bergen docks) and an extended notch to every n th unit. And some tallies took elaborate forms. A Finnish survivor, recording day labour (rent by tenant farmers) is a long stick ruled into two columns; the left column shows each man’s mark; a small indentation was made on the right column, opposite his mark, after each day’s work. Other examples of management records were multi-sided. Thus, where a Swedish flour mill was owned co-operatively, somewhat complex records were needed

⁵A. Grandell, 1982.

⁶M. T. Clanchy, *op. cit.*, p. 32.

⁴Horniman Museum, London.

⁷British Museum.

to keep track of each owner's days of use and his contributions of upkeep work; an octagonal tally met the need. And a sixteen-sided tally of 1863 served a Swedish mine foreman as output record (one side per worker).^{7,1}

The transition from physical measure to money must have been easy. Notches proved a convenient way of showing wage and tax payments, also credit sales at inns and shops. The word "tally" sometimes meant a credit transaction: "ye shall not have redy mony neyther, but a taly" (1545);⁸ and it was further stretched to cover records on materials other than wood, e.g. a slate.

Antiquity of the Tally

In the nature of things, tallies of classical times were unlikely to survive till now (though Roman remains dug up in Kent include a bone with scratched notches — function 1 of the list on page 43). We must therefore rely on literary references. These exist; thus the Greeks used the word *symbolon* for "tally" in the sense of two matching parts, usually of a coin or other hard object. Unfortunately the references do not always make clear whether such a tally filled function 2 (identification) only, or 3 (identification and number); but some early writers were clearly familiar with the use of split sticks in financial transactions.⁹

A moral tale of 500 BC is germane to business. It tells of Glaucus, a Spartan who has a reputation for justice above all other men. A traveller from Miletus therefore entrusts him with gold and silver, saying "take these tallies and be careful of them . . . give back the money to the person who brings you their fellows". But later, when the Milesian's sons come to claim the money, Glaucus is tempted to deny remembrance of the matter. He asks the Delphic oracle whether he can safely swear that he never received it; rebuked, he hands it over, but — for even contemplating the perjury — he and his are "utterly uprooted out of Sparta . . . there is at this day no descendant of Glaucus, nor any household that bears Glaucus' name". It is tempting to argue that such *symbola* would not be much use unless they were marked with the *amount* of money — function 3.¹⁰

^{7,1}Grandell, 1989, p. 49.

⁸*Oxford English Dictionary*.

⁹Society of Antiquaries, *Proceedings*, 1899-1901, p. 78. S. West "Archilochus' Message-stick," *Classical Quarterly*, 38, (i) 42.

¹⁰Herodotus, VI, 86, a5, b1. S. West, *op. cit.*

Plato gives the tally a role that far transcends accounting. He makes one of his characters suggest the *symbolon* as an explanation of sexual desires, as follows. Originally, humans were united in pairs as spheres. Each sphere had two faces, four arms, four legs, etc. Some spheres were man-man, some woman-woman, some man-woman. They had surprising strength and vigour, and planned to assault the gods. So Zeus sliced every sphere into two. Each of us therefore is only "the tally of a man", ever yearning to be grafted again to the tally that will fit him. All men who are sections of man-man delight to be clasped in men's embraces; all women who are sections of woman-woman "have no great fancy for men"; men who are descended from the hermaphrodite spheres are women-courtiers and adulterers, and the women are man-courtiers and adultresses.¹¹

A Latin equivalent to the *symbolon* was the *tessera hospitalis*. This too was used of two matching halves, normally of something durable such as a die. And it too confirmed identity, e.g. of a stranger bringing a letter of introduction.

THE MEDIEVAL SPLIT TALLY

Thanks in part to its central role at the English exchequer, we have abundant evidence of the medieval tally's use in England. And some references come from further afield. Describing his Chinese trip (1271), Marco Polo tells us that he saw illiterate persons recording their business dealings by notching and splitting sticks "exactly as it is done with our tallies", i.e. in Venice. The 1407 statutes for university students at Paris include:

Whoever wishes to have wine beyond his portion, whether at table or away, should record it on his tally, and reckon it according to his conscience. Of which tally the one part remains with the servitor and the other with his master, and the receipt is to be tallied as soon as he gets his wine.¹²

Again, monasteries in medieval Italy accepted deposits of goods and money for safe-keeping, giving the depositor part of a split tally (of wood or parchment). This he presented at withdrawal.¹³

¹¹*Symposium*, 191d.

¹²W. Marsden, trans., *Travels of Marco Polo*, London: Dent, 1908, p. 251. Gabriel, Asteric L. & Boyce, Gray C. (edd.), *Acutorium Chartularii Universitatis Parisiensis*, Paris, 1964.

¹³Florence Edler, *Glossary of Medieval Terms of Business*, Cambridge, U.S.A., p. 21.

According to the late Sir H. Jenkinson (deputy-keeper at the Public Record Office), in medieval England the split tally was the ordinary accompaniment of government and private business. After studying hundreds of exchequer and private tallies, he concluded: "the more we examine financial conditions . . . the more do we find that all development is conditioned at every turn . . . by that system of tally cutting that was already well established in the twelfth century."¹⁴

Physical Form

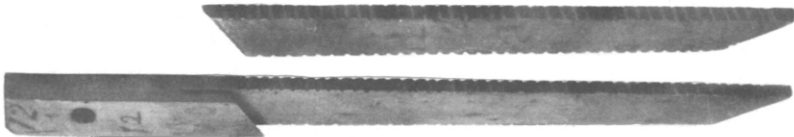
Tallies intended for splitting were usually made of well-seasoned hazel or willow (woods that split easily), and were square in cross-section. Originally they were slender, and their length often was the space between the tip of the index finger and the outstretched thumb, i.e. was less than six inches if we allow for our growth in physique over the centuries; but, as we shall see, they were later to become much bigger.

Even the exchequer tallies for large sums could be crude: some of the survivors have knots, follow the slight curve of the original branch, and still have bark along one side. A hole might be bored at one end, so that as many as fifty tallies could be strung on a thong or rod.

Stock and Foil

Typically the medieval tally was split into two bits of unequal length. The longer (the "stock", with a stump or handle) was kept as a receipt by the person who handed over goods or money. The shorter (the "foil" or "leaf") was kept by the receiver. Illustration 1 shows the two parts of a modern Kent tally with notches for physical units (hops gathered).

ILLUSTRATION 1



Modern Kent hop-picker's tally. Horniman Museum, London.

¹⁴M. Jenkinson, "Medieval Tallies, Public and Private," *Archaeologia*, 1923-4, p. 290.

The literate often wrote ink “superscriptions” on both stock and foil, to show the nature of the payment. The writing of the exchequer officials was normally in Latin, but in Hebrew at the “exchequer of the Jews”. The writing tended to be neat and compact on the short early tallies, but to sprawl across the later ones. Some private tallies also bore words — occasionally scratched on, and then perhaps re-written later in ink.¹⁵

Cutting the Tally

An anonymous description (perhaps eighteenth century) of the exchequer’s cutting method runs:

A thick stick was put into a vice and roughly squared. On one side was written in Latin the name of the accountant [e.g. a sheriff bringing cash to the exchequer] and for what service the money was paid; on the opposite side the same particulars were written. On the other two sides were written, in front, the test or day of the payment and the year of the reign of the king . . . and on these two sides the sum paid in was represented by notches of various sizes cut in the wood, each size denoting a certain amount. . . . Thus written upon and notched the stick was put into a strong block, and on one of the written sides, about three inches up, a short thick knife was placed diagonally and struck with a heavy mallet, cutting the wood halfway through; the stick was then turned and the knife inserted on one of the notched sides, at the diagonal cut, when two or three sharp blows split it down to the end into two parts, one part having exactly the same writing and notches as the other.¹⁶

Complex Splitting

In Scandinavia, the splitting process was sometimes complex. Where three parties were concerned in a transaction (e.g. the consignor of goods, the carrier, and the consignee), a “triple tally”, split into three parallel pieces, could be used. But the high point in tally technology was the “fork tally”. The two ends of a four-sided stick were cut apart in such a way that each consisted of a butt with two prongs; the four prongs interlocked neatly when joined. This device was used in eighteenth century Sweden, and enabled illiterate smiths to record transactions in

¹⁵Hubert Hall, *Antiquities and Curiosities of the Exchequer*, London: 1891, p. 119.

¹⁶*Notes and Queries*, 1881, p. 493.

two currencies — the *daler* (silver) and *ore* (copper), coins whose relative values varied over time.³ Members of the staff at the Stockholm Museum have recently made copies of the pronged tally, and have found this task easy once the trick is learned.

The Tally as a Receipt

Thanks to the diagonal cut (the projection seen in the illustrations), stock and foil could at any time be squeezed together again, so that extra cuts for new transactions could be made across the split, or the genuineness of the record could be tested:

“when these two parts came afterwards to be joined, if they were genuine they fitted so exactly that they appeared evidently to be parts the one of the other.”¹⁷

The split tally thus gave a form of receipt that was simple yet almost fraud-proof — “an intricate but robust form of record, not replaceable readily till carbon copying”.¹⁸

At settlement, the creditor would often hand over his stock to the payer. The latter could then break both stock and foil, or keep them spliced together as a permanent record. Any balance could be put on a new tally.

The Dialogus

Our knowledge of medieval tallies comes in part from two remarkable books by exchequer officials. About A.D. 1179, Richard Fitznigel, head of the permanent staff at the exchequer and later bishop of London, wrote his *Dialogus de Scaccario*. It is cast as a text-book for fledgling civil servants, and takes the lively form of question and answer. In 1711, another official (Thomas Madox) again described the exchequer's procedure (“if I do not err in my observation”), confirming that it had hardly changed during the intervening five centuries. An accounting text-book of 1793 still defined a tally, in its dictionary of “the abstruse words and terms that occur in merchandise”, as

a cleft piece of wood, to score up an account upon by notches. They are used by the officers of the exchequer, who keep one of the clefts in the office, and give the other to persons who pay in the money.¹⁹

¹⁷Thomas Madox, *History and Antiquities of the Exchequer*, 1711, p. 709.

¹⁸M. T. Clanchy, *op. cit.*, p. 27.

¹⁹Charles Johnson (trans.), *Dialogus de Scaccario*, London: Nelson, 1950. T. Madox, *op. cit.* John Mair, *Book-keeping Modernized*, 1793.

Notch Language

A simple form of tally had parallel notches of much the same width, each representing a single unit, as in Illustration 1. But this form was clumsy where numbers were big. Then some of the numbers might be shown by other types of cut. In Scandinavia, the angle was varied; \swarrow stood for 5, \times for 10, and \star for 20.³ In England, notches of different breadth and depth have been used for different numerical units. Thus 1 was denoted by a mere scratch, but 12 by a slightly bigger cut, and 240 by a still bigger cut. A tally marked with a 1-notch and 12-notch could be a receipt for one plus a dozen units of goods, or for a penny and a shilling. We must remember that the pound and shilling were for long merely convenient units of account, i.e. coins worth a pound or shilling did not yet exist; the only English coin was the silver penny (240 of which were in theory equal to one pound weight of silver).²⁰

At the exchequer, a strict ritual governed the breadth of the notches (and private persons may well have used the same dimensions). The *Dialogus* states that the cut for £1,000 had the thickness of the palm of the hand; £100, of the thumb; £20, of the little finger; £1, of a swollen barley corn; a penny, a mere scratch. Later, inches were used as measures. The exchequer then allotted 1½ inches to £1,000, and 1 inch to £100; such big notches tended to be U-shaped. Half-an-inch as a V-shaped notch denoted £20, and ¾ inch denoted £10; as a \vee -shaped notch, it meant £1 in late years. $\frac{3}{16}$ inch meant a shilling; a hair's breadth, 1d.; and a small hole "prickt only by a bodkin", a halfpenny.²¹

If there were many notches of different sizes, they might be grouped on both the upper and lower sides of the tally:

If you hold a tally in your hand with the thick part and hole to the left, and with the note recording the name of the person to whom the business relates and the cause of the payment towards you, then you will find the cuts for the largest denomination — whether thousands, hundreds, scores of pounds or smaller amounts — on the lower edge near the right-hand extremity, and no other denominations will be cut on

²⁰John Lubbock (Lord Avebury), *A Short History of Coins and Currency*, London, 1902.

²¹H. Jenkinson, *Proceedings of Society of Antiquaries*, 1913, p. 33. J. E. D. Binney, *British Public Finance and Administration, 1774-92*, Oxford: Clarendon, 1958, p. 222.

that edge. The lower denominations are all cut on the upper edge with pennies nearest the right-hand end.²²

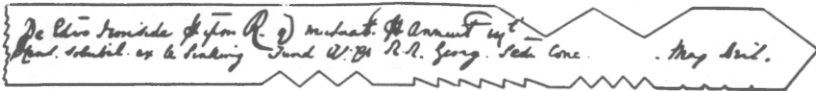
Illustration 2 shows a stock of 1293, issued as a receipt by the exchequer to the sheriff of Surrey.^{22.1} It has two deep triangular notches, and is thus for $2 \times \text{£}20 = \text{£}40$. Illustration 3 is a diagrammatic view of one end of an exchequer tally acknowledging the receipt of $\text{£}236.4s.3\frac{1}{2}d.$ on 25 October 1739, as a loan to the king on 3% annuities repayable out of the Sinking Fund.^{22.2}

ILLUSTRATION 2



Exchequer stock of 1293. Public Record Office, E 402.

ILLUSTRATION 3



Exchequer tally, 1739, for $\text{£}236.4s.3\frac{1}{2}d.$ See note 22.2 for source.

Thanks to notches of different sizes, it was easy for even an illiterate stall-holder to cut and to recognise elaborate money numbers. But perhaps we are wrong to dismiss him as completely illiterate, since his notches surely can be looked on as a form of writing. (It has indeed been suggested that the tally's vertical and diagonal notches may be the ancestors of some ancient alphabets — runic in Scandinavia, and ogham among the Celts — and conceivably of Roman numerals.)²³

²²R. L. Poole, *The Exchequer in The Twelfth Century*, Oxford: 1912, p. 88.

^{22.1}PRO. E 402.

^{22.2}*Parliamentary Papers*, 1868-9, XXXV, Vol. 2, p. 339.

²³A. Grandell, 1989, p. 9, tells of a Viking tally with cuts for both numerals and Ogham words.

The Tally Grows Bigger

The tally's dimensions could readily be varied to suit the breadth and number of the notches.

Accordingly, as prices rose over the centuries, the tally's length tended to grow. (Maybe its growth could yield a rough index of general prices.) The collection at the Public Record Office (P.R.O.) includes specimens dating from medieval times to the early nineteenth century. Its fourteenth century stocks are slim and short (say, 5 inches), and thus in outline look rather like a toothbrush. By the eighteenth century, prices had risen perhaps fifteen-fold, and the length of some P.R.O. tallies had stretched to between two and five feet. The famous specimen at the Bank of England is eight feet long. The sides grew to about an inch, and the weight to a quarter of a pound or more.

THE MEDIEVAL EXCHEQUER TALLY

From earlier pages, one might well suppose the tallies at the exchequer to have mainly been its own receipts — issued for instance to a lender of cash, and brought back by him for cancellation at repayment date. But in fact some tallies came to concern more than those parties, and took on roles far more ambitious than those of straightforward receipts.

The Tally as an Order on the Exchequer

In one of its extra roles, tallies became rather like a modern bill of exchange or bearer cheque drawn on the exchequer. Various officials other than those of the exchequer (e.g. of the "King's wardrobe") issued their own tallies in return for goods that the king needed urgently but could not pay for: "supplies could not wait upon arithmetic". For instance, when the king and his vast household travelled, he had the right of purveyance, for which large numbers of tallies were issued to suppliers. Other officials might be far afield. A surviving account of the Bishop of Carlisle tells how he bought nails on credit for work on the king's behalf at Carlisle castle; he gave stocks to the suppliers, and rendered his account (rolls) to the exchequer with the foils attached by thread as vouchers. Again, kings increasingly decentralised supply work by off-loading it onto sheriffs (e.g. these might be told to send 500 lambs to Westminster); the

sheriffs issued their own tallies to sellers, as claims to be paid presently.²⁴

The holder of these stocks was presumably paid later by the sheriff, etc.. Or he might approach the exchequer for allowance; whether he then got satisfaction was, as we shall see, quite another question.

Orders on Distant Debtors

In financial matters, the medieval king faced two difficulties. First, at times he needed more ready cash (e.g. for a campaign) than lay in his London exchequer. Second, much of his revenue was gathered and held by officials who were scattered across the realm; this cash could not readily be sent to London. He contrived to lessen both these difficulties by promoting the tally to yet another role.

The king's far-off debtors included the sheriffs and various other tax collectors, such as the port officials who levied customs dues on e.g. wool exports (the "customers", of whom Chaucer was for some years the head). In an age without banks and safe roads, these men had great trouble in remitting money to London. For instance, on one occasion when the Boston customers brought coins, the exchequer had to command sheriffs *en route* to provide armed guards and accommodation, to be paid for out of the customers' treasure.²⁵

To circumvent this difficulty, the exchequer had by about 1320 invented an ingenious use of the tally that enabled the king to settle accounts with his remote agents, and moreover to do much of his business without cash. The tally turned into an instrument for many-sided transfers.

To paraphrase Jenkinson; "If X owes B, but is owed by A, let him — X — make out a receipt to A and give it to B, and let B not part with it till he receives the money". In other words, if the exchequer — X — was short of funds, it would cajole creditor B into taking not cash but a tally addressed to some tax collector A. The tally purported to be a receipt by the exchequer for such-and-such a sum, paid in by the collector A out of such-and-such type of revenue: in fact, it recorded not A's payment but what he

²⁴H. Jenkinson, *Proceedings of the Society of Antiquaries*, 1913, p. 33; *Archaeologia*, 1923-4, p. 306. Anthony Steel, *Receipt of the Exchequer, 1377-1485*, Cambridge: 1954, p. xxxv. W. A. Morris, *Medieval English Sheriff*, University of Manchester, 1925, p. 267.

²⁵Hubert Hall, *History of the Customs Revenue*, London: 1892, p. i 10, 193; ii 27.

was someday likely to owe. Armed with this tally of assignment, creditor B presented himself to the collector, and — if all went smoothly — exchanged it for cash. The tally would afterwards serve the collector as his acquittance at the exchequer.²⁶

On occasion, the tally followed a more roundabout path. The first holder B used it to pay C (at a discount?); C in turn might pass it to D; and so on. It thus circulated like a negotiable bill of exchange before reaching A. It became a kind of wooden money, useful to eke out the poor coinage.²⁷ Here then was a great innovation, but with the old primitive form preserved.

Assignment and Anticipation

These assignment tallies came to play a big part in royal finance. They enabled the king to anticipate revenue:

a pernicious process by which the crown sought to stave off present disaster by imposing severe penalties on the future.²⁸

Such tallies also let exchequer officials shift the trouble of debt collection onto other shoulders. This was a mixed evil. If creditor B and collector A both worked in London, the system might do them little harm. If they worked in the same remote area, the system was positively beneficial to both, in that it cut out the costs, fatigues, and dangers of taking money to London and back; thus a royal employee B could conveniently get his salary from nearby collector A. But if B worked in London, and a high-handed exchequer gave him a tally on a remote A, the system was grossly unfair. B might be forced to go on a long journey, with no assurance of a favourable reception at the end.²⁹

Delays and Default at the Exchequer

If a creditor's tally was drawn on the exchequer, he could face many troubles. His tally might take the form of an order on the Treasurer, payable at sight out of either revenue at large ("so much of the treasure remaining in your hands"), or some

²⁶H. Jenkinson, *Archaeologia* 1911, p. 369; *Proceedings*, 1913, p. 34. T. F. Tout, *Chapters in the Administrative History of Medieval England II*, London: 1920.

²⁷Philip Norman, *Archaeological Proceedings*, 1902, p. 288.

²⁸T. F. Tout, *English Historical Review*, 39, p. 411.

²⁹A. Steel, *op. cit.*, p. xxxi.

specified source of revenue.³⁰ But, if the exchequer's funds were running low, such orders could not guarantee payment.

Kings were not systematic in their spending, and the exchequer sometimes still faced claims for two whole years of arrears. It therefore had to rank claims in some order of preference. Its chosen system affronts today's ideas of fairness. A creditor was most likely to get paid if he was (1) a member of the king's family or household; (2) a current supplier who threatened to withdraw; and (3) someone who could trade services, e.g. make a fresh loan, or (members of parliament) grant a tax.³¹

If he was not on this privileged list, the tally-holder could follow various courses. He could employ an attorney with inside knowledge to solicit on his behalf. He might pay a fee (perhaps a bribe) to officials who could "spy out an assignment". He might try to "catch the king's ear" — especially by offering to cut down the size of the debt, sometimes by half. The king was apt to drive a hard bargain. If he finally favoured the claim, he gave the creditor a warrant on the exchequer. But even this might not be enough to secure attention there. Some creditors would in the end despair of being paid, and look on their claim as gifts to the king.

Even where the creditor was lucky, he would probably receive not cash but ("with somewhat tempered satisfaction") a tally of assignment. In most years, the exchequer paid more by tally than by cash; in 1381, the assignments rose to £47,000 while cash payments were only £7,000.³²

Troubles with Assignment Tallies

The winning of an assignment tally could herald fresh tribulations. If it were drawn on (say) a customer in Cornwall, the holder faced an arduous journey (a prospect that might prompt him to discount the tally in London, with a merchant or perhaps an enterprising official at the exchequer itself). Arrived in Cornwall, he might be met by a harassed customer who was already overdrawn, or who faced a proliferation of preferences. Delay and insolence were common. The customer's difficulties might be genuine, e.g. where he had been ordered (assignments

³⁰H. Hall, *op. cit.*, 1892, p. 188.

³¹G. L. Harriss, "Preference at the Medieval Exchequer," *Bulletin of the Institute of Historical Research*, 1957, p. 17, *et. seq.*

³²J. F. Willard, "The Crown and its Creditors," *Eng. Hist. Rev.*, 1927, p. 12. A. Steel, *op. cit.*, p. 345.

notwithstanding) to send all his money to the exchequer. But he sometimes used his position as discretionary paymaster to line his own pockets.

A system of preferences here again affected the tally-holder's prospects. His chances were good if he was a local baron; they might be good too if he was a local merchant, especially one whose tally was levied on customs arising from his own goods; he might even contrive to be appointed collector, and pay himself. A peremptory writ from the king reinforced a claim. A less-favoured holder might try to discount the tally with the collector, or perhaps hint at a bribe; but he would still be in competition with other claimants. An insignificant pensioner was likely to get only a "saucy answer".

If the holder's importuning finally came to naught, as was often the case, he had to take his dishonoured tally back to the exchequer. There the clerks cancelled his original entry in their accounts; and he wearily joined the queue for a fresh tally, probably on a different revenue. Another journey followed. Years might pass before he got his money. Yet all these (and other) imperfections in the system "do not seem to have disturbed the equanimity of the exchequer".³³

The Exchequer's Accounting for Tallies

The exchequer kept its accounts as lists of receipts and payments on separate sheepskin rolls ("pells"). This simple method worked efficiently until the tally of assignment came into use.

Not surprisingly, the exchequer could not readily fit entries for these new tallies into its cash accounts, which became endlessly confused. On striking an assignment tally, the clerks entered not only the notional receipt but (as cash was not in fact received) also a notional payment. More trouble came when the tally was finally returned by the customer, etc., for his acquittal. The clerks sometimes took refuge in explanatory glosses and fictitious loans.³⁴

Discounting

We may guess that, as tallies circulated so freely, many private firms engaged in discounting; and that the big risks and delays made for stiff rates. But we know little about the details

³³*Ibid.*, p. 364. H. Hall, *op. cit.*, 1892, p. i 11, 190. G. L. Harris, *op. cit.*, p. 25.

³⁴H. Jenkinson, *op. cit.*, 1923-4, p. 306. C. D. Chandaman, *The English Public Revenue, 1660-88*, Oxford: Clarendon, 1975, p. 288.

and rates of discounting, presumably in part because canonical rules against usury made explicit mention indiscreet. We do know that the customers' discount charges on tallies (bribes rather than time discount?) were looked on as an abuse of power, and were denounced in popular petitions.³⁵

We likewise know little about rates of loan interest. Despite the ban on usury, the king was able to raise loans; and the rich lenders grew richer. Interest must have been allowed in some guise or other. Possibly the exchequer issued loans at a deep discount; in one instance, the lender of £2,703 seems to have paid in only £2,000, the £703 shortfall being described as war expenses. Or a lender might get a seemingly unconnected reward such as a post as tax 'farmer'.³⁶

Royal Control of Sheriffs via the Tally

In the early middle ages, the English kings (notably Henry I, 1100-1135) were bent on wresting administrative power from feudal barons, and giving it to royal servants. These included the sheriffs of the counties. Besides their many other duties, sheriffs collected revenues that included certain taxes, receipts from the royal estates, and the "rich spoils of the law" (i.e. fines).

Sometimes the office of sheriff was filled by a powerful baron and became hereditary; but, whenever possible, the king put his own men into these key posts. He used the exchequer as a means of clamping tight controls on them. And the exchequer relied heavily on the tally. (Curiously, the king does not seem to have used this tally system in his southern French domains³⁹.)

Twice a year, the sheriff had to present himself at the exchequer to defend his stewardship, i.e. act as 'accountant' for all details of the revenues and expenses of his shire. (The civil servant at the head of a British government department is still its "accounting officer"). He then paid in sums that he owed, and was given tallies as receipts; in early days, he might be given separate tallies for individual items of revenue (e.g. on one occasion, the Yorkshire sheriff got 972 at once), but later on he received a collective *dividenda* tally for all petty items. He produced tallies as vouchers for some of his expenses.³⁷

³⁵H. Hall, *op. cit.*, 1892, p. i 10.

³⁶A. Steel, *op. cit.*, p. xxxvii, 319; Cambridge Economic History.

³⁷Helen M. Cam, *The Hundred and the Hundred Rolls*, London: Methuen, 1930, p. 1, *et. seq.* Judith A. Green, *Government of England under Henry I*, Cambridge, 1986, p. 195. Parliamentary Papers, 1868-9, xxxv, 2, p. 339. H. Jenkinson, *op. cit.*, 1911, p. 368; 1923-4, p. 300. Sheriff = shire-reeve. Reeve = steward.

Tax and Tallies

Throughout Europe, taxes and other dues were levied with the tally's aid. Scandinavia in particular gives proofs that tallies were used when taxes and tithes were gathered. Thus a Finnish court record of 1522 tells how Thomas had to pay a heavy fine for breaking the collector's tally "with which it is the custom to collect tax".³⁸ Again, a French document of 1578 orders villagers near Dijon to stop using tax tallies.³⁹

Two interesting questions follow. First, as some taxes had names that resemble "tally", were these names derived from the tally? Examples are:

Tallage, imposts levied by English kings and feudal superiors. Serfs protested "they would rather go down to hell than be beaten in this matter of tallage".⁴⁰

Tallia, a Swedish tax.

La taille, the vexatious French tax originally levied on ignoble persons to raise funds for e.g. their lord's crusade, and later levied by the king (till the Revolution).

Voltaire tells us that the name *la taille* did indeed come from the "odious collectors'" practice of marking each payment on a tally;⁴¹ and some later writers find this plausible. But the balance of expert opinion traces the name to an allied stem, *taliare*, to cut (cf. "tailor"); thus the French king cut (apportioned) the tax total between provinces according to reports on their crops, etc., and so on down to parishes, and then (by "friendship, party, animosity, and private resentment") to persons.⁴²

Second, did the collection process rely on the split form of tally? Probably not. The unsplit tally was better in two ways: it displayed the apportionment of taxes between households, and it served the collector as voucher when he accounted to his superior for all sums due.³⁸

Records of as late as 1784 show the procedure still extant in remote villages of the Landes and Pyrennees. The "coarse and ignorant" inhabitants met in general assembly, and assessed

³⁸A. Grandell, 1989, p. 12.

³⁹J.-J. Hemardinquer, "La Taille, Import Marque sur un Baton", *Bulletin Philologique et Historique*, Bibliotheque Nationale, 1972, p. 508-11.

⁴⁰H. S. Bennett, *Life on the English Manor*, Cambridge: 1937, p. 139.

⁴¹*Larousse*, "la Taille"; Voltaire, *Oeuvres*, Paris: 1819, xiii, p. 80; xiv, p. 371.

⁴²*Oxford English Dictionary*. Adam Smith, *Wealth of Nations*, III, p. 307.

themselves (in kind) according to their means; the collectors, also illiterate, notched the tax roll on a "baton".³⁹ Sweden has hundreds of unsplit tax tallies. A rather fine one, from 1627, looks somewhat like a broadsword. It has a line down the middle of each side. One of the resulting strips lists the payers' marks: alongside each mark, in the other strip, are notches recording the payers' dues. Finland has a planchette of as late as 1820, for day labour on roads, etc., by twenty families. Thanks to such tallies, the villagers could see the fairness (or otherwise) of the sharing between households, the payers were given a receipt before witnesses, and the collector had a complete record.³⁸

THE PRIVATE TALLY

The more remote the tally was from a government office, the less likely it was to survive. The PRO has preserved several hundred private tallies (vouchers to accounts); otherwise few remain. However there can be little doubt about the "extreme popularity" of the private tally. Estates and monasteries found it convenient; some surviving stocks, notched by a reeve when he collected rents from monastery tenants, served to acquit tenants in the eyes of the abbot. Wycliff denounced "lords who take goods of the poor and pay for them with white sticks". There is evidence of the tally's common use among traders by the thirteenth century (and presumably it had come into use earlier). Chaucer's characters mention it twice ("so be I faille [to pay] . . . write it upon my taille"). Many tallies, anticipating bills of exchange, were passing from hand to hand at a discount. "English medieval finance was built on the tally."⁴³

At a time when coins were both scarce and bad, the tally helped to foster the process by which a credit economy flourished even though debt settlements depended ultimately on barter. A barter system could hardly function well if it consisted only of discrete transactions — if (say) tailor and peasant had to swap a coat for a pig. The tailor might not want a pig that day; and the coat might be worth more than a pig. Dealings became feasible if the tailor sold the coat on credit, and at later dates bought such items of farm produce as he needed, crediting the peasant; tallies enabled the necessary accounting to be done. They likewise enabled merchants to trade with one another on a

³⁸A. Grandell, *op. cit.*, 1989, p. 12.

³⁹J.-J. Hemardinquer, *op. cit.*

⁴³H. Jenkinson, *op. cit.*, 1923-4, p. 293; 1911, p. 379. A. Steel, *op. cit.*, p. xxxv. M. T. Clanchy, *op. cit.*, p. 72, 95. G. Chaucer, *Prologue*, line 570.

two-way basis, with the balance swinging from side to side (as in Colonial America, where however ledger accounts kept track of the deals).⁴⁴

Private persons used much the same notch language as the exchequer, but their writing — if any — tended to be terse and less likely to stick to the full and rigid formulas of officialdom.⁴⁵ Notches thus might perhaps stand for money or pigs or corn. The users relied on memory and witnesses for the full story.

The tally's everyday use is attested in several ways. It is for instance taken for granted in the matter-of-fact evidence at an "inquisition" into the wounding of Walter, an estate servant: Walter was lifting a table, and Hugh was cutting tallies ready for use, when Walter tumbled and fell on Hugh's upturned knife.⁴⁶ Consider too comments by judges, and the tally's contributions to our speech.

Judges and Tallies

Tallies featured in legal cases, for instance where a creditor demanded payment for goods or repayment of loan. His stock would then at least support his claim; but it might be accepted, not merely as evidence, but as itself generating liability. Its validity was increased if it bore the debtor's seal (important with illiterates).

In 1294, a judge went out of his way to help a merchant who produced an inadequate tally:

He who demands this debt is a merchant, and therefore if he can give slight proof to support his tally, we will incline to that side . . . Every merchant cannot always have a clerk with him.

Again, a creditor in 1310 proffered two sealed tallies to witness a debt due by a parson. When the latter tried to evade liability, he provoked the following argument:

"To that you cannot get: for we have produced tallies sealed with your hand."

"We are not put to confess or deny this tally."

At which Chief Justice Bereford thundered:

"Are not the tallies sealed with your seal? About what would you tender to make law? For shame!"

⁴⁴W. T. Baxter, *The House of Hancock: Business in Boston, 1724-75*, Cambridge, Mass.: Harvard, 1945.

⁴⁵H. Jenkinson, *op. cit.*, 1923-4, p. 319.

⁴⁶*Ibid.*, p. 312.

But Bereford in a later case disparaged the tally (somewhat inconsistently?), pointing out its defects:

“The tally is a dumb thing and cannot speak . . . The notches too; we cannot tell whether they refer to bullocks or to cows or to what else, and you may score as many notches as you like; and so we hold this to be no deed which a man must answer”.⁴⁷

The Tally's Imprint on our Speech

The wide use of tally is suggested by its many contributions to our everyday speech, e.g.:

To tally, i.e. to match or agree.

Stock. The tally's use as receipt led to “government stock”, “stock exchange”, etc. (But “stock-in-trade” stems from the other use of “stock” as “wealth”).

Counterfoil, “counter” probably meaning a control or check.

Score has led to e.g. “pay off old scores” and “refused on the score of —”. Its meaning of “twenty” is said to have come from the herd's habit of counting his beasts by scoring a stick (using the Scandinavian /, +, ×, and ✕ for 1, 5, 10, and 20). The meanings in sport come from recording cricket runs, etc., with notches; eighteenth century pictures of cricket matches often show two scorers notching the runs on short sticks.

In the nick of time suggests last moment victory.

Hop-sotch is related.

Indenture, a paper cut zig-zag — an alternative to the wooden tally.

Less common now are “tallyman” (a trader selling goods on credit, and collecting the price by instalments); “on tally” (on tick); and “to live on tally” (outside wedlock).⁴⁸

⁴⁷C. H. S. Fifoot, *History and Sources of the Common Law*, London: Stevens, 1949, p. 224-246.

⁴⁸*Oxford English Dictionary*; but see Thomas, Keith, “Numeracy in Early Modern England”, *Trans. Royal Historical Society*, 1987, p. 119.

The Decline of the Private Tally

Jenkinson argued that tallies reached their peak of popularity in the fourteenth century, and that their private use declined thereafter (though the exchequer clung to them, ostensibly because they were necessary for the safety of the king's revenue, but also because the staff had a vested interest in the old ritual). He dated private tallies by their use of Latin or English; he saw many with Latin inscriptions (i.e. early date), only two with English (later date). He ascribed the decline to increased literacy and the coming of paper.⁴⁹

But we may well suppose that the decline was slow, and stretched over centuries. Paper may perhaps have appeared in urban England by the thirteenth century, but it remained an expensive import. In Tudor times, a quire of writing paper (twenty-four sheets) cost a labourer's day wages; and probably the fringes of Scotland and Ireland had not yet heard of it. The invention of printing must have strained supplies of both paper and parchment; one parchment copy of the Gutenberg bible needed the skins of three hundred sheep.⁵⁰

The tally in many ways compared badly with paper. It was less easy to use and store. And it could hardly be adapted to the needs of the new breed of literate men who were learning to use Arabic numerals, the alphabetical index, cross-references, and then the ledger.⁵¹ Paper's convenience came to outweigh cost, in the eyes at least of substantial merchants. The Yamey volume of accounting pictures shows Renaissance counting-houses in rich detail, but not a single tally.⁵²

Yet some lesser folk must have stayed loyal to the tally. Shakespeare would hardly have mentioned it in a poem of personal feeling if it had not been in fairly common use ("nor need I tallies thy dear love to score"). Another of his lines perhaps suggests that, though still familiar, the tally was coming to be looked on as out-worn ("whereas, before, our forefathers had no other books but the score and tally").⁵³

Can we regard the tally as being, in any direct sense, the ancestor of double-entry accounts? Clearly not. But the tally did

⁴⁹H. Jenkinson, *op. cit.*, 1923-4, p. 313.

⁵⁰D. C. Coleman, *op. cit.*, p. 4.

⁵¹K. W. Hoskin and R. H. Macve, "Accounting and Examination", *Accounting, Organization, and Society*, 1986, p. 105.

⁵²B. S. Yamey, *Arte e Contabilita*, Bologna: Credito Romagnola, 1986.

⁵³Sonnet 122. 2 Hen. VI., iv 7 39.

foster credit transactions and multi-sided transfers; and so it must have made merchants familiar with notions that later won better expression as debits and credits.

THE CHECKER-BOARD

Despite its merits as a record, the tally was hardly an efficient means of calculating. It became more helpful when it was used alongside the abacus.

The latter has taken several forms, some of which were already familiar in antiquity. It might be no more than a board sprinkled with dust on which lines were scratched ("abacus" possibly comes from Hebrew "abaq", dust); and pebbles might

ILLUSTRATION 4

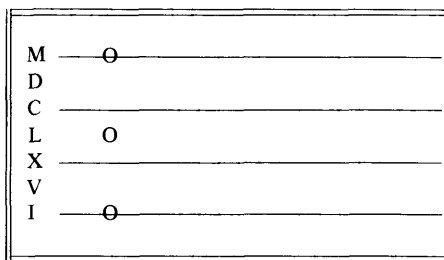


Checkerboard and counters. (Hans Schüfelein, parable of the unjust steward, early sixteenth century. Courtesy of B. S. Yamey, page 107 — see note 52.)

serve as counters (Latin *calculus* means “pebble”). By late Norman times, however, it had developed into the superior form (imported from Moorish Spain) of the checker-board (*scaccarium*, a chessboard). This might literally be a board, or a table-top, or a “worked reckoning cloth” to be put on a table. It was criss-crossed with suitable lines; calculation was done by moving counters onto and off the resulting spaces. The counters usually were bits of metal like coins.⁵⁴

Rulings

There were several forms of ruling (geared to the Roman numerals). One of 1691 looked like this:



The circles represent counters, here for 1,000, 50, and 1, i.e. a total of 1,051. As can be seen, counters were put either on the lines, or (to represent intermediate numbers such as V and L) half-way between lines.⁵⁵

For money arithmetic, some slightly more complex form was useful. Two such forms are shown below. The first (“the merchants’ use”) had a horizontal row for each denomination of money:

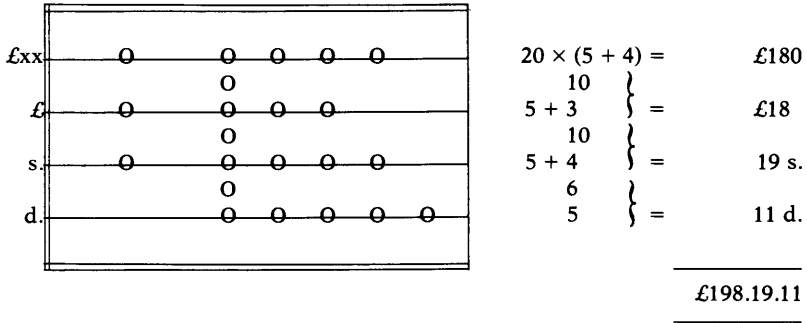
Pence — lowest row (nearest operator). A counter on the line stood for 1d.; above the line, for half a shilling, i.e. 6d.

Shilling — next row. A counter on the line and to the right stood for 1s., to the left for 5s.; above for half a £, i.e. 10s.

⁵⁴F. P. Barnard, *The Casting-Counter and the Counting Board*, Castle Cary: Fox, 1981, p. 29.

⁵⁵*Ibid.*, p. 235.

and so on for the £ and for scores of £s. The abacus might accordingly look like this:

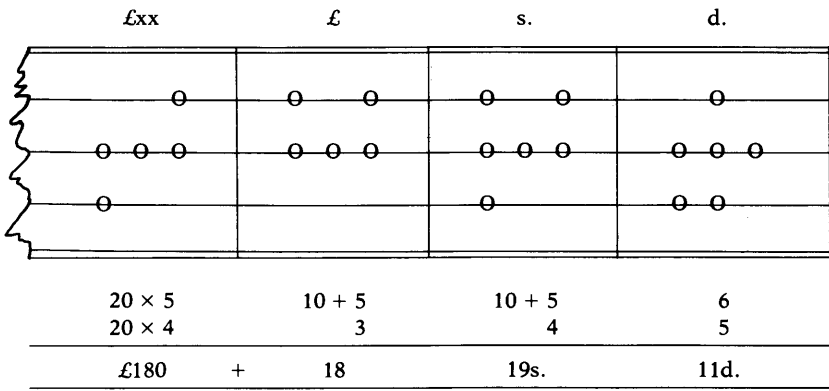


The second form ("the auditor's use", employed at the exchequer) had vertical columns for the denominations; the operator used as many horizontal rows as he found helpful (e.g. for distinguishing revenues from expenses):

Pence — right-hand column; counters stood for 1d. if placed low, and for 6d. if high.

Shillings — next column; low counters stood for 1s.; high counters for 5s (at right) and 10s (at left)

and so on £s, etc. The exchequer used seven columns (£10,000, £1,000, £100, £20, £1, 1s., 1d.),⁵⁶ and thus reflected the various sizes of notches on tallies:



⁵⁵Dialogus, p. 31.

Calculation Technique

To see how addition sums were done on the abacus, we can turn to the description of a tax audit at a German city (adapting it by substituting English money units). A gentleman of standing (the “reckoner” or “calculator”) had the cloth before him, and a bowl with silver counters. The burgomaster read out the various sums due; for each sum, the calculator placed counters on the appropriate spaces. As soon as there were counters for 12d. in the penny space, he took them off and put one counter in the shilling space. As soon as there were counters for 20s. on the shilling space, in like manner he took them off and put a counter in the space for £s. A second gentleman examined the vouchers. A prelate read out a duplicate copy of the accounts (to ensure that the church got its share?). When the reckoning was finished, the calculator stated the amount shown on the cloth; the burgomaster was responsible for the accuracy of the result.

Subtraction could be done by removing counters. Even multiplication and division were possible, but only by a skilled abacist.⁵⁷

The Counters

Coins could serve as counters. But, soon after AD 1200, the French court took to using special “casting counters” (*jettons*), and this fashion spread. Persons of refinement might have their own silver pieces, stamped with fanciful designs that illustrated proverbs, verbal conceits, etc. The less-affluent used crude pieces made of base metal. Sometimes counters served too as small change.

Though few “boards” have survived, there are still counters in plenty. One collector tells us that he owned 7,000 and had examined 35,000 others.

From the standpoints of numbers and interest to later collectors, French counters reached a peak under Louis XIV. They were employed until the Revolution (and acquired extra uses as medals and as largesse to be thrown to the poor). But the Revolution brought its simpler decimal units of money, weight, etc.; moreover the old system savoured of royalism. Many counters went to the melting pot.⁵⁸

⁵⁷F. P. Barnard, *op. cit.*, p. 233; Charles Singer (edit.), *History of Technology*, II, Oxford: 1957, p. 766.

⁵⁸F. P. Barnard, *op. cit.*, p. 22; J. M. Pullan, *History of the Abacus*, London, Hutchinson, 1968, p. 45; David E. Smith, *History of Mathematics*, Vol. 2, N.Y., Dover, 1958.

Decline of the Abacus

In Britain, the counting board probably dropped out of use somewhat earlier. Shakespeare still had references to it: Iago speaks scornfully of "this counter-caster", and an ignoramus "cannot do it [arithmetic] without compters".⁵⁹

Two things lessened the need for the abacus. One was cheap paper. The other was the use of Arabic numerals. Europe was slow to accept these. The author of the *Dialogus* knew of them (thanks to the writings of Moorish scholars), but preferred the Roman system. "Ciphering" was long regarded as a bizarre and mysterious art. Arabic figures had however percolated into common use by the seventeenth century, and "made the elementary rules of arithmetic accessible to every child". An arithmetic book of 1668 explains manual accounting, but omits this section in its 1699 edition.⁶⁰ The Scots exchequer abandoned its board perhaps about 1660.⁶¹ Only in the East has the abacus (in its form of beads on wires) remained popular.

THE MEDIEVAL AUDIT

Manor Accounts

A feudal lord could own many manors. His whole estate was often supervised by a steward, and each manor by a reeve. The latter was either appointed from above or elected by his fellow serfs.

The Reeve as Accountant

One of the reeve's most troublesome tasks was to draft the yearly accounts for his manor. For this work, he relied on his memory, tallies, and perhaps notches on barn-posts. (We are told that some nineteenth-century farmers still kept complicated accounts on tallies, cutting the amounts with a bill-hook "as fast as you could write them with a pen".) The reeve's figures were put into writing by trained scribes, who made a round of manors each Michaelmas for this purpose; or the priest might do the writing.

In form, the reeve's accounts seem the obvious ancestor of the "account charge and discharge", still used by Scottish

⁵⁹*Othello*, I i 31; *Winter's Tale* IV iii 38.

⁶⁰*Dialogus*, p. xxxvii; C. Singer, *op. cit.*, p. 767; K. Thomas, *op. cit.*, p. 122.

⁶¹A. L. Murray, "Procedure of the Scottish Exchequer". *Scot. Hist. Rev.*, xl, p. 95.

solicitors for trust funds, etc. The reeve was charged to deliver, e.g.:

Rents
Sales
Fines receivable

The discharge allowed him such items as:

Tithes
Repairs to castle

The fines of tenants too poor to pay

Then came the balance payable by the reeve for this year, plus any balance due from earlier years. (Sometimes the latter balance prefaced the charge; but that arrangement blurred the current year's results.) A physical inventory of livestock might be appended on the back of the account. Tallies might be attached to the foot of the account, to record payments by the reeve to his lord.

Hearing the Accounts

The feast of St. Michael (29 September) was the "season for hearing the accounts". The reeve at that time faced a whole team of auditors: it might include the steward and (if the manor belonged to a monastery) the cellarer. These men were well-informed, and would "take inquest of the doings which are doubtful". To help their probings, they brought with them the rolls of the manor, and so could — with seemingly uncanny knowledge — check the current figures with earlier ones. In many surviving accounts, some entries in the scribe's writing are struck out and replaced by entries in an auditor's hand. The reeve used tallies to vouch his outlays, and received a tally when he handed over his balance. If we may judge from the well-known procedures at the exchequer, the manor auditors did the needed sums with the help of a reckoning cloth.

A reeve might be put in the stocks because of his arrears. But sometimes the auditors would forgive a debt because of the reeve's "weakness and poverty".⁶²

The Exchequer Audit

Just as many a pub is called "The Chequers", the principal treasury of England took its name from the checker-board,

⁶²H. S. Bennet, *op. cit.*; John Hacker, *Rural Economy and Society in the Duchy of Cornwall*, Cambridge: 1970. *Proceedings of the Society of Antiquaries*, 1893-5, p. 309. P. D. A. Harvey, *Manorial Records*, British Records Association, "Archives and the User, No. 5", 1934.

which was central to its working. An earlier name was “The Tallies”.

The exchequer was first mentioned in 1110^{62.1}. It was organised in two divisions:

Upper. This was a court of the “King’s Baron’s and Great Men”, e.g. the Justiciar (first subject of the realm, entrusted “with the king’s very heart”), Chancellor, Constable, and Treasurer. They made sure that the royal revenue was properly collected, largely by the sheriffs. The Treasurer was the mainstay of the whole exchequer. Fitznigel had himself obtained the post (by purchase); his *Dialogus* lingers affectionately over the procedures, particularly the sheriff’s audit. The upper division became also a court of law, popular because it gave prompt judgment over disputed dues, and enabled citizens to appeal against harsh collectors.

Lower. This had the humbler roll of cash office. It was staffed by lesser officials, differing in their duties (Fitznigel tells) “but alike in their zeal for the king’s advantage when justice permits it”. They deputised in their masters’ names; thus, when in time the Chancellor stopped attending the meetings, his clerk took his place, eventually coming to be called the Chancellor of the Exchequer and then superseding the Treasurer as chief official; there were likewise two understudy Chamberlains and a Constable. Other officers included four tellers to count the cash, a silver-smith and melter (to assay coins paid in), a tally-cutter, and an usher who went to the royal forests to fetch wood for tallies. Some of these functionaries assisted their masters in the Upper Court when it was in session.⁶³

The Sheriff’s “Farm”

Because trustworthy officials were not always available, medieval kings tended to privatise tax gathering, i.e. to use tax farmers. A sheriff paid a fixed rent — his “farm” or “ferm” — for the right to collect certain of his county’s taxes, rents of royal manors, etc. (but he also had to collect and hand over some other items). A surplus on his farm was his wages; a deficit had

^{62.1}Judith A. Green, *op. cit.*, p. 41.

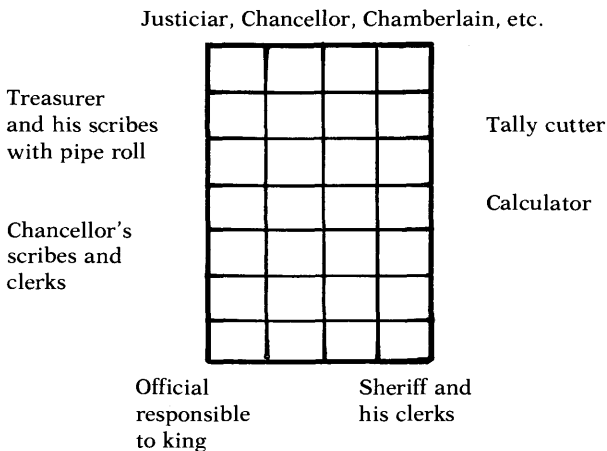
⁶³*Dialogus*, p. xxxv *et. seq.*; *Dictionary of the Middle Ages*, N.Y.: Scribner, 1984, p. 532.

to be made good out of his own pocket. He thus had strong reason to act as "the hammer of the poor".⁶⁴

The king summoned a sheriff ("see, as you love yourself and all that you have, that you be at the exchequer there and then") at Easter and at Michaelmas. The Easter visit was provisional, i.e. the sheriff then paid in about half of his dues on account — the "sheriff's profer", for which he received a memorandum tally. His accounts were not audited till his Michaelmas visit, when he came back for another profer and then his audit, final payment, and acquittance.⁶⁵

Analogies with Chess and Criminal Courts

On taking his place in the court, the sheriff found himself facing a formidable team that was arrayed on three sides of a table:



The table was rather small (10 feet by 5 feet), with a rim to stop the checkers from rolling off. On it was spread a dark cloth "figured with squares like a chessboard" with lines 1 foot apart. The row of barons overlapped the top of the table. The sheriff sat opposite them; beside him were his assistants (bailiffs, and

⁶⁴*Cambridge Economic History*, III, 1963, p. 437. It is not clear how much the sheriffs could earn. Their jobs were burdensome and involved outlays, yet were prized. An honest sheriff was at least entitled to various small fees and some hospitality. A dishonest sheriff could exact other fees ("the sheriff's welcome"); he could cheat the exchequer; he could commandeer horses and carts; and he could be ambidextrous as a judge, i.e., take bribes from both sides — W. A. Morris, *op. cit.*, p. 279.

⁶⁵*Dialogus*, p. 79; H. Hall, *op. cit.*, R. L. Poole, *op. cit.*

clerks with stocks and vouchers). His opponent, the Treasurer, sat on the left side, also with supporters.⁶⁶

Fitznigel relishes the confrontation between Treasurer and sheriff, and the analogy with a chess game: just as “on a chessboard, battle is joined between two kings . . . here too struggle is joined between two persons, to wit, the Treasurer and the Sheriff who sits at his account, while the rest sit by as judges to see and decide”.

Fitznigel carries the analogy further by describing the minor officials as pawns. There were many of these, and there was much duplication of work. Not only was each item in the sheriff’s account checked carefully and entered in several rolls, but many of the officials were watched over by colleagues; as Fitznigel puts it, “a three-fold cord is not easily broken”. Such excessive checking prompts one to wonder whether the officers perhaps were too ill-educated for accuracy, or were intent on making jobs for hangers-on, or were prone to corruption. Fitznigel must have permitted himself the same doubts; when, as “master” in his dialogue, he has described the officer who acted as watchdog over the Treasurer, he makes his “scholar” interject:

Well then, saving the Treasurer’s reverence, this appointment seems to detract from his dignity, since his honour is not absolutely trusted.

At which, the master replies:

God forbid! Say rather that his labour is spared and his security assured. For it is not because either he or anyone else is not trusted that so many sit at the Exchequer; but because it is fitting that such great matters and the public affairs under so great a prince should be entrusted to many great personages, not merely for the King’s profit, but to honour his excellence and royal state.⁶⁷

Audit by Ear

Medieval audit procedure had to suit men who were illiterate, i.e. to whom the ear was more important than the eye; even nobles and monks “wrote” by dictating to a scribe, and could

⁶⁶T. Madox, *op. cit.*, p. 105 *et. seq.*

⁶⁷*Dialogus*, p. 28. The rolls were not exact duplicates of one another, e.g. fines levied by different courts were classed differently in the various rolls. Modern attempts to reconcile the rolls may baffle researchers. M. H. Mills, *Eng. Hist. Rev.*, 1921, p. 349.

“read” with most understanding by listening to someone with reading skill. “Inspecting a document” meant hearing it read. Auditors accordingly listened as the details of an account were related. (This presumably explains our rather odd use today of “auditor” — rather than, say, “scrutineer” — and of “to hear from” those who write to us.)⁶⁸

At the sheriff’s audit, therefore, most of the court’s exalted members sat back and listened to a dialogue between the (attacking) Treasurer and the (defending) sheriff.

The Audit Ceremony

This can be visualised as follows. The Treasurer has made meticulous preparation; he has brought tallies awaiting matching and each shire’s sheepskin records (pipe-rolls, so called because of their shape). Known revenues, (e.g. fixed rents) and payments are already entered in the rolls, and blanks are left for the unknown. The Treasurer is supported by his “lynx-eyed” scribe; next sits the Chancellor’s scribe (copying what the other writes), and the Chancellor’s clerk to watch that no mistakes are made. Yet another official is directly responsible to the King for another roll; he sits on the sheriff’s left. At the table’s right is the calculator; he sits at the middle of his side (in front of the £ column) so that his hand can move freely and everyone can see him. Beside him is the tally-cutter. Others present include suppliers, etc., holding tallies from the sheriff; alerted by public notices, they could attend the audit to check that their claims were allowed.⁶⁹

The Treasurer starts by calling the name of the accountant, i.e. the sheriff, who is put under oath, and is charged — almost like a criminal — with having money of the King. The accounting (like that of the manor) follows the system of charge and discharge. The Treasurer carefully dictates from his roll the known amounts of the charge — the farm, arrears from former years, etc.; also the sheriff has to confess his variable revenues (including fines, the chattels of fugitives from justice, of those mutilated for their crimes, and of deceased usurers). His discharge covers fixed payments such as tithes, alms, and the wages of royal servants (e.g. pipers and wolf-takers). It covers also his variable payments. As authority for making these, he may plead custom (e.g. the expenses of trial by ordeal), or he

⁶⁸M. T. Clanchy, *op. cit.*, p. 97, *et. seq.*

⁶⁹*Dialogus*, p. 18, *et. seq.*; *Dictionary of the Middle Ages*; IV, p. 530; *Parliamentary Papers*, p. 341; W. A. Morris, *op. cit.*, p. 252.

may hand in the royal writs sent to him (e.g. orders to fortify castles, and to give "honours and succour" to royal guests). Even where the court knows well that such-and-such outlays have been made, it may hotly contest the sheriff's claim if he does not submit writs as authority and vouchers proving payment.⁷⁰

Meantime the calculator — who can perhaps be likened to a slick modern *croupier* — listens to the proceedings, and says the amounts as he flips his counters on and off — a "confusing and laborious process . . .

Tongue, eyes, hand and restless brain
Work with all their might and main".

He puts out the charge items as heaps of counters, and then the discharge items as heaps on a lower line. In simple cases (no "blanching" — see below), the lower line is next subtracted from the upper; the sheriff is responsible for the remainder. His stocks for earlier payments are duly matched with foils held by the exchequer.

The above description is over-simplified in various ways. For instance, the sheriff's dealings may be split between his main farm and various minor sections, each of the latter being treated as a separate account charge and discharge. Again, some of the items may be entered by tale (the stated number of pence being accepted without deduction for clipping, forgery, and other faults), or may instead be subject to blanching (deduction for the faults). For the blanching process, the melter takes from the sheriff's cash a random sample of 240 silver pence, melts them over a "cleansing fire", skims off the impurities, and ends with a silver ingot. This is brought back to the court and weighed. If (say) it is 12d. (= 5%) short of a pound weight, and the sheriff's payment is £100 of coin, the heap of counters at his credit is cut down to only £95. Then, in order that the Treasurer can account for the actual number of coins, two tallies are struck — one for the £95 (given to the sheriff), and a shorter "combustion tally" for £5.⁷¹

Moreover, doubtful questions continually come up during the audit. Do the rents accord with ancient custom? Has the sheriff acted properly? The Justiciar and other barons resolve these points and declare the law: "the highest skill at the exchequer does not lie in calculations but in judgements".⁷²

⁷⁰*Dialogus*; p. 24, *et. seq.*: H. Hall, *op. cit.*, 1892, p. 196.

⁷¹*Dialogus*, p. 38, 125.

⁷²*Ibid.*, p. 15-30.

After two days of grilling, the sheriff's ordeal ends. He publicly takes his affidavit that he has made his account to the best of his knowledge and belief. If the balance is adverse, he pays it in; the two halves of his tally are put together, and the payment is recorded in fresh cuts across the splits; if he cannot pay, he is liable to go to the Tower. If a balance is due to him, it is carried forward or set off against any sums due by him on other accounts.⁷³ Finally "he is quit" is written in the rolls,⁷⁴ and he is "cast out of court". His account cannot in future be called in question; like a person discharged by a criminal court, he cannot be tried twice on the same charge.⁷⁵

After Fitznigel's time, some details of the procedure changed. Thus the duration of a typical audit rose to seven days; perhaps as a result, the date fixed for an audit might be many months after the fiscal year.⁷⁶

Audit of Lesser Officials

Much the same procedure was continued further down the official scale, e.g. between a sheriff and minor accountants (such as bailiffs from whom the sheriff exacted a farm for the right to collect part of the revenue).⁷⁷ The sheriff had his own "exchequer", often in the castle of his county town, with an elaborate machinery of records and private tallies.⁷⁸

THE EXCHEQUER TALLY'S SPECTACULAR END

The Private Tally Disappears

After the fourteenth century, as we have seen, substantial merchants used the tally less and less, though petty traders still found it helpful till the eighteenth century or even later. Hogarth's picture of the milk-woman shows her brandishing a tally at her poet-debtor. (Sly milk-women could sometimes, without detection, "cut dead men" — i.e. two notches for one on the split tally.⁷⁹) A historian, recalling his stay in Paris during the 1830s, tell us:

⁷³*ibid*, p. 21, 126; H. Hall, *op. cit.*, 1892, p. 186.

⁷⁴"*Quietus est*"; this gives point to Hamlet's "he himself might his quietus make with a bare bodkin".

⁷⁵J. E. D. Binney, *British Public Finance and Administration 1774-92*, Oxford: Clarendon, 1958, p. 216, 238.

⁷⁶M. H. Mills, *Eng. Hist. Rev.*, 1921, p. 484.

⁷⁷W. A. Morris, *op. cit.*, p. 250.

⁷⁸*ibid*, p. 283. H. Jenkinson, *op. cit.*, 1911, p. 368; 1923-4, p. 301.

⁷⁹Dorothy Davis, *A History of Shopping*, London: Routledge, 1966, p. 217; K. Thomas, *op. cit.*, p. 119.

The baker's man in the morning brought with his basket a bundle of tallies on a ring. The maid produced her counter-tally, and the number of rolls or loaves was marked with a file on tally and counter-tally laid together, just as described in the *Dialogus*.

Such a baker might keep tallies not only for his debtors, but also for his creditors; these supplied wheat, and were later paid by barter (a loaf in return for a kilo of flour).⁸⁰

One comes across stray references to the split tally even in the early twentieth century. It has served as a record of output (e.g. bins filled by Kent hop-pickers), and of timber deliveries to the University of Åbo (Turku). Its use was often associated with dirty materials (e.g. charcoal deliveries in Sweden), presumably because these would soil paper records.

The Exchequer's Late Ritual

Far from disappearing, the exchequer tally kept and even increased its importance for some centuries.

The exchequer has given historians much scope for colourful prose. It was "elephantine in its movements but elephantine in its memory . . . its lethargic ritual concealed a curiously sluggish vitality". Its ancient custom was "already a fetish" in the thirteenth century. Nevertheless it ran "the most efficient system of public finance in Europe"; at it, the English "showed their systematising genius".⁸¹

The exchequer's cutting and notching method persisted with little change for six centuries. A thirteenth century clerk could have interpreted an eighteenth-century tally (though, as we shall see, he would have been startled by its extended functions). Roman numerals and Latin were used till the end.

However, time brought a shift to new taxes that the sheriff did not collect, and so his half-yearly visits grew less important; nevertheless the antique manner of *viva voce* audit survived (till 1834), with a kind of dress-rehearsal the day before.⁸² For other transactions (e.g. day-to-day dealings with tax collectors and lenders), the tally ritual had by the sixteenth century become as

⁸⁰J. H. Ramsey, *Revenues of the Kings of England*, Oxford: 1925, p. 13; M. Stevelinck in correspondence. The tally was still used in some Kentish hop farms in 1938. The stocks were kept by the tallyman (strung on a cord at his belt) and the foils by the pickers. A notch was scored with a file across both bits for every five bushels — notes by Museum of Kent Rural Life, Maidstone.

⁸¹*Dictionary of the Middle Ages*, IV p. 531; H. Jenkinson, *op. cit.*, 1911, p. 368; Henry Roseveare, *The Treasury*, London: Lane, 1969, p. 21.

⁸²J. E. D. Binney, *op. cit.*, p. 213.

follows. The sum of money received was entered in an account book and then on a strip of parchment — the “teller’s bill”. To prevent fraudulent alteration by the payer, the bill was thrown down a pipe into the tally court, i.e. a room below. Here entries were made in two more books; a tally was struck by two deputy-chamberlains, and a tally-writer put on the narration; then entries and tally were checked and re-checked. The payer could collect his stock on application, usually on a later day. If his payment was a loan, he would at its maturity present his stock; another elaborate ritual followed as the officials sought out the foil, joined it to the stock, and made suitable entries in the rolls.⁸³

Given such strict procedures, how are we to explain the stocks that were not returned to the exchequer, and are now prized by antiquarians? Part of the answer may be that, while lenders had good reason to return their tallies at maturity date, other men might have less reason, e.g. a payer of certain kinds of tax, of a fine, or of a fee for a baronetcy. In theory, some of these payers later took their stocks back to the exchequer to have their accounts acquitted; the officials then kept the stock and spliced it with the foil. But a payer might not bother with this sterile drill; and so stocks remained in private muniments.⁸⁴

Tallies of Sol and Pro

At one time or another, the exchequer used perhaps a dozen different kinds of tallies (including e.g. memorandum and combustion — described above). But, for our purposes, the later tallies can still be classed under the two familiar heads;

(1) Tally of receipt.

This was the straightforward acknowledgement of actual in-payment. The first word of the entry in the pell was *solutum* (= paid); hence *sol* tally.

(2) Tally of assignment.

This was the instrument for securing payment from a third party. It usually was still a *sol* tally; the payee was not named, so that transfer was possible. But it might be a *pro* tally; here the inscription stated that it was struck *pro* (= for the benefit of) a named person, on a specified revenue. Such revenue was alienated, i.e. the right to money was transferred to a favoured creditor, who

⁸³*Parliamentary Papers*, 1835, XXXVII, p. 342.

⁸⁴H. Jenkinson, *op. cit.*, 1923-4, p. 293.

could in his own name sue the revenue receiver. A *pro tally* was clearly less flexible than a *sol tally*, and perhaps less useful to the king as a means of anticipating revenue.⁸⁵

To woo cautious investors and lessen the king's dependence on goldsmiths, yet another kind of assignment tally was devised by exchequer officials early in the reign of Charles II. This was the "tally of loan", which can perhaps be regarded as the first government stock. It was backed up by a repayment order that carried 6% interest and was negotiable by endorsement. Such tallies were to be cashed in regular sequence from taxes granted by Parliament; but officials at once extended the system to other kinds of revenue that the original Act had not contemplated. The tallies passed from hand to hand, e.g. goldsmiths (whose banking activity was expanding fast in this period) cashed them at a discount.⁸⁶

Climax under Charles II

Charles II inherited an impossible financial position, and needed a growing revenue; yet a hostile Parliament was niggardly in voting him taxes. The exchequer was thus hard-pressed. One of its troubles now seems odd. The revenues of a financial year came in only after some delay, whereas expenditures began immediately. Modern states have learned how to smooth over this temporary shortfall; "the process seems so easy to the modern mind that we are almost reluctant to acknowledge the difficulty of the problem that beset Charles".⁸⁷

The tally, particularly the new tally of loan, gave the king an unseen and unsuspected way of creating credit almost at will. He exploited it to the full.

We are lucky in having first-hand accounts of the issues from a high civil servant. Pepys, as secretary to the navy, had to rely on tallies to meet the fleet's needs. The exchequer gave him new tallies which he then tried to turn into cash. His diary has more than eighty references to them, e.g. "To the exchequer, and there got my tallys for £17,000, the first payment I ever got out of the exchequer . . . and away home with my tallys in a coach, fearful every step of having one fall out or snatched from me" (19 May 1665). His fears were not groundless. On 26 November

⁸⁵J. E. D. Binney, *op. cit.*, p. 224; C. D. Chandaman, *op. cit.*, p. 288.

⁸⁶John Clapham, *The Bank of England*, Cambridge: 1944, p. 11; W. A. Shaw, "The Treasury Order Book", *Economic Journal*, 1906, p. 37.

⁸⁷W. A. Shaw, *op. cit.*, p. 35.

1668, a subordinate lost a £1,000 tally. However when Pepys came to his office two days later, he heard to his “great content” that a porter had found the tally in Holborn, and had brought it in; for which honest act the man was rewarded with twenty shillings.

Charles II at first managed the issues with prudence. But soon, hard-pressed by the demands of war and love, he grew reckless. The issue of tallies rose to a *crescendo*. In consequence, they became hard to cash. Pepys tells how he went to the “Excise Office where I find that our tallies will not be money in less than sixteen months; which is a sad thing, for the king to pay interest for every penny he spends — and which is strange, the goldsmiths with whom I spoke do declare that they will not be moved to part with their money upon the increase of the consideration by 10 per cent” (21 Jan. 1665). The tally office became overworked, and its ancient form of accounts grew bewilderingly complex; Pepys denounces its clerks as “lazy rogues . . . Lord, to see what a dull heavy sort of people they are there, would make a man mad” (16 May 1665).

By the 1670s, the royal finances were in great disorder. The debt rose to £1 million, a whole year’s revenues. Bankers were “ground between their angry creditors and an empty exchequer”. The legal limit on interest rates was 6%, but Charles had to pay 20% or even 30%. In 1672, he was forced to suspend all payments of interest for twelve months — the “stop of the exchequer” by which “the common faith of a nation was violated”, and some goldsmiths were incapacitated.⁸⁸

Tallies and the Founding of the Bank of England

Despite this disaster, the exchequer in following decades was still able to issue tallies and notes. But the “stop” meant that no-one would accept these unless they were backed by high interest. Moreover they circulated at a discount. The rate reflected the status of the taxes on which the tallies were secured. It reflected too the king’s fortunes: those of William III did not inspire confidence, and so (according to a somewhat jaundiced pamphlet) great numbers of his tallies lay bundled up like faggots in the hands of brokers and stock-jobbers, who “devoured the King and the army . . . scarce 50% of the money

⁸⁸John Clapham, *op. cit.*, p. 12; E. Lipson, *Economic History of England*, London: Black, 1956, III, p. 236.

granted by Parliament has come into the hands of the exchequer, and that too late for service, and by driblets".⁸⁹

Trade was expanding greatly in these years. Traders and Crown both needed a solid establishment that could advance money at a reasonable rate. So there was a strong case for the "daring idea" of a Bank of England. It was duly founded in 1694.

Tallies were important in its financing. The government wanted to get the flood of tallies off the market; and, after hard bargaining, the Bank agreed to help, on very advantageous terms. Subscribers to its capital ("engrafted stock") could pay four-fifths in tallies, taken at par; the government then paid the Bank 8% interest on the tallies' nominal value. It also instructed the Bank (1696) to buy up other tallies (said by then to be selling on average at a 40% discount), and on these too it paid the Bank 8% interest.⁹⁰

Even after the Bank was founded, tallies played some part in finance. Coins were still scarce, and so "all great dealings were transacted in tallies, bank bills, and goldsmiths' notes".⁹¹

By the eighteenth century, the Crown relied increasingly for its short-term needs on exchequer bills rather than tallies. But it still issued tallies to investors in the national debt. And it experimented with a new form, the annuity tally: lenders got the right to an assignable annuity, for life or a fixed term such as ninety-nine years.⁹²

The End of the Exchequer Tally

It was obvious by the eighteenth century that the routines of the exchequer, once admirable, had become a confused farce. But they lingered on, even though they had to be buttressed with a parallel system more suited to the times. Clerks from the Bank of England came daily to take charge of the cash transactions and make the effective accounting entries; and payers got a written quittance as well as a stock.

The exchequer could not reform itself even if it had wanted to do so. It was hamstrung by its own rules, which had grown into non-statute law. The tally was the only form of quittance allowed to it. And its officials, now sinecurists who delegated their work, had the strongest reasons to fight change. They were

⁸⁹J. Francis, *History of the Bank of England*, London: 1847, p. 58.

⁹⁰John Clapham, *op. cit.*, p. 47.

⁹¹A. Andreades, *History of the Bank of England*, London: King, 1924, p. 23.

⁹²Philip Norman, "Exchequer Annuity Tallies", *Proc. Arch. Soc.*, 1902, p. 300; J. E. D. Binney, *op. cit.*, p. 127.

paid fees on all receipts; as the national revenue grew, so did their pickings. A teller was rumoured to earn what was, for the times, the immense income of £30,000 a year.⁹³

But, as part of the popular campaign for political reforms, change came at least. An Act of 1782 abolished the sinecures at the exchequer — though still with a reprieve; an indulgent Parliament provided that the Act should not take effect till the death or retiral of the two Chamberlains. These were young patricians (one was still at Eton), and they clung to their offices for another forty-four years, i.e. till 1826. Then methods were reformed also; paper replaced wood as the material for receipts (but still with the old Latin formula). The obsolete accounting routines were abolished soon after — the sheriff's in 1833, and the exchequer's in 1834.⁹⁴

A fair number of the late tallies are in the P.R.O. They, and their accompanying accounts, show some odd quirks in state finance. An unknown American in 1805 sent conscience money. The account of an official at Gibraltar includes money spent for the release of captives in Morocco, and (1752, the year of calendar reform) shows deductions from salaries for "the eleven days in September annihilated by Act of Parliament". Some tallies suggest extreme dilatoriness in settling accounts; thus an 1825 tally is for transactions in the 1808-14 Spanish campaign; and the executors of a contractor got his "stipend", for work in Florida during 1767 and 1781, only in 1826.⁹⁵

Parliament Blazes

But the tally's story has a postscript of high drama. The exchequer had from time to time used old tallies as firewood. (Clearly it viewed records of wood with disdain; paper and parchment were preserved at some cost.) Between 1826 and 1834, however, more than twice the usual quantity had accumulated in the tally room at the exchequer. Then space was needed for a bankruptcy court, and so in 1834 the Lords of the Treasury ordered most of the tallies ("which my Lords understand to be entirely useless") to be destroyed.

⁹³J. E. D. Binney, *op. cit.*, p. 224; *Illustrated London News*, 1858, I, p. 446.

⁹⁴R. L. Poole, *op. cit.*, p. 91; M. T. Clanchy, "Burning the Tally Sticks in 1834" (the Neale Lecture in English History), *Journal of Historical Sociology*, forthcoming; Dickens was satirical about the exchequer's reluctance to replace sticks with paper: "all the red tape in the country grew redder at the bare mention of this bold and original conception". *Speeches and Letters*, edit. K. J. Fielding, Oxford, 1964, p. 204.

⁹⁵P.R.O. E402/3C1; British Museum, OA 9443-8.

The site chosen for the bonfire was a yard that then lay between Parliament and the Thames; the men in charge were cautioned to be careful as the Parliament building was only wood and plaster. But the Clerk of Works — keen on the up-to-date technology — decided that the new iron stoves under the House of Lords would instead be a safe and proper place for the burning. On the evening of 15 October, two workmen employed by contractors moved the tallies (enough to fill two carts) to the cellars. At 6:30 next morning, they began to stoke the stoves, putting in only some ten tallies at a time, and damping them occasionally with water. But by afternoon they had grown impatient, and were pushing in the tallies as fast as they could. At 5:00 p.m. one witness saw an “astonishing blaze”; a member of a guided tour in the House of Lords felt the heat through his boots. An hour later, the fabric burst into flames.

The Times reported that

people living nearby were thrown into the utmost confusion and alarm by the sudden breaking out of one of the most terrific conflagrations that has been witnessed for many years past . . . countless numbers swarmed upon the bridges, the wharfs, and even upon the housetops; for the spectacle was one of surpassing though terrific splendour . . .

Not even the most zealous exertions could save the edifice from absolute destruction.⁹⁶

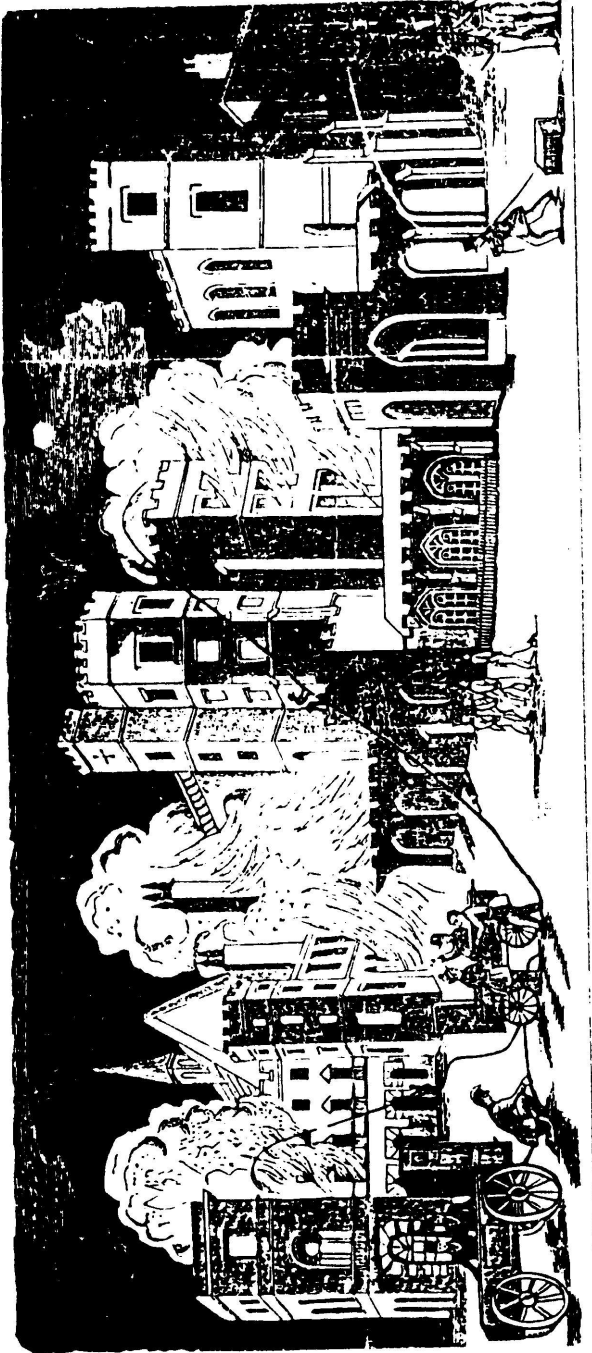
The tally did not die tamely.

⁹⁶*Parliamentary Papers*, 1835, xxxvii, p. 329.

⁹⁷*Times*, 17 Oct. 1834.

Earlier articles are: R. Roberts, “A Short History of Tallies”, *Accounting Research*, July 1952; W. E. Stone, “The Tally”, *Abacus*, June 1975; R. H. Parker, “Accounting Basics”, in G. MacDonald and B. Rutherford (edit.), *Accounts, Accounting and Accountability*, Van Nostrand Reinhold, London, 1989.

DREADFUL FIRE!



**And total destruction of both Houses of
Parliament.**

ILLUSTRATION 5

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THE IRONY OF "THE GOLDEN AGE" OF ACCOUNTING METHODOLOGY

Abstract: Developments in accounting methodology during the 1960s are contrasted with concurrent developments in philosophy of science. The 1960s was a decade characterized by the widespread adoption of "the scientific method" in accounting methodology. The same decade was characterized by the degeneration of any semblance of consensus among philosophers of science regarding the nature of scientific inquiry. The irony of these incongruous but simultaneous developments is highlighted with the intent of weakening the current atmosphere of uncritical reverence for science and "the scientific method" in accounting research. A more contemporary (and more open) view of science — the postempiricist view — also is discussed.

Ruth Hines recently has expressed concern about dogmatic tendencies in accounting research; tendencies which are linked to "an unwarranted reverence for science and 'the scientific method'" [1988, pp. 660-61]. Reverence for "the scientific method" can be traced to developments in the 1960s — the decade that has been dubbed "The Golden Age" of accounting methodology [Graffikin, 1988]. The 1960s also has been referred to as the "Decade of Awakening" [Dyckman and Zeff, 1984, p. 233] — the decade during which accounting researchers awoke to the scientific method. This is highly ironic because the 1960s was the decade that saw the deterioration of any semblance of consensus among philosophers of science. Just as accounting researchers were discovering "*the scientific method*" philosophers of science were witnessing its disintegration. The aim of this article is to undermine the atmosphere of dogmatism noted by Hines by highlighting the irony of the Golden Age of accounting methodology and calling attention to a more contemporary (more open) view of science that has been referred to as the postempiricist view.

THE 1960s: A DECADE OF AWAKENING FOR ACCOUNTING METHODOLOGY

There is no question that the 1960s represent a watershed in accounting research. Gaffikin [1987] has argued that, with few

exceptions, pre-1960 accounting research was philosophically and methodologically unsophisticated. Researchers provided descriptive catalogues of existing practices and attempted to uncover rules for improving accounting practices.

Post-1960s accounting research is a radically different story. The mainstream journals reflect an increasing obsession with empirical research that is presumed to be in accordance with the principles of scientific inquiry. The journals are loaded with mathematical model-building, hypotheses testing, esoteric statistical techniques, and so forth. And even though the articles reflect considerable theoretical diversity, they suggest widespread agreement regarding scientific methodology. In fact, Chua [1986] has argued that

... accounting research has been guided by a dominant ... set of assumptions. There has been one general scientific world-view, one primary discipline matrix. And accounting researchers, as a community of scientists, have shared and continue to share a constellation of beliefs, values, and techniques. These beliefs circumscribe definitions of "worthwhile problems" and "acceptable scientific evidence." [p. 602]

The "scientific" world-view of mainstream accounting researchers, according to Chua, is grounded in a belief that "reality" exists independently of the human subject. Theories, in the mainstream view, "are put forward as attempts to discover a knowable, objective reality" [Chua, 1986, p. 606]. And since objective reality is taken to be separate from theoretical constructs, "Accounting researchers believe in the empirical testability of scientific theories" [Chua, 1986, p. 607].

This dominant "scientific" world-view has its roots in the literature of the 1960s. These roots have recently been traced by Gaffikin in his 1988 article, "Legacy of the Golden Age". He argues that, "despite the different research methods employed, because the ontological and epistemological presuppositions are the same, the methodological underpinnings have remained fairly constant" [1988, p. 16]. And he maintains that these methodological underpinnings are primarily due to the influence of four researchers — Chambers, Mattessich, Devine and Sterling.

These writers were well versed in philosophy of science and were anxious to extend the scientific method to accounting thought. Chambers, for instance, writes in a "Working Paper" for The Academy of Accounting Historians:

By 1954 I believed it necessary, at least for myself, to set down the way in which a theory of accounting should be developed. In none of the important works on accounting was there a treatment of methodology. There was no pattern to follow except that of the well-developed sciences. And writers on accounting were following no pattern. My principal formal guides were Cohen and Nagel's *An Introduction to Logic and Scientific Method*, Larrabee's *Reliable Knowledge* and Robbins' *The Nature and Significance of Economic Science*. . . . I wrote "Blueprint for a Theory of Accounting" in 1955 and two other pieces shortly afterward in response to some criticism. I returned to the matter in the early sixties because no material change had occurred in the way in which accountants dealt with the construction and validation of their ideas [p. 8].

Devine emphasizes, "that measurement is a process that requires extremely high levels of abstraction" [1966, p. 14]. And he references Milton Friedman's "Essay on the Methodology of Positive Economics" in his discussion of the appraisal of abstractions. "The prospects for appraising such abstractions by the 'realism' of their components instead of by the relationship of their output to goals and need is dim indeed (See Friedman [7])" [Devine, 1966, p. 14]. This is apparently a reference to Friedman's notorious claim about the irrelevance of the realism of assumptions and his emphasis on predictive capability. In the same article Devine claims that, "The common core of scientific methods is the interworking of observation and deduction, and it should be clear that one can construct a predictive social theory only in conjunction with empirical and behavioral assumptions" [p. 26].

Mattessich, in his 1964 book *Accounting and Analytical Methods*, criticizes the current state of both accounting theory and accounting pedagogy. "Accounting theory," he says, "has developed a body of knowledge which is of a dogmatic rather than scientific-hypothetical character and which serves with satisfaction only purposes of a legalistic nature" [p. 4]. And he chastises academic accounting for its over-emphasis on technical aspects of existing practice. "It leaves the student at a loss when it comes to expressing accounting theory in terms of modern logic, epistemology, and quantitative analysis" [Mattessich, p. 4]. "The accountant's dilemma," Mattessich suggests, "is not merely a problem of memorizing some formulas or learning new mathematical tricks, it is a problem of transition

from the dogmatic thinking of the jurisperudent to the behavioral-analytical thinking of the scientist" [p. x].

Finally, Gaffikin cites Sterling's *Theory of the Measurement of Enterprise Income* as one of the major works of the decade, noting that although it was not published until 1970 it was written ten years previously and portions of it were reflected in Sterling's other published works in the 1960s. Gaffikin also notes that Sterling's views on accounting theory are very similar to those of Chambers. Both Chambers and Sterling advocate the adoption of accounting based on exit-prices because these are empirically observable data.

Graffikin emphasizes the methodological similarities among Chambers, Devine, Mattessich and Sterling, but there are also significant differences; most notably with respect to Devine's pragmatic orientation. Compared with Sterling, for instance, Devine is much more circumspect regarding the nature of facts, truth, and the potential for scientific accounting. For Sterling, "Scientific knowledge is intended to refer to real things in the real world" [1976, p. 83], and competing hypotheses are empirically tested to find out "which is most in harmony with the facts of observation" [1976, p. 83]. An "empirical test," for Sterling, "simply means that one looks at real things in the real world to find out what is true" [1976, p. 83]. Accordingly, he maintains that accounting is in need of a redefinition: "we must define it [accounting] as a process of keeping track of real things in the real world" [1976, p. 85]. His candidate for an empirical base for accounting is, of course, ext values — "they are useful to a great many decisions . . . [and] they are subject to empirical test, we will be able to resolve disputes about them" [1976, p. 87].

Devine, on the other hand, maintains that "the facts of a case are determined by objectives" [1985, Vol. V, p. 57]. And as Arrington points out, "for Devine and the pragmatists, [truth is] something that a community finds useful to believe, and useful for definite assignable reasons that have to do with ways in which problems can be solved and life can be changed" [p. 139]. Also, for Devine and the pragmatists, it seems doubtful that science can find "any universal principles that are 'basic' to all cultures for eternity" [1985, Vol. III, p. 14]. And it is understandable that Devine would seem to suggest, in the words of one reviewer, "that it will not be possible to develop a global set of accounting principles" [Anton, et. al., p. 413].

Neither is it possible, from Devine's perspective, for accountants (or even scientists) to eliminate values from their work:

"everything of consequence done by accountants has ethical content in the sense that their decisions help or harm various individuals" [1985, Vol. V, p. 5]. And in response to Chambers' claim that, "Our inquiry, like that of economics, 'is entirely neutral between ends' . . ." [quoted by Devine, 1985, Vol. III, p. 39], Devine responds as follows: "Advocacy of neutrality is . . . insidious. It is an offspring of the discredited doctrine of observing *the* (!) facts. . . . Facts are interpretations relevant to a viewpoint" [1985, Vol. III, p. 40].

But regardless of differences, Chambers, Devine, Mattessich and Sterling were major influences on the new directions taken in accounting methodology and research. Their scientifically-oriented works on accounting theory, however, were not the only influences that made the 1960s a watershed decade for accounting research. As Whitley [1986 & 1988] has pointed out, social, political and economic events as well as institutional developments all played a role in transforming academic accounting research, and helped pave the way for the increasingly dominant emphasis on quantitative ("scientific") accounting research. Following the Soviet Union's successful launching of Sputnik, the U.S. in the late fifties and early sixties was pervaded by a sense of urgency to expand scientific and mathematical training. And following the successful employment of scientific research and operations research methods in World War II, there was widespread belief "that 'science' could be applied to managerial and business problems and scientific research into these problems should be supported" [Whitley, 1986, p. 171]. More concisely, the Ford and Carnegie Foundations had both published reports in 1959 encouraging "an expansion of 'scientific' research in U.S. business schools"; reports which were subsequently backed up by "substantial grants and publishing opportunities" [Whitley, 1988, p. 641]. In short, the stage was set for the emergence of a community of accounting researchers who shared a commitment to empirical ("scientific") research.

Supportive technology also was available. The 1960s was a decade of rapidly expanding computer availability and computer-generated data; developments which greatly extended the possibilities for statistical work. And other developments of the 1960s, most notably the emergence of the efficient markets literature in economics and the capital asset pricing model in finance, further accelerated the pace of empirical research in accounting [Dyckman and Zeff, p. 236].

On all fronts the 1960s was, in the words of Dyckman and Zeff, "a pivotal decade" for accounting research [p. 236]: "In the literature of accounting research, the 1960s was the Decade of Awakening" [p. 233]. The American Accounting Association initiated a series of Studies in Accounting Research. Stanford University, the University of Chicago, and the University of Kansas initiated conferences and symposia focusing on empirical research and methodology. And in 1966 the *Journal of Accounting Research* began publishing "a series of annual Supplements that were devoted almost exclusively to the empirical research papers presented at Chicago's Conference on Empirical Research in Accounting" [Dyckman and Zeff, p. 269].

It is ironic, however, that accounting researchers were awakening to the scientific method of inquiry just as events in philosophy of science were raising doubts about the validity of any exclusive approach to inquiry. In 1965, the same year that saw "the first university-sponsored conference dedicated wholly to accounting research" [Dyckman and Zeff, p. 234], an international symposium on philosophy of science was held in London to explore the challenges presented by Thomas Kuhn's *The Structure of Scientific Revolutions* (originally published in 1962). Papers presented by some of the world's leading philosophers of science were later published in a volume entitled *Criticism and the Growth of Knowledge*. Philosophy of science has not been the same since. Indeed, as economic methodologist Douglas Hands recently pointed out, philosophy of science "has undergone a major upheaval during the last twenty years. The so-called 'received view' of the preceding epoch is dead" [Hands, 1984, p. 116].

THE 1960S: A DECADE OF TURMOIL IN PHILOSOPHY OF SCIENCE

Modern Western society has tended toward the notion that the only valid truth claims are those resulting from the scientific process. And until the last twenty-five years or so, philosophers of science considered it their duty to provide prescriptions for scientific practice, and to provide philosophical explanations for why the truth claims of science are epistemologically valid. The following is a very brief sketch of the dominant view in pre-1960s philosophy of science. Based on empirical observations, scientists formulate general laws via a process of induction. The general laws must satisfy both logical and empirical conditions of adequacy. They must be logically necessary for deduction of the initially observed data, and they must be capable of empiri-

cal testing. The adequacy (or truth) of such laws is judged on the basis of their ability to predict the phenomena under consideration.

Sir Karl Popper, in his classic work, *The Logic of Scientific Discovery* (originally published in 1934), rejected this view of scientific method because of its reliance on induction. A logical deduction is complete in and of itself. An inductive inference, however, can never be complete in and of itself because it has to be based on limited experience and future experience may (in a logical sense) contradict any inductive inference. It is thus impossible to conclusively prove the truth of any theory. Popper therefore turned to falsification as a basis for philosophy of science with the idea that, if theories are repeatedly subjected to attempts at falsification, then scientific knowledge can, at least, grow ever closer to the truth as false theories are rejected.

Popper's falsificationism has been very influential in that it is often cited as *the* legitimate basis for scientific methodology. Unfortunately Popper also has been widely misunderstood. Naive empiricists (including mainstream accounting researchers) have assumed Popper to be arguing as follows: whereas no amount of confirmatory empirical evidence can conclusively prove the truth of a theory, it can be conclusively disproven by contradictory empirical evidence. But Popper expressly denied any such claim. "In point of fact, no conclusive disproof of a theory can ever be produced. . . . If you insist on strict proof (or strict disproof) in the empirical sciences, you will never benefit from experience, and never learn from it how wrong you are" [Popper, 1968, p. 50].

What can be established with logical conclusiveness is the consistency or inconsistency of a set of propositions. Thus, for an empirical science the relevant propositions can be sub-divided into theoretical propositions and observational propositions in such a way that their logical consistency or inconsistency can be readily determined. In Popper's falsificationist philosophy of science, a theory is considered to be "falsified" when a contradictory observation statement is accepted [1968, p. 86].

An initial problem for this sort of falsificationism, if it claims to be both logical and empirical is that it is not possible to deduce observational propositions from pure experience. Any observational proposition, Popper points out,

. . . [goes] far beyond what can be known with certainty 'on the basis of immediate experience' . . .
Every description uses universal names (or symbols, or ideas); every statement has the character of a

theory, of a hypothesis. The statement, 'Here is a glass of water' cannot be verified by any observational experience. The reason is that the universals which appear in it cannot be correlated with any specific sense-experience. (An 'immediate experience' is only once 'immediately given'; it is unique.) By the word 'glass', for example, we denote physical bodies which exhibit a certain law-like behavior, and the same holds for the word 'water'. Universals cannot be reduced to classes of experiences; they cannot be 'constituted' [1968, pp. 94-95].

Furthermore, any proposition which reports sensory experience must rely on some theory of perception, and of course no theory of perception can ever be conclusively proven true because of the problem of induction. And any observations that rely on instruments (microscopes or telescopes, for instance) rely on additional theories (a theory of optics). In short, there is no realm of non-theoretical facts against which theories can be tested.

Popper's solution to these problems (and others) is to take a methodological decision; a decision to regard the supporting theories as "unproblematic background knowledge" — "Let h be the hypothesis to be tested; let e be the test statement (the evidence), and b the 'background knowledge', that is to say, all those things which we accept (tentatively) as unproblematic while we are testing the theory" [Popper, 1965, p. 390].

With due regard to the extent of the qualifications and methodological decisions entailed, Popper's falsificationism can be summarized as follows:

According to my proposal, what characterizes the empirical method is its manner of exposing to falsification, in every conceivable way, the system to be tested. Its aim is not to save the lives of untenable systems but, on the contrary, to select the one which is by comparison the fittest, by exposing them all to the fiercest struggle for survival [Popper, 1968, p. 42].

Popper's falsificationist philosophy of science is significantly different from its predecessors which are often characterized as verificationist philosophy of science. Both, however, are prescriptivist philosophies of science which perpetuate the notion that scientific truth claims are epistemologically superior to those of folklore, art, literature, religion, metaphysics, etc. The epistemological virtues of science, according to both verificationists and falsificationists, rely on the notion that science is essentially characterized by empiricism and rationality.

The 1962 publication of Thomas Kuhn's popular and influential *The Structure of Scientific Revolutions* posed a challenge to Popperian falsificationism and kicked off what has come to be known as the 'growth of knowledge' movement in philosophy of science. Kuhn's work seemed to 'pull the rug from under' the claim that science is a rational enterprise. According to Kuhn, some of the most crucial aspects of scientific advance are determined by non-rational factors.

According to Kuhn, most scientific activity is carried out within an accepted theoretical framework which has been built upon past scientific achievements. The accepted theoretical framework reflects certain beliefs about the world, and it serves as a foundation for the articulation of problems that must be solved if the range of explanatory power is to be extended. Furthermore, even the methods of research that were used in the foundational achievements tend to be accepted as the legitimate methods, and thus perpetuated. All of this adds up to what Kuhn characterizes as paradigm-based research. The term "paradigm", in the broad sense, "stands for the entire constellation of beliefs, values, techniques, and so on shared by the members of a given community" [Kuhn, p. 175]. Paradigm-based research is what Kuhn refers to as "normal science". It is research aimed at the fleshing out and extension of the already accepted theoretical framework. Contradictory theories and viewpoints tend to be suppressed by the established scientific community. Kuhn claims that the research problems pursued tend to be those seen as holding the most promise for such fleshing-out and extension, and has likened the process to puzzle-solving.

In the process of carrying out normal science, scientists inevitably encounter discrepancies between the theoretical structure and nature. Such discrepancies can generate a crisis and spawn competing paradigms which challenge the dominant paradigm. Such crises and how they are resolved probably represent the most controversial aspect of Kuhn's ideas. They also represent the most fundamental challenge to Popper's concern with the rational growth of scientific knowledge. While Popper agrees that such periods exist and are, in fact, essential to scientific progress, he believes that scientists can and do rationally evaluate alternative paradigms. Kuhn, on the other hand, sees such choices as essentially extra-rational or, at least, strongly influenced by non-rational factors. He deliberately uses "revolution" as a metaphor because of parallels he sees between political and scientific change. He classifies as scientific revolutions, "those non-cumulative developmental episodes in which

an older paradigm is replaced in whole or in part by an incompatible new one" [Kuhn, p. 92].

Kuhn maintains that scientific revolutions are important stages in the growth of scientific knowledge that fall outside the logically controlled processes of normal science. He refers to a decision to adopt a new paradigm as a conversion experience that cannot be forced by logic. Since the conversion results in (or from?) a new way of seeing the world, Kuhn likens the process to a visual "gestalt" switch, or to a man who has put on inverting lenses. "Confronting the same constellation of objects as before and knowing that he does so, he nevertheless finds them transformed through and through in many of their details" [Kuhn, p. 122].

These are the kinds of arguments that have produced charges that Kuhn's ideas lead straight to relativism and irrationality. Kuhn also has been criticized for turning to social psychology for enlightenment regarding scientific method. In an attempt to maintain Kuhn's descriptive accuracy without resorting to social psychology, the late philosopher Imre Lakatos developed the "methodology of scientific research programmes" (MSRP); a descriptive philosophy of science which does not undermine the notion that science is thoroughly rational.

According to Lakatos, most of the significant series of theories in the growth of scientific knowledge are welded together into research programmes by a certain continuity of conceptual framework. Scientists working within a programme, tend to work as if they had agreed at an early stage on a set of methodological rules. The most basic "agreement" concerns the conceptual framework that will not be subject to rejection. Lakatos characterizes this as the "hard core" of the programme. Scientists working within the programme then use their "ingenuity to articulate or even invent 'auxiliary hypotheses,' which form a protective belt around this core. . . . It is this protective belt of auxiliary hypotheses which has to bear the brunt of tests and get adjusted and re-adjusted, or even completely replaced, to defend the thus-hardened core" [Lakatos, p. 133].

Lakatos downplays the instances of widespread abandonment of one research programme in favor of another, the sort of situation Kuhn describes as a religious sort of conversion. Lakatos claims that there can be objective reasons for rejecting one programme for another: "such an objective reason is provided by a rival research programme which explains the previous success of its rival and supersedes it by a further display of heuristic power" [Lakatos, p. 155].

Another important voice in the philosophy of science debate is that of Paul Feyerabend. Feyerabend, a self-declared anarchist, has laid out an outline of an anarchistic theory of knowledge in his celebrated work *Against Method*. He claims "that there is only one principle that can be defended under all circumstances and in all stages of human development. It is the principle: anything goes" [Feyerabend, p. 28]. There are always, he claims, circumstances in which scientific progress is enhanced by disregarding, or even acting contrary to, any methodological maxim that has ever been developed.

Feyerabend considers Lakatos to have made an ingenious attempt at establishing methodological standards for scientific progress, but in the final analysis he concludes "there is no 'rationally' describable difference between Lakatos and myself . . ." [Feyerabend, pp. 186-187]. He points out that Lakatos' arguments favoring the granting of a "breathing space" for new theories and research programmes removes most of the objections he (Feyerabend) has formerly leveled at attempts to establish methodological standards. The main point on which Feyerabend bases his claim of "no 'rationally' describable difference" is that Lakatos' standards do not contain any rules that tell scientists what to do; nothing is ruled out.

Feyerabend claims that science does not deserve any special consideration or support in a free society. Western rationality itself, which science supposedly epitomizes, is only one tradition among many. It provides one way of looking at the world, according to Feyerabend. But science, he says, has no legitimate claim to superiority over any other sort of knowledge.

SCIENTISM AND THE "FETISH OF EMPIRICAL RESEARCH": THE REAL LEGACY OF THE GOLDEN AGE?

Given that the 1960s was the decade when doubt and uncertainty about the nature of scientific research dominated discussion in philosophy of science it is indeed highly ironic that this was also the decade that finally brought "the scientific method" to accounting research. But the result has been more than ironic. A good argument has been made that the dogmatic tendencies currently being manifested in accounting research have resulted from first equating knowledge with "scientific knowledge," and secondly equating empirical with scientific.

In a recent *Abacus* article "Wisdom or Widgets", Dan Subotnik points out that the high academic esteem for the natural sciences, especially physics, has led to an attempt to

emulate the methods of physics. "When [research] takes place in disciplines outside the natural or physical sciences, but using the same techniques, it is assumed to be an extended application of 'scientific method'" [Subotnik, p. 96]. This, of course, is what Chambers, Mattessich, Devine and Sterling did for accounting — they introduced the techniques of the natural sciences.

I hasten to add that I am not suggesting that Chambers, Mattessich, Devine and Sterling held scientific or dogmatic views. Far from it. In fact, Gaffikin points out that, "Having made his case for scientific method for research, Devine draws attention to weaknesses in it" [1988, p. 22]. And Sterling has argued eloquently for methodological tolerance [1971, pp. 1-6]. Subsequent researchers, however, have not followed suit; they have tended to accept "*the scientific method*" as an article of faith. The result has been aptly described as follows: "Science has given us a hammer — to borrow from an old adage — now all our problems look like nails" [Subotnik, p. 96].

Subotnik suggests that the appeal of "the scientific method" to the academic masses is largely due to a fear of taking positions that are vulnerable to criticism. The avoidance of vulnerability has become institutionalized in academia, and its perpetuation seems to be assured by the Ph.D. dissertation process. "We have an operating rule in academia, that in writing a dissertation one should continuously narrow one's vision. The common wisdom is that the supreme, if not the only, objective in a dissertation is to make a statement that is unassailable" [Subotnik, p. 104]. And in disciplines which have become enamored of "the scientific method" the avoidance of vulnerability has manifested itself in a penchant for "hard" or empirical research. I would argue further that the penchant for empirical research in accounting has been fed by the ready availability of empirical data in the form of securities prices, in conjunction with the ready availability of theories from economics and finance (the efficient markets hypothesis and the capital assets pricing model) which can be used to relate accounting numbers to securities prices.

In any case, the scientific ideals introduced into accounting by Chambers, Mattessich, Devine and Sterling in the 1960s have been adopted by subsequent academic accountants who are less familiar (or in many cases, totally unfamiliar) with philosophy of science. This has resulted in accounting research that is largely characterized by a scientific attitude: "On the whole, our working image of science can be reduced to a single narrowly positivistic principle: Truth is to be found only

through application of empirical methods" [Subotnik, p. 97]. Subotnik suggests that we call this "the Principle of Quantitative Unassailability" [p. 97]. The Principle of Quantitative Unassailability, he claims, has tended to erase the distinctions between academic research and factory work.

As "techniques" are increasingly refined for reducing the "scientific method" to a guarantee of empirical quantifiability, the pursuit of knowledge is turned into the production of research, and knowledge itself becomes a product or commodity. Once the benefits of the Quantitative Unassailability Principle becomes apparent — that is, foreclosure of debate over the importance or the integrity of the argument — it is only a matter of time until, for similar reasons, five articles necessarily become better than three. In other words, researchers over time came to superimpose another quantitative business paradigm upon their work product — factory output [Subotnik, pp. 99-100].

In short, what started as a move toward more scientific accounting research, has largely degenerated to scientism and dogmatism. Many of the most prominent accounting researchers have developed an attitude that theirs is the only legitimate form of research. Watts and Zimmerman provide the most conspicuous case in point. In their 1986 book *Positive Accounting Theory* they pretentiously announce that, "Throughout this book, we use science's concept of theory (positive theory)" [p. 338]. And they denigrate research efforts that fall outside their own variety of economics-based empirical research (what they call positive research). The demand for other types of accounting literature, according to them, can be thought of as "the demand for excuses" [p. 339]. This attitude also has been fostered by editors of some of the leading journals. For instance, it has been reported that Nicolas Dopuch, as long-time editor of the *Journal of Accounting Research*, has commented that "he sought to kill 'the traditional form of normative theorizing'" [Gaffikin, 1988, p. 24]. This sort of reverence for empirical ("scientific") research naturally filters down to hiring practices in academia. Subotnik notes that, "I myself was once told at the outset of a job interview: 'This is a statistically oriented department. We look for people who can complement [or was it "compliment"?) our work'" [p. 102].

These scientific tendencies in current accounting research are certainly cause for concern. Such concern has been succinctly expressed by Stephen Zeff in his departing *Accounting*

Review editorial [1983]; concern about the consequences of narrowness and overspecialization in accounting research. He suggests that “the ‘wave of rigor’ that has engulfed the accounting literature since the 1960s has led to a lesser inclination to tackle big questions” [p. 133]. In fact, “it [often] seems that manuscripts are the result of methods in search of questions, rather than questions in search of methods” [p. 134]. More specifically, Zeff is concerned that the over-emphasis on empirical research may eventually result in the complete elimination of historical scholarship in accounting [p. 134].

There is, however, in my opinion, good basis for optimism regarding a reversal of this scientific trend — there is evidence of a “reawakening” in accounting research. I am referring primarily to the increasing stream of articles on methodology. The last three or four years have witnessed articles tracing the history of methodological perspectives [Gaffikin, 1987, 1988]; articles criticizing the established, or prominent, methodological views [Lehman & Tinker, 1987; Whitley, 1988; Whittington, 1987; Hines, 1988; Subotnik, 1988; Tinker, 1988]; and articles exploring new methodological perspectives [Chua, 1986, 1986a; Cooper & Hopper, 1987; Hopper et. al, 1987; Hopwood, 1987; Laughlin, 1987; Lavorie, 1987; Richardson, 1987; Morgan, 1988; Arrington & Francis, 1989]. This is a very encouraging trend. Methodological debate is the natural enemy of the dogmatic, scientific attitude. Methodological debate opens up other ways of viewing the world and knowledge of the world.

But in addition to the anti-dogmatic virtues of methodological discussion, it is especially encouraging to note that the discussion is introducing accounting researchers to a radically different view of science than the outmoded positivistic/empiricist conception they have received from mainstream accounting “methodologists.” Accounting researchers are being exposed to what Richard Bernstein and other philosophers refer to as “postempiricist philosophy and history of science” [Bernstein, p. 22].

THE POSTEMPIRICIST VIEW OF SCIENCE: THE LEGACY OF THE GROWTH-OF-KNOWLEDGE DEBATE

Bernstein has noted that traditional empiricist philosophy of science assumes such things as the following: experience is objective and testable; the language of science is exact, formalizable, and literal; meanings are separate from facts; etc. [p. 32]. But largely as a result of the “growth of knowledge” debate, the component elements of the traditional empiricist view are

almost universally considered to have been discredited and a new, postempiricist view of science has emerged. From the postempiricist perspective: scientific theories are ways of interpreting nature; facts are, to a significant degree, constituted by theory; the language of science is inescapably metaphorical and inexact; meanings are generated by the community of inquirers and are understood by theoretical coherence rather than by correspondence with facts; and so forth [Bernstein, p. 33]. The most salient feature of postempiricist philosophy and history of science is, according to Bernstein, its "recovery of the hermeneutical dimension of science". The hermeneutical dimension can be explicated very succinctly with reference to the debate over rationality.

Bernstein has noted that three books published within four years of each other posed unique and profound implications regarding the nature of knowledge and rationality. Kuhn's *The Structure of Scientific Revolutions* (1962) was essentially concerned with natural science. It touched off a storm of controversy primarily because it was perceived as calling into question the rationality of science. In claiming that competing paradigms may be incommensurable, that proponents of competing paradigms are functioning in different "worlds", and that the switch from one paradigm to another is comparable to a religious conversion or a gestalt switch, Kuhn was seen as denying the possibility of a philosophy of science which offers explicit and fixed criteria for decisions involving theory choice — "his critics took him to be challenging the very rationality and objectivity of science" [Bernstein, p. 23].

Four years earlier, Peter Winch had published *The Idea of a Social Science and Its Relation to Philosophy* (1958). It also had touched off a storm of controversy. Winch was essentially concerned with an analysis of the fundamental contrast between the natural and the social sciences at a time when, according to Bernstein, "The prevailing attitude . . . among professional social scientists was that their discipline was now on the secure path of becoming a genuine natural science of individuals in society, a natural science that differed in degree and not in kind from the rest of the natural sciences" [pp. 26-27]. But the basic point of congruence in the respective controversies over Winch's book and Kuhn's book concerned the concept of rationality. Winch had implied that different cultures may have incommensurable standards of rationality. And the implication was made more specific in a follow-up essay: "he used the figure of speech of 'our standards' and 'their standards' of rationality when

speaking of modern Western society and the 'primitive' society of the Azande" [Bernstein, pp. 27-28].

Bernstein points out that in both controversies the critics of Kuhn and Winch tended to focus on the problem of coming up with a universal standard of rationality. But this focus, Bernstein maintains, was off the mark. The real issue, he suggests, is more appropriately stated as follows:

The vital issue here is really the question of what is involved in understanding, interpreting, and explaining alien societies (and not just their rationality or lack of rationality). How are we to do justice to the strangeness that we discover when we encounter alien types of activities, beliefs, rituals, institutions, and practices, without falsifying or distorting them? [p. 28].

And this is where Hans-Georg Gadamer's *Truth and Method* (originally published in German in 1960) enters the picture. Gadamer is the central figure in the contemporary hermeneutics movement, and hermeneutics is specifically concerned with the processes of interpretation and understanding.

Traditional hermeneutics focuses on the processes of interpreting and understanding texts from a different time, language, or culture. But contemporary philosophical hermeneutics as developed by Gadamer claims a much more universal applicability. Gadamer claims that all life experiences involve the processes of interpretation and understanding. And the relevance of Gadamer in the present discussion is that he denies the possibility of an objective rationality that is free of historical and cultural context, and offers a different, but non-relativistic, notion of reason and rationality.

Understanding, according to Gadamer, grows out of "experience" and always involves a "fusion of horizons". An "experience", as Gadamer uses the term, results from an encounter with a new situation or new development. And new situations, he contends, are never approached with a clean slate of outlook and expectations. We always have a perspective (a "horizon") that has been historically shaped by culture, tradition, and personal circumstances. And since new situations always involve an element of the unexpected, "experience" generates what Gadamer calls "a radical negativity" (the knowledge of not knowing) which creates an attitude of openness and allows us to "see" possibilities that we hadn't been open to before. We are thus changed as a result of the experience; we have a new understanding. "The experienter", says Gadamer, "has ac-

quired a new horizon within which something can become an experience for him" [p. 317].

None of this takes place, however, without language. We are born into a linguistic environment; an environment in which "reality" has already been linguistically classified and ordered. We interact via language. Our concepts are linguistically shaped. And we think in language. As Bernstein puts it, "for him [Gadamer] the medium of all human horizons is linguistic . . ." [p. 144]. The linguistic role is most explicit in Gadamer's model of conversation which could be characterized as a model for the fusion of interpersonal horizons.

For two people who do not agree on some subject and who wish to achieve agreement, conversation holds the possibility of the desired agreement. True conversation, however, is only possible if both parties are willing to be open to the other's point of view. When both parties are open in this way, then the conversation is guided, in a sense, by the subject of the conversation. The matter under discussion, in this case, generates questions. On the other hand, if the parties are not open but only pretend to be (as in a debating contest), then the questions they pretend to have are false questions. Thus, according to Gadamer, "a question can be right or wrong, according as it reaches into the sphere of the truly open or fails to do so" [p. 327].

In the case of false questions, not only do they prohibit the issue at hand from being decided, but they stand in the way of discovering what Gadamer refers to as "truth". Truth, in the sense that Gadamer uses the term, refers to shared understanding and is caught up with the notion of community, as is illustrated in the following quote:

Every conversation presupposes a common language, or, it creates a common language. Something is placed in the centre, as the Greeks said, which the partners to the dialogue both share, and concerning which they can exchange ideas with one another. Hence agreement concerning the object, which it is the purpose of the conversation to bring about, necessarily means that a common language must first be worked out in the conversation. This is not an external matter of simply adjusting our tools, nor is it even right to say that the partners adapt themselves to one another but, rather, in the successful conversation they both come under the influence of the truth of the object and are thus bound to one another in a new community [p. 341].

Bernstein suggests that the new, postempiricist view of science tends to incorporate a view of rationality that is very much in tune with Gadamer's model of conversation. The proponents of the new view deny the validity of any predetermined algorithmic scheme for evaluating hypotheses, theories, and arguments. Instead, they tend to accept what Bernstein has called "a dialogical model of rationality that stresses the practical, communal character of this rationality in which there is choice, deliberation, interpretation, judicious weighing and application of 'universal criteria,' and even rational disagreement about which criteria are relevant and most important" [p. 172].

It must be noted that Bernstein does not claim that postempiricist philosophers of science were directly borrowing from hermeneutics. What he does maintain is that these philosophers, via their dialectical give and take concerning the nature of scientific inquiry, "have stressed those features of science . . . that are hermeneutical" [Bernstein, p. 33]. Most notably with respect to Kuhn, Bernstein suggests that he [Kuhn] was groping toward a hermeneutical view of rationality: "It is as if he has been searching for a proper model to express his awareness that such deliberation and choosing [among rival paradigms] are rational activities, but not the sort of rational activity that has been characterized as deductive proof or empirical verification or falsification" [p. 41].

In any case, it is obvious that the salient features of the postempiricist view, can appropriately be characterized as hermeneutical: the questions and problems that deserve attention emerge from social, cultural and historical circumstances; methods of inquiry and standards of judgement are shaped by the social practices of the community of scientists; and "truth" hinges on shared understanding.

It is also obvious that the postempiricist view of science is radically at odds with the dominant view of science among accounting researchers. And what is most interesting for the present discussion is the fact that many of the (presumably scientific) methodological views held by mainstream accounting researchers would be seen as unscientific from the postempiricist perspective. As Morgan [1988] has pointed out, "The idea that accountants represent reality 'as is' through the means of numbers that are objective and value free, has clouded the much more important insight that accountants are always engaged in interpreting a complex reality, partially, and in a way that is heavily weighted in favour of what the accountant is *able* to measure and *chooses* to measure . . ." [p. 480]. And as

Hines has suggested, the erroneous and widespread identification of statistical procedures with "the scientific method" serves to restrain criticalness and creativity in accounting research [p. 661]. Open discourse in accounting also has been restricted by the widespread notion of a logical gulf between positive and normative theories. "If one assumes (as many empiricists do) that theories can be divided into 'normative' and 'positive' frameworks, and that the verity of the latter can be established by merely consulting factual evidence, then the scrutiny of underlying values slips from explicit attention, returning covertly in the disguise of 'facts' to participate in deciding what passes as 'truth'" [Tinker, p. 183]. And making a similar point Arrington and Francis note that, "To deny the value-ladenness of one's theorizing is to deny responsibility for the consequences of one's theories" [p. 4].

Finally, a historical note with respect to Devine must be added. Although Devine was a major influence in bringing philosophy of science into accounting thought, there is evidence that he is not particularly happy with the outcome (at least as it currently stands). In the Preface to Volume V of his "Essays," Devine expresses a growing concern "over what appears to be a new parochialism in accounting research, i.e., a tendency to restrict research to the narrow confines of quantitative methods." And one could make a good argument that Devine's view of science is much more in tune with the postempiricist view than with the mainstream accounting view. In fact, Arrington's review of the "Essays" could be construed as such an argument. According to Arrington, Devine considered science to be essentially a way of expanding (rather than limiting or closing off) the discourse of accounting. And there can be no doubt that Devine's pioneering work regarding semiotics helped pave the way for the introduction of postempiricist views into accounting literature.

Devine is fascinated with the role of language in constructing knowledge and meaning, and draws upon the early work in semiotics and what it might have to say to accountants. What he could not have foreseen is the way in which semiotics has been expanded to the point that, currently, the history of ideas is firmly grounded in the overriding importance of language in the construction of meaning. Contemporary work in hermeneutics, structuralism, and poststructuralism that is sweeping the human sciences is beginning to surface in accounting. This work owes a debt to Devine for being the first scholar to

position accounting firmly in the domain of language [Arrington, 1988, p. 139].

CONCLUSION

The juxtaposition of developments in accounting research with developments in philosophy of science reveal that "the Golden Age" of accounting methodology is caught up in a compound irony; an irony that functions on more than one level. The most basic irony is, of course, that accounting researchers were "awakened" to *the* scientific method during the same decade (the 1960s) that witnessed the disintegration of "the received view" of scientific methodology as a result of the "growth of knowledge" debate. The second level of irony has to do with the respective legacies of "the Golden Age" of accounting methodology and the growth of knowledge movement in philosophy of science. The legacy of "the Golden Age" seems to have been the enshrinement of a dogmatic reverence for a positivistic/empiricist research methodology and a research environment characterized as "methods in search of questions." The growth of knowledge movement, on the other hand, has essentially discredited the positivistic/empiricist methodology and cleared the way for the emergence of a hermeneutically-informed postempiricist view of science; a view which acknowledges the social role in the construction of "reality" and emphasizes the importance of replacing rigid pre-determined methodological rules with the give and take of "good conversation" in the resolution of methodological issues. The ultimate irony then is that the research methodology touted by some of the most prominent mainstream accounting researchers must be judged clearly "unscientific" from the postempiricist philosophy of science perspective.

Mainstream accounting researchers would do well to ponder the advice of an outsider: "Accountants can begin making themselves 'more scientific' by shedding their guilt for being normative or controversial, or for having unfalsifiable theories" [Lavoie, p. 582].

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MEDIEVAL TRADERS AS INTERNATIONAL CHANGE AGENTS: A COMPARISON WITH TWENTIETH CENTURY INTERNATIONAL ACCOUNTING FIRMS

Abstract: The International Accounting Standards Committee's (IASC) exposure draft on "Comparability of Financial Statements" has increased the awareness of the need for international changes in accounting standards. Since the IASC cannot mandate these changes, the accounting community needs to learn how to communicate, adopt and implement changes. This paper discusses an important aspect of the change process, the change agent. The first part of the paper presents an historical example of an important group of international change agents, the Jewish traders of the Middle Ages and early Renaissance. Parallels are then drawn between the Medieval Jewish traders and modern international accounting firms. Finally, the potential for accounting firms to act as change agents is discussed in the context of concepts from theories of social change.

INTRODUCTION

The internationalization of accounting standards has become an increasingly important issue as international financial transactions have increased. International capital transactions have now reached the level of one trillion dollars per day [Cutter, 1989]. International change in accounting has come to a crucial point with exposure draft E32, "Comparability of Financial Statements," issued by the International Accounting Standards Committee (IASC). Prior to E32, IASC sought international harmonization of accounting standards by recommending alternatives that were most accepted in practice, and by avoiding conflict with the accounting standards of the most influential of its 77 member countries. This approach, while reducing accounting alternatives and providing greater stan-

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standardization, minimized the need for major changes in the standards of individual countries, particularly the standards of the most influential countries. However, E32 demonstrates that IASC is now willing to directly challenge standards of powerful member countries. For example, E32 does not recommend certain of the USA's standard methods of accounting for acquisitions of companies or goodwill. This more assertive international standard setting by the IASC will require a much greater degree of international change if member countries are to abide by IASC's standards. Since IASC has no authority to mandate accounting changes in member countries, E32 raises the process of change in international accounting to a higher level of importance and difficulty.

The purpose of this paper is to discuss the role and importance of change agents (those who influence change), in an international setting during times critical to the development of accounting. The first part of the paper provides an historical example of change agents who were essential to the development of double entry accounting — Jewish traders of the Middle Ages and early Renaissance. The second part of the paper discusses the possible impact of major international accounting firms on current international accounting changes. This second part of the paper uses basic concepts of social change to explain why the major accounting firms can be effective change agents, but does not consider the change role(s) these firms *should* play. Furthermore, the influences on accounting of other possible international change agents, such as financial exchange institutions, international brokers and political bodies are beyond the scope of this paper.

MEDIEVAL AND EARLY RENAISSANCE JEWISH TRADERS

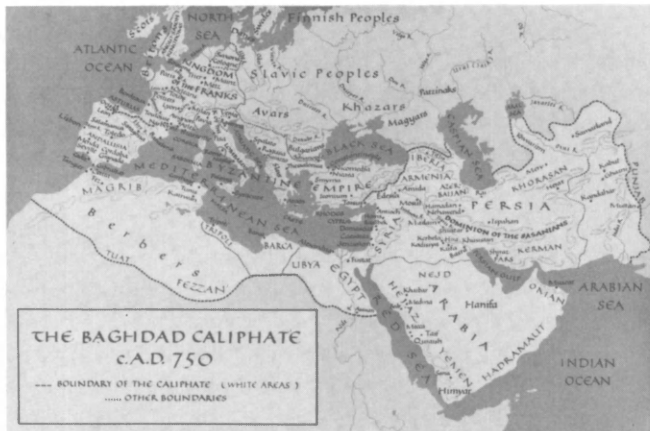
This section discusses the importance of the interaction between Italy and the Moslem Empire in the establishment of the conditions necessary for the development of double entry accounting. The effective international role of the Jewish traders during this important period in the development of accounting provides an historical example for comparison with twentieth century international accounting firms as international change agents.

Environment of Tuscany and the Italian City-States

After the conquest of Spain in 715 AD and Sicily in 825 AD, the Moslem Empire was by far the dominant military, commer-

cial and cultural power in the Mediterranean (see Map 1). Geographically, the birthplaces of double entry accounting, Tuscany, Genoa, Venice and Florence, were ideally situated for trade throughout the Mediterranean and even the Far East. However, until the last Crusade in 1271 AD, the naval and land

MAP 1



military power of the Moslem Empire made direct trade by Italian merchants, at best, very difficult. In addition, the Papacy, which was extremely influential in Italy during this entire period of time, forbade trade with the Islamic people.

In spite of these difficulties, trade began to flourish between Italy and the Moslem Empire through the use of Jewish traders, who could interact peacefully with both Christians and Moslems [Ferguson, 1944, p. 158; Gabrieli, 1963, p. 55; DeSomogyi, 1968, p. 64; Udovitch, 1970, pp. 227-228; VonGrunebaum, 1970, p. 6; Watt, 1972, p. 7; Lindberg, 1978, p. 13]. By the middle of the thirteenth century seven necessary antecedent conditions and other "energizing" or favorable conditions [Littleton, 1966; Stone, 1969; Frishkoff, 1970] existed in Italy (see table 1, page 110), and double entry accounting began to develop. Nearly all of the antecedent and energizing conditions developed through contact with the Moslem Empire, in which the antecedent conditions for modern accounting had existed since 825 AD (see table 1, page 110).

Some of the contact with the Moslem Empire which helped develop antecedent conditions were academic or cultural. An

Table 1
Approximate Dates of Littleton's [1966] Antecedents
in the Moslem Empire and Italy

	Moslem Empire	Italy
Paper and Writing	800 AD	1154 AD
Arithmetic	825 AD	1202 AD
Money	696 AD	1252 AD
Private Property	Ancient	Ancient
Credit	787 AD	1230 AD
Commerce	Ancient	1100 AD
Capital	757 AD	1230 AD

Favorable Circumstances [Stone, 1969; Frishkoff, 1970]	800 AD	1252 AD
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- 1) The presence of Littleton's [1966] conditions had to be fairly extensive.
- 2) Use of Littleton's seven conditions or factors had to be practical (e.g. writing on marble tablets was not practical).
- 3) The seven conditions had to be generally accepted.
- 4) There had to be an adequate base of wealth and opportunity for trade.
- 5) There had to be an adequate level of education.
- 6) Certain psychological factors had to exist. A mentality of growth, not stagnation, had to exist.

Note: The dates for this table come from many sources. The most important sources are Ashtor [1976], Chatfield [1968], Coulson [1964], DeSomogyi [1968], DeRoover [1944], Durant [1950], Ferguson [1944], Gabrieli [1963], Hitti [1963], Lindberg [1978], Martinelli [1977], Panikkar [1963], Peragallo [1938], Von-Grunebaum [1970], and Watt [1972]. (Throughout this paper many of the statements and ideas are synthesized from several writings, and sometimes only the most relevant references are given.)

example is the development of the second necessary antecedent for double entry accounting, arithmetic — an efficient means of computation. The Italians labored with Roman numerals, while Moslems used Hindu (now often called Arabic) numerals, and Islamic mathematicians such as Al Khwarizimi (also known by his Greek name, Algorasmus) developed algebra, decimals, and negative numbers. Until Leonardo Fibonacci of Pisa (also known as Pisano) studied under a Moselm master in Algeria and published *Liber Abaci* in 1202 AD in Florence, Italian math was too clumsy¹ for double entry accounting [Watt, 1972, pp. 33, 63-64; Hitti, 1963, pp. 98-99, 123, 153-154; Lindberg, 1978, pp. 150-151; Peragallo, 1938, p. 32; Dorsey, 1931, p. 652].

¹Peters [1978] proposes that part of the reason Italians developed double entry accounting was a fear or distrust of negative numbers. With double entry accounting, there is no need to use negative numbers.

Although the academic interchanges between the Moslem Empire and Italy, such as the development of arithmetic, were important, most interactions which affected the development of antecedents of accounting in Italy were commercial. Jewish traders were necessary intermediaries in virtually all commercial contacts. Some of the more important types of commercial contacts between Moslems and Italians which Jewish traders facilitated will be described next.

*Commercial Interactions Between Moslems and Italians
Related to Antecedents of Double Entry Accounting*

The first antecedent, writing, had to become practical [Frishkoff, 1970], and writing did not become practical until paper was introduced. Chinese prisoners of war taken to Samarkand (formerly the capital of Uzbek, a Central Asian country now a part of the USSR) began to teach Moslems the art of making paper from flax and other fibers in 751 AD. The craft spread throughout the Empire, and some of the plants were run by Jewish managers [VonGrunebaum, 1970, p. 101; Ashtor, 1976, pp. 99-100]. This "bambacing" paper was introduced to Italy by 1154 AD and made recording economic transactions practical [Durant, 1950, p. 236; Martinelli, 1977, p. 10].

The third factor was money or currency. Although some commercial bank notes existed before 1252 AD in Italy, they were never used extensively as money [DeRoover, 1944, pp. 382-383]. The first real European currency was the florin, initially coined in Florence in 1252 AD, and it became the basic medium of exchange [Peragallo, 1938, p. 18]. To add credibility and confidence, the florin was minted as a very close replica of the basic Moslem currency, the dinar, since Moslem currency was the only currency known by the Europeans at that time. The minting of the gold florin is a good indication of how strong trade between Italy and the Moslem Empire had become, because virtually all gold was produced in lands controlled by Moslems, and the minting of a gold currency in Europe would only have been possible if Moslems were actively trading gold to Europe [Levtzion, 1973, p. 131; Hitti, 1963, p. 144].

The fifth antecedent was credit, which was available in the Moslem world after 767 AD when Islamic schools of law debated the legality of loans and interest [Durant, 1950, p. 226; Udovitch, 1970, p. 77]. Indigenous populations normally ran businesses in the Moslem Empire, and commercial banks which made loans, usually run by Jewish bankers, were prevalent by 800 AD

[Gabrieli, 1963, pp. 56, 127; Panikkar, 1963, pp. 131-132; De-Somogyi, 1968, p. 64]. Although some credit existed in Italy by 1171 AD, it was almost exclusively used by governments to finance the Crusades [Hitti, 1963, p. 199]. Credit at the level described by Littleton [1966] did not exist in Italy until about 1230 AD [Chatfield, 1968, p. 27; Durant, 1950, pp. 208, 226]. It is difficult to determine the extent of the influence of Moslem concepts of credit in Italy, but the network of Jewish bankers was very effective, and some influence is likely to have existed. One indication of how influential Moslem credit processes might have been is that the Arabic word for promissory note, **sakk**, is the etymological root word for our word **check** [Durant, 1950, p. 208].

Littleton's [1966] sixth factor, commerce, is closely related to Frishkoff's [1970] "energizing circumstances." The most important stimulation of Italian commerce was the Crusades, beginning in the last part of the eleventh century. The Europeans acquired new tastes for products from the Holy Lands and the East. They traded raw materials such as lumber and iron for cotton and wool goods from Egypt, for oriental rugs, oranges, sugar cane, precious metals and stones, pearls from the Persian Gulf, and for glass, perfumes and oils, among many other items. So great was the demand for Moslem goods that Italian merchants arranged to sell weapons to the Saracens during the Crusades to maintain the flow of goods from Islamic countries [Durant, 1950, p. 617].

This paper does *not* assert that accounting methods in the Moslem Empire were directly influential in the development of accounting in Italy. The paper only argues that there was influence through the antecedents of accounting. This is partially because the actual nature of accounting in Islamic lands seems to be a mystery. The author has been able to find only conjectures about accounting in the Moslem Empire. For example, Durant [1950, p. 629] states "The accounting methods of Imperial Rome, lost in western Europe in the seventh century, continued in Constantinople, were adopted by the Arabs, and were revived in Italy during the Crusades." Durant [p. 225] also suggests that accounting in Moslem lands was very important, because the Vizier, subordinate in power only to the Caliph, was directly in charge of taxation and accounts. Udovitch [1970, pp. 237-238], describing legal discussions of Moslem commercial accounts, believes "... such accounts were quite detailed ... We may justifiably assume that records and accounts approximating those kept by the eleventh and twelfth century Geniza

merchants already existed in the eighth century Near East.” Goitein [1967, p. 204-209] states that the Geniza accounts, kept by Jewish merchants, were not as detailed as those kept by Italians in the late Middle Ages. The direct influence of Jewish and Moslem accounting on the accounting of Italians (rather than indirect influence through antecedent conditions) in the late Middle Ages, if any, has not been successfully explored. Perhaps this is in part because, as Lindberg argues [1978, p. 12], there has been a strong tendency for western historians to minimize or ignore the influence of the Islamic culture.

The Effectiveness of Jewish Traders

The Jewish traders as a group may not knowingly have acted as change agents. However, Jewish people of the Middle Ages and Renaissance were “. . . marginal to both Christians and Moslems . . .” and “. . . became teachers and emissaries bringing Arab learning into the Christian world . . .” They became “. . . powerful cultural ambassadors and cosmopolitanizers” [Boorstin, 1983, pp. 150 and 162]. Because of the military and religious conflicts that impeded commercial development, it is very unlikely that without the Jewish traders Italy would have been capable of developing modern accounting. The traders acted effectively as change agents. There are several reasons why the traders were able to work as international change agents.

1. The traders were very capable and were highly regarded for their commercial abilities and knowledge of brokering, finance, and communication.
2. The traders were well networked with each other and with powerful, wealthy people and groups.
3. The traders were able to operate within their networks without offending political, military or religious groups.
4. The traders fulfilled a need or purpose — to maintain and stimulate trade among international groups which had differences that were very difficult to resolve.

The parallels between Medieval Jewish traders and modern accounting firms are not perfect, but the factors which made the Jewish traders effective change agents provide a basis for discussion of modern international accounting firms within the framework of some current concepts of social change.

TWENTIETH CENTURY INTERNATIONAL ACCOUNTING FIRMS AS CHANGE AGENTS

This section considers the possibility of major international accounting firms as effective agents for change in international accounting standards by comparing these firms with Medieval Jewish traders. The discussion of the diffusion of international accounting standards in this section is mainly based on basic concepts from diffusion theories of social change.

Brief Introduction to Diffusion Theories

Diffusion theories come from many disciplines, including anthropology, sociology, education, health and medicine, communication, economics, marketing and organizational behavior. Diffusion theories address the communication, adoption, and implementation of technology and new ideas [Kimberly, 1981; Rogers, 1983]. Generally, diffusion is the “. . . process by which an innovation is spread through communication channels to members of a social system . . . over time . . .” [Zaltman et al, 1984, p. 14]. An innovation is any “. . . idea, practice or object that is *perceived* as new by an individual or unit of adoption” [Rogers, 1983, p. 11]. Change agents play a major role in diffusion theories. A change agent “. . . influences clients’ innovation, decisions in a direction deemed desirable . . .” [Rogers, 1983, p. 28].

The breadth of diffusion studies is too great to review in this paper. However, some excellent studies of the diffusion of professional standards concern the medical profession [e.g. Becker, 1970; Gordon, 1974; Gordon, 1975; Counte, 1976; Higginbotham, 1988], and they hold some parallels for diffusion of professional standards in the accounting profession. For example, Higginbotham [1988] describes how international consultants “homogenized” the psychiatric practices of Southeast Asia. Homogenization as used by Higginbotham is similar to harmonization as used in international accounting, because both terms refer to increased standardization of professional practices. Therefore, Higginbotham does present some thoughts that relate to the increased harmonization of accounting practices with the assistance of the largest consulting firms in the world, the major international accounting firms.

International Accounting Firms as Change Agents

As were the Medieval Jewish traders, the international accounting firms are highly regarded for their business knowl-

edge and information management abilities.² They are capable of consulting in almost any aspect of business in almost every country in the world, including many “non-market” countries.³ These firms must effectively deal with international business and cultural questions in a practical manner on a daily basis. Most of the firms have “firmwide” standards that transcend the standards of any specific country, including the standards of the USA. The international networking of the major accounting firms is more diverse and complex than networks of the Medieval Jewish traders, but firm networks contain the same elements that made the traders successful.

The Jewish traders were brokers of goods; international accounting firms are prestigious “brokers of information” [Kimberly, 1981, p. 96], and generally have access to powerful or elite organizations and people throughout the world. This is important because diffusion occurs better when elite or central people and organizations accept new ideas [Mohr, 1969; Becker, 1970; Hage, 1973; Kelley, 1976]. In addition, since accounting firms are external to their clients, they have natural and ready access to the “boundary spanning” personnel in client organizations who are critical to the acceptance of new ideas by organizations [Aldrich, 1981]. The firms are sensitive to the fact that key people in organizations must accept change before organizations can change [Kimberly, 1981, p. 88]. The accounting firms, therefore, are well situated to influence important organizations to adopt change.

Major accounting firms, like the Jewish traders, are adept at working across international boundaries without upsetting political or other powerful bodies. There may be several reasons for this. The line offices in the countries have usually developed over time within the cultures of the respective countries, so that they are more aware of cultural and political issues and pitfalls. This suggests that such line offices are “homophilous”, i.e., share certain attributes such as beliefs, education, etc. [Rogers, 1983, pp. 18, 19]. Homophily enhances the effectiveness of communication and, hence, the ability to influence change. Also, accounting firms are accustomed to working in the background — working quietly but effectively with people and organiza-

²The large accounting firms are aware of the need to manage change, at least at the organizational level, as demonstrated by the fact that some firms, such as Arthur Andersen & Co., have “change management” consultants in their consulting divisions.

³For example, Ernst & Young and Arthur Andersen & Co. already have offices, though currently with limited operations, in China and the USSR.

tions. These firms have established and can use both weak and strong network ties, which is difficult and even somewhat of a paradox [Granovetter, 1973]. Strong ties foster strong but narrow and inflexible networks, and weak ties tend to produce inefficient but broad and flexible networks. The ability to use and integrate both types of ties can help major accounting firms affect change.

Finally, there is a need for change in accounting standards. Capital markets have become truly international, and accounting standards must keep pace. Neither the IFAC nor any other group can mandate international change in accounting standards, so individual countries and/or business organizations within those countries will have to be persuaded to change from within. Though there are many potential change agents in this process, major international accounting firms could become among the most influential.

CONCLUSION

This paper has presented an argument that Medieval Jewish traders were effective change agents in Italy during the events which led to the development of double entry accounting. Their effectiveness was due, at least in part, to four conditions:

1. The traders' abilities were held in very high regard.
2. The traders had very extensive networks.
3. The traders operated in their networks without offending powerful groups.
4. The traders fulfilled a strong need in international trade.

These same four general conditions apply to modern major international accounting firms. In addition, the accounting firms have many attributes which diffusion theories suggest could make them influential international change agents.

A variety of historical and theoretical concepts have been discussed in this paper, and some of this synthesis may appear to be speculative. Since part of the value of the study of history is to help analyze modern situations, which usually requires interpretation and speculation, this is not unusual. However, the need for change in international accounting is not speculative. Furthermore, international accounting firms are already acting as change agents, and will almost certainly continue to do so. Although the author believes specific discussion of the most appropriate role(s) of the firms as international change agents is not appropriate in this paper, the paper does provide a

basic context to help understand the potential influence of these firms in international accounting.

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1989 MANUSCRIPT AWARD

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A HISTORICAL ANALYSIS OF DEPRECIATION ACCOUNTING — THE UNITED STATES STEEL EXPERIENCE

Abstract: This paper examines the magnitude of the reporting bias inherent in the historical cost accounting of a firm's physical capital. Reported depreciation data pertaining to U.S. Steel Corporation (currently USX) between 1939 and 1987 are compared with standardized historical cost figures and replacement cost estimates. The findings suggest that replacement cost depreciation would have provided more information about U.S. Steel's ability to maintain its productive capacity than historical cost depreciation did. Thus, this analysis provides an illustration of one of the primary arguments for replacement cost accounting.

Changing prices have created accounting measurement problems for business enterprises throughout the twentieth century. Paton [1922] noted that in periods of sweeping price changes the accountants' yardstick (money) becomes "an unstable, variable unit; and comparisons of unadjusted accounting statements prepared at intervals are accordingly always more or less unsatisfactory and are often positively misleading . . . When prices on all sides are climbing sharply it seems clear that a mere increase in the number of dollars possessed is not a valid expression of true improvement in economic condition" [pp. 427-428]. In such periods, Paton pointed out that management must be careful not to pursue a dividend policy which threatens "the preservation and expansion of the physical capital of the enterprise" [p. 440].

Paton argued that "by reducing what would otherwise be the net income figure," recognition of replacement cost depre-

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ciation would enforce management's pursuit of a conservative dividend policy, and "undoubtedly tend to prevent the disbursement of capital as dividends" [p. 440]. Paton concluded that replacement cost data would allow users to better judge how successfully management had maintained the existing physical capital.

Even though debate concerning theoretical aspects of replacement cost measurement persisted, physical capital continued to be maintained largely at historical values in financial statements. Finally, in 1979, after considerable discussion and following a period of persistent price increases, the Financial Accounting Standards Board mandated in SFAS 33 that replacement cost information be disclosed.

Subsequent replacement cost disclosures, however, were apparently neglected by statement users. Managers [Madison and Radig, 1983], auditors [Skousen and Albrecht, 1984], and professional analysts [Berliner, 1983] reported that they did not utilize SFAS 33 data when they evaluated past economic events or when they formulated expectations about the future. Recent capital market research studies confirm these survey findings. Researchers found little evidence that a relationship existed between changing price information on a firm level and securities prices [Beaver and Landsman, 1983] or trading volume [Ro, 1981], or that SFAS 33 disclosures could be used to predict unanticipated dividend changes [Schaefer, 1984 and Murdoch, 1986] or takeover targets [Bartley and Boardman, 1983].

This paper uses an alternative approach to assessing the usefulness of replacement cost information. It addresses the questions of (1) whether replacement cost depreciation provides more information about a company's ability to maintain its productive capacity than does historical cost depreciation and (2) whether replacement cost measures enhance a user's capability to perform long-range forecasts and confirm prior expectations.

The annual reports of U.S. Steel Corporation (currently USX) from 1939 through 1987 are used to investigate how certain accounting measurement techniques can bias the financial statement presentation of a firm's physical capital. Specifically, two series that summarize past investing activities are developed. The series are a firm's Net Asset Ratio [(Fixed Assets - Accumulated Depreciation)/Fixed Assets] and a firm's Annual Replacement Index [(Capital Additions - Depreciation)/Beginning Fixed Assets]. These ratios depict the extent to which a company has been able to maintain its capital base in the past

and provide an indication of the firm's long range competitiveness.

Actual reported data are compared with standardized historical cost and replacement cost estimates for U.S. Steel over a fifty-year period. The comparison highlights the signal differences that can be created by alternative valuation methods. Conceptual implications of the findings also are discussed.

MODEL

"Destruction is the law of nature" [Hatfield, 1909, p. 121]. Yet accounting for the depreciation of fixed capital has not always been so clear cut. In his historical analysis of accounting evolution, Littleton [1966] reported that one of the earliest English references to depreciation was found in *A Brief Instruction* by John Mellis [1588] which suggested a debit entry to the profit-and-loss account and a corresponding credit entry to the "Implements to householde" "for so much lost by decay of household stuff". Similar treatment subsequently was recommended for horses [Stephen Monteage, *Debtor and Creditor Made Easie*, 1683] and ships [William Jackson, *Book-Keeping in the True Italian Form*, 1801]. The asset account was credited at the end of a given period for the current value of the asset in question and any remaining difference needed to close the account was debited to profit-and-loss. Depreciation apparently was not regarded as an expense but was created because of "decay from use" [Littleton, 1966, p. 227].

The systematic recognition of depreciation did not receive much consideration until manufacturing necessitated the purchase of large quantities of plant and equipment and the growth of corporations required that a clear distinction be made between capital and revenue so that net profit could be correctly calculated and capital stock could be protected against impairment from dividends [Littleton, 1966, p. 240]. One of the early authors to apply depreciation to industry was Ewing Matheson in a book entitled *The Depreciation of Factories* [London, 1884].

Since the late 19th century, an argument has persisted concerning whether depreciation should result from a cost allocation process or an asset valuation process. The side taken in this argument can be explained partially by whether one wishes to focus upon measuring a flow or valuing a stock. Ladelle [1890], who favored the flow concept, argued that depreciation should be used to allocate the original cost of an asset to the various periods that will benefit from the stream of

services produced by the machine. Depreciation, in this instance, represents the systematic matching of a historical cost with the revenue that it helps generate [Paton and Littleton, 1940]. Replacement costs are not particularly relevant.

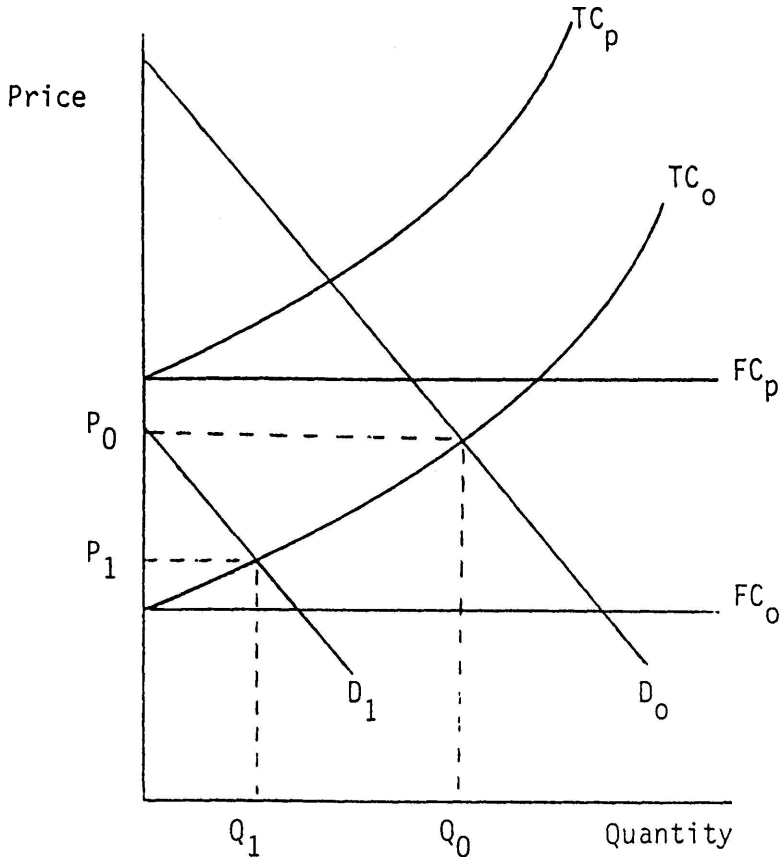
Hotelling [1923], in contrast, employed the stock concept to develop his model of depreciation. He suggested that the value of a machine and the value of a unit of its output are interrelated, and historical costs become irrelevant after an asset has been purchased. According to Hotelling's stock concept, an asset only has value if it can be used in the future. Thus depreciation in a given year reflects the periodic change in the current value of assets that have not yet been sold or discarded [Hicks, 1969]. Replacement costs, in this instance, play an important role in the measuring process.

The stock concept (and thus replacement cost accounting) may provide more information than historical costs about a company's past success in maintaining its productive capacity. Hotelling [1923] argues that a particular capital asset which employs old obsolete technology will be replaced by a new technology machine if management thinks that the present value of the benefits to be derived from the new technology will exceed the cost of purchasing such a machine. If the purchase of new technology cannot be justified economically, however, production will not immediately cease. Old technology firms will continue to profitably produce output with the capital in place as long as the present value of the future net revenues (sales price minus variable costs) exceeds the present value of any positive salvage value to be collected at the termination of the old technology. Variable costs will slowly mount as increasingly more frequent and expensive repairs are required to keep the old technology assets functional.

When an entire plant contains old technology and new technology is not implemented, the time between deciding to terminate old technology operations sometime in the future and the actual closing of the plant doors can span decades. The only signal that such a decision has occurred may be a decline in new capital purchases and a gradual aging in the productive capacity. In this case, replacement costs, not historical costs, provide the best indication that disinvestment is occurring.

Just such an event occurred in the steel industry in the early 1960s. The influx of foreign imports caused the demand curve for the domestic steel industry to shift to the left. This decline in demand (from D_0 to D_1 in Figure 1) caused many domestic steel firms to halt preliminary plans to replace their existing capital

Figure 1
Domestic Steel Industry Supply Curve



- D_0 = Old demand for steel products before influx of imports
- D_1 = New demand for steel products after influx of imports
- FC_0 = Industry fixed costs (old technology)
- FC_p = Industry fixed costs (new technology)
- TC_0 = Total costs (old technology)
- TC_p = Total costs (new technology)
- Q_0, P_0 = Quantity and price of domestic steel produced with old technology before influx of imports
- Q_1, P_1 = Quantity and price of domestic steel produced with old technology after influx of imports

stock with new technology at a cost of (FC_p), because the present value of the expected future net revenues to be derived from these proposed new investments could no longer be expected to cover the projected initial capital outlays. (See Figure 1.)

CASE DEVELOPMENT

U.S. Steel has been an acknowledged leader in the development of financial reporting.¹ As such, the corporation has been the focus of historical research. Younkins, Flesher and Flesher [1984] utilized the U.S. Steel annual reports issued prior to 1952 to illustrate the historical development of financial reporting during the first half of the twentieth century. Richard Vangermeersch [1971, 1988] utilized the corporate reports to trace the historical development of depreciation and to comment on observed changes in the reporting of tangible fixed assets.

Because United States Steel Corporation is a domestic leader in what has historically been considered a very capital intensive industry, it is also the focus of this study. Throughout the fifty-year period encompassed by this study, U.S. Steel's net tangible assets represented, on the average, over 55 percent of the value of the total reported assets. In such a capital intensive company, depreciation measurement plays an important role in income determination.

United States Steel Corporation also provides an excellent subject for the study of the predictive value of reported physical capacity and related investment numbers, because the company underwent significant restructuring in the early 1980s. In 1979, U.S. Steel began consolidating under-utilized steel production facilities and permanently shutting down obsolete unprofitable plants. This action vastly altered the technological structure of the company. In 1939, 47.8 percent of the revenues generated from the sale of steel products were used to pay employee benefits. By 1981, after the initial plant closings, employee expenditures as a percent of sales had declined to 36.4 percent. In the ensuing six years, additional restructuring enabled U.S. Steel to reduce the number of man-hours required to produce and ship a ton of steel from 10.8 to less than 4.0.

¹See *Financial Accounting Milestones in the Annual Reports of United States Steel Corporation: The First Seven Decades*, edited by Richard Vangermeersch, New York: Garland Publishing, Inc. 1986, for extracts of various financial reporting milestones over the period 1902-1968.

Concomitant with the move to eliminate unprofitable steel facilities, U.S. Steel began to funnel available resources away from steel into oil and gas production activities. This change in strategy resulted in the acquisition of Marathon Oil in 1982, the purchase of Husky Oil Company in 1984, and the bringing of Texas Oil and Gas Corporation into the corporate family in 1986.

This case study seeks to identify the point during the fifty-year span when U.S. Steel's strategic plan of retrenchment in steel and expansion into a new industry first could be observed. At what point did it become evident that the company had compromised its ability to retain its historical share of the domestic steel market? Did the reported accounting numbers provide any false or misleading signals of shrinkage or expansion in the company's physical capacity to produce steel?

Measurement of the existing stock (or undepreciated value) of capital assets provides a means of ascertaining if a company has decided not to replace existing capital stock. If the bundle of services embodied in depreciation are not replaced through capital reinvestment then the bundle of services available for future periods identified as net assets will decline. In periods of constant prices, comparison of current capital investments with systematic historical cost depreciation can be utilized to ascertain whether the stock of depreciable assets is increasing or depleting. Such will not be the case, however, when prices change over time. Data that enter the accounting system when assets are originally purchased lose their economic significance as prices change. When prices are not constant the average asset age can only be approximated and disinvestment be uncovered if all assets with older price references are adjusted to reflect the latest prices and technologies. Net asset values and current depreciation must be restated in current prices, which reflect technological change, to estimate the enormity of the problem facing a particular firm to modernize.

Three series of accounting numbers pertaining to the valuation and depreciation of plant assets were developed in this study to examine changes in physical capacity. The first economic series contains actual reported financial data. Information pertaining to U.S. Steel's periodic recognition of expired capital costs in the form of depreciation, as well as information about their annual physical capital acquisitions and disposals, were collected from the annual reports generated by the management of U.S. Steel. Specific segment data derived from the 10-K reports filed with the Securities and Exchange Commis-

sion were utilized to remove oil and gas capital activities where necessary after 1983.

A second economic series eliminated variations in the reported data created by U.S. Steel utilizing different depreciation policies at different points in time. In this series, all assets were valued at historical cost and were assumed to lose their full economic value over a fifteen-year period.² Depreciation was assumed to be a linear function of time and was recorded on a straight-line basis.

The beginning balance, on January 1, 1939, in Accumulated Depreciation of \$1 billion was revised upward \$796 million to reflect the impact of the utilization of a similar fifteen-year life assumption on past depreciation recognition.³ The net undepreciated balance of \$548 million was amortized for case study purposes over the ensuing fourteen years using a sum-of-the-years-digits method.⁴ All subsequent purchases of capital assets were assumed to possess a useful economic life of fifteen years. The above assumptions enable uniform depreciation to be recognized on all plant assets acquired by U.S. Steel throughout the entire fifty-year period of the study.

The third economic series generated for this study depicts the impact of increasing replacement costs on U.S. Steel's physical capital investment policies. Historical cost depreciation and net plant assets balances valued in historical costs do not adequately reflect the long-term effect of increasing construction costs on the ability of a company to maintain a certain

²A fifteen-year economic life coincided with the actual replacement cost observed in the Japanese steel industry after World War II and roughly corresponded to the apparent shutdown policy employed by U.S. Steel in the early eighties. If the assumption is made that plant assets become obsolete and are discarded on a first-in-first-out basis, the oldest assets that continued to be operational after the last plant closings were finalized in 1987, must have been purchased no earlier than mid-1969 and thus were less than twenty years old.

³Average capital additions during the initial five-year period of the study (1939-1944) totaled \$78,250 per year. If additions of a similar magnitude had occurred with similar frequency in the years preceding the start of the period under investigation, it would have taken approximately thirty years to accumulate the gross Fixed Asset balance at January 1, 1939 of \$2.3 billion. Based on this assumption and again utilizing a fifteen-year useful economic life, sixteen years of capital additions averaging \$78,250 would have been fully depreciated by January 1, 1939, and fourteen years of similar acquisitions would have been partially depreciated.

⁴This amortization reflects the results of the assumption that identical capital additions had been made in each of the years prior to the start of the study and that all capital assets are completely depreciated over a fifteen-year period using a straight-line method.

level of service potential. In a given year, net service potential embodied in current plant additions may not completely replace the service potential consumed through production activities. Yet, because prices have steadily increased over time, the dollars paid for plant additions may greatly exceed the dollar valuation assigned to historical cost depreciation.

To standardize the dollar value assigned to undepreciated plant capacity, all historical costs utilized in the second economic series were restated to reflect current replacement costs. Historical acquisition costs were revised annually to reflect current replacement costs in a given year. An externally generated specific price index was used to perform the conversion as follows:

$$\begin{array}{rcl} \text{Replacement Cost} & & \text{Historical} \\ \text{in Year } t + n & & \text{Cost of} \\ \text{of Acquisition } i & = & \text{Acquisition } i \\ \text{Purchased in Year } t & & \text{Purchased in Year } t \end{array} \times \frac{\text{Current Index in Year } t + n}{\text{Historical Index in Year } t}$$

The ENGINEERING NEWS-RECORD (ENR) construction cost index was utilized to convert historical cost dollars to replacement cost dollars. The ENR construction cost index was created in 1921 to diagnose price changes that occurred during and immediately following World War I and to evaluate their effect on construction costs. The index, which is composed of constant quantities of structural steel, portland cement, lumber, and common labor, is designed to measure the effects of wage rate and materials price trends.

The ENR construction cost index was selected over the producer's price index (PPI) for three reasons. (1) The PPI does not include labor, which is a vital part of the construction business. (2) The PPI includes many items such as food which are unrelated to the construction business. (3) The ENR construction cost index is less volatile and better reflects changes in capital spending. Table 1 contains a summary of the ENR construction cost index for the years 1939 through 1987.

COMPARISON OF DEPRECIATION RECOGNITION

Actual Reported Depreciation

One of the goals of depreciation accounting is to distribute the cost of a capital asset over the estimated period that the unit will provide economic usefulness to the firm so that the periodic expiration is systematically and rationally matched against the

Table 1
Engineering News Record Construction Cost Index
1939-1987

<u>Years</u>	<u>Index Range</u>		<u>Average Annual Change</u>
	<u>From</u>	<u>To</u>	
1939-1947	236	413	9.37%
1948-1957	413	724	7.53%
1958-1967	724	1070	4.78%
1968-1977	1070	2577	14.08%
1978-1987	2577	4401	7.08%

periodic revenue generated by the asset. Physical factors such as wear and tear from operation, the action of time and other elements, and deterioration and decay, as well as functional factors such as obsolescence and supersession, place limits on the economic usefulness of an operational asset and ideally will be reflected in the periodic apportionment of asset cost.

Table 2 summarizes the various methods employed by U.S. Steel to record depreciation expense throughout the fifty-year period.

Examination of the various depreciation policies followed by U.S. Steel over the past fifty years suggest that the vagaries of the current income tax law, not changes in plant capacity utilization, governed the periodic corporate recognition of depreciation.⁵ Emergency facilities constructed during World War II and the Korean Conflict costing \$186,544,000 and \$812,854,000, respectively, were rapidly amortized over five-year periods. Later, in 1962, the IRS Revenue Procedure 62-21 allowed U.S. Steel to inaugurate the use of an accelerated method of recognizing depreciation on its assets for tax purposes. Management decided "after careful study of the new procedure as applied to its own properties", to base "its determination of the wear and exhaustion of facilities on the guideline procedure" [U.S. Steel, 1962, p. 5]. This move increased depreciation which reduced accounting profits available for distribution as dividends. The 20 percent double-the-declining-balance method was utilized for the next six years.

⁵Vangermeersch [1971, p.70] came to the same conclusion. He noted, "As tax accounting depreciation methods and the replacement-cost and accelerated methods became the financial accounting depreciation methods for U.S. Steel, the yearly depreciation amount became more and more the result of an arbitrary and inflexible formula geared not to production but to tax and other considerations."

Table 2
Summary of Depreciation Expense Recorded by U.S. Steel 1939-1987

Period	Depreciation		Depreciation % of Beg. Fixed Assets	Description
	Total	Average		
1939-1940	\$ 136,015	\$ 68,007	2.9%	Straight-line (SL) Depreciation
1941-1945	608,451	121,690	5.1%	SL Depreciation plus amortization of emergency facilities totaling \$186,544,000
1946	71,401	71,401	3.0%	SL Depreciation
1947	114,462	114,462	4.5%	SL Depreciation plus \$26,300,000 extra which represents 30% of original cost (Attempt to reflect replacement cost)
1948-1950	415,003	138,334	4.8%	SL Depreciation plus annual accelerated amount of 10% of cost when purchased and 10% in succeeding year (Total extra = \$112,899,000)
1951-1952	346,107	173,053	5.2%	SL Depreciation plus annual accelerated amount (\$62,004,000) plus amortization of emergency facilities certified by Defense Production Administration as essential at 20% per year (\$59,014,000)
1953-1961	2,190,838	243,426	4.9%	SL Depreciation plus amortization of emergency facilities (\$753,840,000)
1962-1967	1,961,700	326,950	4.7%	20% Double Declining Balance under IRS Revenue Procedure 62-21 plus 7% investment tax credit (\$101,500,000)
1968-1969	533,700	276,850	3.3%	SL Depreciation with revised asset lives Buildings 40 yrs.; Machinery 18 yrs., Mining 10.5 yrs., and Chemical 11 yrs. plus 7% investment tax credit (\$73,900,000)
1970-1978	3,112,900	345,878	3.3%	SL Depreciation adjusted downward in some years due to lower operations
1979-1987	4,555,300	506,144	3.7%	SL Depreciation adjusted for level of production. Minimum of 80% at capacity ≤ 50%; 100% at capacity of 85%; 130% maximum at capacity of 100%. Depreciable lives changed to 15 yrs. - Machinery; 9.5 yrs. - Chemicals; and 10 yrs. - Mining.

In 1968, "to enhance the comparability of financial statements in the steel industry" [U.S. Steel, 1968, p. 4], U.S. Steel revised the lives of certain properties and returned to a straight-line method of recording depreciation. Current tax law again played a role in the magnitude of the periodic charge. The midpoint lives provided by the IRS Asset Depreciation Range System served as the range over which depreciation was to be recognized for a particular asset. Depreciable lives remained unchanged until 1979 when most were reduced. This revision of economic lives, however, could be labeled, "Too little, too late." In the fourth quarter of 1979, U.S. Steel announced the permanent shutdown of several steel and nonsteel plants and wrote down depreciable assets a total of \$218.7 million to their estimated recoverable value. Sales revenues from these operations amounted to only about 5 percent of total sales, but the plant closings impacted more than 11,000 employees.

The 1979 downward adjustment was followed by four similar announcements over the next seven years. In 1981, management suggested that the facility shutdowns were only temporary, and were caused by "a recession compounded by excessive steel imports" [U.S. Steel, 1981, p. 3].

However, by 1982, the production suspensions were no longer considered temporary. Management blamed "sagging demand" and a company desire to "reduce costs and improve operating efficiencies, quality control and customer service" for the realignment of and curtailment of a number of plants [U.S. Steel, 1982, p. 4]. The next series of plant shutdowns occurred in 1983. Management reported, "In December we moved to preserve the best and most modern of our tools of production, to close or downsize certain operations and to consolidate others. And we struck a balance between products for the capital goods market and those for consumer-oriented markets, shifting our emphasis to flat rolled steels for automobiles and appliances, seamless pipe for the oil and gas industries and heavy plates and beams for construction" [U.S. Steel, 1983, p. 2].

In 1987, at the end of a six-month strike, U.S. Steel announced that it would not restart most of the facilities at Baytown, Texas and Provo, Utah. "We are not giving up any capacity to put product in the marketplace from where we were before the strike" [Wall Street Journal, February 5, 1987, p. 4].

The total recognition of the presence of obsolete, worn out, and unneeded physical capacity ultimately amounted to \$1,347 billion dollars. This succession of chargeoffs eliminated over 10 percent of the gross carrying value of the physical assets re-

ported at the beginning of 1979 and reduced capacity almost 50 percent.

Statement users were forewarned that problems were mounting. Throughout the forty-year period leading up to the series of write-downs, U.S. Steel management persistently admonished readers in the annual reports that allowable depreciation charges were inadequate, effective tax rates too high, and that company resources were simply not available to maintain a modern physical plant. (See Appendix 1 for excerpts of management comments).

U.S. Steel's accompanying financial statements, however, provided inadequate numerical signals of the extent to which obsolescence was eroding their physical capital base. Comparison of annual capital additions with the concurrent depreciation charges, graphically depicted in Figure 2, might erroneously suggest that U.S. Steel maintained an expanding productive capital posture throughout the post World War II era. Apparent declines in productive capacity were only portrayed in periods when emergency facilities were being amortized (1941-1945 and 1954-1956) or in the initial stages of the recognition of accelerated depreciation (1962-1965).

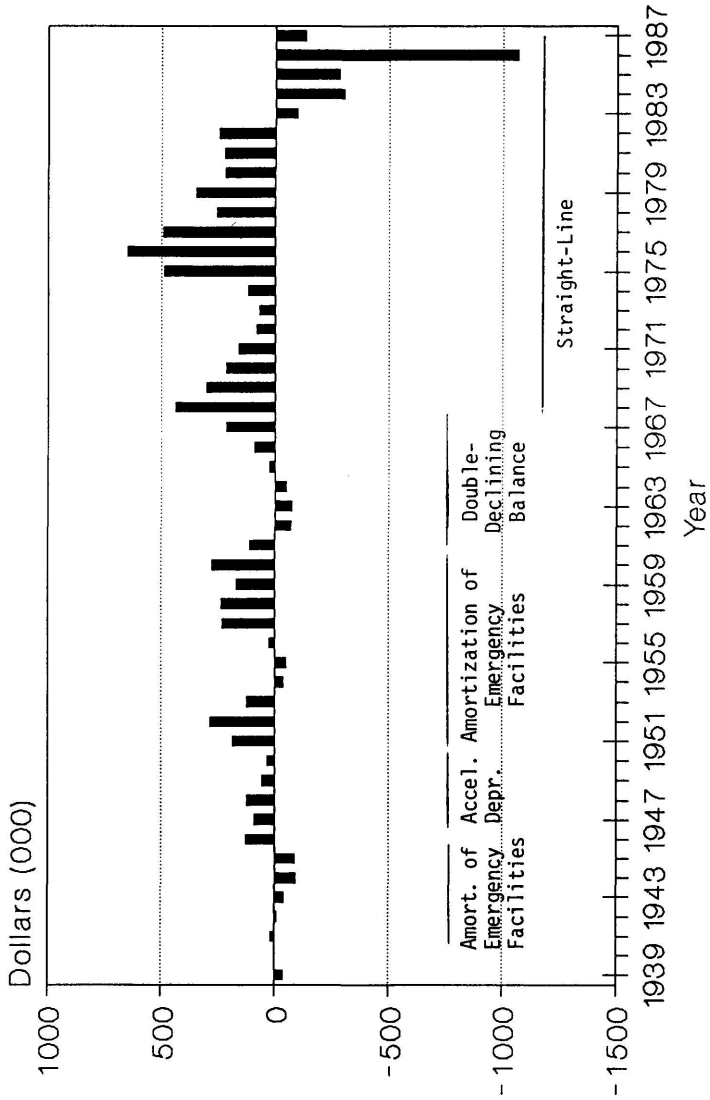
By 1967, the accounting numbers suggested that the company had begun to rapidly expand its productive capacity. Three years later management sought to confirm this image with the following comments:

"Although it will be another year or two before some major units are fully operational, almost every area of our steel operations has now been substantially upgraded . . . Our job now is to obtain the volume required to utilize the full productive capabilities of all our facilities by participating fully in the growing markets for steel" [U.S. Steel, 1970, p. 2].

However, closer analysis of Figure 2 shows that the shift in the reported accounting numbers was due, in part, to the change in depreciation methods. In 1968, the straight-line method reduced depreciation charges by \$94.0 million.⁶ If the losses associated with the plant closures are ignored, U.S. Steel expended almost twice as many funds for plant additions (\$11.2 billion) as they expensed as depreciation (\$5.8 billion) during the sixteen-year period that followed the change in depreciation methods.

⁶No cumulative catchup adjustment was shown on the income statement. APB #20 which would have required disclosure was not implemented until 1971.

Figure 2
Capital Additions minus Depreciation
Actual Reported Numbers



Not only did U.S. Steel extend the useful life of its assets, but throughout the 1970s, the company also periodically recognized depreciation that was below the amount which would have been required had production been maintained at the presumed ideal level of 85 percent of capacity. The company's depreciation policy assumed that physical factors such as wear and tear resulting from the operation of the assets, should be the major limiting factor in determining depreciation. In reality, economic factors such as technological obsolescence might have provided a better prediction of the rate at which an asset was losing its service potential.

U.S. Steel's financial statements did not reflect the contraction and retrenchment that were occurring in plant capacity until 1984 after the bulk of the plant closings had been consummated. At that time, plant additions declined drastically and remained insignificant thereafter. (See Appendix 2 for a brief discussion of the factors cited by U.S. Steel as causing the company's loss of its historical share of the global steel market.)

Historical Cost — Uniform Useful Economic Life Assumption

Existing plant assets will become outmoded as improved, more efficient machines or processes become available. To remain competitive, a company must constantly replace old physical assets with new technologies, well before the replaced assets reach the end of their physical lives. In a highly industrialized, technology-oriented economy, technological impairment will be steady and very persistent. The systematic periodic recognition of a uniform amount of depreciation regardless of the actual physical decline that an asset might actually suffer offers an indication of the process by which a company's plant capacity becomes outmoded.

Table 3 compares actual depreciation with standardized depreciation to show the effect of a uniform depreciation policy. It gives some indication of the bias generated when either the depreciation method or useful life assumption is altered. The impact on the financial statements of not maintaining a consistent depreciation policy is graphically presented in Figure 3, which depicts the cumulative difference between recorded depreciation plus the actual write-offs and depreciation charges based on a fifteen-year life straight-line assumption.

From the outbreak of World War II through 1957, U.S. Steel appears to have recognized excess depreciation charges (compared to the standardized series) in the financial statements.

Table 3
Comparison of Actual Depreciation
With a Fifteen-Year Life Assumption
Straight-Line Depreciation

Years	Reported Depreciation	Fifteen-Year Assumption	Actual Over<Under> Standardized	
			Period	Cumulative
1939-1947	\$ 930,329	\$ 716,157	\$ 214,172	\$ 214,172
1948-1957	2,119,816	1,685,872	433,944	648,116
1958-1967	2,793,832	3,264,519	(470,687)	177,429
1968-1977	3,199,500	4,437,863	(1,238,363)	(1,060,934)
1978-1987	6,369,600*	6,505,999	(136,399)	(1,197,333)

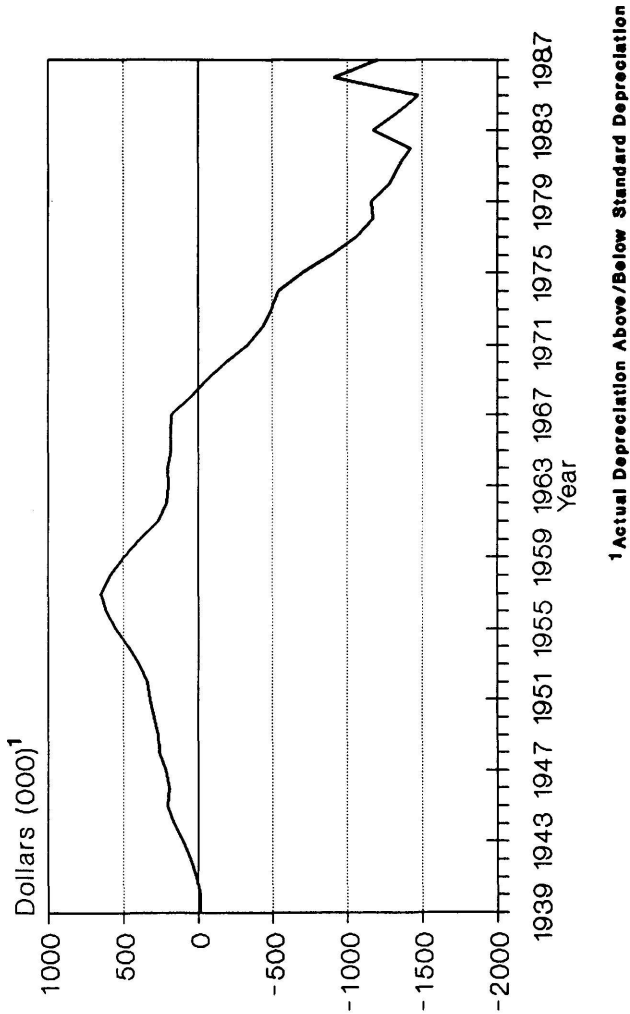
* Includes major write-offs

During this period the company utilized various accelerated methods to amortize the emergency facilities constructed for World War II and the Korean Conflict. From 1963 through 1967, financial statement recognition of a 7 percent investment tax credit and the 20 percent double-declining-balance depreciation allowed under IRS Revenue Procedure 61-21 caused reported depreciation and standardized depreciation to be quite similar. (The five-year difference was only \$31,138,000.) In 1968, however, U.S. Steel returned to reporting straight-line depreciation; thereafter, the company consistently underestimated depreciation expense. By 1978, just prior to the initial announcement of a major plant closing, cumulative underestimates exceeded \$1 billion. From 1979 through the end of the study in 1987, asset write-downs and reported depreciation roughly equaled estimated straight-line fifteen-year estimated depreciation, but individual years were markedly different.

Replacement Cost — Uniform Useful Life Assumption

The final economic series utilized to depict depreciation expense not only assumes that all property, plant, and equipment is depreciated over a uniform fifteen-year life, but further standardizes the write-off of the service potential inherent in such assets by restating historical costs to replacement costs. The revision of property, plant, and equipment to reflect the estimated costs that would be incurred if assets with similar service potential were purchased at current prices, allows the reader to more accurately estimate any remaining productive

Figure 3
Cumulative Difference Between Actual Depreciation plus Writeoffs and Straight-line (15 yr. Assumption)



capacity, because fully depreciated assets (formerly reported at low historical costs) are weighted identically after restatement to recent purchases (at higher prices) of productive assets.⁷ Table 4 summarizes historical cost fifteen-year life assumption depreciation expense restated in current prices (regular depreciation) and current year changes in replacement costs of previously depreciated service potential (catchup depreciation).

Table 4
Summary of Replacement Cost Depreciation

Years	Replacement Cost Depreciation		Catchup as Percentage of Regular Depreciation
	Regular	Catchup	
1939-1947	\$ 958,985	\$ 1,886,052	196.7%
1948-1957	2,423,510	3,121,072	128.8%
1958-1967	4,381,298	3,720,838	84.9%
1968-1977	7,199,059	15,071,021	209.3%
1978-1987	10,969,516	14,633,148	133.4%

Old (totally depreciated) assets will require the recognition of significant amounts of catchup depreciation, particularly in periods of increasing costs, as evidenced in this case by increases in the ENR Construction Cost Index. Estimates of such changes in the probable future sacrifices, which would be required to replenish current operating capacity of fully depreciated assets, are not readily available when such assets are only measured in the original prices incurred to construct the assets. These valuation problems become more pronounced as assets age and the percentage of fully depreciated capacity becomes significant relative to total capacity.

From 1968 when U.S. Steel began utilizing straight-line depreciation through 1983 when the fourth round of permanent plant shutdowns was consummated, annual catchup depreciation was, on the average, twice as large (201.5%) as regular replacement cost depreciation. After this point in time, annual catchup depreciation dropped dramatically in importance to be considerably smaller (28.5%) than regular depreciation. These numbers offer a striking contrast to the image of a rapidly expanding physical capacity as depicted in the historical cost depreciation series. Between 1968 and 1983, U.S. Steel reported that capital additions were \$4,240 million in excess of actual recorded historical cost depreciation (see Figure 2 and Table 2).

⁷See Appendix 1 for further explanation.

When asset life is held constant, only changes in the amounts needed to replace productive capacity will cause replacement cost depreciation to differ from historical cost depreciation. Figure 4, which graphically overlays the ENR Construction Cost Index on the annual restatement of depreciation in current costs, portrays the impact of changing construction costs on depreciation recognition.

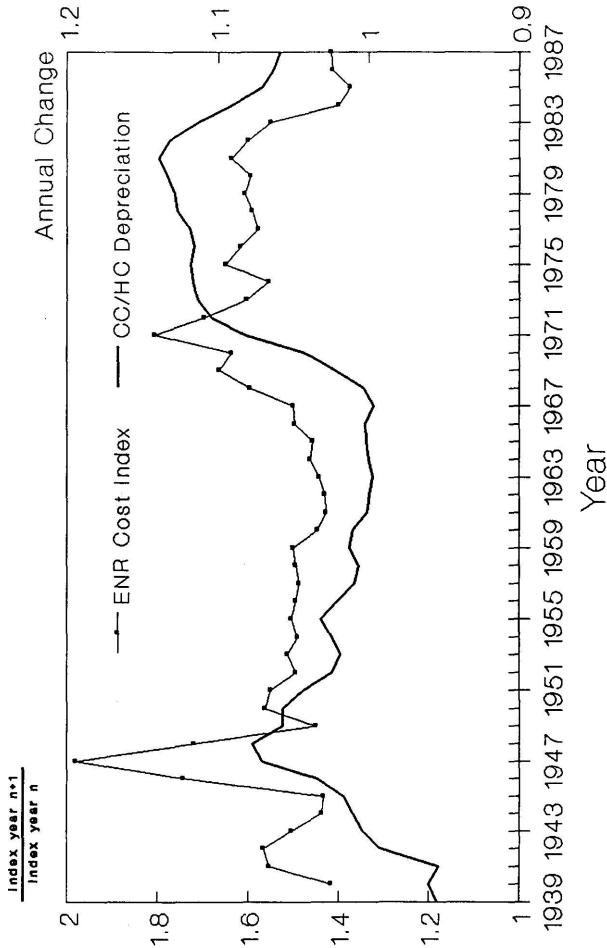
In general, changes in construction costs varied directly with the variance in replacement cost and historical cost depreciation under a fifteen-year asset life assumption. Two significant increases in the costs of construction — one immediately following the end of World War II and the second during the build-up and fighting in Vietnam — were followed in the subsequent years by a widening of the gap between replacement cost and historical cost depreciation. In the years between World War II and Vietnam, the steel industry experienced relatively small changes in the cost of construction. In particular, the U.S. Steel fixed asset accounts reflected few changes in depreciation expense restated for the fifteen-year life assumption. The two series converged only during one period. In 1972, spiraling construction costs began to abate. Yet replacement cost depreciation as a percentage of historical cost depreciation continued to widen for ten years. This ratio only began to improve in 1984, when construction cost changes began a sharp decline.

Which method of recording depreciation best reflects changes that have occurred in current productive capacity? The impact of the three alternative methods of valuing depreciation are discussed in the next section to highlight the effectiveness of each in linking capital values to prediction of future cash flows.

COMPARISON OF REPORTED INVESTING ACTIVITIES

Iron Age [January 30, 1964] asked the following question: "Is the steel industry being too cautious in its capital spending?" They answered their own question by saying: "Steel spending is high. But it still just about equals depreciation." From 1939 through 1987, U.S. Steel recorded a five-fold increase in the value of its capital assets and capital additions were approximately \$4 billion more than depreciation changes. This would suggest that U.S. Steel had been able to expand its productive capacity. Yet capacity during this same period declined from a reported high in 1959 of 41.9 million to 19.2 million tons in 1987. Was the decline in physical capacity as abrupt as historical cost

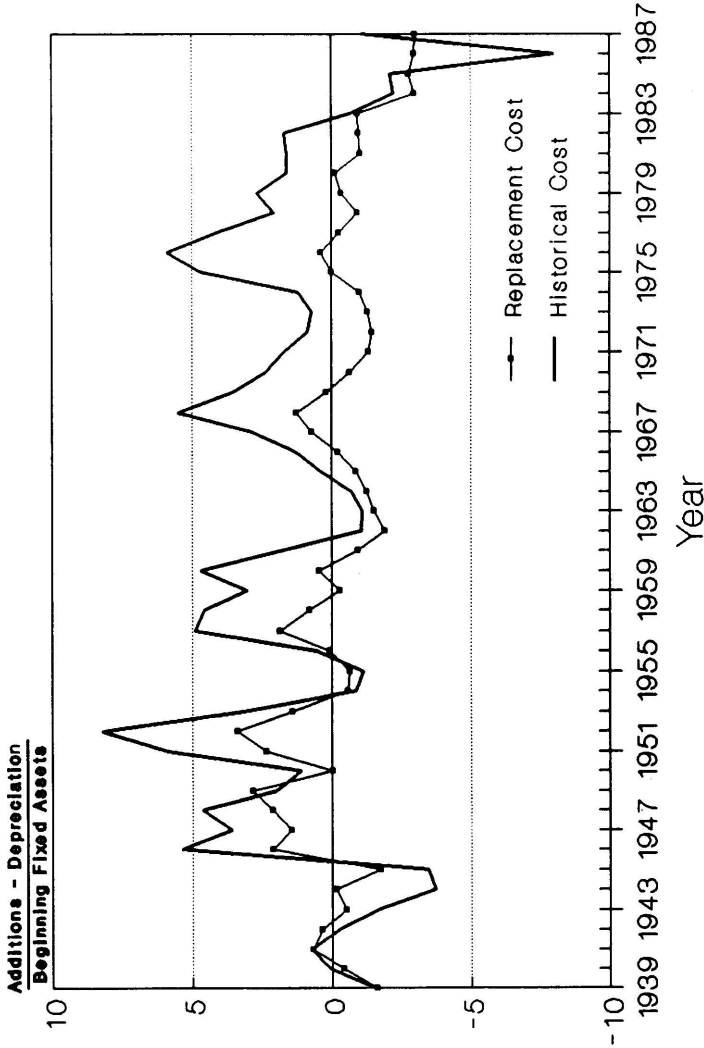
Figure 4
Comparison Of Change In ENR Construction Cost Index With
CC Depreciation/HC Depreciation (15 yr.)¹



¹Left axis applies to change in ENR construction cost index and right axis applies to change in CC/HC depreciation.

figures would suggest, or did a gradual aging process occur? Which depreciation valuation method provides the clearest signals that productive capacity was being eroded? Figure 5 pictorially compares Annual Replacement Indexes measured in historical costs with those calculated with replacement costs.

Figure 5
Annual Replacement Indexes
1939-1987



From the end of World War II until 1983 when U.S. Steel was involved extensively in the plant shutdown program, the reported historical cost numbers presented a persistent pattern of annual new capital expenditures being well in excess of the annual recognition of facility wear and tear. Only for two short periods (1954-1955 and 1962-1964) did capital additions fail to exceed depreciation charges. The first disruption of apparent steady expansion occurred immediately following the Korean War after an extensive program of modernization and expansion was completed. Tax savings, precipitated by the accelerated write-off of these emergency facilities, aided in the financing of the construction.

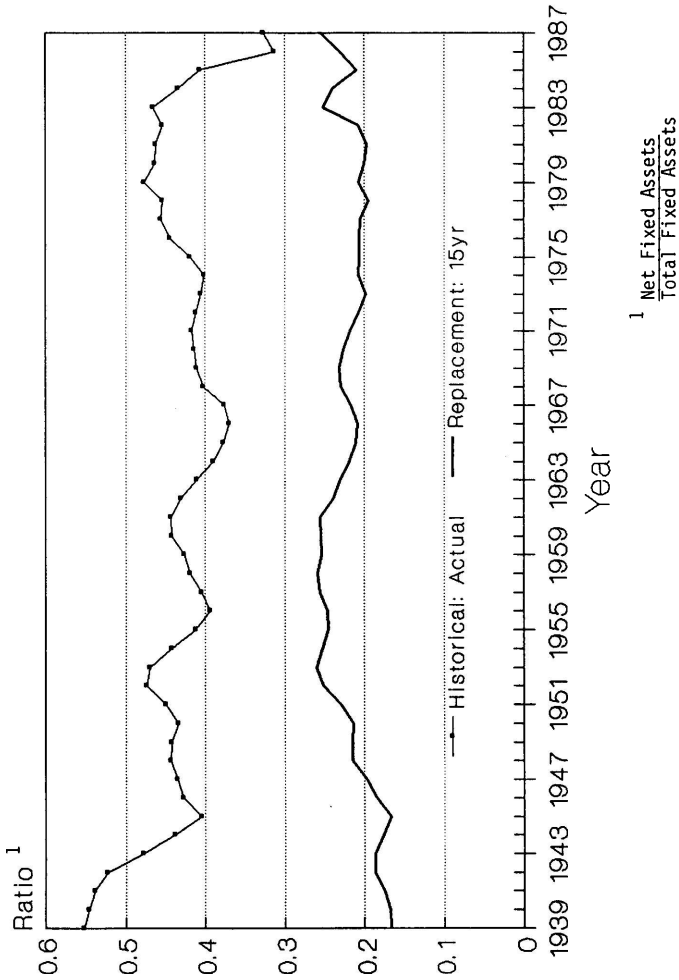
The years 1963 through 1965 marked the second period when construction expenditures did not outpace historical cost depreciation. Shifts in demand from heavy to light products were occurring, and domestic steel producers were starting to feel pressure from foreign imports. During this period, new facilities authorizations began to reflect a change in emphasis at U.S. Steel toward light, flat rolled steels. This shift culminated in August, 1965, when an enlarged \$1.8 billion facilities program was announced. For the next seventeen years capital expenditures completely outpaced recognition of wear and tear. Yet productive capacity declined from approximately 42 to 31 million tons.

The Annual Replacement Indexes revalued in current replacement costs provide a different picture of capacity expansion and contraction at U.S. Steel. With historical costs, capacity expansion did not appear to cease until 1983. In contrast, a bleak picture begins to emerge as early as 1961 when replacement costs are utilized. Thereafter, current capital expenditures are greater than depreciation charges, valued also in current costs, only in 1967-1969 and again briefly in 1976.

Comparison of the reported historical cost Net Asset Ratios with the replacement cost Net Asset Ratios (Figure 6) provides confirmatory evidence of the signal differences obtained from the two economic series. Undepreciated assets as a percentage of total assets give some indication of the age of the physical plant. Again historical costs ratios offer a much more positive image of the company's ability to maintain physical capacity over the years than does the alternative measure. Historical cost data suggest that U.S. Steel was able to modernize the plant between 1965 and 1980 (Net Asset Ratios increased from 37.7 to 46.3). Using replacement costs, one could at best only infer that U.S. Steel was holding its own. (The ratio declined slightly from 21.1 to 20.1). In 1983, historical cost Net Asset Ratios abruptly began

deteriorating from a high of 46.5 to 32.7 in 1987. Such rapid swings are not observed in the replacement cost numbers for this period. (Comparable Net Asset Ratios were 25.6 and 25.8, respectively.)

Figure 6
Net Asset Ratios
1939-1987



Figures 7 and 8 provide additional information pertaining to the annual changes in the reported historical cost and replacement cost Net Asset Ratios.

Figure 7
Annual Change in Net Fixed Assets/Gross Fixed Assets
Historical Cost — Actual Depreciation

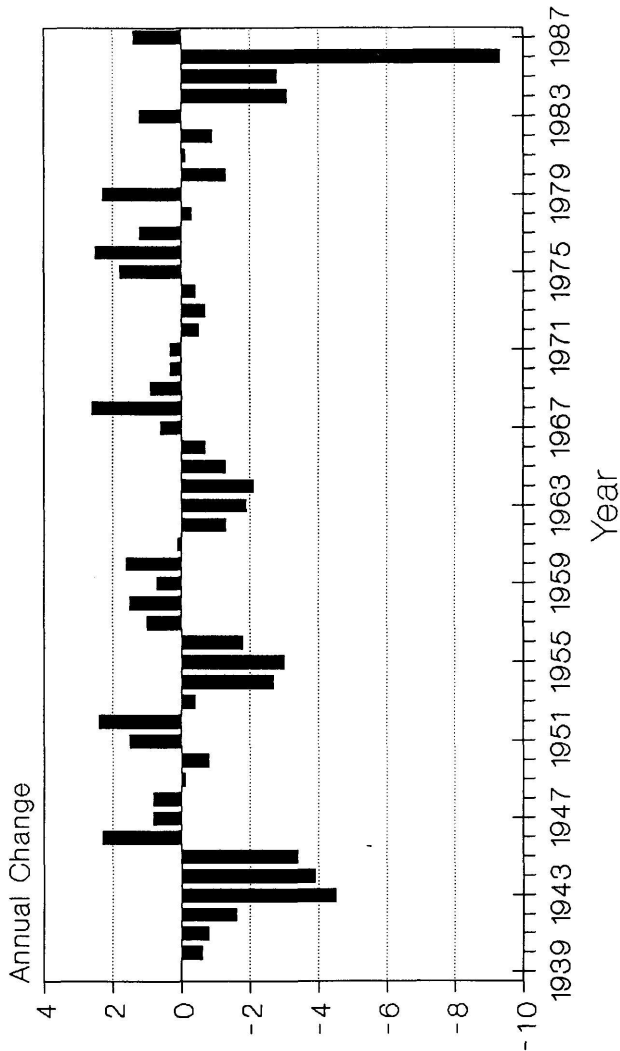
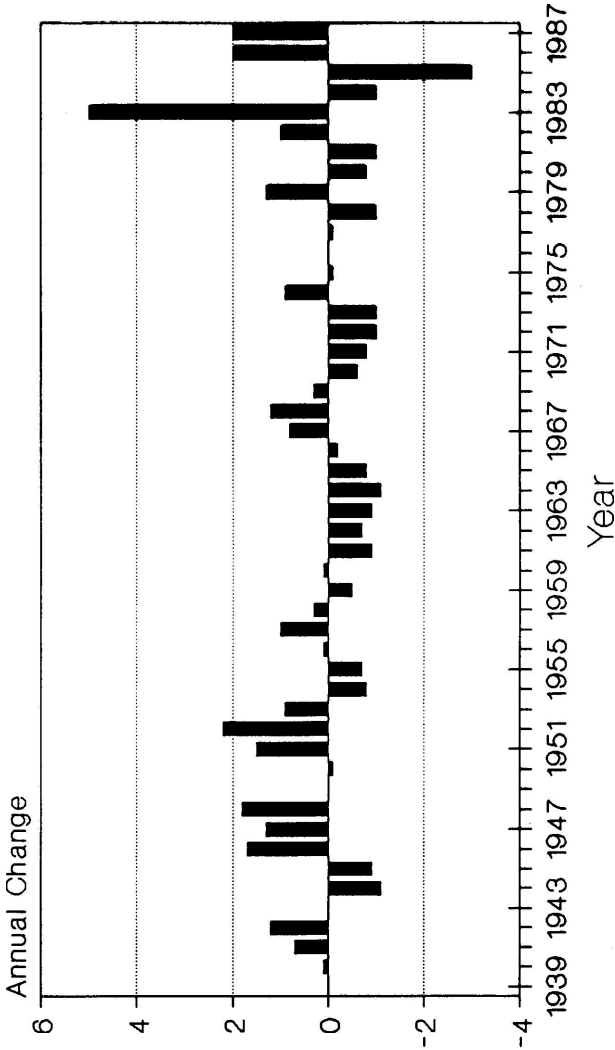


Figure 8
Annual Change in Net Fixed Assets/Gross Fixed Assets
Replacement Cost — 15 yr. Assumption



Net Asset Ratios calculated with reported financial statement numbers suggested that U.S. Steel experienced from time to time fairly large changes in the average age of the physical plant. Significant ratio declines occurred twice — once during World War II and then again during the Korean Conflict — before the plant shutdowns commenced in the 1980s. The early “plant agings” simply reflected changes in the company’s depreciation policy. The latter decline arose because previously underdepreciated assets were being abandoned. When replacement costs were utilized to develop the Net Asset Ratios, similar large negative shifts did not arise. Asset aging, particularly for the two decades beginning in 1960, appeared to be more gradual and more persistent.

One profitability measure — Return on Net Fixed Assets — was calculated to provide some indication of the bias inherent in the reported financial statements concerning management’s effectiveness in using company plant assets to generate net income. Figure 9 contrasts U.S. Steel’s reported historical cost return on investment with indexes computed on a replacement cost basis.

Historical cost indexes paint quite a different picture of long-term company performance than do numbers adjusted for replacement costs. U.S. Steel’s reported financial statements created an illusion of prosperity. The company’s “maintenance” investment policy maximized short-term profits; but, by the end of the period, U.S. Steel had completely lost its competitive advantage. The existing financial reporting system encouraged this orderly liquidation.

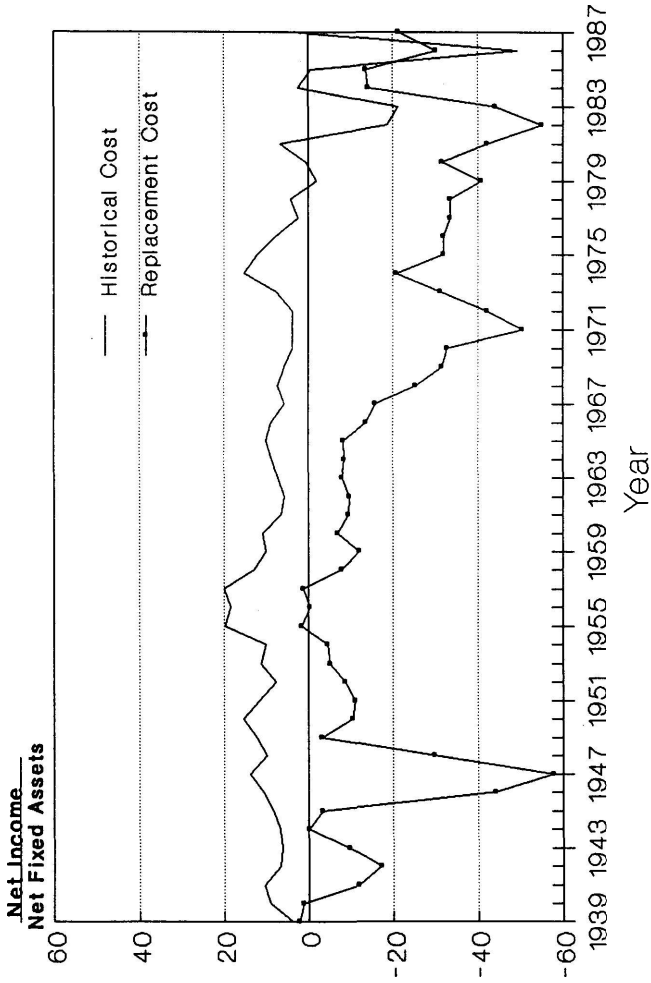
CONCLUSIONS

This paper examined the extant accounting practices for depreciation over a fifty-year span as conveyed through the financial statements of one company — U.S. Steel. Several conclusions, which deal in general with the accounting for depreciation and specifically with the information communicated by U.S. Steel, are offered.

General Conclusions:

- 1) Altering the accounting techniques used to convey information about an economic series can alter the picture conveyed to the statement user.
- 2) When prices are changing and/or new technology emerges, the use of replacement cost numbers to value current services

Figure 9
Return On Investment
1939-1987



obtained from property, plant and equipment and to estimate any remaining future service potential will more rapidly convey subtle changes in productive physical capacity and more accurately predict future reductions in acknowledged physical capacity.

Specific Conclusions Relating to U.S. Steel:

- 1) In the past fifty years, recorded depreciation has not resulted entirely from a cost allocation process whereby the cost of an asset was systematically allocated to the periods during which it would be used. Economic factors not related to matching revenues with related expenses had a significant impact on the annual depreciation charge recorded by U.S. Steel.
- 2) Current tax law, not changes in plant capacity utilization or concern with matching the periodic expiration of physical plant service potential with the periodic revenue generated by the company assets, governed the corporate recognition of depreciation.
- 3) Depreciation can be standardized so that the original cost is systematically allocated over a predetermined number of periods. Yet changing prices, particularly those incurred for the construction or purchase of long-lived assets, cause allocations of past costs to be poor predictors of future cash inflows from the sale of goods or future cash outflows for the purchase of new technology.
- 4) Recognition of the cost of replacing productive assets in the cost allocation process, provides the clearest signal of gradual changes which are occurring in a company's ability to maintain or even enhance its physical capacity to produce future goods or services.
- 5) Examination of replacement cost numbers suggest that U.S. Steel made a decision about 1960 to not commit itself to a total conversion or recapitalization in the technology newly emerging at that time. Current and anticipated resources simply were not available. U.S. Steel alternatively initiated a smaller, and thus less risky, program of partial conversion to the new technology. Concurrently, the old technology plants continued to profitably produce output (at least in historical cost terms) with the capital in place. Variable costs (particularly labor) gradually increased over time without a concomitant improvement in output per man-hour. Finally, two decades later, the price of the output being created with

the old technology could not offset current cash outlays for variable costs and U.S. Steel could no longer economically justify maintaining operations. In 1978, U.S. Steel initiated a program which ultimately resulted in the permanent closing of almost 50 percent of its reported capacity.

Webster's Ninth New Collegiate Dictionary (1985) defines a language as being any "systematic means of communicating ideas or feelings by the use of conventionalized signs, sounds, gestures, or marks having understood meanings." Accounting represents a language whereby ideas are conveyed with numbers. U.S. Steel, through its annual financial statements, imparted information to its statement users both with numbers (in the actual financial statements) and with words (in the management comments attached to the financial statements). One conveyed a message of ongoing prosperity. The other conveyed a message of impending doom. The negative message ultimately proved to be the correct one. Yet there is little indication that it was heeded by those who could have altered the path that U.S. Steel followed.

The experiences of U.S. Steel bring three questions to mind. Was the verbal message repeatedly given by company management ignored because the accounting message being transmitted offered too different a picture? Could the accounting message have been couched in different terms which would have added emphasis to U.S. Steel management's verbal warnings? Are other similar warnings going unheeded today because historical cost numbers simply do not accurately reflect the underlying economic events? Additional research into this area certainly seems advisable.

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APPENDIX 1

Excerpts from Annual Reports of U.S. Steel

- 1939 — "[D]epreciation and depletion of property is an inescapable cost element in production and, unless an adequate sum can be currently set aside to cover these unseen costs, the corporation might at some future time find that its facilities had been worn out or depleted and that provision for their replacement has not been made" [p. 12].
- 1947 — "It is a simple fact that to buy similar tools of production takes many more dollars today than formerly; to count as profits, rather than as

- cost, the added sums required merely to sustain production is to retreat from reality into self-deception" [p. 14].
- 1954 — "Depreciation amounts as ordinarily calculated and recognized in tax laws . . . have failed to perform their vital revolving-fund function of maintaining the supply and modernness of the tools of production. The reason for this: The total number of dollars that can be recovered in depreciation over the life of a given facility is limited to the number of dollars originally expended for the facility. But the buying power of the dollar has not remained at all stable . . . If depreciation cost is understated in current buying power, then income is correspondingly overstated . . . This is unfair and unfortunate because it results in the taxation of capital" [pp. 23-24].
- 1956 — "[The current Federal taxation system] may be regarded as the hidden taxation of capital as it turns over through depreciation or, alternatively, as a hidden increase in the tax rate on true income . . . The prospect is that the portion of reported income that must be regarded as "phantom" income, because it is required to maintain the business under conditions of continuing inflation, will increase . . . As basic costs continue to be forced upward, and as the depreciation deficiency widens, management's problem of finding the dollars required to maintain the business becomes more acute" [pp. 27-28].
- 1960 — "The part that government can constructively play in promoting the growth process is strictly limited, but the part it can play in preventing growth is virtually unlimited . . . [The government's] tax and regulatory powers can be used to destroy utterly the incentive and ability to save and productively invest that are essential to growth. [Under the current tax code, the calculation of depreciation] must be based on the prices paid years ago — twenty-five years or more in the case of U.S. Steel . . . The deficiency amount which should realistically be regarded as depreciation is thus treated as income and on that pretense over half of it is taxed away. This is more than inimical to growth; it puts a tax on just staying even" [pp. 26-28].
- 1966 — "Capital is, in a word, tools — everything invested to further production . . . Facility modernization and product innovations blur, even obliterate, the line of distinction between replacement and expansion of capacity . . . The financing of replacement should be covered by adequate depreciation . . . There is thus need for realistic depreciation allowances, geared to both the acceleration of obsolescence and to the inflationary erosion of the dollar" [pp. 33-38].
- 1969 — "The current tax formula is based on charges for depreciation of dollars invested in the past. But because of inflation, these dollars have less buying power today, and thus the depreciation allowed is too small even to maintain existing investment . . . As the widening gap between return of capital needed and that allowed is taxed as profits, the real tax rate rises and the incentive to invest falls" [pp. 37-38].
- 1976 — "Because of the long lives over which our investment in facilities is required to be recovered, inflation exacts a heavy toll. The purchasing power of the dollars recovered through depreciation, therefore, is but a fraction of the amount actually needed to replace the equipment" [p. 5].
- 1980 — "Present tax laws limit depreciation to the original cost of facilities . . . [This] means that only part of the cost of replacing worn out facilities can be recovered as a cost of doing business . . . Confiscation of private property was never contemplated by Congress. Yet, confiscation is

occurring at an accelerated pace. Inflation, when combined with our existing tax laws, is the cause. Tax reform to alleviate the effects of inflation — through faster write-off of plant and equipment — is no longer simply desirable, it is imperative" [pp. 33-34].

APPENDIX 2

Discussion of Factors Cited by U.S. Steel

U.S. Steel cited three factors, beyond the Federal tax policy, as exacerbating their ability to retain their historical share of the global steel market. The company faced intense pressures internally from labor and the Federal government and externally from foreign steel producers. Management suggested that these pressures ultimately played an important role in U.S. Steel's decision to reduce its steel-making operations.

Union Pressure

U.S. Steel experienced persistent union pressure for increased wages and benefits. During the 1950s, a cycle of union demands which were not subject to "dickering or compromise," strikes, and compromises brought successively larger wage increases, insurance and pension benefits, vacation pay and automatic cost of living adjustments to the worker.

In 1956 the Company noted, "For the best part of two decades, U.S. Steel's employment cost per employee hour . . . [has] advanced at a rate, compounded annually, averaging 8.1% . . . [T]he vast power of industry-wide labor unions in compelling annual increases in employment costs far beyond increases in productivity is automatically compelling inflation" [p. 25]. And, in 1959, "The long-term increase in output/man-hour (since 1940) has been equivalent to only a little over 2% per annum" [p. 29].

Even though the frequency of extended work stoppages declined in the subsequent years, wages continued to rise, but productivity did not improve. U.S. Steel warned in 1979.

"Labor cost must be competitive. Higher labor rates can be justified only if that labor is more productive and can provide a product or service which is competitive . . . No nation or company can long survive if the price and productivity of its labor is noncompetitive . . . Since the early seventies, there has been little productivity improvement in steel . . . For the coming decade, it is quite clear that collective bargaining improvements must be earned by improved productivity" [p. 14].

And again in 1982.

"The only alternative to the permanent loss of both steel mills and steelworker jobs was a moderation in labor costs to bring them more into line with those of other manufacturing workers" [p. 3].

The escalation in hourly wage costs did not subside until 1983 after steel plants had begun to be permanently idled. In 1982, the average hourly wage of steelworkers was \$21.61, which represented a 1,579 percent increase over the 1945 average hourly wage of \$1.287. The Consumer Price Index during this same period increased only 436 percent.

A significant wage reduction was finally achieved in 1986, after steel plants had been idled by a six-month strike.

"We were determined to get a competitive labor settlement which would give our steel business a fighting chance to survive in a tough marketplace. Although we had to endure a six-month strike, we attained our objective" [p. 4].

Government Pressure

Throughout the fifty years of the study, the Federal government also applied extensive pressure on U.S. Steel; first, to hold down prices, and later, to comply with environmental standards. Several company comments relating to government pressure follow.

Price Controls:

- 1945 — "Price controls in peacetime is a simple denial to customers of their right to bring about and to support production of the goods and services they want . . . Price and cost changes that significantly narrow profit margins inevitably repel investment and employment in additional production" [p. 24].
- 1952 — "[Since the start of World War II, one of the] principal devices employed to undermine the profit incentive has been the virtually continuous direct or indirect imposition of ceilings on steel product prices during a period when Federal fiscal and monetary policies were debasing the buying power of everybody's dollars" [p. 24].
- 1958 — "He who would squeeze income reinvested to increase wages, taxes or other costs, or to reduce prices, would be squeezing out . . . the most immediate and direct means that exists of financing and expanding industrial capacity, important in peacetime and essential in wartime" [p. 29].
- 1964 — "Steel prices are virtually the same as six years earlier" [p. 5].
- 1973 — "On January 25, 1974, the Cost of Living Council granted what was for U.S. Steel a very nominal increase in pricing authority on steel products against the substantial cost increase incurred since 1972" [p. 2].

Environmental Regulations:

- 1973 — "We believe the time has come when environmentalists at all levels must carefully weigh the full costs of further pollution abatement against the probable benefits, particularly where elimination of the final insignificant percentage of contaminants may be several times as costly and use many times as much energy as eliminating the first 99%" [p. 16].
- 1975 — "In today's climate, some governmental regulations are so restrictive and so costly to apply that it may be impossible to add the needed new capacity and thus provide additional job opportunities . . . It is not technologically or economically feasible to operate many facilities for the production of steel . . . with no emissions" [p. 6].
- 1977 — "A factor significantly restricting the Corporation's ability to invest in job-producing tools for the future is the mounting pressure for retrofitting of older facilities with sophisticated and highly expensive environmental control facilities . . . The economics of

[capital investments to comply with the implementation of environmental laws] may, at the time they are to be made, dictate that certain facilities be abandoned instead of modified to comply with the requirements" [p. 21].

In 1979, the company noted that it had invested \$2.1 billion in the past five years in investments to reduce steelworking costs and \$.6 billion for nonincome producing environmental facilities.

Foreign Pressure

In the late 1950s, U.S. Steel began to experience pressure from abroad as well as at home, as foreign steel at extremely competitive prices began to enter the country. At its peak, in 1984, imports comprised 26.4 percent of the domestic market.

Company management described this problem in the following ways.

1959 — "There is increasing competition from other steel producers, both in the U.S. and in foreign countries, from other materials such as aluminum and plastics, and from technological advances which affect materials requirements throughout industry" [pp. 11-12].

1961 — "Foreign producers with recreated modern capacities are increasingly able to compete with American producers in international markets . . . America is costing itself out of foreign markets, and out of the jobs of producing for them, while foreign producers are invading our domestic markets . . . [If] the cost inflation remains unhalted, it seems quite clear that we will not be able to balance what we buy or give abroad with what we sell or get from abroad" [p. 29].

1964 — "For the first six decades of the 20th century, the U.S. economy was an exporter of steel mill products. Starting in 1959 and in every year since, imports of steel mill products have exceeded exports . . . Much of the steel imported from foreign countries into this country has been sold at prices substantially below those prevailing both in their own domestic markets and in the U.S. markets" [p. 37].

1967 — "Prices of foreign steel sold in the United States are substantially below U.S. domestic prices. Limited data available indicate that price differences arise primarily because of the large cost advantage — principally employment costs — enjoyed by foreign steel-makers [p. 18] . . . Many foreign producers have an added advantage because the installed costs of new facilities abroad are far less than in the United States. (Due to pollution control equipment requirements) [p. 20] . . . U.S. import vulnerability increases when and where low foreign wages are accompanied by productive capability and capital availability" [p. 35].

1978 — "Many of these imports were dumped here at . . . prices below their costs, or below what they sell the same products for in their own countries. Dumping hurts the domestic steel industry and the American economy through lost jobs, sales and profits . . . Today, the U.S. is the only industrialized nation unable to supply its own steel needs. If solutions are not found, we will become even more dependent on foreign sources of supply" [p. 6].

Summary

U.S. Steel was unable to find any workable solution to the wage-price squeeze on profits. This, coupled with the fact that their capital base was deteriorating, caused the company to become increasingly noncompetitive in the international market. After several decades of warnings, U.S. Steel finally in the early 1980s began to search for alternative investments.

1984 — “A New U.S. Steel came into its own in 1984 . . . Today our Oil and Gas segment is now our major line of business in terms of both revenues and earnings” [p. 2].

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A HISTORY OF THE ACADEMY OF ACCOUNTING HISTORIANS 1973-1988

Abstract: This paper traces the evolution of The Academy of Accounting Historians from its formation in 1973 through 1988. The Academy has evolved from an idea to an important international organization.

INTRODUCTION

The primary purpose of writing this history of The Academy of Accounting Historians (The Academy) is to provide a source of information about The Academy and the people who have contributed to its establishment and success. The history also will help in evaluating the progress of The Academy and assist in planning its future role.

The methodology used to construct this history consisted of a review of source materials such as the minutes of the annual trustees and business meetings, correspondence and memoranda in the files of The Academy, personal interviews with founding members, and the recollections of persons involved with it during the last fifteen years. An overview of The Academy's development is presented first followed by detailed discussions of its various activities.

AN OVERVIEW OF THE DEVELOPMENT OF THE ACADEMY OF ACCOUNTING HISTORIANS

In 1968, the American Accounting Association (AAA) established the Committee on Accounting History. The committee was charged to "propose objectives for research in accounting history, develop guidelines for the teaching of accounting history in undergraduate and graduate courses, and provide a

forum (perhaps a roundtable at Association conventions) through which those interested in the teaching or research of accounting history can hear papers and exchange ideas" (AAA, Committee on Accounting History, 1970, p. 53).

The committee report submitted to the Executive Committee of the AAA in 1969 supported the need for both accounting history research and accounting history in graduate curricula. Concern was expressed, however, about the lack of research in accounting history and of financial support for such research. Appended to the report was a general description of some major sources of historical materials available in private and public libraries in various parts of the world. This information on the sources of accounting history was included to help stimulate interest in research and writing in the field. The committee report concluded that "the Association [AAA] must recognize that historical research is a continuing and necessary element in the overall research effort of scholars in an academic discipline." This report also mentioned that the Association might participate in joint financing of historical studies as well as schedule papers or roundtables on accounting history at national and regional meetings [*Ibid*, p. 55].

There was no indication that the AAA responded to the recommendations of the Committee on Accounting History. In 1973, as a result of the committee report and the implied lack of interest by the AAA in continuing the Committee on Accounting History, a small group of accounting professors (notably Gary John Previts and S. Paul Garner) concluded that a separate organization was needed to serve individuals interested in advancing the study of accounting history.

1973-1975

Previts wrote to a number of individuals who he believed had a general interest in accounting history and in promoting research in this area to see if they would work with him [as a steering committee] during the summer of 1973 to consider chartering a new accounting history group. After the comments from the persons invited to join the steering committee had been evaluated, the decision was made to move forward with the formation of a new organization. Previts contacted H. Thomas Johnson, who was then on the faculty of a Canadian university, to secure his assistance in arranging a meeting place on the campus of Université Laval. A Chartering Committee was subsequently established and Post Office Box 6999 was rented at the

University Station at the University of Alabama in Tuscaloosa. The initial Chartering Committee consisted of:

Richard P. Brief (New York University),
S. Paul Garner (University of Alabama),
H. Thomas Johnson (then at University of Western Ontario),
Gary John Previts, coordinator (then at University of Alabama),
Alfred R. Roberts (then at University of Missouri),
Williard E. Stone (University of Florida),
James O. Winjum (then at University of Michigan),
and
Stephen A. Zeff (then at Tulane University).

On August 15, 1973, at the Faculty of Business Administration Building at Université Laval in Québec, Canada, those academicians interested in accounting history met during the annual meeting of the AAA and formed The Academy of Accounting Historians.¹ Previts, who chaired the meeting, was elected president and Roberts was elected secretary of the newly formed Academy. The names of those who signed the roster at the formative meeting are listed in Table 1; twelve of the registrants are still members as of this writing.

Table 1

**Persons² in Attendance at the Formative Meeting of
The Academy of Accounting Historians
August 15, 1973**

Clifford Brown (then at Rochester Institute of Technology)
James Caldwell (then at Texas Tech University)
Glenn D. Downing (Southwest Missouri State University)
W. Baker Flowers (University of Alabama)
S. Paul Garner (University of Alabama)
Dan M. Guy (then at Texas Tech University)
H. Thomas Johnson (then at University of Western Ontario)
Orville R. Keister, Jr. (University of Akron)
James J. Linn (Tulane University)

Continued on next page

¹The organizational name incorporating the word Academy was suggested by Previts who, after having observed the word *academy* on the back of a tube of toothpaste, was convinced that that term would be a unique way to establish the group's identity.

²Throughout this history, the affiliation of each person is generally identified when the name is first mentioned and is not repeated unless the affiliation has changed.

Table 1 — Continued

Herschel Mann (Texas Tech University)
 Kenneth S. Most (then at Texas A&M University)
 Edward Peragallo (College of The Holy Cross)
 Gary John Previts (then at University of Alabama)
 Alfred R. Roberts (then at University of Missouri)
 Ephraim P. Smith (then at Shippensburg State College)
 Williard E. Stone (University of Florida)
 Richard G. Vangermeersch (University of Rhode Island)
 Murray C. Wells (University of Sidney)
 Stephen A. Zeff (then at Tulane University)
 Vernon K. Zimmerman (University of Illinois)

The Academy was established to serve as an autonomous, service-oriented organization to assist academicians and practitioners throughout the world to further their study in the many aspects of the evolution of accounting thought and practice. In particular, the concept of The Academy was

- To demonstrate the relevance of history to contemporary accounting.
- To encourage scholarly work and exchange of ideas among historians pursuing accounting subjects.
- To establish activities such as workshops and seminars to assist in developing and disseminating historical methodology.
- To promote the teaching of historical subject matter as a part of existing coursework and as part of unique historical curricula.
- To coordinate activities with international accounting history groups in European countries, Australia, India, and other countries.
- To emphasize the need for continued research in accounting history, both developmental history and thought history, by employing conceptual, quantitative, and experimental models.

The Academy of Accounting Historians was incorporated as a not-for-profit organization under the laws of the State of Alabama and registered in the Tuscaloosa County Courthouse on December 28, 1973. Flowers, Garner, and Previts, all residents of Alabama, served as directors of the corporation. Early in 1974, The Academy was granted provisional tax exempt status by the Internal Revenue Service.

As a result of the activities of the formative meeting in Québec in 1973, President Previts of The Academy prepared a



David Mathews (right), University of Alabama president, and Robert B. Sweeney (left), chairman of programs in accounting and information systems, University of Alabama, congratulate Gary John Previts for his role in establishing The Academy of Accounting Historians. (Tuscaloosa News, January 27, 1974)

draft of the proposed bylaws to present to the membership for review at the second annual business meeting. At this meeting held in New Orleans on August 20, 1974, the members adopted the bylaws. Stephen A. Zeff proposed the only major change in the proposed bylaws, the incorporation of a price-level adjustment clause for determining the level of discretionary spending permitted by officers without approval by the trustees.

As with the first two annual meetings, The Academy holds its annual meetings in conjunction with the annual meetings of the AAA. Although The Academy is an entirely independent organization and not a section of the AAA, the two organizations have had a cooperative relationship. The Academy has been provided opportunities to participate cooperatively in the programs of the national and regional meetings of the AAA. From time to time, the issue of The Academy's relationship with the AAA has been put before the trustees, officers, members, and key personnel of The Academy. Each time the question was addressed (1975, 1978, 1980), the decision was made to continue as an autonomous group.

In addition to holding its annual meetings, The Academy has held meetings of trustees, officers, and other key personnel

to transact the affairs of the organization. The dates and locations of the annual meetings of The Academy are listed in Table 2.

Table 2
Dates and Locations of Annual Trustees and Business Meetings
of The Academy of Accounting Historians
1973-1988

<u>Date</u>	<u>Location</u>
Wednesday, August 15, 1973 (Formative meeting)	Québec Cité, Canada Université Laval
Tuesday, August 20, 1974, Business	New Orleans, Louisiana Fairmont Hotel
Monday, August 18, 1975, Business	Tucson, Arizona Braniff Place
Monday, August 23, 1976, Business	Atlanta, Georgia Hyatt Regency
Monday, August 22, 1977, Business	Portland, Oregon Hilton Hotel
Sunday, August 20, 1978, Trustees	Denver, Colorado
Monday, August 21, 1978, Business	Denver Hilton
Wednesday, August 22, 1979, Business	Honolulu, Hawaii Sheraton Waikiki Hotel
Monday, August 11, 1980, Trustees Business	Boston, Massachusetts Boston Sheraton
Thursday, August 6, 1981, Trustees Business	Chicago, Illinois Executive House Hotel
Monday, August 16, 1982, Trustees Business	San Diego, California Stardust Hotel
Monday, August 22, 1983, Trustees Business	New Orleans, Louisiana Monteleone Hotel
Thursday, August 16, 1984, Trustees Business	Toronto, Canada Holiday Inn-Downtown
Monday, August 19, 1985, Trustees Business	Reno, Nevada Peppermill Inn and Casino
Wednesday, August 20, 1986, Trustees	New York City
Thursday, August 21, 1986, Business	Sheraton Centre & Towers
Sunday, August 16, 1987, Trustees	Cincinnati, Ohio
Monday, August 17, 1987, Business	Omni Netherlands Plaza
Sunday, August 14, 1988, Trustees	Orlando, Florida
Monday, August 15, 1988, Business	Marriott's Orlando World Center

As a result of The Academy's fiscal year being the calendar year, officers and trustees are elected at the annual meeting in August, but take office in January of the next year.³ Although officers of The Academy are elected annually, those elected president were generally elected to a second term until the office of president-elect was established in 1985, and those in other offices were generally reelected for various terms. The bylaws were changed in 1985 to provide for the election of a president-elect who becomes president the following year. The Board of Trustees, which is to be no less than twelve and no more than twenty members, consists of the officers of The Academy and members elected by the general membership. The term of office of trustees, who are not officers, is three years with at least two trustees to be elected each year. In light of this, the term of office of the original appointed trustees varied from one to three years. The names and terms of service of those who have served as officers and elected trustees are presented in Table 3 and Table 4, respectively.

The year 1974 was an active year for The Academy and President Previts. Several activities were undertaken in that year that established the future direction of The Academy. Alfred R. Roberts developed The Academy's emblem (see Exhibit 1) that is used on materials such as the then newly established brochure describing the objectives and functions of The Academy.

The first issue of its newsletter, *The Accounting Historian*, was published, and shortly thereafter a Working Paper Series was introduced. These two publications became The Academy's first communication and publication outlets. During 1974, the President's Hourglass Award was established to recognize significant contributions to the literature of accounting history.

The Academy has had a limited number of standing committees during its history. As a result, its committee structure has varied as each president established the committees necessary to accomplish the activities of his administration. Although the activities of each administration have differed, they were designed to expand and enhance The Academy's dedication to serving those interested in accounting history.

³Some members, including Andrew Barr, have suggested ending the fiscal year in August so that the new officers can take office after the annual meeting in August, thus avoiding loss of leadership momentum after the annual meeting.

Table 3
Officers of The Academy of Accounting Historians
1973-1988

Year	President	President-Elect	Vice President	Vice President	Secretary**	Treasurer**
1973*	Gary John Previts	—	—	—	Alfred R. Roberts	—
1974	Gary John Previts	—	—	—	Alfred R. Roberts	—
1975	Gary John Previts	—	Maurice S. Newman	Richard H. Hornburger	Alfred R. Roberts	—
1976	Alfred R. Roberts	—	Hanns-Martin W. Schoenfeld	Charles W. Lamden	Richard W. Metcalf	—
1977	Alfred R. Roberts	—	Hanns-Martin W. Schoenfeld	Charles W. Lamden	Anthony T. Krzystofik	—
1978	Hanns-Martin W. Schoenfeld	—	Horace R. Givens	Felix Pomeranz	Alfred R. Roberts	Anthony T. Krzystofik
1979	Hanns-Martin W. Schoenfeld	—	Horace R. Givens	Felix Pomeranz	Alfred R. Roberts	Anthony T. Krzystofik
1980	Richard P. Brief	—	H. Thomas Johnson	Kenneth O. Elvik	Alfred R. Roberts	Richard G. Vangermeersch
1981	Richard P. Brief	—	H. Thomas Johnson	Kenneth O. Elvik	Alfred R. Roberts	Richard G. Vangermeersch
1982	H. Thomas Johnson	—	Kenneth O. Elvik	Norman X. Dressel	Alfred R. Roberts	Richard G. Vangermeersch
1983	H. Thomas Johnson	—	Kenneth O. Elvik	Norman X. Dressel	Alfred R. Roberts	Richard G. Vangermeersch
1984	Edward N. Coffman	—	Dale L. Flesher	Eugene H. Flegm	Alfred R. Roberts	Richard G. Vangermeersch
1985	Edward N. Coffman	Mervyn W. Wingfield	Dale L. Flesher	Eugene H. Flegm	Alfred R. Roberts	Richard G. Vangermeersch
1986	Mervyn W. Wingfield	Richard G. Vangermeersch	Dale L. Flesher	Eugene H. Flegm	Alfred R. Roberts	Richard G. Vangermeersch
1987	Richard G. Vangermeersch	Dale L. Flesher	Eugene H. Flegm	Barbara D. Merino	Alfred R. Roberts	Kenneth O. Elvik
1988	Dale L. Flesher	Eugene H. Flegm	Barbara D. Merino	Lee D. Parker	Alfred R. Roberts	Kenneth O. Elvik

* August 15, 1973-December 1973

** From August 15, 1973 - December 1977, the secretary's position included treasurer's functions.

Table 4
Past and Present Elected Members of the Board of Trustess of
The Academy of Accounting Historians
1973-1988

Name	Term
Tito Antoni	1985-87
Maureen H. Berry	1987-89
Richard P. Brief	1978-80, 1982-84, 1985-87, 1988-90
Thomas J. Burns	1977-79
Michael Chatfield	1981-83
Edward N. Coffman	1979-81, 1982-84, 1986-88
Doris M. Cook	1985-87
Norman X. Dressel	1984-86, 1987 ^d
Marc J. Epstein	1975-77 ^c
Dale L. Flesher	1983-85
Paul Frishkoff	1984-86
S. Paul Garner	1975-77 ^c
Horace R. Givens	1980-82
Dahli Gray	1988-90
Richard H. Homburger	1976-78
Hans V. Johnson	1980-82
H. Thomas Johnson	1984-86, 1987-89
Osamu Kojima	1981-83, 1984-86
Anthony T. Krzystofik	1980-82
Harvey Mann	1986-88
Barbara D. Merino	1981-83, 1984-86
Kenneth S. Most	1975 ^a
Maurice S. Newman	1976-78, 1979-81
Lee D. Parker	1985-87
Robert H. Parker	1983-85, 1986-88
Felix Pomeranz	1980-82
Gary John Previts	1973-August 19, 1985*, 1976-78, 1986-88
Alfred R. Roberts	1978-80
Hanns-Martin W. Schoenfeld	1980-82, 1983-85, 1986-88
Philip K. Seidman	1975 ^a , 1976-78, 1986-88
William G. Shenkir	1975 ^a
Ross M. Skinner	1982-84
Elliott L. Slocum	1987-89
George H. Sorter	1979-81
Mary S. Stone	August 19, 1985*-present
Williard E. Stone	1975-76 ^b
Rasoul H. Tondkar	1988-90
Richard G. Vangermeersch	1988-90
Murray C. Wells	1975-76 ^b , 1977-79
Mervyn W. Wingfield	1983-85, 1987-89
Arthur R. Wyatt	1979-81, 1982-84
Basil S. Yamey	1982-84
Stephen A. Zeff	1975-77 ^c , 1978-80
Vernon K. Zimmerman	1975-76 ^b , 1977-79, 1980-82, 1983-85

*Corporate Agent for The Academy. The position has trustee status but is nonelective.

^aOriginal trustee, 1 year term; ^bOriginal trustee, 2 year term; ^cOriginal trustee, 3 year term; ^dDeceased August 30, 1987, Elliott L. Slocum *appointed* as replacement.

Exhibit 1

The Academy of Accounting Historians Emblem and Its Interpretation



Interpretation:

The lamp is symbolic of knowledge, the opened book represents recorded history, the hourglass is a symbol of the sands of time, and the sun encompassing the all-seeing eye represents the holistic nature of history. The literal translation of the inscription from the Latin is "past events illuminate future events."

(Note: In the 1974 original emblem, the lower right quadrant contained an inkwell with a quill that represented the recording of history; the hourglass was substituted for this part of the emblem in the fall of 1975.)

In late 1974, President Previts formed the steering groups listed below (the group director is indicated in parentheses). These groups were formed to:

1. Organize the Second World Congress of Accounting Historians (Richard H. Homburger, Wichita State University).
2. Explore the feasibility of a regular refereed periodical prepared under the auspices of The Academy to promote and disseminate research in accounting history (Williard E. Stone).
3. Develop the appeal and usefulness of historical materials for practitioners and accounting firms (Maurice S. Newman, then at Haskins & Sells).

He also formed three *ad hoc* committees: the Research Committee, the Translation Committee; and the Taxonomy and Bibliography Committee.

The Research Committee was charged (1) to establish topics and relative priorities for sponsored and personal historical research over a three- to five-year period that would be most beneficial to the accounting discipline and (2) to identify and evaluate appropriate methodologies for research in accounting history. Members of the committee, which issued its first report in 1975, were:

Michael Chatfield (California State University at Hayward),
Richard H. Homburger,
Konrad W. Kubin, Chairperson (Virginia Polytechnic Institute and State University),
Murray C. Wells, and
Basil S. Yamey (London School of Economics and Political Science).

Members of the Research Committee agreed first to concentrate on preparing a list of research projects in accounting history that members of The Academy wished to see investigated. To identify such research projects, committee chairperson Kubin developed and mailed a questionnaire to all members of The Academy except those living in Australia and the United Kingdom. These two countries were represented on the committee by Professors Wells and Yamey who conducted a similar poll of members in their respective countries. The questionnaire requested the respondents to (1) identify projects, areas, or topics in accounting history that needed further research, (2) list the significance of, or reasons for, each proposed project, and

(3) denote the research methodology and the disciplines or skills required to carry out each of the suggested projects.

The Translation Committee's charge was to establish a listing of materials for which translations should be undertaken and to set the priorities for such translations; to identify the language capabilities of Academy members and their willingness to participate in translation projects; and to develop means of funding and/or sponsorship for the publication of translations. The committee issued its first report in 1975. Committee members were:

Hermann Kellenbenz (Friedrich-Alexander-
Universitat, Nurnberg, Germany),
Geoffrey A. Lee, Chairperson (University of Notting-
ham, England),
Kenneth S. Most,
Robert H. Parker (then at University of Dundee,
Scotland),
Turgut Var (Simon Fraser University, British Colum-
bia, Canada), and
Basil S. Yamey.

The Taxonomy and Bibliography Committee consisted of the following members:

Nabil Hassan, Chairperson (then at Kent State Uni-
versity),
Peter H. Knutson (University of Pennsylvania),
Rudolph Malandro (then at Kent State University),
Blan McBride (then at University of Illinois),
Peter L. McMickle (then at AIDE Project), and
Robert H. Parker.

Although well intended, the efforts of the various committees were hampered by the fact that budget constraints precluded holding formal meetings except during the annual meeting time of The Academy. These constraints, as well as the fact that the membership of some committees was dispersed over several continents, resulted in relatively inactive committees during this period.

1976-1977

During these challenging years, President Alfred R. Roberts (Georgia State University) continued the activities of the organization and its committees, and he expanded the committee structure to include the Archives Committee, Committee to Develop Accounting History Courses, and Membership Commit-

tee. Also during this time, the publications of The Academy were expanded to include the Monograph Series (1976) and the Accounting History Classics Series (1976), with the latter being produced through the University of Alabama Press and made available with financial support from the Arthur Andersen & Co. Foundation. President Roberts asked Richard H. Homburger to continue as the director of the steering group for the Second World Congress of Accounting Historians, which The Academy hosted in 1976.

In the latter part of 1976, the Committee on Goals and Objectives, appointed by President Roberts and chaired by S. Paul Garner, issued its report⁴ that has provided guidance for The Academy to the present. Other members of the committee included Richard P. Brief, Marc J. Epstein (then at California State University, Los Angeles), Adolf J.H. Enthoven (University of Texas, Dallas), Richard H. Homburger, Hugh P. Hughes (Georgia State University), Hans V. Johnson (then at University of Texas, San Antonio), Konrad Kubin, Charles Lamden (then at Peat, Marwick, Mitchell & Co.), Geoffrey A. Lee, Maurice S. Newman, Gary John Previts, Robert H. Raymond (University of Nebraska), Hanns-Martin W. Schoenfeld (University of Illinois), P. K. Seidman, Williard E. Stone, Murray C. Wells, Stephen A. Zeff, and Vernon K. Zimmerman. The committee was terminated after it fulfilled its charge. President Roberts appointed Maurice S. Newman in early 1977 as Chairman of the Board of Trustees with the responsibility to involve the trustees in long-range matters. Newman served as chairman until 1981.

During Roberts' administration, The Academy instituted several projects to encourage research in accounting history. The first of three annual Charles Waldo Haskins Seminars was held and *The Accounting Historians Journal* was introduced. In 1977, The Academy offered a doctoral dissertation research stipend in the amount of \$750 to support competitively selected historical research currently being undertaken. In 1978, the amount of the award was increased to \$1,000. A committee consisting of members of the Board of Trustees and other members of The Academy including Richard H. Homburger, Maurice S. Newman (University of Alabama), Gary John Previts, and Maureen H. Berry (University of Illinois), evaluated applications. Because the papers submitted failed to satisfy the established criteria, The Academy never granted a stipend.

⁴Printed originally in *The Accounting Historian* (Fall 1976), pp. 2, 7. Subsequently reprinted in *The Accounting Historians Journal* (Volume 3, Nos. 1-4, 1976), pp. 50-55.

1978-1979

President Hanns-Martin W. Schoenfeld and his fellow officers provided the leadership for The Academy's activities during 1978 and 1979. A semiannual newsletter, *The Accounting Historians Notebook*, was initiated in 1978. President Schoenfeld's appointed committees (chairpersons indicated in parentheses) consisted of Translation (Roscoe E. Bryson, Jr., University of Alabama, Huntsville), Publicity (Peter L. McMickle, Memphis State University), Research (Diana T. Flamholtz, Loyola Marymount College), Taxonomy and Bibliography (Harvey Mann, then at Concordia University), Archives (Richard G. Vangermeersch), Model Accounting History Course (Thomas J. Burns, Ohio State University), Membership (Dale L. Flesher, University of Mississippi); and Gyan Chandra, Miami University).

Reports of several committees identified areas of interest. The Research Committee's report⁵ on basic historical method concentrated on some basic concepts in historical methodology. The 1978-79 report⁶ of the Archives Committee noted opportunities for future work by the committee and provided a selected list of business archives in the United States and Canada. Reports⁷ of the Committee on Taxonomy and Bibliography recommended a plan to be used to classify publications.

Although informal, publicizing The Academy had been a continuing function of the members. President Schoenfeld in 1978 formally appointed a Publicity Committee to undertake activities to make those interested in accounting history more aware of The Academy, its involvements, and its publications. The Committee quickly decided that one of the major means to accomplish this was to have a display booth at the annual meetings of the AAA and occasionally at the regional meetings of the AAA. The booth has been effective in generating interest in accounting history and in identifying prospective members. Peter L. McMickle has been in charge of the booth since its inception. In addition to setting up and staffing the booth over the years, he has displayed selections from his rare book collection.

⁵Printed in *The Accounting Historians Notebook* (Fall 1980), pp. 1, 8-9.

⁶Listings of (1) opportunities for future research and (2) selected business archives in the United States and Canada are printed in *The Accounting Historians Notebook* (Fall 1980), p. 7, (Fall 1984), pp. 28-29.

⁷Printed in *The Accounting Historians Notebook* (Spring 1981), p. 9, (Fall 1981), pp. 6-8.

President Schoenfeld believed that The Academy needed to increase its participation in the programs of leading academic and professional organizations. He appointed program chairpersons to assist in planning and arranging technical sessions on accounting history at the national and regional meetings of the AAA. H. Thomas Johnson was appointed chair of the national meeting in Hawaii; other members of that committee were Horace R. Givens and Felix Pomeranz. Regional chairpersons were Kenneth O. Elvik (Midwest Region), Alfred R. Roberts (Southeast Region), Horace R. Givens (Mid-Atlantic Region), Richard P. Brief (Northeast Region), Thomas J. Burns (Ohio Region), Hans V. Johnson (Southwest Region), Diana T. Flamholtz (Western Region), and Turgut Var (then Canadian Region).

During the 1960s and early 1970s, the Department of Accounting and Financial Administration at Michigan State University sponsored a Distinguished Accountants Series on videotape. This project was supported by a grant from the Touche Ross Foundation. In February 1979, George C. Mead, custodian of the videotape series at Michigan State, offered The Academy the custodianship of the Series. The Academy promptly accepted the offer, and it received the videotapes in January 1980.

The videotapes were two-inch quadruplex (broadcast quality) — a tape size rarely used in the 1980s; thus, the videotapes were unsuitable for available cassette players. Dale L. Flesher, appointed in 1980 as the curator of the series, received a grant from the Touche Ross Foundation to convert the two-inch tape to three-quarter inch videotape. The series currently includes tapes featuring Herman Bevis, Carman G. Blough, John L. Carey, Raymond J. Chambers, Sidney Davidson, Charles T. Horngren, A. C. Littleton, Robert K. Mautz, Maurice Moonitz, William A. Paton, Leonard P. Spacek, Robert T. Sprouse, Robert M. Trueblood, and William J. Vatter. The tapes are housed in the School of Accountancy at the University of Mississippi and are available for loan to Academy members.

By 1980, The Academy had grown in membership and had developed extensive publication outlets. The functions of The Academy were well established, and it was possible to concentrate on strengthening specific areas of the organization.

1980-1981

Richard P. Brief assumed the presidency in 1980 and continued to move The Academy toward its objectives. He devoted a great deal of effort to improving the financial health and

strength of the organization. By the end of his second term as president in 1981, Brief had restructured the financial reporting and funds system under which The Academy had initially operated and thereby provided for annual statements to give a more comprehensive view of fiscal matters. He initiated a system for submitting a budget for the operational areas of The Academy to the Board of Trustees for approval. Although those in functional positions within The Academy had used sound fiscal judgment, Brief was the first president to require that a budget for the ensuing fiscal year be presented to the trustees for consideration.

In response to the rapid growth in Academy publications, in 1980 Brief appointed H. Thomas Johnson (then at Western Washington University) to chair an *ad hoc* Publication Review Committee to examine all aspects of The Academy's publication efforts. Except for the formation of this new committee, the committee structure continued basically as under former President Schoenfeld.

1982-1983

When H. Thomas Johnson became president in 1982, he proposed studying ways and means to integrate accounting history into existing accounting courses at both the undergraduate and graduate levels. He believed that one of the best ways to expose students to accounting history was to show its relevance to contemporary issues discussed in existing accounting courses. He thought it was unlikely that business schools would add a separate accounting history course to an already crowded technical accounting curriculum. To assist in this endeavor, President Johnson asked Kenneth O. Elvik (Iowa State University) to coordinate the History in Accounting Education project. The objective of this project was to help accounting educators discover ways to integrate accounting history into accounting courses.

During Johnson's term as president, the aspiration of many Academy members was realized when The Academy's Board of Trustees approved at its 1982 annual meeting the establishment of The Accounting History Research Center, a joint undertaking by The Academy and Georgia State University.

1984-1985

To continue the theme of accounting history integration into existing collegiate accounting courses, Edward N. Coffman

(Virginia Commonwealth University), as president of The Academy during the period 1984-85, established in 1984 The Accounting History Education Committee (AHEC). The committee was chaired by Horace R. Givens (University of Maine). Other members were Abdel M. Agami (Old Dominion University), Edward A. Becker (then at University of North Carolina, Wilmington), Robert Bloom (then at Concordia University), Gadis J. (Buck) Dillon (then at University of Kentucky), Vassilios P. Filios (Athens, Greece), Hans V. Johnson (then at University of Tulsa), and Robert H. Raymond.

The charge of the committee was to determine (1) the current status of course offerings in accounting history in colleges and universities in the United States and foreign countries, and (2) ways that historical accounting materials could be integrated into collegiate accounting courses at the undergraduate and graduate levels.

The committee surveyed selected book publishers to determine their interest in including historical materials in their accounting texts. The survey resulted in the publication of a booklet, *Biographies of Notable Accountants* (1987), by Random House, Inc. The booklet was edited by Horace R. Givens and consisted of fifteen biographical profiles prepared mostly by Academy members. Random House provided complimentary copies of the booklet for classroom use to instructors upon request.

President Coffman devoted a great deal of effort to the formalization of the organizational structure. (The current organizational chart is presented in the Appendix.) This was accomplished primarily by modifying the bylaws of The Academy to provide for (1) the election of a president-elect, (2) an annual financial plan to be presented to the membership by the treasurer, (3) procedures for selecting a corporate agent, and (4) the composition of the nominations committee. The organizational chart was redesigned in 1985 to reflect changes in The Academy, including the establishment of the following committees: Nominations Committee, Hourglass Award Committee, Accounting History Research Methodology Committee, and Membership Committee.

The Nominations Committee was chaired by Alfred R. Roberts. Other members of the committee were Richard P. Brief, H. Thomas Johnson, Gary John Previts, and Hanns-Martin W. Schoenfeld.

The Hourglass Committee was established to advise the president of The Academy on matters relating to the Hourglass

Award, including recommending potential recipient(s) of the award. Members of the committee were:

H. Thomas Johnson (then at University of Washington),
Kenneth S. Most (Florida International University),
Gary John Previts, Chairperson (Case Western Reserve University),
Gail Wright (University of Richmond),
Murray C. Wells, and
Esteban Hernández Esteve (Madrid, Spain).

The Accounting History Research Methodology Committee was charged to develop a bibliography of historical research methodology sources that could serve as a guide for those desiring to do research in accounting history. Members of the committee were:

Vahé Baladouni (University of New Orleans),
Araya Debessay (University of Delaware),
O. Finley Graves (University of Mississippi),
Yoshiaki Jinnai (Tokyo Keizai University),
Michael J. Mumford (University of Lancaster), and
Lee D. Parker, Chairperson (then at Griffith University).

The Membership Committee's charge was to increase the quantity of the membership of The Academy. Members of the committee were:

James L. Boockholdt (University of Houston),
Robert P. Crum (Pennsylvania State University),
Dahli Gray (then at Oregon State University),
Robert M. Kozub, Chairperson (University of Wisconsin - Milwaukee), and
Rasoul H. (Ross) Tondkar (Virginia Commonwealth University).

The first audited financial statements of The Academy were presented at the annual meeting in August of 1984. This fulfilled the wishes of many members, particularly Kenneth S. Most, who had lobbied for an annual audit. Ernst and Whinney has conducted the audit of The Academy since the first audit for the calendar years 1980-81.

1986

The changes in the organizational structure instituted by President Coffman were further implemented during the presi-

dency of Mervyn W. Wingfield (James Madison University) in 1986. President Wingfield reappointed the committee members and chairpersons to provide continuity. As the result of restructuring, Wingfield was the first president to serve one year as president-elect and one year as president.

At the 1986 annual meeting in New York City, the trustees approved the creation of the office of Chairman of the Board of Trustees. Edward N. Coffman was elected to this position for a three-year term beginning January 1, 1987. This position was intended to involve the trustees more actively in long-term strategic planning and to provide a continuity of leadership with regard to operational functions. More active involvement of the trustees in the operations of The Academy would enable the president to concentrate on a specific agenda during the one-year term of office. Not until 1988 were the bylaws amended to include the provision for a chairman of the board.

To encourage accounting academicians with recently earned doctorate degrees to conduct research in accounting history, The Academy established a Manuscript Award to be given annually starting in 1988. The recipient would receive a \$500 stipend and a certificate to recognize his/her achievement in historical research. The Manuscript Award Committee — consisting of Richard P. Brief, Dale L. Flesher, Barbara D. Merino, chairperson (University of North Texas), Gary John Previts, and Richard G. Vangermeersch — selected Jan R. Heier, Auburn University at Montgomery, as the first recipient of the Manuscript Award. His manuscript was entitled "Thomas Affleck and His Cotton Plantation Record and Account Book: A Study in the Reasons and Origins of Accounting Principles."

The School of Administration at Griffith University provided a research grant in support of the work of The Accounting History Research Methodology Committee. The purpose of this grant was to facilitate the computer data entry for the committee's development of a comprehensive bibliography of historical research methodology. Lee D. Parker chaired this committee and reported that more than 2,500 publications had been identified, that committee members had provided annotated bibliographies in various fields, and that a taxonomy of thirteen major classifications had been developed.

By 1986 all of the titles in the Accounting History Classics Series were out of stock, and the University of Alabama Press did not indicate any interest in reprinting them. The editor of the Classics Series subsequently arranged with the accounting series editor of Garland Publishing, Inc. to have The Academy's

Classics Series appear in 1988 within a new Garland issue of volumes.

1987

Richard G. Vangermeersch served as president of The Academy during 1987. A highlight of The Academy during President Vangermeersch's term was its participation in the centennial celebration of the American Institute of Certified Public Accountants (AICPA) in 1987. The Academy's early involvement in the centennial process included the publication in the April 1981 issue of the *Journal of Accountancy* of a letter from Vangermeersch suggesting ways that the AICPA might celebrate this event. He suggested issuing a commemorative stamp, holding a world conference of accounting in New York, and exhibiting selected rare books and manuscripts from the Montgomery Collection at Columbia University. Also in 1981 at the AAA annual meeting in Chicago, Gary John Previts called an *ad hoc* meeting of Academy members interested in the centennial of the AICPA. Another meeting was held during the 1982 AAA annual meeting in San Diego.

In 1984, the AICPA appointed a Centennial Members in Education Committee, which was chaired by James Don Edwards, an Academy member. Other Academy members on the committee were Sidney Davidson, Previts, and Doyle Z. Williams. In late 1985, Edwards asked Edward N. Coffman to chair a committee to invite Academy members to participate in the AICPA centennial by submitting essays on historical accounting events for possible publication in a centennial issue of the *Journal of Accountancy*. The 600-word essays were to be written on single historical accounting events in the United States within the last 100 years that have had an impact on the accounting profession. Other committee members were Previts and Vangermeersch, who assisted Coffman in sending a memorandum to notify Academy members of the request and in evaluating the essays submitted. Although space available in the May 1987 AICPA Centennial Issue of the *Journal of Accountancy* was limited, a number of the essays were published.

Several of the suggestions that Vangermeersch made in his letter to the AICPA did materialize. The Academy's major role in the centennial was the exhibition of rare books and manuscripts from the Montgomery Collection at Columbia University. Thirty-five items were displayed from September 1 through November 25, 1987, at Columbia University. A brochure for the

exhibit was prepared by Vangermeersch and funded by The Academy's former president, Mervyn W. Wingfield. Peter L. McMickle of Memphis State University and Vangermeersch prepared a monograph entitled *The Origins of a Great Profession* (1987) to accompany the exhibit. The publication of the monograph was financed by funds provided by a gift from Avron and Robert Fogelman of the Fogelman College of Business and Economics at Memphis State University. A copy of the brochure and a personal letter from President Vangermeersch inviting participants to the Columbia exhibit were included in AICPA Centennial registration package. The brochure and the monograph were widely distributed; each member of The Academy received one.

Other highlights of President Vangermeersch's term included the establishment of the Tax History Research Center at the University of Mississippi and the enrollment of The Academy's first member from the People's Republic of China, Professor Guo Daoyang of Zhongnan University in Wuhan. President Vangermeersch lectured at that university at the request of Professor Guo, who was in the process of founding an Institute of Chinese Accounting History. The Academy increased its attention to "celebration accounting." Some possibilities were the celebration of the 500th anniversary in 1994 of the publication of Luca Pacioli's *Summa Arithmetica*, the 75th anniversary of the National Association of Accountants in 1994, and the centennial of the CPA certificate in 1996.

In addition to these accomplishments, President Vangermeersch's leadership maintained the positive momentum of The Academy with the help of various committees. Vangermeersch chaired the Membership Committee that included Robert G. Morgan (East Tennessee State University), George J. Murphy (University of Saskatchewan), Dahli Gray (then at University of Notre Dame), Rita P. Hull (Virginia Commonwealth University), Glenn A. Vent (University of Nevada, Las Vegas), Giuseppe Galassi (University of Parma), Yoshiaki Jinnai, and Richard K. Fleischman (John Carroll University). The Accounting History Education Committee was chaired by Abdel M. Agami and was composed of members Vahé Baladouni, M. Frank Barton (Memphis State University), Michael Chatfield, Hanns-Martin W. Schoenfeld, and Kathleen E. Sinning (Western Michigan University). During this period, the composition of the Accounting History Research Methodology Committee was the same as in the previous year.

1988

Dale L. Flesher, the president for 1988, also continued to hold the position of editor of *The Accounting Historians Notebook*. He believed that holding the presidency and editorship simultaneously would enhance communications within The Academy.

One of Flesher's first activities as president was to write a proposal to the General Motors Foundation requesting funds to support the Tax History Research Center; subsequently, the Foundation provided funds for bookshelves and other furnishings for the Center.

President Flesher named a fifteen person Membership Committee, chaired by Rita P. Hull, which was quite active. Other committee members were Edward A. Becker (Nova University), Sandra D. Byrd (Southwest Missouri State University), John W. Coker (Tennessee State University), Walker E. Fesmire (University of Michigan - Flint), Richard K. Fleischman, Giuseppe Galassi, John Gardner (University of Wisconsin - La Crosse), Dahli Gray (American University), Richard H. Macve (University College of Wales), Robert G. Morgan, George J. Murphy, G. A. Swanson (Tennessee Tech University), Glenn A. Vent and Edward W. Younkens (Wheeling College). The efforts of these members were effective as membership reached an all-time high of 760.

To ensure continuity, President Flesher reappointed the chairperson and members of the Accounting History Education Committee; the committee was subsequently expanded to include Robert M. Kozub. Flesher also reappointed Lee D. Parker (Flinders University of South Australia) as chairperson of the Accounting History Research Methodology Committee; committee members were also reappointed. President Flesher later expanded the committee to include Roxanne T. Johnson (University of Baltimore). During the year, the committee completed a bibliography of historical research methodology.

Flesher continued the initiatives begun by President Vangermeersch with respect to relations with China and "celebration accounting." Flesher had three of his articles and a book on auditing history translated into Chinese by Wen Shuo of the People's Republic Audit Division. In addition, Flesher authored an article commemorating the 50th anniversary of *The Woman CPA* magazine.

The Tax History Research Center became operational during President Flesher's term of office. Facilities and research

materials were enhanced. Flesher concluded his year as president with a conference on December 2 and 3 at the University of Mississippi to celebrate the 75th anniversary of the 16th Amendment to the U.S. Constitution and the formal opening of the Tax History Research Center. Pictures of the presidents of The Academy are presented on the following page.

MEMBERSHIP

General

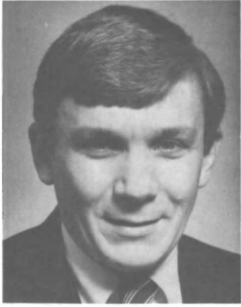
The growth in membership of The Academy is illustrated in Exhibit 2. In its first three years The Academy experienced a surge in membership followed by four years of rather erratic growth. The years 1980 to 1984 had an average annual growth rate of about 4 percent followed again by erratic growth in 1985 and then average growth rate of about 4 percent during the period 1986-88.

Exhibit 2 also indicates that, although individual membership growth rates have been somewhat erratic, institutional membership has grown constantly and has assumed a larger percentage of the total. For instance, in 1979, total membership consisted of 80 percent individuals and 20 percent institutions but in 1988 63 percent was individuals and 37 percent institutions. Because The Academy's fiscal year is the calendar year, membership renewals for the following year start about October 1.

Honorary Life Membership

The Academy bylaws permit the designation of life member to "scholars of distinction in accounting history." In March 1981, Richard P. Brief (then president of The Academy) asked Vernon K. Zimmerman and Alfred R. Roberts to serve as a committee to recommend nominees for life membership. They recommended S. Paul Garner, Osamu Kojima, Kojiro Nishikawa, and Ernest Stevelinck. At the August 1981 annual meeting, the Board of Trustees unanimously approved the conferral of life membership in The Academy upon these four scholars of distinction. At the 1983 annual meeting, the Board of Trustees approved life membership for Basil S. Yamey, who had been nominated by H. Thomas Johnson and Alfred R. Roberts, the committee that Johnson established. Pictures of honorary life members are presented in the following pages.

**Presidents of The Academy
of Accounting Historians
1973-1988**



**August 1973-1975
Gary John Previts**



**1976-1977
Alfred R. Roberts**



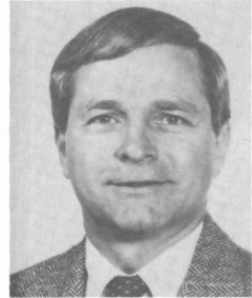
**1978-1979
Hanns-Martin W.
Schoenfeld**



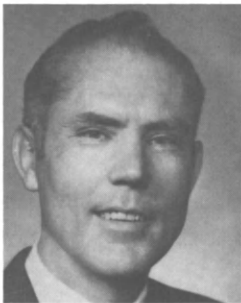
**1980-1981
Richard P. Brief**



**1982-1983
H. Thomas Johnson**



**1984-1985
Edward N. Coffman**



**1986
Mervyn W. Wingfield**

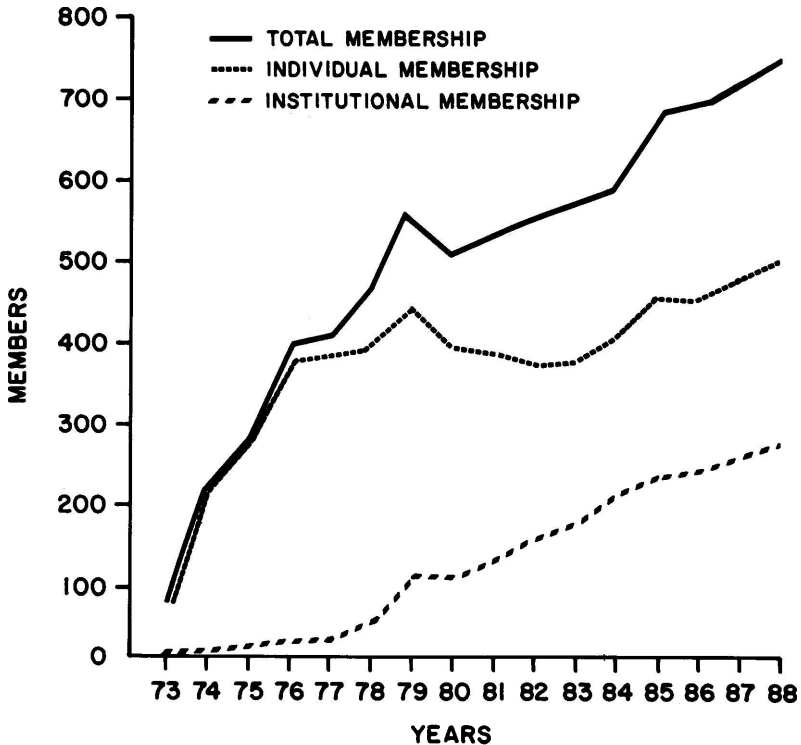


**1987
Richard G.
Vangermeersch**



**1988
Dale L. Flesher**

Exhibit 2
The Academy of Accounting Historians
Membership Trends
1973-1988

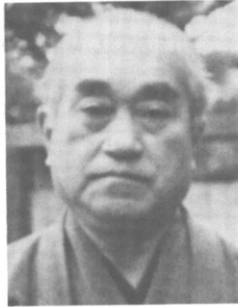
**NOTES:**

1. 1976 figures constructed from incomplete information at June 30, 1976.
2. 1977-1979 figures constructed from incomplete records that reflect membership and separate *Accounting Historians Journal* subscriptions that were purchased for a 3-year period. It was not until 1980 that membership count was under control.
3. Doctoral student members included in totals were as follows: 1982 (8), 1983 (9), 1984 (9), 1985 (24), 1986 (32), 1987 (35), 1988 (36).

**Honorary Life Members of
The Academy of Accounting Historians**



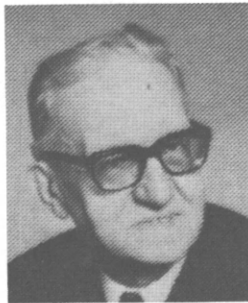
S. Paul Garner



Osamu Kojima



Kojiro Nishikawa



Ernest Stevelinck



Basil S. Yamey

General Membership Dues

At the formative meeting of The Academy in Québec, Canada in August 1973, membership dues were established at \$5 per year. Richard H. Homburger and Gary John Previts were the first two persons to pay their dues (checks dated October 8 and 11, 1973, respectively). Their checks became part of the first financial deposit of The Academy. Those who belonged to The Academy on December 31, 1974, were considered chartered members. At that date, total membership was 218, which included associates from eleven countries plus the United States.

The 1975 membership dues increased to \$10. This 100 percent increase did not affect The Academy's growth, for membership increased to nearly 290 by the end of the calendar year with members from nearly all U.S. states and nineteen other countries. By the end of 1976, there were almost 400 members. Membership was 458 by 1978, and by 1979 had grown to 549 of which 392 were from the United States.

When *The Accounting Historians Journal* was first issued in 1977, its annual subscription fees of \$5 for members and \$7.50 for nonmembers were not part of the \$10 annual membership dues. By 1979 subscriptions totaled 582, which included thirty-three subscriptions for nonmembers.

In 1980, membership dues were increased from \$10 to \$15 and included a subscription to *The Accounting Historians Journal*. Membership totaled 502 in 1980 with 135 from other countries. Apparently in response to the increase in dues and the discontinuance of the separation of subscriptions and dues, there was a sharp but temporary drop in membership.

To encourage young academicians to join The Academy, approval was given at the 1981 annual meeting for doctoral students to join The Academy, with all membership rights, for \$7.50 per year for a period of three consecutive years while actively pursuing their doctoral studies.

Because of higher printing and postage costs, 1981 membership dues were increased to \$20; however, the increase did not affect the membership growth. Dues were also increased and restructured for 1987: for individual members \$25 and \$35 for institutional members. Doctoral students continued to pay \$7.50. This change, too, seemed to have little impact on the steady membership growth.

FINANCING

As with many newly formed organizations, financial considerations presented some interesting challenges for The Academy, particularly during the infant years. Funds were not available to undertake all of the activities desired but The Academy has been most fortunate to maintain a favorable financial posture that has allowed it to continue and expand its various activities. This has been made possible, in large part, by the financial support received from the Arthur Andersen & Co. Foundation, Deloitte Haskins & Sells Foundation, General Motors Foundation, and Touche Ross Foundation.

The Academy's Research and Publication Endowment Fund was initiated in 1981 as a result of a contribution from Professor Osamu Kojima to commemorate his retirement in March of that year from Kwansei Gakuin University, Nishinomiya, Japan. The income from the Endowment Fund goes to support accounting history research, publications, and the recognition of research accomplishments. In addition to their loyal and dedicated support of The Academy, S. Paul Garner, Osamu Kojima,* Richard G. Vangermeersch, and the late Normal X. Dressel have made sizeable contributions to this Endowment Fund.

The financial recordkeeping and reporting functions of The Academy have evolved to keep pace with its increasing organizational complexity. Each treasurer has contributed to the improvement of these vital functions.

From the formation of The Academy to the end of 1977, three people served in the dual capacity of secretary-treasurer: Alfred R. Roberts (1973-75), Richard W. Metcalf (then at University of Nebraska) (1976), and Anthony T. Krzystofik (University of Massachusetts) (1977). Beginning in 1978, separate offices of secretary and treasurer were established. At that time, Roberts became secretary and Krzystofik became treasurer. Krzystofik was the treasurer until the end of 1979. For the next five years (1980-84), Richard G. Vangermeersch served as treasurer. Kenneth O. Elvik assumed the responsibilities of treasurer at the beginning of 1985.

*Professor Osamu Kojima died on February 21, 1989.

ACADEMY ACTIVITIES

The Accounting Historian

In January 1974, The Academy began publishing a quarterly newsletter, *The Accounting Historian*. It not only presented information about the activities of The Academy but also contained short articles, profiles of accountants, book reviews, and other items of interest to members. A section featuring a synopsis of recently completed doctoral dissertations was added in the latter part of 1975. Hans V. Johnson was appointed editor of this section and of book reviews. The four issues of *The Accounting Historian* published in 1974 were dated January, April, July, and October; however, beginning in 1975, the quarterly issues were designated Winter, Spring, Summer, and Fall.

Gary John Previts edited the newsletter during its three-year life that ended after the Fall 1976 issue when it was succeeded by *The Accounting Historians Journal*. Because *The Accounting Historian* is the predecessor of the *Journal*, the first issue of the *Journal* in the spring of 1977 was numbered Volume 4, Number 1, in order to ensure continuity of reference to the research published by The Academy.

The Working Paper Series

In 1974, under the editorship of Gary John Previts, the Working Paper Series was established to provide Academy members a means to expose historical research to a wider audience, exchange ideas, and provide feedback from other qualified persons interested in research. Manuscripts submitted by nonmembers of The Academy are sponsored by an Academy member and, as resources permit, are entered in the Working Papers Series.

Individual working papers are published on an irregular basis on a variety of subjects. As of the end of 1988, the Series comprised seventy-six papers. The number of papers published each year during the 1974-1988 period is presented in Table 5.

The working papers are circulated to a broad readership including officers of leading professional accounting associations, members of accounting standard-setting bodies, executives of public accounting firms, editors of academic and professional accounting journals, and historian and nonhistorian scholars. Members of The Academy can receive a complimentary copy of the working papers as they are issued simply by requesting a copy.

Table 5
Number of Working Papers Published Each Year
1974-1988

<u>Year</u>	<u>Number of Papers</u>	<u>Year</u>	<u>Number of Papers</u>
1974	12	1982	1
1975	7	1983	4
1976	9	1984	0
1977	5	1985	5
1978	1	1986	5
1979	7	1987	2
1980	8	1988	4
1981	6		

In 1979, the first forty working papers were bound into two volumes of twenty papers each; Edward N. Coffman served as editor of these two volumes. A third volume consisting of working papers number 41-60 was published in 1984; it was co-edited by Ashton C. Bishop and Don-Rice Richards of James Madison University. The three bound volumes of the working papers have been received well as indicated by the sale of approximately 800 copies of each volume.

Six persons have served as editor of the series: Gary John Previts (January 1974-September 1975), Alfred R. Roberts (October 1975-November 1976), Edward N. Coffman (December 1976-December 1979), Ashton C. Bishop (January 1980-August 1982), Don-Rice Richards (September 1982-August 1985), and Rasoul H. (Ross) Tondkar (September 1985-present). Ashton C. Bishop served as consulting editor during Richards' editorship, and Edward N. Coffman was appointed to serve as consulting editor at the beginning of 1988.

As a result of discussions at the 1982 annual meeting of The Academy in San Diego, Editor Don-Rice Richards established a review board for the Working Paper Series during the latter part of 1982. A referee process replaced the less formal review policy that previously existed. Current and former members of the Review Board are presented in Table 6.

Table 6
Review Board — Working Paper Series
1982-1988

<u>Members</u>		<u>Term</u>
Edward A. Becker	(then at Bucknell University)	1982-present
Doris M. Cook	(University of Arkansas)	1982-present
Hans J. Dykxhoorn	(Western Michigan University)	1982-present
O. Finley Graves	(University of Mississippi)	1987-present
Dahli Gray	(then at Oregon State University)	1985-present
Harvey Mann	(then at Concordia University)	1982-present
Patti Mills	(Indiana State University)	1987-present
Owen B. Moseley	(then at Murray State University)	1982-present
Charles E. Wuller	(St. Louis University)	1982-Oct. 1985

President's Hourglass Award

In 1974, Gary John Previts established the President's Hourglass Award to honor a person (or persons) in recognition of significant contributions to the literature of accounting history. The hourglass was chosen because he believed that it represents human experience: the top, when filled with sand, represents the future, the narrow neck through which it flows represents the present, and the bottom collects the sand, which represents the past. When all the sand flows to the bottom, the glass is merely turned upside down and thereby **THE PAST BECOMES THE FUTURE.**

The first presentations of the Hourglass Award were made at The Academy's second annual business meeting in New Orleans in 1974. Following Michael Chatfield's recognition as the 1974 recipient of this award, Stephen A. Zeff was recognized as the 1973 recipient. The retroactive recognition was done to have the date of the first Hourglass Award coincide with the founding year of The Academy. Although it is a discretionary award in that the president may decide not to present it in a given year, it has been given annually since the initial presentations. In 1984, the Hourglass Award Committee was established to advise the president on matters relating to it, including the recommendation of a recipient(s).

The President's Hourglass Award recipients and their recognized works are presented in Table 7. Past Hourglass Awards have recognized authors of major books and monographs. Consistent contributors of articles and other works also have been recognized. Prior to 1981, all the Hourglass Award recipients



Richard G. Vangermeersch (right) presents the 1986 Hourglass Award to Leonard P. Spacek.

were authors or editors of books; however, in the years 1981-1983, the Hourglass Award recipients were authors of accounting history articles. The selection of Esteban Hernández Esteve as the 1984 recipient for his book-length work, *Contribucion Al Estudio De La Historiografia Contable En Espana*, marked the first time that the award had been given for a research publication not in the English language. The works recognized in 1987 were primarily written in French. The concept of recognizing significant contributions to the literature of accounting history became more encompassing in 1986 when the award was presented for a transcription of an oral history. The 1988 selection for the award was a monograph prepared to accompany the exhibition of rare accounting books and manuscripts in honor of the centennial of the AICPA in 1987.

The Monograph Series

The Monograph Series was started in 1976 and was initially edited by Gary John Previts, who participated in writing each of the first three monographs. The first monograph is a chronology of events significant to the development of accountancy in the United States. The monograph, which is based largely on John L. Carey's two-volume work on *The Rise of the Accounting*

Table 7
President's "Hourglass Award"
Recipients and Their Recognized Works
1973-1988

<u>Year</u>	<u>Recipient</u>	<u>Recognized Work(s)</u>
1973	Stephen A. Zeff	<i>Forging Accounting Principles in Five Countries: A History and an Analysis of Trends</i> , Champaign, Ill.: Stipes Publishing Company, 1972.
1974	Michael Chatfield	<i>A History of Accounting Thought</i> , Hinsdale, Ill.: Dryden Press, 1974.
1975	Hanns-Martin W. Schoenfeld	<i>Cost Terminology and Cost Theory: A Study of Its Development and Present State in Central Europe</i> , Urbana-Champaign, Ill.: Center for International Education and Research in Accounting, University of Illinois, 1974.
1976	Osamu Kojima Basil S. Yamey	The reproduction and analysis of the English version of Ympyn's "A Notable and very Excellente Woorke" (1547), Kyoto, Japan: Daigakudo Books, 1975.
1977	A. van Seventer	Translation of O. ten Have's <i>The History of Accountancy</i> , Palo Alto, California: Bay Books, 1976.
1978	David A. R. Forrester	<i>Schmalenbach and After: A Study of the Evolution of German Business Economics</i> , Glasgow, United Kingdom: Strathclyde Convergencies, 1977.
1979	Murray C. Wells	<i>Accounting for Common Costs</i> , Urbana-Champaign, Ill.: Center for International Education and Research in Accounting, University of Illinois, 1978.
1980	Gary John Previts Barbara Dubis Merino	<i>A History of Accounting in America: An Historical Interpretation of the Cultural Significance of Accounting</i> , New York: John Wiley & Sons, Inc., 1979.
1981	H. Thomas Johnson	For a series of articles on "The Development of Management Accounting."
1982	Williard E. Stone	For a series of articles on "American Accounting History."

Continued on next page

Table 7 — (continued)
President's "Hourglass Award"
Recipients and Their Recognized Works
1973-1988

<u>Year</u>	<u>Recipient</u>	<u>Recognized Work(s)</u>
1983	Richard P. Brief	For a series of accounting history articles and for editing accounting history reprint series.
1984	Esteban Hernández Esteve	<i>Contribucion Al Estudio De La Historiografia Contable En Espana</i> (A Contribution to the Study of Accounting Historiography in Spain), Madrid, Spain: Servicio de Estudios, Banco de Espana, 1981.
1985	Edgar Jones	<i>Accountancy and the British Economy 1840-1980: The Evolution of Ernst & Whinney</i> , London: B. T. Batsford Ltd., 1981.
1986	Leonard P. Spacek	<i>The Growth of Arthur Andersen & Co., 1928-1973</i> , (an oral history), Arthur Andersen & Co., 1985.
1987	Ernest Stevelinck	For a series of articles and several books on European accounting history.
1988	Peter L. McMickle Richard G. Vangermeersch	<i>The Origins of a Great Profession</i> , Memphis Tennessee: Center of Excellence for Applied Research in Computer Applications in Accounting, Fogelman College of Business and Economics, Memphis State University, 1987.

Profession [AICPA, 1969-1970], was issued as a commemorative volume to those attending the Second World Congress of Accounting Historians in Atlanta, Georgia, in 1976. It was reprinted in 1978.

The second monograph is a biographical essay on John Raymond Wildman prepared in recognition of his 100th birth anniversary. He was a partner in the firm of Haskins & Sells from 1918 to 1938 and in 1916 became the first president of the American Accounting Association (then called the American Association of University Instructors in Accounting). This second monograph was made possible by a grant from the Haskins

& Sells (now Deloitte Haskins & Sells) Foundation and was distributed on a complimentary basis at the AAA's 1978 annual meeting in Denver.

The third monograph is a collection of the writings of Eric Louis Kohler that was funded by his estate. The authors of this monograph believed that a collection of Kohler's writings should be in all American Assembly of Collegiate Schools of Business libraries and available to scholars at a low cost.

In December 1980, James F. Gaertner (then at the University of Notre Dame) assumed the editorship of the Series. He supervised monographs numbers four and five. The fourth monograph is a collection of papers presented at The Academy's Charles Waldo Haskins Accounting History Seminars. The fifth one deals with the development of the accountancy profession in Britain and was published with funds provided by the Arthur Andersen & Co. Foundation. James L. Boockholdt (University of Houston) became the third editor of the Series at the beginning of 1987. The titles, authors and editors of the monographs are presented in Table 8.

Table 8
Monograph Titles, Authors and Editors
1976-1986

Mono- graph Number	Title	Publi- cation Date	Author(s)	Monograph Editor
1	<i>A Reference Chronology of Events Significant to the Development of Accountancy in the United States</i>	1976	C. L. Knight G. J. Previts T. A. Ratcliffe	Gary John Previts
2	<i>John Raymond Wildman</i>	1978	Gary John Previts Richard F. Taylor	Gary John Previts
3	<i>Eric Louis Kohler: A Collection of His Writings (1919-1975)</i>	1980	William W. Cooper Yuji Ijiri Gary John Previts	Gary John Previts
4	<i>Selected Papers from the Charles Waldo Haskins Accounting History Seminars</i>	1983	Various	James F. Gaertner
5	<i>The Development of the Accountancy Profession in Britain to the Early Twentieth Century</i>	1986	R. H. Parker	James F. Gaertner

The Accounting History Classics Series

During 1976, at a time when few companies were reprinting classic accounting books, The Academy, in cooperation with the University of Alabama Press, initiated the Accounting History Classics Series. The selection of the University of Alabama Press as the publisher of the Series seemed to be appropriate because The Academy's president, Gary John Previts, was then at the University of Alabama and was serving as a member of the University Press Faculty Committee.

As the name implies, the Classics Series was designed to reprint on an irregular basis notable contributions to accounting history that were no longer in print. Under the editorship of Previts, the first title reprinted (1976) in the Classics Series was the *Evolution of Cost Accounting to 1925 (1954)* by S. Paul Garner and was made possible by a subvention from the Arthur Andersen & Co. Foundation. The idea was to use the Arthur Andersen money to "prime the pump" and take the revenues shared from sales, after allowing for the costs of the University of Alabama Press, to restore the subvention and add to the Series. The two titles listed below were added to the Classics Series in 1978 and 1981, respectively, and are a direct result of the Arthur Andersen & Co. Foundation subventions:

History of Public Accounting in the United States
(1960) by James Don Edwards
Accounting Evolution to 1900 (1933) by A. C. Littleton

The expansion of the Series is always evaluated in light of current demand and the availability of published works from other reprint services.

Previts' tenure as editor continued until January 1, 1984, at which time Dale A. Buckmaster (University of Delaware) was appointed editor. Buckmaster served as editor until Wayne M. Higley (then at Northern Illinois University) assumed the editorship on September 1, 1985.

Higley reported that the titles in the Classics Series were out of print. He recommended exploring other outlets for the Series because of the difficulty in negotiating a satisfactory agreement with the University of Alabama Press. With the help of the former Series editor, Previts, Higley contacted several other outlets. Because Higley was accepting a new academic assignment at Buena Vista College in the fall of 1986, Previts reassumed the editorship of the Series. He negotiated with Richard P. Brief, accounting series editor of Garland Publishing, Inc., to have Garland publish the Classics Series; arrangements

were completed in 1987. The Classics Series was expanded to include the *Contributions of Four Accounting Pioneers* (1961) by James Don Edwards and Roland F. Salmonson and appeared in 1988 within a new Garland issue of volumes.

Accounting History Congresses

During the period October 8-12, 1970, about twenty scholars representing national accounting groups met in Brussels for the First International Symposium of Accounting Historians.⁸ During this meeting, the Comité International des Historiens de la Comptabilité (International Committee of Accounting Historians) was established. The mission of this committee was to provide a link to representatives of the various accounting history groups around the world and to:

- Inform members of relevant items in professional and scientific journals.
- Undertake efforts to have the study of accounting history and thought included in academic programs, up to and including the development of a theoretical plan and contemporary techniques.
- Publish a newsletter.
- Maintain contact with national and international scientific groups.
- Organize a future international congress.

Ernest Stevelinck was the secretary general of the committee; it established temporary headquarters at the College National des Experts Comptables de Belgique (CNECB), rue du Congrès, 49, Brussels.

Desiring to participate in future international conferences, The Academy contacted the secretary general of the International Committee proposing that the second symposium be held in North America. With his approval and support, arrangements for the Second World Congress of Accounting Historians were made. Vice-president Richard H. Homburger organized the program for The Academy and Hugh P. and Marilyn Hughes served as its official hosts. The Congress was held in Atlanta, Georgia at the Hyatt Regency Atlanta Hotel during August 21-22, 1976, the year of the bicentennial activities celebrating the United States' independence. More than 100 participants attended the meeting, which featured technical sessions with

⁸The names assigned each of the five congresses have varied somewhat to reflect the individual preferences of the host country.

panelists from around the world. Ernest Stevelinck of Belgium and Gary John Previts of The Academy presented banquet speeches that noted the relevance of accounting history and the need for graduate study in the development of accounting thought. Attendees were able to view some rare accounting books, including a copy of Pacioli's *Summa*, from the collection of Peter L. McMickle.

The Third International Congress of Accounting Historians was held at the London Graduate School of Business Studies during August 16-18, 1980. London seemed particularly appropriate as the site for the Congress because 1980 was the centenary year of The Institute of Chartered Accountants in England and Wales. The Accounting History Society (England) organized the Third Congress, and Robert H. Parker (University of Exeter) and Geoffrey A. Lee served as primary coordinators. More than 100 accounting historians representing at least seventeen countries attended.

During August 23-27, 1984, the Fourth International Congress of the History of Accountancy was held in Pisa, Italy. Again, more than 100 accounting historians from eighteen countries met at the University of Pisa where Luca Pacioli once taught. Tito Antoni (University of Pisa) served as coordinator. One of the highlights of this Congress was a tour of Borgo San Sepulcro, where Luca Pacioli was born and died.

The Fifth World Congress of Accounting Historians was held in Sydney, Australia, during August 21-24, 1988. The gathering of accounting historians in Australia in this year seemed appropriate because 1988 was the year Australia celebrated the 200th anniversary of settlement by British colonists. Murray C. Wells served as coordinator. More than 120 accounting historians representing fifteen countries attended.

The papers given at the first, second, and third congresses are not readily available. The proceedings of the fourth congress is the first formal publication of the papers presented. This 830-page document entitled *Quarto congresso internazionale di storia della ragioneria* (Fourth International Congress of the History of Accountancy) was edited by Tito Antoni in 1984.⁹ The *Collected Papers of the Fifth World Congress of Accounting Historians*, exceeding 900 pages, was edited by Allen T. Craswell (University of Sydney) in 1988.¹⁰

⁹This proceeding contains papers in English, Italian, Spanish, French, and Portuguese.

¹⁰All of the collected papers in this publication are in English.

The international cooperation needed to ensure this continuing series of Congresses has been accomplished primarily by Alfred R. Roberts and Ernest Stevelinck. After he retired, Stevelinck continued as the secretary general of the International Committee from his home in Comblain la Tour, Belgium. In 1986, he suggested that The Academy assume the duties of the secretary general, and in 1988 he became Secretary General Emeritus. The group of congress coordinators met during the Fifth Congress of Accounting Historians on August 23, 1988, and suggested that Alfred R. Roberts work with Stevelinck and assume the operational duties of the International Committee.

The Accounting Historians Journal

By 1976 The Academy's newsletter, *The Accounting Historian*, had grown significantly and was attracting manuscript-length materials on a regular basis, thus signalling the need for a journal for accounting history research. Gary John Previts asked Williard E. Stone to assist him in studying the feasibility of establishing a journal for The Academy.

Their efforts resulted in the first issue of *The Accounting Historians Journal (AHJ)* in the spring of 1977. This issue contains many of the papers from the Second World Congress of Accounting Historians. As previously noted, the *AHJ* succeeded *The Accounting Historian*, the quarterly newsletter of The Academy.

The inauguration of a new professional journal presents at least two major obstacles; costs are high, and there is difficulty in developing quality papers and involving qualified reviewers. Fortunately, the enthusiasm of Academy members supplied a continuing flow of manuscripts, and the Editorial Board effectively monitored the quality of the articles and provided guidance and encouragement to authors.¹¹ As a result, issues of the *AHJ* from spring 1977 to date have appeared with a minimum of delays and have achieved increasing quality as indicated by the present acceptance of the *AHJ* as a major accounting research journal [Nobes, 1985, p. 705].

The *AHJ* was initially subdivided into sections: Feature Articles, Historical Nuggets, Book Reviews, and Research and Publication Features (title changed to Doctoral Research in the Fall 1980 issue). This format continued through the Fall 1986

¹¹Since its inception, the *AHJ* has employed a "double blind referee" process usually employing two reviewers per manuscript.

issue. When Previts again assumed the editorship of the *AHJ*, he reorganized its general format by eliminating the distinction between Feature Articles and Historical Nuggets but maintaining the Book Reviews and Doctoral Research sections. Also beginning in 1987, a fee (members, \$15; nonmembers, \$25) was charged for the submission of articles to be reviewed.

Since its inception, the *AHJ* has been printed by the Birmingham (Alabama) Publishing Company. The official emblem of The Academy was used as a model for the emblem on the cover of the *AHJ*. The tan color was chosen for the cover because it had not been used on other accounting journals. To assist in its preservation, the *AHJ* was printed on alkaline (acid-free) paper beginning with the Fall 1983 issue.

Volumes 1 through 3 of *The Accounting Historian* (the previously mentioned predecessor to the *AHJ*) were reproduced in 1981 in one bound volume basically as they originally appeared but in a format similar to that of the *AHJ*. Edward N. Coffman and Mervyn W. Wingfield prepared this volume. The publication of these materials in *AHJ* format was important because it made them available in a convenient and consistent format and assured continuity of reference to all numbers of the *AHJ*, including those that had been printed in the newsletter format.

In 1984, Coffman and Wingfield also prepared for publication a cumulative, alphabetical author and subject index for the *AHJ* covering the 10-year period 1974 through 1983. This index incorporated materials published in Volumes 1 through 3 of *The Accounting Historian*.

Editors and Editorial Board

Williard E. Stone and Gary John Previts served as co-editors of the *AHJ* from the time it was formed through the Spring 1980 issue. In 1980, Edward N. Coffman and Mervyn W. Wingfield were appointed co-editors; Stone and Previts continued as advisory editors through the Fall 1986 issue. Coffman served as Manuscripts Editor through the Fall 1983 issue, at which time Kenneth S. Most accepted this position. He continued in this capacity until Previts became the Manuscripts Editor following the Fall 1986 issue. Mervyn W. Wingfield was Production Editor through the spring of 1985, followed by Ashton C. Bishop. Bishop was succeeded by Mary S. Stone (University of Alabama) on January 1, 1988. The editorial staff was reorganized at the beginning of Previts' editorship in 1987 to include three as-

sociate editors: Robert H. Colson (Case Western Reserve University), Lee D. Parker, and Mary S. Stone.

Kenneth O. Elvik was the first editor of Book Reviews, a position he held through the Fall 1979 issue. Dale A. Buckmaster succeeded Elvik and served until 1983. Linda H. Kistler (University of Lowell) succeeded Buckmaster and served until the end of 1985. Barbara D. Merino was then appointed Book Review Editor as of the beginning of 1986.

For the first year of *AHJ*'s existence (1977), Hans V. Johnson served as editor of Doctoral Dissertation Abstracts. Since that time, Maureen H. Berry has edited this section.

Current and former members of the Editorial Board are listed in Table 9.

The Charles Waldo Haskins Accounting History Seminars

Three annual Charles Waldo Haskins Accounting History Seminars were held during the period 1977-1979. The seminars were named in honor of Charles Waldo Haskins, the first Dean of the School of Commerce, Accounts and Finance, and Professor of Accounting History at New York University. He was also co-founder of the major accounting firm of Haskins & Sells (now known as Deloitte Haskins & Sells).

The purpose of the seminars was to disseminate information on accounting history and its relevance to contemporary and future issues in accounting. In his writings at the start of this century, Haskins had seen the need for a continuing dialogue between accounting practitioners and academicians in the context of history, and it was in this light that a small group of historians and nonhistorians were invited to attend the seminars.

The first two seminars were held at New York University on April 20, 1977, and April 20, 1978, respectively. The first seminar was funded by Deloitte Haskins & Sells and the second seminar by the Vincent C. Ross Institute of Accounting Research, New York University. George H. Sorter and Richard P. Brief of New York University and Barbara D. Merino (then at New York University) were most instrumental in the success of the first two seminars. The third seminar was held at the Atlanta Hilton Hotel in Atlanta, Georgia, on April 20, 1979, and funded by The Academy; Deloitte Haskins & Sells, Atlanta office; School of Accountancy, Georgia State University; and individual patrons. Alfred R. Roberts coordinated the third seminar.

Table 9
Current and Former Members of the Editorial Board
The Accounting Historians Journal
1977-1988

	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
Kiyomitsu Arai			x	x				s	x	x		
Rolf K. Auster		x		x								
Vahé Baladouni			x	x								
Maureen H. Berry											x	
Richard P. Brief	x	x	x	x	x	x	x	x	x	x	x	x
Dale A. Buckmaster			x	x	x							
R. J. Chambers			x	x	x	x	x	x	x	x	x	f
Michael Chatfield	x	x	x	x	x	x	x	x	x	x	x	x
Bernard A. Coda			x	x	x				f			
John A. Courtis			x	x								
Robert Crum			x	x								
Esteban Hernández Esteve	x	x										
Diana T. Flamholtz			x	x	x	x	x	x	x	x		x
Paul Frishkoff	x	x	x	x	x	x	x	x	f	x		
Horace R. Givens			x	x	x	x	x	x				
Louis Goldberg			x	x	x	x	x	x	x	x	x	x
William Holmes									s	x	x	x
Hugh P. Hughes			x	x	x	x	x	x	x	x	x	x
Lyle E. Jacobsen			x	x	x	x	x	x	x	x	x	x
H. Thomas Johnson	x	x	x	x	x	x	x	x	x	x	x	x
Orace E. Johnson												
Orville R. Keister			x	x	x	x	x	x	f			
Linda Kistler			x	x	x	x	x	x	x	f		
Miyohi Kurosawa												s
Anthony T. Krzystofik			x	x	x	x	x	x	f			

Table 9 — (Continued)
 Current and Former Members of the Editorial Board
 The Accounting Historians Journal
 1977-1988

	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
Geoffrey A. Lee			x	x	x	x	x	x	x	x	x	x
Albro Martin			x	x	x	x	x	x	x	x	x	x
R. V. Mattessich		x										
Peter L. McMickle	x								x	f		
Kenneth S. Most	x	x					x	x	x	x	x	x
George J. Murphy	x	x										
Christopher Nobes	x	x										
Robert H. Parker	x		x	x								
Shizuki Saito	x	x										
Deiter Schneider	x	x										
Hanns-Martin W. Schoenfeld			x	x	x	x	x	x	f			
William J. Schrader	x	f										
William G. Shenkir			x	x	x	x	x	x	x	x	x	x
Donald H. Skadden	x	x										
David Solomons	x											
S. Takatera			x	x	x	x	x	x	f			
James J. Tucker	x	x										
Paul Useiding	x	x										
Murray C. Wells	x	x										
William Woodruff			x	x	x	x	x	x	x	x	f	s
Arthur Wyatt	x	x										
Stephen A. Zeff	x											

x = both issues f = fall issue only s = spring issue only

A related offering, a Haskins Seminar, was held as a plenary session during the Third International Congress of Accounting Historians in London on August 16-18, 1980. Ernest Stevelinck of Belgium presented a paper and slide presentation on "The Iconography of Luca Pacioli," which subsequently was written as a paper, that was published in the Fall 1986 issue of *The Accounting Historians Journal*. Howard Stettler of the United States presented comments on the "Rationale Underlying Major Developments in the Allied Fields of Accounting and Auditing." Although the seminars have not become a regular activity as originally planned, they did provide The Academy with important contact with other scholars and provided exposure for young historians.

The respective themes of the three U.S. seminars and the papers published in the proceedings are listed below. An asterisk indicates that these papers were reprinted in The Academy's Monograph No. 4, *Selected Papers from the Charles Waldo Haskins Accounting History Seminars* (1983), edited by James F. Gaertner.

First Haskins Seminar:

The Relevance of History to Contemporary Accounting Issues edited by Barbara D. Merino

"Opening Remarks," Robert W. Pivik

"Charles Waldo Haskins, 1852-1903," Barbara D. Merino

"The Relevance of the Study of Accounting History," Basil S. Yamey*

"Valuation, Matching, and Earnings: The Continuing Debate," Richard P. Brief*

"Comments on Paper by Richard P. Brief on Valuation, Matching, and Earnings," Maurice S. Newman

"Social Accounting Versus the Tin Lizzie," Robert E. Jensen*

"Comments on Paper by Robert E. Jensen," Gary John Previts

Second Haskins Seminar:

The Impact of Regulation Upon Accounting Theory edited by Barbara D. Merino

"An Overview of External Forces Affecting the Evolution of Accounting Theory," Lee J. Seidler*

"Income Taxation and Its Impact on Financial Reporting: An Historical Overview," D. Larry Crumbley*

"From *Main Street* to *Wall Street* to *Accord*: An Historian's Impressions of the Securities and Exchange Commission," Gary John Previts

"The Impact of Government Regulation on Financial Accounting: The Australian Experience," Malcolm Miller

Third Haskins Seminar:

An Historical and Contemporary Review of the Development of International Accounting edited by Alfred R. Roberts

"Comparative Accounting Education: A Neglected Area for Research by Accounting Historians," S. Paul Garner

"Accounting Roots and Their Lingering Influence," W. T. Baxter

"The Development of Accounting in Its International Context: Past Concerns and Emergent Issues," Anthony G. Hopwood, Stuart Burchell, and Colin Clubb

"Discussion of the Development of Accounting in Its International Context: Past Concerns and Emergent Issues," Diana Troik Flamholtz

"Major Influences Which Shape Accounting Systems: An Attempt of an International-Historical Analysis," Hanns-Martin W. Schoenfeld

The Accounting Historians Notebook

After The Academy's initial newsletter, *The Accounting Historian*, was succeeded by *The Accounting Historians Journal* in the spring of 1977, another newsletter was needed; therefore, in the spring of 1978, *The Accounting Historians Notebook* was issued. Hans V. Johnson served as its first editor. Gadis J. (Buck) Dillon (then at University of Georgia) joined the staff of the *Notebook* as associate editor in 1979. Since 1980, Dale L. Flesher has assumed the responsibilities of the editorship of the *Notebook*. Johnson continued in a co-editorship capacity and Dillon continued as an associate editor through the Spring 1980 issue.

In addition to news items, message from The Academy's president, and the official business, the *Notebook* is generally limited to 36 pages. It typically features two or three short articles that deal with historical research methodology, the teaching of accounting history, and highlights on an interesting

aspect of accounting history. The *Notebook* is a principal publication of The Academy, but it does not undertake a referee process of the type found in *The Accounting Historians Journal*. A five-year subject/author index to the *Notebook* appeared in the Fall 1982 issue.

Accounting History Research Center

In 1976, the Committee on Goals and Objectives, chaired by S. Paul Garner, issued its report. Although most of the comments related to the specific activities of The Academy, the report encouraged research in accounting history. Not until 1981, however, was the concept of an accounting history research center specifically considered. Near the end of The Academy's August 1981 business meeting in Chicago, Gary John Previts outlined a proposal for the organization and funding of a center for research in accounting history. Such a center would be a permanent facility that would house limited collections of books and documents. It would also serve as a clearinghouse for information and a place for researchers to assemble for seminars and for individual study.

The officers of The Academy determined that a research center was needed and that the project should be undertaken. Because the administrative functions of The Academy had been housed at Georgia State University since 1975; it was agreed that Georgia State University would be the logical place to establish the center. Its location in Atlanta would also make it easily accessible. In January 1982, The Academy presented to Gary A. Luoma, then Director of the School of Accountancy at Georgia State, a proposal to establish a research center there. Due to his efforts, Room 601 of the Business Administration Building was made available for the exclusive use of the Center in March 1982. An appropriate plaque was affixed to the door designating the room as the Accounting History Research Center (AHRC).

At the August 1982 Trustees meeting in San Diego, Norman X. Dressel (Georgia State University) presented a formal proposal to establish the AHRC. The motion that permission be granted to establish it as a joint undertaking of The Academy and Georgia State University was approved unanimously. Later in 1982, H. Thomas Johnson, then president of The Academy, formally appointed Norman X. Dressel as the director of the AHRC; Elliott L. Slocum (Georgia State University) and Alfred R. Roberts were appointed associate directors.

In the fall of 1985, the AHRC moved to larger quarters in the newly acquired Business Administration Building on the Georgia State University campus. In 1986, The Academy and the Georgia State University School of Accountancy signed a formal agreement to continue the joint sponsorship of the research center.

In April 1983, the AHRC established a semiannual newsletter called *Scripturis* to inform Academy members of acquisitions and activities taking place within the Center. With the sixth issue in the winter of 1986, the publication was suspended due to the illness of the director, Norman X. Dressel.¹²

The AHRC functions as a repository for the archives of The Academy. In June 1982, Professor and Mrs. George H. Newlove donated to the Center a large collection of books and periodicals. The Newlove collection provided an excellent base upon which to build. Additional collections of books and periodicals have been added and several individuals have donated portions of their personal papers and copies of unpublished speeches. The Center houses a private collection of 18th and 19th century English language books on accounting and bookkeeping, as well as complete sets of annual reports for the General Motors Corporation and the Coca Cola Company. Andrew Barr donated a complete set of *The Accounting Review* and the funds to have it permanently bound. Space limitation, however, will preclude the gathering of large amounts of material, and eventually the Center will have to determine what will be most useful to retain.

The Dedication Seminar of the AHRC was held on November 10 and 11, 1985, in Atlanta, Georgia. Norman X. Dressel, who had served as director of the Center since its formation, coordinated the dedication. Among those presenting remarks at the official dedication ceremony on the morning of November 11 were Edward N. Coffman, president of The Academy; Noah N. Langdale, Jr., president of Georgia State University; Michael H. Mescon, dean of the College of Business Administration; Gary A. Luoma, director of the School of Accountancy; and Norman X. Dressel, director of the AHRC. The remainder of the day's activities included the presentation of papers and a luncheon, hosted by S. Paul Garner, to honor past presidents of The Academy.

The papers presented were compiled and edited by Norman X. Dressel, Elliott L. Slocum, and Alfred R. Roberts and were

¹²The *Scripturis* was scheduled to have two issues per volume; however, due to clerical error there was never a Volume 1, Number 2.



Norman X. Dressel (right), director of the AHRC, looks on as Noah N. Langdale, Jr. (left), Georgia State University president, addresses those attending the dedication of the AHRC.

published by The Academy under the title *Proceedings: Dedication Seminar of The Accounting History Research Center at Georgia State University* (1988). On the evening preceding the official dedication of the Center, a dinner and roundtable discussion on the objectives and purpose of the Center were held.

After an illness of about a year, Norman X. Dressel died on August 30, 1987. The Educational Foundation of the Georgia Society of Certified Public Accountants awarded the AHRC a grant in December 1987 to obtain furnishings for the Center in his memory. A large conference table and ten chairs were purchased and an appropriate plaque was placed on the door of the Center. President Richard G. Vangermeersch appointed Alfred R. Roberts and Elliott L. Slocum as co-directors of the AHRC, and Slocum was designated to finish Dressel's term as a trustee of The Academy.

Tax History Research Center

Early in 1984, Anthony T. Krzystofik became aware that E. Louis Raverta, a long-time faculty member of Western New England College and a successful practitioner in the Springfield, Massachusetts area, was planning to dispose of his complete

collection of *Tax Services* including approximately 500 volumes for the period 1915 to 1983.

On July 20, 1984, Gary John Previts accepted Raverta's offer to donate the collection to The Academy. The volumes were shipped to Atlanta in November 1984, but due to the lack of space in the AHRC, they were stored off site.

At the Trustees meeting in 1986, it was suggested that a Tax History Research Center (THRC) might be established to house the Raverta Collection. Dale L. Flesher indicated that he would try to secure space for such a center at the University of Mississippi. He reported at the 1987 meeting that space dedicated for a THRC had been granted by the university, and the trustees approved the Center's establishment. In August 1987, the Raverta Collection was transferred from Atlanta to the University of Mississippi under the direction of Alfred R. Roberts. This collection forms the basic holding of the THRC. Richard G. Vangermeersch, then president of The Academy, appointed Tonya K. Flesher (University of Mississippi) as its director. Alfred R. Roberts, Dale L. Flesher and Tonya K. Flesher negotiated with the University of Mississippi an agreement for cooperative sponsorship of the THRC along the pattern of that with Georgia State University for the AHRC. In 1988, the General Motors Foundation provided funds for bookshelves and other furnishings for the THRC. Commerce Clearing House has also made a grant to the Center.

On December 2 and 3, 1988, the dedication of the THRC was held in conjunction with the celebration of the 75th anniversary of the 16th Amendment to the U.S. Constitution. After the opening luncheon on December 2, the official dedication ceremony was held with introductory remarks by R. Gerald Turner, chancellor of the University of Mississippi, and Dale L. Flesher, president of The Academy. The remainder of the day's activities included the presentation of papers and dinner.

Following the presentation of papers on December 3, the conference concluded with a luncheon. President Flesher and Tonya K. Flesher coordinated the dedication and conference activities. The conference was partially funded by a grant from the Deloitte Haskins & Sells Foundation.

CONCLUSION

The Academy was formed to address a perceived need, the study of development of the ideas and practices related to the disciplines of accountancy. It supports the assumption that an



Dale L. Flesher (right), president of The Academy, and Tonya K. Flesher, director of the THRC, display the plaque dedicating the THRC.

awareness of the origin and evolution of contemporary issues enables the professional accountant — academician and practitioner — to make better decisions.

The Academy's activities encourage dissemination and publication of research. *The Accounting Historians Notebook* publishes short, nonrefereed articles, new items, and research methodology information. *The Accounting Historians Journal* is a respected scholarly, refereed journal. The Working Paper Series provides an outlet for developing research papers, and the Monograph Series publishes finished research longer than is appropriate for the Journal. The Classics Series makes notable books on accounting available at reasonable cost and encourages their use in accounting courses. In addition to sponsoring sessions on historical subjects at national and regional meetings of the AAA, The Academy organizes accounting history seminars, and actively supports the international congresses on accounting history.

The development of these activities to serve members and the broader academic and professional community has resulted in The Academy's continued growth in membership. "Service," the premise on which it was formed in 1973, is descriptive of all

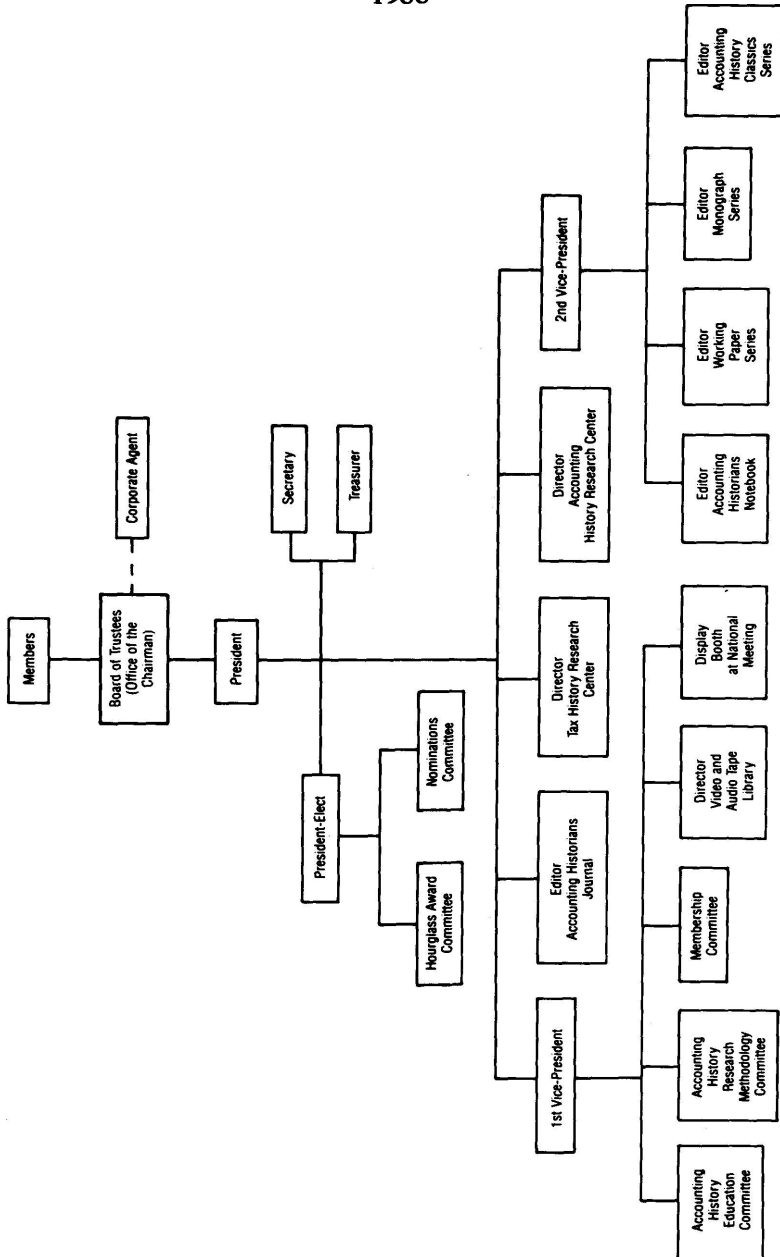
of The Academy's endeavors. Individuals who serve as officers, editors, and members of editorial boards and committees demonstrate this attention to service. Current President Eugene H. Flegm (General Motors Corporation) and President-Elect Barbara D. Merino, the first woman to become president of The Academy, continue to explore new ways to serve members and the profession as a whole.

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APPENDIX

The Academy of Accounting Historians
Organizational Chart
1988



The Accounting Historians Journal
Vol. 16, No. 2
December 1989

1989 ACCOUNTING HALL OF FAME INDUCTION: YUJI IJIRI

INTRODUCTION

by

William W. Cooper

Nadya Kozmetsky Scott Centennial Fellow

University of Texas, Austin

Accounting Hall of Fame Board of Nominations

Our Inductee's favorite reading is that of the mathematician, Raymond Smullyan. I quote from one of Smullyan's recent works, entitled "What is There?" as follows:

One dictionary defines *ontology* as the science of being; the branch of metaphysics that investigates the nature of being and of the essence of things . . . [Thus Willard van Orman Quine the American philosopher-logician] starts his famous essay *On What There Is* with the words, 'A curious thing about the ontological problem is its simplicity. It can be put in three Anglo-Saxon monosyllables: 'What is there?' It can be answered, moreover, in a word — "Everything."

A similar philosophy was expressed in Oscar Mandel's delightful book, *Chi Po and the Sorcerer: A Chinese Tale for Children and Philosophers*. In one scene, the boy Chi Po is taking painting lessons from the sorcerer Bu Fu. At one point Bu Fu says 'No, No! You have merely painted what is! Anyone can paint what is; the real secret is to paint what isn't?' Chi Po, quite puzzled, replies "But what is there that isn't?" [Smullyan, 1988, pp. 111-112].

Smullyan quotes the student approvingly but my sympathies are with the sorcerer. Surely the answer to the boy's question is . . . "What can be created!" — And I take Ijiri as my example. How did he create the ideas of triple-entry bookkeeping? I leave you with the mystery as follows: At a Conference on Creative and Innovative Management [Cooper, 1988, p. 60], I asked Ijiri how he came to have these ideas of triple-entry bookkeeping,

after prefacing my questions with the statement that, like many others, I was aware as he of the basic connections between balance sheets and income statements that had been noted by many others since Pacioli first published his book on double-entry bookkeeping nearly 500 years ago. If "it was there," why didn't I, or someone before me, see it? I think that the answer lies in Ijiri's creativity — his ability to bring into existence things that *weren't* there!

This still leaves open the question of why it took nearly 500 years to go from Pacioli to Ijiri despite the attention of many fine minds. Here I think the answer lies in the depth to which Ijiri had previously probed in his studies on the foundations of accounting, which finally led to his demonstration that all of accounting, including its multidimensional extensions, can be derived from three simple axioms which he refers to as the axioms of control, of quantities and of exchanges. Three simple axioms to cover all of private and public sector (e.g. national income) accounting is almost unbelievable, at least to me, when I recall that Eric Kohler and I (working with David Rosenblatt, the logician) succeeded in formulating five axioms, with supplementary propositions, as published in *Kohler's Dictionary for Accountants* [Kohler, 1952; pp. 43-44], but were unable to demonstrate their inclusiveness. With his axiomatization accomplishments we can say that Yuji Ijiri answers the "so what?" of his father-in-law (see citation) by showing the stuff of which accounting's clothes are made. With his triple-entry bookkeeping, Ijiri has answered the "so what?" of his father (see citation) by opening new horizons of use for accounting — new uses that build on the foundations of the past.

In his accomplishments, our gentle inductee, Yuji Ijiri, represents the best traditions of the past while opening new prospects for the future in both accounting research and practice.

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INDUCTION CITATION

by

Thomas J. Burns

Professor and Chairman

Faculty Committee on Accounting Hall of Fame

The Ohio State University

Although non-Western in birth and in citizenship, this newest Hall of Fame member exemplifies the best of the so-called American values namely, the belief in hard work, achievement and education, a continuing willingness to face new challenges, the elusive balance of work and play, and the importance of family life.

His life has been spent in two cultures, the first half in Japan and the second half in America. He was born in Kobe (a port between the mountains and the inland sea — near Osaka), in 1935, the first born of a baker/confectioner who wasn't doing well as sugar was very scarce and under government control. So the father had time to teach his son arithmetic. When he was six, the boy was sent to an abacus school, which the child loved, to give him a head start. When he was nine and the city was under heavy air attack, he and 100 other fourth graders were evacuated to a temple in Okayama where a young man taught him algebra, for over a year until the war ended.

When he was in tenth grade, his father fired his accountant and told his son to take over. Again he enjoyed it and decided to become a CPA. His father regarded college education as a waste of time because he always believed in on-the-job training. If the father were still with us, he would probably say "sounds great, but so what?"

With difficulty the son persuaded the father to let him go to night school starting at a junior college to help him become a CPA. (In Japan, you have to pass a qualifying exam if you are not a college graduate in order to take the CPA exams.) In twelfth grade, he passed the qualifier and shortly after graduating from Ritsumeikan University in Kyoto with a Bachelor's degree in law, he received his certificate at 21 years of age, still the youngest ever recorded in Japan.

At college, he studied under an accounting professor whose academic values were the exact opposite of his father's. This professor taught an accounting seminar where for the entire semester they read Thomas Carlyle's *Sartor Resartus* (which means "Tailor Retailored"). No wonder the student took 20 years to understand the professor's analogy between accounting

and the clothes that society wears. No wonder that the student learned to believe deeply in analogy as an engine of his research, as a frequent cause of his laughter, and as a source of his deepest thinking. He has found further inspiration from the analogies of the giants of mathematics, art and music, namely Gödel, Escher, and Bach.

(This professor had a daughter, Tomo, and when he started to date her, naturally, his classmates began to doubt the seriousness of the student's interest in accounting.)

After college, he was practitioner in Tokyo for three years first with a small firm, then with Price Waterhouse for two busy years, with a few listed companies as clients. He also went to YMCA night classes to learn English and saved his money to come to graduate school in America.

When he was 24, had saved \$1,650, and had not received the professor's permission to marry his daughter, he entered the University of Minnesota. After quickly earning a Master's degree, he went to Carnegie Mellon University (because of his mathematical talent) as a Ford Foundation fellow to earn his Ph.D.

There he was much influenced by three faculty members; Richard Cyert, now Carnegie's President who changed the doctoral language requirements to include Japanese; Herbert Simon, the Nobel Prize Winner, with whom he eventually co-authored a book; and especially his mentor, William W. Cooper, who became his third "father," and who over a cup of coffee influenced him to write a dissertation in accounting (rather than one in economics or in operations research). After he married the Professor's daughter, and completed his degree, he went to Stanford. After four eventful years there, (with three colleagues named Jaedicke, Horngren, and Sprouse)¹ he returned to Carnegie where he has been ever since (with such colleagues and students as Kaplan, Baiman, Itami, and Sunder).²

¹Robert K. Jaedicke, William R. Kimball Professor of Accounting and Dean; Charles T. Horngren, Edmund W. Littlefield Professor of Accounting; both of Stanford University; and Robert T. Sprouse, Distinguished Accounting Research Professor, San Diego State University (formerly of Stanford University).

²Robert S. Kaplan, Professor, Carnegie Mellon University and Arthur Lowes Dickinson, Professor of Accounting, Harvard University; Stanley Baiman, Professor, Carnegie Mellon University; Hiroyuki Itami, Professor, Hitotsubashi University (Japan); and Shyam Sunder, Richard M. Cyert Professor of Management and Economics, Carnegie Mellon University.

This gifted professor with an extraordinary memory has consummate skill with the computer. All his life, he has been fascinated by puzzles, words, and games (for example, Shogi or Japanese chess, which complicates the usual game by allowing the use of pieces captured from the opponent). These and other interests are somewhat comparable to those of the century-old Hall of Fame member, William A. Paton. Like Paton, his large body of work is marked by much originality and subtle reasoning, especially in his triple-entry bookkeeping publications. An interesting illustration of his mathematical strengths are his many abstracts published in *Zentralblatt Für Mathematik* dealing with many articles in the field of mathematical logic. Most receptive to discussing his papers publicly, he has appeared 21 times before the 24-year-old Ohio State Accounting Research Colloquium.

“To know the past, one must first know the future” is quoted in his fourth AAA monograph (just published), a quotation by Raymond Smullyan, a CCNY Mathematics Professor, whose philosophical work is the favorite reading of this prolific researcher. His over 100 articles have been published in the leading academic and professional journals of several disciplines, and his many books are frequently published both in English and Japanese and sometimes in French and Spanish.

Devoted to his family, he used to disagree with his wife about which parent got to bathe the babies. They are now his best critics especially of his speeches.

Much honored, he is a past president, a distinguished international lecturer, and an “outstanding educator” awardee of the American Accounting Association, also a past president of the Accounting Researchers International Association, the AICPA’s literature prize winner four times, and the holder of a professorship named after Hall of Fame member — the late Robert M. Trueblood of Touche Ross — both of which with he has been closely associated. In 1987, he received the highest honor his university bestows on a faculty member, a university professorship.

An accountant who represents the finest traditions of accounting and whose election hopefully foretells a world society, this happiest and this humblest of all accounting researchers who almost — to recall a Disney song — “whistles while he works” and who genuinely believes that all of his achievements are due to others, is inducted as the 49th member of the Accounting Hall of Fame — Yuji Ijiri.

RESPONSE

by

Yuji Ijiri

Robert M. Trueblood University Professor
Carnegie Mellon University
1989 Accounting Hall of Fame Inductee

Induction into the Accounting Hall of Fame is indeed accounting's highest honor. In my case, this great honor has even greater significance because I receive it from the hands of my mentor for more than half my life, William Cooper. In addition, as the Robert M. Trueblood Professor, I take great pleasure in causing Bob, the thirty-fourth Hall member, to be "reinducted" into the Hall of Fame.

There are many people to whom I would like to express my intellectual indebtedness. But I must reluctantly omit these acknowledgements to keep my presentation short, following the advice of the Hall of Fame Committee Chairman, Thomas Burns, who was my boss when I worked as a grader at the University of Minnesota.

Nevertheless, I would at least like to acknowledge the four institutions I have been fortunate enough to be associated with since I came to this country in 1959: the University of Minnesota, Carnegie Mellon University, Stanford University, and the American Accounting Association. Each has played an indispensable role in shaping my career, and I would follow exactly the same path again if the clock were turned back 30 years.

I must in particular acknowledge Carnegie Mellon and its Graduate School of Industrial Administration, where I spent two and a half years as a student and twenty-two years as a faculty member. I have indeed been steeped in the interdisciplinary spirit of Carnegie Mellon.

(The trouble with this spirit is that I now seem to have a disease called "acquired interdisciplinary syndrome." It gives me an illusion from time to time that everything in life is related to accounting and vice versa. However, one of the toughest things that I still cannot quite make the connection with accounting is "love." In fact, my lifetime challenge is to explore what this thing called love has to do with this thing called accounting.)

Yet interdisciplinary work could very easily have been neglected or rejected in accounting. Here, I am convinced that every evaluation says just as much about the evaluator as it does

about the evaluatee. In this sense, this honor signifies the openness of the accounting discipline and the accounting profession — openness toward foreign thoughts.

In addition, this honor also signifies the openness of the United States toward foreigners, especially in academia, without which I would certainly not be here today. I hope that this openness will spread throughout the world, as we are now in the age of globalization, country-wise, discipline-wise, and profession-wise.

“Globalization,” however, does not mean just superficially mixing foreigners or foreign thoughts. They must be amalgamated and integrated. To do so, we must first search for their common roots and rebuild a new structure from there that is big enough, deep enough, and general enough to accommodate them all.

This continual process of reexamining and restructuring from the foundation is what makes a country, a discipline, or a profession strong, creative, and, above all, adaptive to change — change in the environment as well as change in values, which seem to be most imminent today in accounting and in the world.

And for this very reason, I look forward to participating in the process of “globalization.”

THE ACCOUNTING HALL OF FAME

<i>Year</i>	<i>Member</i>
1950	George Oliver May* Robert Hiester Montgomery* William Andrew Paton
1951	Arthur Lowes Dickinson* Henry Rand Hatfield*
1952	Elijah Watt Sells* Victor Hermann Stempf*
1953	Arthur Edward Andersen* Thomas Coleman Andrews* Charles Ezra Sprague* Joseph Edmund Sterrett*
1954	Carman George Blough* Samuel John Broad* Thomas Henry Sanders* Hiram Thompson Scovill*

*Deceased

Continued on next page

THE ACCOUNTING HALL OF FAME — (*Continued*)

<i>Year</i>	<i>Member</i>
1955	Percival Flack Brundage*
1956	Ananias Charles Littleton*
1957	Roy Bernard Kester*
	Hermann Clinton Miller*
1958	Harry Anson Finney*
	Arthur Bevins Foye*
	Donald Putnam Perry*
1959	Marquis George Eaton*
1960	Maurice Hubert Stans
1961	Eric Louis Kohler*
1963	Andrew Barr
	Lloyd Morey*
1964	Paul Franklin Grady*
	Perry Empey Mason*
1965	James Loring Peirce
1968	George Davis Bailey*
	John Lansing Carey*
	William Welling Wertz*
1974	Robert Martin Trueblood*
1975	Leonard Paul Spacek
1976	John William Queenan
1977	Howard Irwin Ross*
1978	Robert Kuhn Mautz
1979	Maurice Moonitz
1980	Marshall Smith Armstrong
1981	Elmer Boyd Staats
1982	Herbert Elmer Miller
1983	Sidney Davidson
1984	Henry Alexander Benson
1985	Oscar Strand Gellein
1986	Robert Newton Anthony
1987	Philip Leroy Defliese
1988	Norton Moore Bedford
1989	Yuji Ijiri

*Deceased

MEMORIAL THE LATE EMERITUS PROFESSOR KOJIMA (1912-1989)

by
Yoshihiro Hirabayashi
Osaka City University

Osamu Kojima, Emeritus Professor of Kwansei Gakuin University (Kobe, Japan), died of myocardial infarction on February 21, 1989, at the age of 76, at Osaka University Hospital. Last June he suffered a heart attack and he appeared to have recovered from it. But he passed away after another attack. May he rest in peace.

In keeping with Professor Kojima's desire to have an accounting history course offered in many Japanese universities, he founded the Accounting History Association (AHA). He was the first president of the AHA and set the direction for the association to follow.

Professor Kojima dreamed of participating in the Sixth World Congress of Accounting Historians in Kyoto in 1992. To our regret, he died before his dream could come true. His colleagues will attempt to carry out his plans.

One of Professor Kojima's major contributions was to examine accounting history in Europe by studying original materials and documents. His methodology was unique given the circumstances most researchers based their work on copies of materials available in Japan.

Most historical studies of accounting were based on investigation of bookkeeping in Italy, especially Luca Pacioli's *Theory of Bookkeeping*. Professor Kojima, however, studied the influence of Italian bookkeeping in other countries, including England and Scotland, as a bridge to the history of modern accounting.

In addition, Professor Kojima emphasized the socio-economical background in his study of accounting history. For example, he provided evidence to support the theory that the emergence of a bookkeeping procedure depends on socio-economic conditions of the society. From his reading of secon-

dary materials, he noted how merchants in early times managed their work.

Professor Kojima also was interested in the development of bookkeeping systems. He believed that unless the development of accounting, divisions, and generalization of journals and ledgers is completely traced, the current structure of bookkeeping and its essential function cannot be explicitly understood.

At the end of his life, Professor Kojima's interest was accounting history in America in the 19th and 20th centuries.

The following list shows Professor Kojima's academic appointments, major contributions, and interests as an historian.

Individual History

- 1912 Born in Osaka City
- 1925-30 Ichioka Junior High School
- 1930-34 Kwansei Gakuin College, Department of English Literature
- 1934-37 Kwansei Gakuin College, Department of Commerce and Economics
- 1937-41 Researcher, Osaka University of Commerce (Osaka City University)
- 1939-40 Teacher, Hikone Junior High School
- 1940-41 Lecturer, Kwansei Gakuin Commerce College
- 1941-45 Army Service
- 1946-48 Professor, Kwansei Gakuin Commerce College
- 1948-50 Lecturer, Kwansei Gakuin University, Department of Economics
- 1950-51 Assistant Professor, Kwansei Gakuin University, Department of Economics
- 1951-53 Associate Professor, Kwansei Gakuin University, Department of Commerce
- 1953-81 Professor, Kwansei Gakuin University, Department of Commerce
- 1983-86 Professor, Kinki University, Department of Commerce and Economics
- 1986-88 Professor, Kinki University, The Institute for World Economics
- 1961 Doctor of Business Administration, Kobe University and Kobe University of Economics
- 1965 *The Quest for History of Bookkeeping*, recipient of The Ohta Award from the Japan Accounting Association
- 1976 *Ympyn, A notable and very excellent woorke, . . .* (co-edited with Basil S. Yamey), recipient of the Hourglass Award from The Academy of Accounting Historians

- 1985 Received the Third Order of Merit from the Japanese Government
- 1988 *Introduction to Accounting History* received The Accounting History Association's Award and The Japan Institute of Certified Public Accountants' Award
- 1966-67 Head, Student Affairs Committee, Kwansei Gakuin University
- 1973-77 Head, The Institute of Industrial Research, Kwansei Gakuin University
- 1980-83 Trustee, The Academy of Accounting Historians
- 1982-86 President, The Accounting History Association

Major Contributions

Books

- 1961 *Hukushiki-Boki Hasseishi No Kenkuy (Historical Studies of Bookkeeping)*
- 1964 *Bokishi Ronko (The Quest for a History of Bookkeeping)*
- 1965 *Hukushiki-Boki Hasseishi No Kenkyu (Historical Studies of Bookkeeping)* 2nd edition
- 1971 *Eikoku Boki Hattatushi (History of Bookkeeping in England)*
- 1973 *Boki Shi (History of Bookkeeping)*
- 1978 *Kaikeishi Shiryo Kenkyu (Studies in the Historical Materials of Accounting)*
- 1987 *Kaikeishi Nyumon (An Introduction to Accounting History)*

Edited Books

- 1975 *Bokishi Kenkyu (Historical Studies of Double-Entry Bookkeeping)*
- 1979 *Kaikeishi Oyobi Kaikeigakushi (Accounting History and History of Accounting Theory)*

Reprinted Books

- 1973 Luca Pacioli, *Summa*
- 1975 Ympyn, *A notable and very excellente woorke, . . .* (co-edited with Basil S. Yamey)
- 1980 J. Peele, . . . *The Pathe waye to Perfectness . . .*

Articles (in English only)

- 1961 "Origin and Development of Double-Entry Bookkeeping," *Kwansei Gakuin University Annual Studies*, vol. 10

- 218 *The Accounting Historians Journal, December 1989*
- 1976 "The Synthesis and Division of Merchandise Account," *Studies in Industrial Economics*
- 1977 "Accounting Textbooks in Seventeenth Century England," *The Accounting Historians Journal* (Spring 1977)
"Origin and Evolution of the Manufacturing Account," *Studies in Business Economics*
- 1980 "Macghie's *The Principles of Book-Keeping*," *Accounting and Business Research*, vol. 34A, Special Accounting History Issue

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December 1989

THE ACCOUNTANT AND THE INVESTOR

by George O. May
Senior Partner, New York Office
Price Waterhouse and Company

When I was invited to be one of the lecturers in this series, I hesitated on account of a conflict of feelings. I was gratified by an invitation to lecture at an institution which means so much as Northwestern has come to mean in the field of business education, but I felt that ethics should be practiced rather than preached; and I was dismayed at the thought of contributing one of several lectures on the ethics of a single profession. When, however, Professor Custis suggested that I talk on the ethical obligations of the accountant to the investor my doubts were resolved, because the suggestion offered an opportunity to discuss before a sympathetic audience some of those phases of accounting practice which make it, to me, the most attractive of the professions which are closely allied with business; and an opportunity, also, to discuss some questions possessing a broader interest.

The Investor's Interest in Accountant's Work

Before discussing the ethical questions which arise between the accountant and the investor, it seems desirable to consider briefly the nature of the investor's interest in the work of the accountant and the conditions under which that work is ordinarily done. Accountancy today has become an important profession, the work of which varies greatly in character and purpose. Its work may, perhaps, be divided into three broad classes: first, the constructive work, such as the formulation and installation of systems of accounting; second, the detailed auditing of cash and other transactions; and third, the preparation and verification of financial statements. It is with this third class of work that the investor is more particularly concerned.

As published on pp. 26-54, *The Ethical Problems of Modern Accountancy*, Lectures Delivered in 1932, William A. Vawter Foundation of Business Ethics, Northwestern University School of Commerce, New York: The Ronald Press Company, 1933.

Investors are interested in the reports of accountants on the affairs of businesses in which they already are, or contemplate becoming, security holders. If they already hold securities of a corporation carrying on a business, they are concerned with the annual reports presented by the directors to keep them informed of the progress of the enterprise. These reports contain, among other things, annual accounts, which may be certified by accountants. If investors are only potentially interested in any securities, they may turn either to the annual reports or, if the securities are newly created, to the "offering" or prospectus issued by the banking house sponsoring them. This prospectus is likely to contain financial statements made by or on the authority of accountants.

Annual Reports and Prospectuses

It is interesting to note that the development of the work of the accountant in relation to annual reports and prospectuses dates from the last great period of depression which, beginning in 1893, came to an end with the sound money victory of 1896. My own experience in Wall Street began just as that period ended; and the memory of the disastrous losses shown year after year in the middle 90's, and of the successes subsequently achieved around the end of the century by the same companies, enables me to take heart of grace even in this distressing time.

The practice of having annual accounts audited, which began to make headway in the late 90's, has grown so that today about 80 or 90 per cent of all industrial companies whose securities are listed on the New York Exchange publish audited accounts.

In the early days of my experience, representations in prospectuses as to earnings and assets were usually based on information furnished to the bankers by the officers of the company, and were made by the issuing house itself. Later, it became more and more customary for the issuing houses to secure confirmation of the accounts by accountants, but they continued to make the representations themselves. More recently the practice has developed (which has long been customary and is now compulsory in England) of publishing the results of the accountants' investigations in the form of a report from the accountants themselves, embodied in the prospectus. Some concerns, however, still cling to the old procedure and rely on accountants' reports only to support their own representations should those representations later be challenged.

With the rapid development of this field of accountancy, it is not to be expected that standards either of practice or of ethics should be uniform throughout the profession or uniformly satisfactory. It is in times of depression such as we are now passing through, that reforms are most easily initiated, and it is timely, therefore, to consider now what standards of ethics the profession of accountancy can fairly be asked to accept and adhere to.

The Accountant's Responsibility

It will be well, next, to consider the nature of the accountant's responsibility in respect of financial statements which are embodied either in a prospectus or in the annual report of a corporation. As a preliminary to a consideration of this question, I should like to emphasize the fact that the accounts of a corporation carrying on a complex modern business are not, and cannot be, statements of absolute fact. They are necessarily based largely on conventions, on estimates, and on opinions. I shall return later to a further discussion of this point, but think it desirable to mention it early in my address, as I have found from experience that it is by no means always fully appreciated even by people who might be supposed to be well versed in financial affairs.

The character of the accountant's responsibility in respect of accounts embodied in a prospectus or in an annual report rests naturally on the nature and purpose of those documents. The prospectus is a document issued by a vendor of securities, and is frankly designed to induce investors to purchase securities. An annual report is a document addressed by the directors to shareholders, reporting on their administration of the affairs of the company for the year and the financial results thereof.

A number of differences between the two cases at once suggest themselves. The banker, who is offering securities, is not expected himself to be informed regarding the financial status and past earnings of a corporation. He must make his representation on the authority of others. He may conceivably rely on the representations of the officials of the company, but obviously this course involves a certain danger, since they are interested parties. Therefore, he is likely to have recourse, instead, to the accountant, who can furnish a disinterested report. In such a case, the full responsibility is put squarely on the shoulders of the accountant.

In the case of the annual report, however, the primary responsibility for the financial statements submitted to shareholders rests with the officers and directors, and the function of the accountant is to advise the shareholders whether, in his opinion, the statements so submitted fairly present the position of the company and the results of its operations. The investor has the right to assume that the figures, let us say of earnings, presented by an accountant in a prospectus represent the accountant's own best judgment of the results for the period which they cover. In the case of similar figures appearing in the annual report of a corporation, not quite the same assumption can properly be made. In that case, the figures should represent the best judgment of the officers and the directors — a judgment, however, which the auditor either concurs in or regards as being within the reasonable limits of a legitimate difference of opinion, unless the contrary is indicated by his certificate.

Differences of Opinion

Every balance sheet is, as judicial authorities have recognized, necessarily a matter of estimate and opinion, and in some cases the limits of a reasonable difference of opinion may be fairly wide. I do not wish to make too much of the point, but the investing public generally fails to appreciate that there is any distinction at all, and therefore it is essential to mention that a distinction does exist, and that it must exist. Often, perhaps usually, the accounts presented in an annual report are the results of discussion between the officers or directors of the corporation and its independent auditors, and represent their combined judgment. But the representatives of the corporation, on the one hand, and the accountant, on the other, may not entirely agree, and in such a case the accountant can properly accept the judgment of the corporation's representatives if he is satisfied that it is honestly formed and inherently reasonable.

Suppose, for instance, the question to be what provision for depreciation is required; and suppose that the directors, if left to themselves, would consider a provision of \$50,000 as adequate, while the auditor would favor the provision of from \$80,000 to \$100,000. The directors may agree to provide \$70,000 if thereby they can secure the auditor's unqualified certificate to the accounts. For the purposes of an annual report, the auditor would be quite justified in accepting this solution, perhaps saying in his certificate that the provision made is reasonable. But if he were preparing figures for a prospectus, the sole

responsibility for which would be his, he would be bound to give expression to his own final judgment, though in reaching that judgment he would naturally give full consideration to the views of the company's representatives.

Annual Report Essentially Historical

Another, and perhaps more important distinction between the prospectus and the annual report is that the annual report is essentially historical in its character, whereas the prospectus, even when it deals with events in the past, does so solely for the bearing that they have on the prospects for the future. For, obviously, the intending investor has no interest in what has happened in the past merely because it has happened; he is interested only to the extent that the past is a guide to the probable future.

I should like to emphasize this point particularly, because in recent years there has, to my mind, grown up a tendency to attach an altogether exaggerated importance to the earnings reported annually by corporations as an index of future earning capacity and, consequently, of the value of the business. This tendency has, I think incidentally had the effect of magnifying the swings in the market prices of stocks. In passing, I might express the opinion that the habit of valuing stocks at ten, twelve or any other number of times the annual earnings applicable thereto, and using for the purpose of the calculation the earnings of a single year, has tended to bring about excessive valuations for stocks in periods of great prosperity and correspondingly inadequate values in times of depression such as we are now passing through.

Perhaps I can sum up the position by saying that the investor should be entitled to regard an accountant's statement in a prospectus as a little more objective and more clearly indicative of earning capacity than a statement made in an annual report primarily by the directors but with the concurrence and approval of the auditor.

The Accountant and the Prospectus

I should like, now, to consider in more detail the position of the accountant in relation to the prospectus and the annual report of a corporation. I will take the prospectus first because, as I have already pointed out, the accountant assumes the greater responsibility in respect of such a document.

When a banker contemplates an issue of securities of, let us say, an industrial company, he is likely to take steps to secure the report of an accountant on the financial position and past earnings of the business. In doing so, he has two purposes in mind: first, to decide whether the proposed issue is one that he cares to undertake; secondly, to ascertain what sort of a presentation of facts he is likely to be able to secure for the purpose of influencing the judgment of potential investors. Very commonly, he will ask the corporation proposing the issue to cause an examination to be made by accountants satisfactory to him. In such work, the accountant is retained at the request of one party, but is actually employed and paid by another, and the purpose of his work is ultimately to influence the attitude of third parties with whom he never comes into contact. It is apparent at once that he owes an obligation to each of three groups or parties, and that the interests of these groups are by no means identical.

Now, the most difficult ethical problems generally arise from conflicts of interests and conflicts of loyalties. The simplest case is that in which the personal interest of the accountant conflicts with the interest of his client; but obviously no one can claim to be a member of a profession, or expect to succeed in one, unless he is prepared, when necessary, to subordinate his own interest to that of his client.

Conflicts of Interest

More difficult problems arise in cases such as the one I have just outlined, in which the accountant owes an obligation or a loyalty to more than one individual or group of individuals, and the interests of the different parties conflict. Naturally, the problem is not made any less delicate by the fact that the accountant is dealing with matters of opinion in relation to operations with which one of the parties (the corporation) through its officials should be more completely informed than he can be.

Frequently, the first stage of his work is an investigation and report to the issuing house upon representations previously made to it by the corporation, and upon his report the issuing house decides whether those representations have been borne out and whether the issue is one which it is willing to sponsor. During this stage, the corporation and the issuing house are on the opposite sides of the table. If this stage is successfully completed, and mutually satisfactory arrangements are agreed

upon by the corporation and the issuing house, the questions arise what is to be shown in the prospectus, and in what form, and from this point onwards the interests of the issuing house and those of the corporation seem to converge and are, broadly speaking, identical.

The Obligation to the Investor

The accountant is apt to encounter difficult ethical problems at both stages of the procedure, but those encountered in the later stage are by far the more difficult and are the only ones with which we are concerned today. In the first stage, the issuing house is trading with the corporation and has an interest in stressing any weaknesses in the corporation's position in order to secure more favorable terms. The accountant is frequently under pressure from two parties advancing conflicting views on the question at issue, and owing a duty to each party. He has, however, the advantage of hearing fully the arguments on both sides, and reaching his decision with due regard thereto.

In the second stage — when the prospectus is being prepared — the banker and the corporation are, as I have said, united in presenting their views. The banker is sometimes found to be minimizing at this stage weaknesses which he had stressed in the first stage. The accountant must recognize that his paramount obligation is to the investor, to whom his report is in reality to be addressed; and that the investor is some one with whom the accountant in the nature of things is not in touch, and who is incapable of presenting arguments counter to those presented on behalf of the banker and the corporation. The problem is made the more difficult because the importance of the accountant's report often lies as much in what it implies as in what it says, and because the differences relate almost universally to questions not of right nor of wrong, but of judgment.

To illustrate my point — the fact that a corporation has made money in the past has absolutely no significance to the potential investor except for its bearing on the probable earnings of the future. Therefore, neither the issuing house nor the accountant has any ethical right to put forward a statement of past earnings if to their knowledge it is calculated to mislead the investor as to the reasonable prospects for the future. On the other hand, what has been accomplished in the past is usually the main factual basis for estimating future prospects, and it is certainly no part of the work of the accountant to make esti-

mates for the future; so that if he is to make any contribution at all to the knowledge of the investor, it must be in the form of a report on what has taken place in the past.

Past Earnings and Changed Conditions

What position, then, ought the accountant to take if either general conditions or the conditions specifically affecting the business under consideration have changed since the profits proposed to be reported were earned? This is a question which has occasioned conscientious accountants much concern. Conditions are never exactly the same from one year to another, and investment must, as a practical matter, always be based on imperfect knowledge and approximations.

I suggest that the auditor should always consider how far conditions at the time of issue differ from those obtaining during the period covered by his report, and particularly how far any changes are a matter of common knowledge. He may, for instance, properly certify accounts covering a period of five years even though in his judgment general business conditions are as a whole less favorable than the average during the period covered by his report. He might conceivably justify certifying profits earned during the boom period which culminated in 1929 after the collapse of that year, upon the ground that the change of conditions was a matter of common knowledge and that every one must judge for himself how far-reaching its effects would be. He, certainly would not be entitled to certify figures for a prospectus if to his knowledge, but not to the knowledge of the public, new conditions had arisen within the corporation itself which practically negated the possibility of a continuance of any such earnings in the future, or made earnings dependent upon entirely different considerations.

An accountant would not, for instance, be justified in giving a certificate which he knew to be desired for use in a prospectus in circumstances such as came to my notice (not in this country) recently. A corporation had conducted a very satisfactory and profitable general investment business for a number of years. Control of it was acquired by a financier of somewhat doubtful reputation, who proceeded at once to dispose of the investments previously held and to reinvest the proceeds in a series of companies controlled by himself. He also put out a prospectus in which he invited subscriptions to new securities of the investment company on the basis of the results obtained in the past

under conditions entirely different from those existing when the issue was made.

Reliance on the Accountant

Obviously, problems of great nicety must constantly arise, and in order to solve them properly the accountant must possess good judgment and be willing and able to exercise that judgment objectively and dispassionately. The investor must rely on the judgment and ethical standards of the accountant, and, except in cases so flagrant as to be fraudulent, the community will be wiser to leave the penalty for failure to justify such confidence to be inflicted through the loss of standing in business which is likely to follow upon it, than to attempt to impose legal penalties.

To be willing to exercise his judgment objectively and dispassionately the accountant must be a man of high character, prepared to recognize and observe high ethical obligations even to his own immediate disadvantage. To be able to do so he must be free from any relation to the subject matter or to the parties in interest which might cloud his judgment or impair his loyalty to the investors, to whom his paramount duty is owed. As I have indicated, he necessarily stands in some business relation to the corporation creating the securities and the banking house undertaking their issue, but he should be careful to keep those relations on such a footing as to insure that his freedom of action and independence of judgment will not be affected.

It might be a counsel of perfection to suggest that no accounting firm should give a report or certificate if any member of the firm has any interest, however slight, in the corporation creating the securities to be sold. On the other hand, it would seem unnecessary to say that an accountant should regard himself as disqualified from giving any certificate or opinion if he has any substantial interest in the corporation whose securities are to be sold. Yet I have encountered at least one case in which this principle has been ignored by accountants carrying on a large business and claiming a good standing. As a practical rule, an accountant should run no risk of putting himself in a position where his interest might with any reason be thought to be large enough to affect his judgment, and it is the part of wisdom to resolve all doubts on such a question conservatively by declining the doubtful appointment.

Similarly, the accountant should be extremely careful not to put himself at any time in the position of accepting from the

issuing house any favor, or of buying securities from it on any terms more favorable than those offered to the general public. His compensation for services should be fixed, so as to make it as nearly as possible a matter of indifference to him whether the issue is or is not made, or whether if made it is or is not successful. Any agreement in advance whereby the compensation to be received is directly dependent on the success or failure of the financing, destroys the disinterestedness of the accountant and is wholly objectionable.

Good Accounting and Matters of Opinion

These general considerations seem to me to offer little difficulty. The really difficult ethical problems of the accountant arise when differences of opinion develop between him and the officers of the corporation or the representatives of the issuing house, and when actual or potential weaknesses in the position of the issuing corporation are disclosed. Frequently, the facts of an industrial situation are uncertain, and the most correct accounting treatment of them is a matter of opinion. The officials of the corporation may represent the situation forcefully, and the accountant, while taking a different view, may believe them to be honest and may be conscious of the fact that their familiarity with the subject and knowledge of the details are necessarily greater than his own. He should, however, remember that as against their advantage of greater familiarity he possesses the important advantage of greater objectivity, and though he should always be open to conviction by sound reasoning, he should never allow his judgment to be overborne by the mere authority of interested parties.

Perhaps I might illustrate the difficulties of the situations which arise by an actual case, where the differences of opinion became a matter of public record. In connection with an important recent issue, the accountants, after listening to the views of the management, felt compelled to formulate their conclusions on a basis different from that which management thought appropriate. In the prospectus it was explained that the earnings, as reported by the accountants employed in that connection, were based on amortization tables which differed "drastically" from those theretofore accepted by the corporation on the advice of accountants, and the following statement was made: "The management believes that the adjustment, which accounts in large measure for the variation between the figures shown above and the interim figures reported by the

corporation, is extremely conservative and in the light of subsequent experience, may prove to be excessive."

It is easy to realize how embarrassing the situation in this case must have been. The question was purely one of opinion, the correct answer to which only time could determine. The management was, as the prospectus indicated, very definite in the expression of its opinion, and had the support of other accountants. The financial issues at stake were important. No doubt the accountants engaged in connection with the prospectus could have framed a form of statement which would have conformed to the views of the management, and which would have left them in a position legally secure. But ethically they were bound to give effect to the judgment which, whether right or wrong, they had honestly and definitely formed.

Disagreements with Clients

It is painful to have to disagree with those by whom one has been retained, and the person in whose interest one does so is unlikely ever to know what has been done, or to appreciate the stand that has been taken on his behalf. But in the long run, the willingness of an accountant to do what he conceives to be his duty to the unknown investor, even if by so doing he alienates a client and suffers a present loss of business, brings a rich reward both in self-respect and in a professional reputation which, in turn, brings a pecuniary benefit.

Fortunately, in recent years a clearer recognition on the part of issuing houses of their own true interests has tended to make such controversies less frequent and less acute. The wise issuing house today recognizes that the prospectus is the basis of its contract with the investor and that all questions of ethics apart, it is not even expedient to issue a prospectus in which material facts are unfairly or inaccurately stated, or suppressed. Such a course may help the sale of securities at the moment, but that is of little worth if it creates possible ground of action against the banker later, should the securities for any reason involve the investor in loss. It is to the interest of the issuing house to see that no pretext is afforded for a later claim for rescission or damages. Here, again, an illustration may be helpful.

A few years ago, in discussion of a proposed issue, the accountants insisted that the existence of certain litigation should be disclosed. The junior representatives of the issuing house strongly opposed this suggestion, saying that it would be

fatal to the issue, and the lawyers seemed disposed to agree with them. The matter was, however, taken by the accountants to the head of the firm, who instantly decided that the existence of the litigation must be disclosed so clearly as to preclude any possibility of a claim being made against his firm later in the event that the litigation should result adversely to the corporation. He further expressed the opinion that such frank disclosure would affect the issue favorably, not unfavorably; and subsequent events seemed to bear out his judgment, the issue being extremely successful.

Care in Wording Certificate

I believe that every high-minded accountant has accepted the principle that, once his conclusions are reached, the report or certificate which he issues, and which is designed to influence action, must be so worded that not only will every statement made therein be literally true, but every influence which could legitimately be drawn from the language will be warranted by the facts. There is no place in accountants' certificates for what President Roosevelt once called "weasel words."

In England, it would appear that what has heretofore been regarded as a canon of ethics may sometimes be a legal obligation, enforceable, possibly, under the criminal law. As long ago as 1884, Lord Blackburn, in the House of Lords, in a civil case expressed admirably his view of the position of those concerned in the issue of a prospectus. "If," he said, "with intent to lead the plaintiff to act upon it, they put forth a statement which they know may bear two meanings, one of which is false to their knowledge, and thereby the plaintiff putting that meaning on it is misled, I do not think they can escape by saying he ought to have put the other. If they palter with him in a double sense, it may be that they lie like truth, but I think they lie, and it is a fraud. Indeed, as a question of casuistry, I am inclined to think the fraud is aggravated by a shabby attempt to get the benefit of a fraud without incurring the responsibility." Since that time, many an embittered victim of a disingenuous prospectus has no doubt echoed the outburst of Macbeth which Lord Blackburn had in mind:

"And be these juggling fiends no more believ'd,
That palter with us in a double sense;
That keep the word of promise to our ear
And break it to our hope."

In the case against Lord Kysant, which attracted attention here as well as in England and which was recently decided adversely to him both on his trial and in the Court of Criminal Appeal, it was admitted by the Crown that every statement in the prospectus was literally true. Nevertheless, the Judge charged the jury that if they believed that when the language was used the defendant knew that it was calculated to induce investors to draw entirely false inferences and intended that it should have this effect, they should convict him of the charge, which was that he had issued a prospectus which he knew to be "false in a material particular" with intent to induce persons to subscribe for the debentures offered.

Unfortunately, the precise grounds on which the prospectus was held to come within the statute are not entirely clear. Two paragraphs were specified in the indictment — one, giving average profits for ten years, the other, which followed immediately, containing a statement of dividends which showed that dividends had been paid in all but one of the last seventeen years. On the trial, the Crown in stating its case and the Judge in summing up seemed to take the view that the statement of an average for ten years, when in fact all, or substantially all, of the profits were earned in the first four of the ten years and the operations in some of the later years resulted in losses, was a statement false in a material particular, even though the average was mathematically true. In sustaining the verdict, however, the Court of Appeal pointed to the statement of dividends paid as being the portion of the prospectus that was particularly deceptive, by reason of the false inferences it was likely and intended to create.

To justify a criminal conviction on the ground that a statement of dividends created a natural inference as to earnings, when there was, in fact, a separate paragraph dealing with earnings, might seem to be straining the law. Possibly, however, what the Court had in mind was that the statements made in successive paragraphs regarding earnings and dividends were together so misleading as to justify a jury finding a criminal intent. Fortunately, no accountant was chargeable with responsibility for the language used in the Royal Mail prospectus; and I think most accountants would refuse to certify an average alone where the figures for individual years were ascertainable.

This is not the place in which to pursue the particular question before the courts in the Kysant case. For the present it is sufficient to say that all questions of criminality or even civil liability apart, the ethical obligation of the accountant is clearly

to see that no statement is put forward which is a half truth or which he realizes will probably give rise to inferences which would, in fact, be ill-founded. Of course, he cannot be held responsible for every inference, however unwarranted, which the ignorant or careless investor may draw from the appearance of his name in a prospectus. Every accountant with any considerable practice has probably, after a company with which he has been associated has come to grief, been told in aggrieved tones: "I took it for granted that if your name was on the document it was all right; I didn't trouble to read just what you said." Such an attitude is wholly unreasonable; but if a statement carries a natural and almost irresistible inference, the accountant is ethically and perhaps legally as responsible for that inference as for the literal truths of the words he uses.

Phraseology in Annual Reports

The question of phraseology assumes a different form when we come to consider accounts embodied in annual reports. As I have pointed out, the figures and the language of an accountant's report or certificate, given for use in a prospectus, are his own. Others may make suggestions, but the final decision is entirely in his hands. The annual accounts of a corporation, on the other hand, are those of its officers and directors, and the primary responsibility is shared between them. In this case, it is the accountant who makes suggestions and the directors who must make the final decisions. When they have done so, the accountant must consider what report he will make to the shareholders on the accounts which the directors have adopted.

Clearly, it is not desirable that he should insist on registering every difference of opinion, however slight, that may arise between the directors and himself. His power to render service to the shareholders, and his ability to influence directors towards sound decisions, will be impaired if he adopts a too pedantic or too captious attitude. But when he differs with the directors on a point which he deems really important, he should indicate his dissent and express it clearly.

There is probably considerable justice in the criticism that qualifications of accountants' reports are frequently inadequate to convey to the average shareholder the precise nature and extent of the accountants' reservation. Those versed in financial affairs regard any sort of a qualification as a danger signal and refuse to pass it until they are satisfied just what danger threatens. But it would be a distinct forward step if auditors

would aim to express their qualifications in clear, non-technical, as well as unambiguous language. This point may be elaborated by a future lecturer, as Mr. Hoxsey of the New York Stock Exchange is taking a keen and active interest in such questions.

Fairness to Shareholders and to Future Investors

In relation to annual accounts, a conflict of interest which I have not heretofore mentioned may arise, as between those who are already shareholders and those who may become so. The auditor's primary ethical duty is clearly to existing shareholders, but since he knows his report is likely to influence others to become shareholders, he must recognize some obligation to that class of investors. At the same time, annual accounts are historical in their nature. They are not intended to be and cannot properly be regarded as designed to indicate earning capacity. And if accounts are fair as a historical record, no one can justly assert a grievance against the accountant on the score that they led him to draw inferences as to future earning prospects which the accountant with his greater knowledge might have known to be unwarranted.

To illustrate this point — suppose a company to have been operating during a year on the basis of a sales contract covering the bulk of its output at a high price, which at the end of the year has expired and been replaced by a contract at a substantially lower price. An accountant would not be justified ethically in giving a certificate of the profits for the year for use in a prospectus, without referring to the expiration of the old contract and the making of the new one. It would, however, be no part of his duty to refer to the contract situation in his certificate to the annual accounts, though it might be a part of the ethical duty of the directors to do so in their report.

While every one experienced in corporation finance must recognize the impossibility of giving to annual accounts all the significance as indices of earning capacity which investors (and those who undertake to advise investors) too often attribute to them, neither directors nor auditors can completely ignore the fact that the history of the past is commonly regarded as some guide to the prospects for the future. The obligation of directors is, it would seem, greater if they have caused the securities of their company to be listed on a public exchange, for in doing so they have invited the public to trade in those securities. They have endeavored to secure for their shareholders the advantage

which a broader market sometimes affords; and both they and the shareholders should be willing to pay the fair price for this benefit.

Liberal Standard of Disclosure

That fair price seems to me to be a sufficient disclosure of the affairs of the corporation to enable the public to deal in its securities with a reasonable degree of understanding. I have heard it argued that it is impossible to throw the full light of day on the affairs of a corporation, and that it is therefore unwise for a body like the New York Stock Exchange to exert its influence actively to secure more disclosure than corporations would otherwise undertake. The suggestion is, that as a result of such efforts the public is deceived because it is led to believe that it is trading in the full light of day, when it is only trading in the twilight. Personally, I have no sympathy with this point of view, but favor a liberal standard of disclosure. Inasmuch as Mr. Hoxsey has been one of the most persistent and effective campaigners in favor of publicity, I trust that he, when he comes to lecture to you, will discuss the question more fully than I can now attempt to do.

The difficult questions in this field revolve largely around two classes of items, frequently referred to as "non-recurring items" and "secret reserves." The term "non-recurring items" is applied to those items, whether of income or outgo, which although relating to the business and properly finding their way into the income account, are in character quite exceptional and not likely to be repeated at all regularly. Illustrations may be found in the case of recovery of insurance on the life of the president of the company, or a loss through fire of an important plant. "Secret reserves" is the term applied to amounts set aside out of income purely as a precaution and not in respect of any losses presently known or anticipated. The amounts so set aside may be used to meet totally unexpected losses in the future, or may be restored at a later date to the income account.

It is obvious that both classes of items require either to be eliminated or given special consideration in any study of the income account which is designed to determine the normal earning capacity of the business; but how these items should be treated in the regular annual reports of corporations is a question on which there is considerable divergence of opinion and practice. I think the minimum which a reasonable standard

of ethics calls for on the part of directors and auditors of companies whose securities are listed on exchanges, is that when any important non-recurring items are included in the income of the year, the fact that they are so included shall be clearly stated; and that where secret reserves are drawn upon to improve the profits of the year, this fact also shall be disclosed. I do not think there is room, thus far, for any serious disagreement. Differences, however, would arise on the further suggestion which I would make, that the amounts involved should in all cases be indicated.

Original Establishment of Secret Reserves

There remains for consideration the attitude on the accountant toward the original establishment of secret reserves, the result of which is, of course, that the profits for the period in which they are established are understated. This is a particularly difficult problem because of the varied ways in which what are substantially secret reserves can be established. There is the simple case of a general reserve for contingencies; but there are more difficult cases, such as the undervaluation of inventories or securities, which have precisely the same effect.

One view of the question is that the directors should always submit accounts that represent as accurately as possible their best judgment of the true profits for the year, according to the general method of accounting adopted by the corporation. Others take the position that all businesses are subject to many hazards which cannot be accurately measured; that the attribution of profits to years is at best largely conventional; that business moves in cycles; and that a certain amount of deliberate understatement in good years is warranted and in the interests of shareholders.

The question is partly a practical and partly an ethical one, and my own judgment is that directors would usually be well advised to follow their own judgment in regard to the establishment of precautionary reserves, but to disclose to shareholders the fact that the reserves have been made. Whether they should give general publicity to the amount of the reserves established is a matter of judgment. Their ethical obligation is probably discharged if they tell shareholders explicitly that reserves have been made, and give them the opportunity to make further inquiries if they so desire. Drawing on reserves to supplement current profits is, as I have indicated, an entirely different matter, and should be fully disclosed.

So far as the accountant is concerned, I do not think that in the present state of public opinion and general practice he can be charged with an ethical duty to insist on the disclosure even of the fact that a secret reserve has been created, if he believes that the action was taken in good faith and if the amount involved is not so large that ignoring it completely distorts the earnings picture. Cases occasionally arise in which the accountant may be convinced that earnings are being deliberately understated in order that one group, often referred to colloquially as the "insiders," may profit at the expense of the general body of shareholders. There can be no question of his ethical obligation to the shareholders as a whole in such a situation. His position at such times would be greatly strengthened if he were elected by the shareholders and directly responsible to them, instead of being appointed by and responsible to the officers or directors as is the common case in our country.

Ethical Obligations of Accountancy Make It a Profession

I hope that this discussion of the ethical obligations of the accountant to the investor will be sufficient to convince you that the high-minded accountant who undertakes to practice in this field assumes high ethical obligations, and it is the assumption of such obligations that makes what might otherwise be a business, a profession. Of all the group of professions which are closely allied with business, there is none in which the practitioner is under a greater ethical obligation to persons who are not his immediate clients; and it is for this reason that I believe accounting ought, and can be made, to take an outstanding position in this group.

I would not have you think that because the investor is not his immediate client the accountant owes nothing to the investor except legal duties and ethical obligations. This is not, of course, the fact. It is to the investor that he owes his entire practice in the field of financial auditing, and it is only because the investor exists, and attaches weight to an accountant's report, that the banker employs the accountant's services in this field. And the continued success of the accountant is dependent on his retaining the confidence of the investing public. An enlightened self-interest, therefore, as well as self-respect calls for the maintenance of a proper ethical standard by the practitioner.

The young accountant may find it hard to take the first stand for the principles that have been suggested for his obser-

vance, but he will find that this is essentially a case in which "it is the first step that costs." Perhaps, therefore, in bringing this discussion to a close I may indulge in a personal reminiscence which bears on this point and which, as it happens, relates also to the question of showing average profits which arose in the Kysant case.

A Practical Illustration

A good many years ago — as a matter of fact, in 1899 — owing to the death of one of the senior partners I was called upon to settle with a New York banker the form of a certificate for use in connection with a prospectus. As the issue was to be made on both sides of the Atlantic, it was planned to print the accountants' certificate in the prospectus as was and is customary in England.

The profits of the company showed a fairly steady decline over a period of ten years except that in 1898, owing to the Spanish-American War, they rose considerably to a point higher than the average of the ten years. The banker desired the certificate to show only the average for the ten years and the profits for the last year. I demurred to this suggestion on two grounds: first, that it was contrary to the practice of my firm to show only averages where the profits for separate years were readily ascertainable; and secondly, that the information proposed to be given would create a natural but erroneous impression as to the trend of profits.

The discussion became difficult, and it was indicated to me that if we adhered to the position I had taken there would be no possibility of similar differences with that particular banker in the future. However, I refused to modify the stand I had taken and was supported by the senior partner, with the result that no certificate was printed in the prospectus, but a statement was made by the banker on his own responsibility. I felt that I was right, but I could not fail to be conscious of the fact that my first important interview with a banker had not been a success and promised to result in the loss of an important client.

There was, however, a sequel. Some six months later, the same banker was contemplating the purchase of a business and desired a full and reliable report on its operations. His lawyers approached us, saying that while the banker still thought we were entirely wrong in the stand we had taken six months earlier, he believed that we had taken it in perfect good faith and that the incident should not, therefore, be a bar to friendly

relations between us. They thereupon gave us instructions to make the investigation, and further intimated that the banker desired that I personally take charge of it.

This sequel made the whole incident one of the most helpful of my experience, and I hope it may also be of service in encouraging those of you who may be about to start practice, or are in the early days of practice, to take a firm stand for sound ethical principles, which I am sure will ultimately tend to bring you professional success as well as a consciousness of professional integrity.

REVIEWS

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REVIEWS OF BOOKS AND OTHER PUBLICATIONS

Diran Bodenhorn, *Economic Accounting* (New York: Garland Publishing, Inc., 1988, 325 pp., \$40.00)

by Catharine M. Lemieux
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The FASB series, "Financial Accounting Concepts," states that the objective of accounting should be to provide information for business decisions rather than to describe economic events. In contrast Bodenhorn states, "that the primary concern of the accountant should be to measure the variables which economists have identified as the most important in describing the performance of an economy, and the entities in the economy" [p. 1]. In this book Bodenhorn develops a model of a simple economy based on economic theory and constructs an accounting model appropriate for this economy.

The economy in this model consists of a firm and a person who is both a laborer and a consumer. The individual, labeled Crusoe, maximizes a known welfare function subject to a wealth constraint and the firm maximizes profit subject to a known production function. Three groups, firm, household, and society, comprise the economy. Although this is a simplified view of the real world, Bodenhorn states that, "if an accounting principle gives a poor description of a simple Crusoe model, I find it very difficult to believe that it will provide a reasonable description of a more complicated model" [p. 4].

The author draws four conclusions from this economic model: (1) the sum of the value of individual assets of the firm is equivalent to measuring the value of the firm, (2) the appropriate price index to use for deflating values is a general price index, (3) the current value of real capital corrected for changes in the price index is the appropriate measure of capital maintenance, and (4) the only way to measure income is to measure wealth.

The accounting model consists of a balance sheet that measures wealth and an income statement that measures financial and productive income. The sum of financial income is zero for the economy so national income equals national product or productive income. Because welfare and production functions are known there is no risk in Crusoe's world. Flow accounts are closed to balance sheet accounts but in this system, debit entries do not increase asset accounts and reduce liability accounts. Debits are defined as anything that increases inventories and are positively signed. Credits decrease inventories and are negatively signed. Liabilities are viewed as negatively signed assets. This enables the same accounting procedure to be used for all accounts.

Allocations, such as depreciation, do not affect income or balance sheet variables because what is closed to the balance sheet accounts is the value added by production. Allocations merely explain the sources of the productive income. Firms do not generate income but do generate product for the society. Production income is transferred to shareholders. In this model wealth is defined as the market value of economic instruments and income is defined as the increase in wealth plus consumption. GAAP procedures measure value added directly and plug inventory while this procedure calls for measuring balance sheet values at market and plugging value added. FASB has supported GAAP procedures and Bodenhorn claims that this, "may well inhibit the evolution of accounting into an empirical discipline for the rest of this century" [p. 27].

The final section of this book attempts to extrapolate the conclusions from the first two sections to the real world. The first assumption that is relaxed is the existence of a government. This creates two problems: (1) the future tax liabilities which must be recorded on the firm's balance sheets no longer balance, and (2) the value of economic instruments is no longer explicitly defined. To solve this problem the productive value of economic instruments could be used for balance sheet purposes with the resulting complication being that inappropriateness of these values for private decision making.

The second assumption that is relaxed is the addition of banks and financial institutions to the economy. These firms differ from the production oriented firm in the economy because their assets are primarily financial and they do not charge fees for services but instead reduce the interest rate on borrowed money. This causes this type of firm to appear to have a negative income because their purchases of productive resources exceed

their sales. To correct this problem productive income is adjusted so that it equals a risk-adjusted normal rate of return on productive assets.

The final chapter extends these results to business accounting. Although the model suggests that the ideal accounting scheme would be based on current market prices, Bodenhorn allows that it would be possible for Crusoe to use historical cost, service-potential or market price as a basis for valuation. However, there are disadvantages to using either historical cost or service-potential valuation methods. The problems with service potential valuation is that the future is difficult to predict and there is no theoretically correct way to allocate future cash flows to various productive instruments.

Historical cost valuation will give the correct measurement for total assets, but it is difficult to allocate purchases of inputs and interest costs to the sale of particular productive instruments. One possible solution is to define projects in an attempt to associate purchases and sales with individual projects rather than individual assets. An additional problem with cost valuation in the real world is the existence of profit, an impossibility in the economic model. One possibility of recognizing profit is to compare actual costs and recoveries to "standard" costs and recoveries obtained from projections based on previous information. Variances would be an indication of the need to revalue assets at market prices.

Bodenhorn constructs a simple example using his Crusoe economy and compares traditional business accounting procedures to the results obtained using his accounting model. Problems with the allocation of depreciation, labor, and interest expenses cause differences in balance sheet values under the two systems. Bodenhorn's example supports the view that GAAP systematically underestimates interest costs of productive assets due mainly to the use of historical cost valuation of assets. Income would also be distorted due to these allocation differences. This leads Bodenhorn to conclude that, "GAAP are fatally flawed" [p. 280].

The ideas presented in this book call into question much of existing accounting standards and practices. The controversy begins with differences in the basic objective of accounting. Bodenhorn's contention that accounting should measure variables important for describing the performance of an economy is very different than the objectives of the accounting profession as stated by FASB. The desire to construct an accounting system where aggregation of individual and firm income statements

and balance sheets would be consistent with aggregate measures in the national accounts, lead the author to start with a basic economic model of a simple economy and derive an accounting system that would fit this model. If William D. Hall, former Arthur Andersen partner, is right and the accounting profession does have an "urgent need" for a usable conceptual framework, then this book is a step in that direction. The conclusions of this exercise have important implications for the future direction of the accounting profession.

Brown, Donald E., *Hierarchy, History, and Human Nature: The Social Origins of Historical Consciousness* (Tucson, Arizona: The University of Arizona Press, 1988, 400 pp., \$35.00)

by Jenice P. Stewart
The University of Missouri-Columbia

Anthropologist Donald E. Brown does an exceptional job of convincing the reader that the quality of historiography is affected by the patterns of social stratification within literate societies. Social stratification implies more than one social class within a society and refers to an individual's "social placement fate" within a society. Social stratification may be dependent upon genealogy (cast system) or individual capability (open system). In a cast society, a person is inhibited from uttering the truth about the upper echelon, therefore the account or historical writing is usually tainted ideology (ahistory) to the upper strata. In an open society, the historian has the freedom of speech to write objectively on his findings. Thus, open stratified literate societies have potential for a more sound historiography than closed or cast literate societies. Brown studies three time periods, Ancient, Medieval, and Renaissance, and four geographic areas, Asis, Near East, Greece, and Rome.

Donald E. Brown's story is convincing because he applies the "scientific" research method to develop and test his hypothesis. The "scientific" method includes defining a "problem" and resultant hypothesis, systematic tests of hypothesis, and controlling for external and internal validity [Kerlinger, 1973; Abdel-khalik and Ajinkya, 1979]. The "problem" defined by Brown is why are some literate societies full of "quality" (objective) historical recordings while others are not? For example, late dynastic Egyptians were a literate society with little recorded history. The tools were available for Egyptians to record sound history and additionally their literate neighbors,

Mesopotamian and Hebrews, maintained crude historical records. Yet the Egyptians were not recording their history, that is, they had given little or not merit to historiography. Florentines of the early Renaissance were also literate, but they provided quality and abundant historical writings.

Brown proceeds to investigate scientifically why some literate societies appreciated and wrote objective history and others did not. His initial society of investigation was the Brunei's, located in northwest Borneo, Malay. Brown finds Brunei history minimal, with stereotyped renderings of individuals. Upon investigation of a common event, the British gave a more concrete rendering of the individual than the Brunei. Brown then rationalizes that the Brunei are avoiding candid comments about the higher echelon of society because objective writings were not tolerated in Malay society. In essence, the Brunei, of a cast society, were thought-controlled and therefore limited in their renderings of the upper strata. In contrast, the British, of an open society, were free to give their objective rendition of any strata of society. After making these observations about the Brunei and British, Brown develops and empirically tests the following hypotheses:

H₀: There is no difference in the quality of historical writing between literate open stratified and cast stratified societies.

H_a: No hereditarily stratified society would have developed sound historiography [p. 5].

Abdel-khalik and Ajinkya (1979) state that defining a research problem includes delineation of the scope of the study. Brown, in defining the problem and resultant hypotheses, discusses the scope of his research. Brown investigates literate societies only, although he has no reason to speculate that his hypothesis does not apply to oral history, too. However, applying Brown's hypotheses to oral history represents another study.

Brown, a native Westerner, is the sole researcher of this study. Interpretations of his findings are from a Westerner's viewpoint, therefore his interpretations may not be sound but based upon observations that resemble those of Westerners. Brown minimizes this limitation by using objectively developed judgment (e.g., for seven months Brown researched London and Brunei public records and spent fifteen months in Brunei gathering oral and written history). In many instances, Brown finds that his interpretations are similar to those of non-

Westerners (e.g., Muslim scholars) which further reduces the bias.

Brown proceeds to test his hypotheses by establishing characteristics of open and cast societies, systematically applying these criteria to other societies, and comparing their respective quality of historical recordings. A closed or cast society is where rank is determined by genealogy. The upper echelon usually represents the royalty which can only be acquired through physical birth into the royal family. In an open society, rank is acquired through achievement or merit. In characterizing a social strata system, emphasis is placed on the ideology (controlled thought imposed by the higher echelon) reflected in the historian's writings, laws, and practices over long periods of time. Brown thus develops objective criteria, with the assistance of scholar M. G. Smith, in determining the social stratification of a community. This systematic means of objectively classifying societies enhances the internal validity of the study.

Brown then systematizes the testing of his hypotheses by defining "patterns of historiography," that is, what is classified as good (based on objective accounts of the past) and bad historical renditions (myths). Sound history (historiography) maximizes its objective content, relies on primary sources whenever possible, and minimizes its subjective content. Historiography is based on the authenticity, validity, and truth of the event communicated, and on the effectiveness with which the knowledge is communicated. Ultimately, sound history is based on Brown's subjective assessments. However, he uses Hexter's [1968, p. 384] "reality" rules and Brown looks

for precise orientation in space and time, accurate chronology, the ability to detect anachronism, access to trustworthy sources, critical procedures for evaluating sources, an adequate psychology, logical coherence, the exclusion of physical impossibilities, and a minimal resort to the supernatural [p. 12].

Historiography includes two criticisms that are peculiar to historical research: internal and external criticism. External criticism refers to the authenticity of the data source and internal criticism refers to "the *content* of the source or document and its meaning" [Kerlinger, 1973, p. 702].

Brown minimizes internal criticism (seeking "the true meaning and value of the content of sources of data" [Kerlinger, 1973]) by recording patterns associated with open and closed stratified societies. For example, Brown notes a society's degree

of individualism, conception of human nature (uniform vs. nonuniform), extent of biographical writings, realism of portraiture, extent of uniformity in education, humanistic-secular orientation, extent of interest in natural and social science, and elaboration of divination. These traits tend to accompany open stratification and are not present in closed stratified societies. The consistency of these patterns being found or absent in open or closed societies provide strong evidence that Brown's interpretations did not distort the truth. Rather, Brown's interpretations were found to be consistent with the historical facts. As stated earlier, Brown examined many testimonies and written documents of a common account for consistency, which minimizes external criticism.

Finally, Brown applies his tests to not only one set of closed and open stratified societies but to three closed (cast) societies, Java, Bali, and Malaya (including the Brunei), and to three open stratified societies, Burmese (Burma), Vietnamese, and Macassarese (Makassar/Bugis). These additional comparisons enhance the generalizability (external validity) of his findings across similar societies and adds more validity to his results when compared with competing hypotheses.

Unlike external validity, internal validity is more difficult to control in historical research. When in the field collecting data, the historian cannot manipulate his/her independent variables. Thus, Brown has to provide evidence on why his independent variables (social stratification type: open or closed) has an effect on quality of historiography rather than some other independent variable. Other independent variables that are supported as "determinants of ahistory" include agriculture, religion, economic conditions, literacy, and political decentralization. After Brown investigates these independent variables in the societies he studies, he concludes that while these alternative variables "explain some variation, they explain relatively little of it" and do not always apply across societies [p. 307]. Brown further provides many examples of the failure of alternative variables to explain the quality of historiography of societies [see pp. 307-315].

Brown's scientific approach to conducting research provides a valuable guide to those who desire to do historical research. For historical seminars, this book would be useful in illustrating use of the scientific approach in developing empirical historical research studies. This book should be read by all who are interested in accounting historiography because Brown uses scientific research methods to provide convincing and

powerful evidence that open stratified societies spur good and sound historiography and closed stratified societies are associated with ahistory. Brown also provides an interesting, entertaining, and intellectual walk through non-Western cultures.

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CHAMBERS ON ACCOUNTING: MOTS AGAINST THE CURRENT

by Chris Poullaos
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The conclusion of a paper by R. J. Chambers published in 1950 expresses concern that "after reviewing the progress that has been made over the last twenty years in codifying accounting concepts, some may feel that [my] discussion has upset the system of rules that was, till now, becoming accepted . . ." [Vol. I, p. 26]. The conclusion of a paper by the same author published in 1980 deals with the conditions under which the myths of accounting might be swept away while pointing out that "innovations take time" and decrying "the principle of unripe time" [Vol. III, p. 496]. In the intervening 30 years Chambers had, as well as persisting with his attempts to upset accept rules, developed and promoted an alternative to those rules; and he continues to do so. In the process he has constructed a coherent view of the function of accounting information within the social matrix in which it is embedded [Vol. III, p. 485]; of what the nature and structure of an accounting discipline might be, of the relationship between the academy and the practitioner, between the teacher and the researcher, the teacher and the

student, the accountant and other specialists, between the accountant, management and other parties affected by the accountant's work, between the history of accounting, its problematic present and its potentially illustrious future, and between accounting and other disciplines. Having begun his career among the trees his project spurred him to put together a novel and controversial view of the forest.

Chambers and his University of Sydney colleague Graeme Dean have performed a valuable task in pulling together into a five-volume collection (some of) the results of Chambers' critical and constructive endeavours "against the current" in the period 1948 to 1985. There are a number of overlapping reasons why this collection might be of interest to accounting historians; a number of overlapping uses to which it might be put.

First, it can be used to elaborate (and test) the claim made by Lee [1987] and others that Chambers has had a significant influence on accounting thought. As evidence of his influence one would expect the positions found in these volumes — the arguments, the evidence, the forms of argument and so on, to be taken up by others. (Alternatively the impact may have come by means of resistance by others.) In addition, it can be used to trace the influence on Chambers of others from within and from outside the accounting literature [*ibid*]. In this regard it can be used to trace the importation into the accounting literature of the work of non-accountants, Chambers having long argued that the accounting theorist would do well to look beyond accounting itself (e.g., see the first essay in Vol. III).

Second, moving from the "individual" level, the collection might be used as one input into a study of relations between the accounting literature and other events, other levels of activity. Chambers and Dean themselves point out that the period in which the pieces in the collection were produced was one of substantial business growth, increasing stock market activity, rising public expenditure and tax collections, and occasional surges of inflation. It was a period in which there occurred changes in the scale and style of the accountancy profession and in the concerns of professional associations, instances of corporate failure and litigation raising issues about accounting and auditing practices, expansion in the number of accounting journals, accounting professors and accounting departments in universities and colleges, among other things [General Preface, Vol. I]. The reader can probably think of others not listed here and not listed by Chambers and Dean. How did these things

affect Chambers' work (and vice versa); how were they represented in Chambers' work compared to the work of others?

Third, as implied in the introduction to this review, Chambers' work contains a detailed and as Whittington [1987, p. 842] points out, a perceptive critique of accounting practice (and discourse about such practice); however the alternative developed by Chambers has itself been the object of resistance and criticism. In short, the collection provides material for a case study of the emergence of and resistance to innovation in accounting. Why, for example, when alternatives to "historical cost" accounting were under serious consideration in a number of countries in the 1970s, was CoCoA not put forward by any professional association or government committee. (The collection doesn't answer this question but it does provide some of the data.)

Fourth, and closely related to the previous point, Chambers has engaged in academic debate, not just with "a wide range of the leading accounting theorists of the 1950s and '60s" [*ibid*] but also with A. C. Littleton, Paton (pre-1950s), Ball and Brown, Beaver and Demski (post-1960s), amongst a great many others. In the course of doing so he gradually developed and then defended various aspects of the case for CoCoA against a wide variety of criticisms and approaches. Not only has he attacked "historical cost" accounting, and defended CoCoA against proponents of that style of accounting and alternative forms of "current value" accounting, but he has defended the importance of that debate as other issues and forms of research have become more fashionable. (For example, see Vol. III [pp. 195-212, 425-440, 462-481] and Vol. V [pp. 217-225]. The last paper in Volume 5 [pp. 489-507] is the fruit of belated attempts to engage in a more fashionable form of "empirical substantiation" [p. 491] than appears elsewhere in Chambers' work). One result is that chronological reading of the papers in the collection provides a fascinating albeit partial view of shifts in academic accounting discourse from the late 1940s to the mid-1980s. Also noticeable is the *persistence* of certain positions. To take but one example, in the 1980 paper referred to above [Volume III, pp. 483-496] Chambers attacks the notion that "the income statement is superior to the balance sheet" [p. 495] — a position he had attacked in 1950 [Vol. I, pp. 50-51], if not earlier. (See Vol. I for other examples.)

On a different tack, Lee writes of the accounting theorist that: "His time will come again, and when it does, the work of Chambers will provide a firm foundation" [1987, p. 46]. In a

more critical review Whittington has nevertheless written that "Chambers' contribution to the development of accounting thought will be remembered as a significant one, and these five volumes will provide a permanent source of reference on the development of his ideas." In support of these claims one may point to the rigor, scope and novelty of his work, his pugnacious and detailed articulations and defences of it and its empirical base, controversial though it might be. On the other hand, review of these volumes brings difficulties to mind as well. Without claiming to present an exhaustive discussion a number of issues can be raised.

First, even if one accepts Chambers' defences of his method of observation (See for example Vol. III [pp. 386-405, 483-496]) it is still doubtful that it has been specified in sufficient detail for others to use it — in order to test it, in order to continue its use.

A second, more fundamental and more interesting order of difficulties — rather, of challenges — lies in the direction of up-dating the work in these volumes (and *Accounting, Evaluation and Economic Behavior*) in light of current work in "related" disciplines (economics, history and philosophy of science, social theory, psychology, etc.) — a quintessentially Chamberian project. Such an endeavour, in addition to positioning or re-positioning Chambers' work in relation to mainstream stream trends in accounting (the positive accounting theorists, for example) would, in this reviewer's opinion, require a detailed assessment of the literature inspiring what Chua [1986] has called the interpretive and critical alternatives to the mainstream. As Chua points out, these alternatives incorporate radically different beliefs about knowledge, about physical and social reality and about the relationship between theory and practice.

To pursue this point just a little, Chambers has long held that accounting could and should be both scientific (both as discipline and as practice) and neutral as between uses and users. Consider some of the conundrums which might arise in an attempt to reassess these (and related) positions. There is more involved than developing a position on whether accounting is an art or a science, or on whether standard-setting should be a scientific rather than a political process, or on whether or not the parties affected by accounting information are best left to deal with "accounting" issues themselves. Other issues are now on the agenda. For example, has the application of science been such an unqualified success in other areas that we might wish to apply its methods to accounting (however defined)? Given the

demise of the hypothetico-deductive model how does one re-connect the lessons of scientific endeavour to accounting, presuming one would wish to do so? How would one deal with the claim that the social or “human” sciences are fundamentally different from the natural sciences, the methods of one not being suitable to the other? If one accepts this point — is accounting a human science or is it something else? If one is sceptical about the belief that empirical reality is objective and external to the subject, where does this leave the potential of accounting to produce objective information about “social facts” [Vol. 1, p. 26]. If one does not concede the distinction between means and ends, fact and value; and if one is concerned that accounting functions as an ideological apparatus, incorporating concepts of value which benefit dominant groups in society, how is the notion of neutrality to be rescued? (For further discussion see Chua [1986]. The reader of Chua’s article will note that the issues raised here incorporate elements from both the critical and interpretative alternatives.)

A particularly interesting issue arising here is whether the outcome of an attempt to up-date Chambers’ work would be a case for CoCoA. Such an outcome is possible, maybe even likely (depending on who does it), but is by no means guaranteed. Then again, if such an exercise were done with sufficient care and sufficient rigor perhaps Chambers wouldn’t mind. What remains to be seen is: Who will be brave enough and competent enough to do it? In any case, even for such a project these volumes would be invaluable.

The five volumes between them contain more than 150 separate pieces spread over more than 2000 pages. Included are papers (and poems) published in academic and professional journals, in conference proceedings and in various other places; together with “a selection of texts of addresses and submissions to inquiries not otherwise published” [General Preface, Vol. I]. Volume I consists of “exercises in clarifying one aspect or another of [the] association . . . between funding, functional management, and financial information in the conduct of business affairs” [Preface to Vol. I]. Volume II includes material on “some aspects of practice, pedagogy, and prescripton”. The material in Volume III deals variously with “the general features of theories and theory construction, . . . the general modes of disciplined inquiry”; “relates to specific elements of some actual or potential theoretical discourse, to ideas or lines of argument that seemed to need clarification or refutation”; while “some of the pieces are retrospectives on the development of

accounting ideas" [Preface to Volume III]. Volume IV contains some of Chambers' early papers on "inflation accounting" and his critiques of various forms of accounting devised to deal with the problems arising from changing price levels. Volume V contains some seminal papers crucial to the development of CoCoA, together with elaborations and defences of CoCoA and of Chambers' arguments in support of it. (Material in the other volumes has a clear connection to CoCoA as well.) Within each volume material is presented in chronological order.

As Chambers and Dean concede, the division (or allocation) of material into the five volumes has been "to some extent arbitrary"; and repetition has not been eliminated where the editors deemed it "desirable to indicate the origin or development of some specific theme" [General Preface, Volume I]. For some of the uses referred to above a strict chronological ordering may have been slightly more convenient but the categorization employed does not cause any great difficulty. Nor does the non-numbering of Prefaces and Contents pages. Nor is it a serious reflection on these volumes that for some of the uses discussed above a reader may judge it necessary to look at the body of Chambers' work which has been omitted. (See *Abacus* [1982, pp. 185-201] for a bibliography up to 1982. An updated bibliography would have been a welcome addition. *Accounting, Evaluation and Economic Behaviour* and *Securities and Obscurities*, arguably Chambers' major books, are crucial complements to these volumes.) Another concern, perhaps trivial, arises from the corrections made in original sources. For many purposes it may well be preferable to have an error-free text — indeed to quibble about the elimination of errors might seem like bizarre behaviour to some; but a historian may well wonder about the impact of the errors in the original text. (I am grateful to Graeme Dean for this point!)

The lack of a detailed index is undoubtedly a serious deficiency. Anyone wishing to (say) study the impact of Karl Popper on Chambers' work would literally have to check the footnotes or reference list of every item included in all five volumes to ensure that no reference to Popper had been missed. Anyone who wished to study Chambers' views on (say) "financial position" would have an even harder time.

Nevertheless, Garland is to be commended for making these volumes possible. Apart from the uses referred to above they can assist those who wish to teach a course on the history of accounting thought, or a course which covers CoCoA, or a course in which it is considered desirable to expose students to argu-

ments to the effect that, as far as accounting goes, we do not necessarily live in the best of all possible worlds.

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The *Spanish Review of Finance and Accounting* has been published since the early seventies. In 1985, the Spanish Association of Accounting and Administration assumed the sponsorship of the journal. As many practitioners as academics belong to the Association, and the editorial policy of the *Review* is to promote the publication of special issues that address the interests of both groups.

Reflecting this policy, the *Review* has published a special issue on the history of accounting. Limitations of space have made it necessary to present the issue in two volumes. The editor is Esteban Hernández-Esteve. In total, the issue comprises 9 articles, as well as a superb introductory essay by the editor.

The bulk of the articles — six, actually — concern the period from the end of the fourteenth century to the beginning of the seventeenth. For the purposes of the present discussion, these articles have been grouped according to three broad themes:

- identification of the first double-entry accounting records produced in Castilla.

- the role of accounting as an instrument of control in public administration.
- particular accounting methods as addressed in the first book on accounting written in Castilian.

The search for the first appearance in Castille of double-entry bookkeeping is a lasting preoccupation of accounting historians. This monograph presents three such articles, written by Carlos Alvarez-Díaz (“Diego Ordóñez, Businessman and Cleric: The Remains of His Private Archive [1497-1520]”), Esteban Hernández-Esteve (“An Historical Commentary on the Account Books of Diego Ordóñez, 1518”) and Fernando Martin-Lamoroux (“The Court Book of Ochoa Pérez de Salinas [1498-1500]”). The first two deal with the records of the clerk Diego Ordóñez, found in the *Archivo General de Simancas*. Carlos Alvarez-Díaz makes an important contribution by presenting and transcribing Ordóñez’s private records. The survival of such an extensive private archive is unusual in Spanish historiography. In this case, the fact that these records were combined, on Ordóñez’s death, with those of a nephew, who was treasurer of the *Casa Real*, has guaranteed their survival. The records are of three types: a) commercial and financial; b) religious; and c) testamentary.

Like so many Castilian merchants of the period, his activity was basically financial. Diego Ordóñez speculated in letters of exchange, enjoying the interest from capital circulating in the fairs and exchange markets. He also developed a sideline as a seller of high-quality cloth, dyed in Valencia. In his absence, this activity was controlled by his mistress. The economic activity developed by this woman was remarkable as was that of his aunt, who would later be the executor of his will.

Ordóñez’s bankruptcy occurred as a result of bad financial dealings. In a certain sense, Diego Ordóñez was a child of his age; an age in which, in Castille, the pursuit of wealth by enterprise began to be abandoned in favor of the commercial transactions that could result from administrative contracts with the imperial government.

Esteban Hernández-Esteve carefully reviews the documents presented by Alvarez-Díaz. For this he employs not only the accounting documentation, but the whole appendix of documents, which allows him to reconstruct the economic activities underlying the operations of Diego Ordóñez during the Fair of Medina del Campo in 1518. The fact that these operations concern only the activities related to the Fair prevents us from knowing more about the patrimony of Ordóñez. In any case,

Hernández-Esteve concludes that the entries follow formal double-entry procedure. It would be interesting to speculate on the relationship between a "high" technology activity such as the manufacture of high-quality cloth and the enterprising vision of a business that accompanied it, and the development of a modern business control system such as double-entry book-keeping, which transcended the traditional purpose of account books as instruments of judicial proof.

The ledger of the banker Ochoa Pérez de Salinas, on which Fernando Martin-Lamoroux comments, is older (1498-1500). This banker was heavily involved in loans of different types, which underscores the volume of his business transactions. The term *libro mayor* does not appear in the title of the book although evidence seems to indicate that the contents are equivalent to a ledger. Terminology typical of double-entry (*deve y a de aver*) is used and the redaction of the entries is also traditional. The evidence appears to show that this book is but one part of a well-coordinated system of multiple books. As in the case of Diego Ordóñez's accounting, the numerals are basically roman.

The functioning of accounting as an instrument of control in public administration is examined in two other articles: "The Reform of Municipal Accounting in Seville and the Introduction of the *Libro de Caja*, 1567," by Jose I. Martínez-Ruiz; and the "Memorials of Salavert, Castilian Gentleman," by Esteban Hernández-Esteve. The first work looks at the introduction of double-entry bookkeeping into the municipal government of Seville in 1567. This reform was the result of a wider municipal accounting reform motivated by the serious financial situation that had befallen the city in the 1560s. The article, therefore, presents us with evidence concerning larger issues, such as the causes underlying accounting system reform. In this case, a crisis situation in municipal finance promoted the intervention of an expert, who supported, almost 25 years before its adoption in the *Hacienda Real*, the introduction of a double-entry system. In this case, centralization, order, clarity and accounting control were pursued on behalf of better management of public resources.

Along these same lines, Esteban Hernández-Esteve analyzes the memoranda of Salavert. At this time problems of public finance (*of the Hacienda Publica*) were critical, especially after the suspension of payments in 1575. Hernández-Esteve's study puts in relief the climate of secrecy and distrust that reigned in the Court (Salavert wanted to be very sure who heard his

comments). Salavert reached the following conclusions, among others: that the indifference of those who governed was the root of the situation that had befallen the country; and that it was necessary to adopt double-entry bookkeeping, that is, the *Libro de Caja*, in the *Hacienda Real*, an accounting practice that had been decreed as obligatory in the private sector since 1549.

The third block of articles is comprised by Jose María González-Ferrando's "The Three Ways to Keep Accounts, According to the Lawyer Diego del Castillo, Native of Molina". The article describes the three forms of bookkeeping in Castille at this time: by *data y recibo*, by *deve y deve aver*; and by *cargo y descargo*. The account book at this time took a juridical perspective, which dominated business methods in Castille and was totally contrary to Catalan dynamism in commercial organization. It is within this context that Diego del Castillo wrote his book, the technical aspects of which are skillfully analyzed by González-Ferrando. In addition, included in the article is a comparative study of Del Castillo's text with those of Bartolomé Salvador de Solórzano (1590) and Claude Irson (1678). González-Ferrando concludes that the terminology used by Del Castillo is technically more precise than that of Solórzano and that the three methods of accounting are essentially the same as those enunciated by Irson 150 years later.

Completing the monograph are three other articles. Enrique Fernández-Peña has compiled the legislation concerning joint stock companies (*Sociedades Anónimas*) in nineteenth-century Spain. María del Pilar Pérez-García examines the five accounting ordinances that the Castilian mints had to follow during the period 1497-1730. Finally, Rafael Conde investigates the activities of the bank belonging to Pere Descaus and Andreu d'Olivella during 1377. This study is based on the journals and documentation extracted from the ledgers located in the *Archivo de la Corona de Aragón*. The article tries to determine the significance of the Usher entries as well as investigate the role of the bank of Barcelona during the last third of the fourteenth century. Conde divides the bank's activities into two parts: banking and non-banking operations. The study of the first reveals that although checks in the strict sense have not been found, formal written orders evidencing the use and acceptance of checks survive. Regarding the requirement that orders of payment be made in person, it appears that the Barcelona bank had superseded this constraint and accepted written orders. Likewise, it is interesting to note that deposits were not remunerated by the bank.

Besides banking operations, the bank traded in cloth, sugar and saffron, and it had ties with eastern Mediterranean ports, such as Beirut, Alexandria and Damascus.

Since the account books were not kept in double-entry, the benefits accruing to the bank would be impossible to determine except for the existence of a secret book which accounted for the results. Although the bank's accounting has similarities with double-entry in terms of ledgers with counterpoised sections and the monetary unit, it is different from double-entry in that only personal accounts exist (as in the Tuscan bank of the same period) and the books do not balance.

In conclusion, the monograph is an excellent contribution to the study of Spanish accounting history and is a good reflection of current research trends. The documentation included in the articles is especially careful and considerable editorial comment is devoted to it. If we bear in mind that great quantities of primary source material in Spain have yet to be discovered and that the preservation of source documents is in a bad state (It is estimated that only 10% of the documentary sources in the *Archivo de Indias* are in good condition), this emphasis on the presentation and transcription of original documents is especially praiseworthy. The monograph also permits us to gauge the place and contribution of Esteban Hernández-Esteve: he has edited the monograph, realized an excellent introduction to the articles and authored two interesting articles on the history of accounting in Spain. His efforts have been instrumental in awakening interest in accounting history on the part of economic historians and archivists. Their contribution, the importance of which is also demonstrated by the monograph, will enrich research in accounting history.

Anne Loft, *Understanding Accounting in its Social and Historical Context (The Case of Cost Accounting in Britain, 1914-1925)* (New York and London: Garland Publishing, Inc., 1988, 325 pp., \$40)

by Victoria Beard
University of North Dakota

It is refreshing to come across a work which makes a conscious effort to cross disciplinary boundaries. In this historical/sociological inquiry into the professionalization of management accounting in Britain through 1925, Loft argues that cost accounting is too important to modern society to limit

its historical study to the traditional chronological narrative, to official histories of professional associations, to studies of accounting solely within organizations, or to comparative histories of technological and procedural developments. Instead, her interest is in understanding how cost accounting acts on, and reacts to, wider contemporary social and political issues.

In Chapter Two, in order to present the theoretical groundwork, Loft makes extensive use of Michel Foucault, the French social historian. She concentrates on his 1977 work *Discipline and Punish: the Birth of the Prison*, where he analyzes the transition to industrialization and modernization in France through the 19th-century disciplinary institutions (prisons, hospitals, workhouses, schools, factories) and their related disciplinary technologies. Foucault writes about the intimate, interchangeable relationship between power and knowledge, that each begets and reinforces the other. Loft proposes to use Foucault's knowledge/power continuum to study how social relationships are modified by management accounting and by the establishment of a professional association of cost accountants.

Cost accounting produces a visible record (Foucault's "knowledge"), a positive reality measured in monetary terms, that claims the status of sole truth about events. Loft explains that the knowledge generated by accounting systems is not neutral but is intimately linked with the operation of power and discipline in the factory. Management accounting is a disciplinary technology, a technique of surveillance and of detailed control of the individual.

Records are not just an enabling device for power to use; the creation of a record is an act of power itself. Not only does it represent the result of a choice concerning what is important in the organization but its creation can induce obedience [p. 35].

But unlike corporal punishment in past centuries, this new disciplinary technology is aimed at the "soul" of the individual.

Again using Foucault's terminology, Loft argues that detailed record-keeping should also be seen as a human science involving "the creation and application of knowledge about man; albeit man reduced to the cipher of the number on the page" [p. 22]. Cost accounting's peculiar attribute is that it duplicates production activities in paper form, providing a permanent, visible, timeless, and apparently objective truth that allows for discipline to continue long after the event.

Loft discusses at length two other modern techniques of discipline in the factory from a socio-historical perspective: the precise measurement of time and the visibility of management. Control through visibility has its roots in Jeremy Bentham's 1789 plan for what he called a penitentiary panopticon, an architectural embodiment of discipline through visibility. The panopticon was to be a circular prison with open, visible cells surrounding a central observation tower which itself would have a series of shades to prevent the observer from being seen by the prisoner. Both control and reform were thought possible simply through this constant unseen surveillance. When transferred to the factory, the "disciplinary gaze" retained its anonymity and omnipresence, but took on the pyramidal structure of management.

In the last part of Chapter Two, Loft begins to address the main topic of the rest of the book — the history of the rise of professionalism among British cost accountants — with a concise summary of sociological theories of professionalism, from Max Weber's closure theories to Foucault's disciplinary model of knowledge/power.

As a foundation for an entire book, this "theoretical chapter" has the weakness of recapitulating existing theories rather than generating new ones. In this way it is more typical of a dissertation (the book is based on Loft's) than of a novel theoretical work. The strength of the chapter comes from her original application of existing theories to cost accounting. When major portions of this work were published as an article in the journal *Accounting, Organizations and Society* [Loft, 1986], this chapter was omitted.

For her historical methodology, Loft adopts Foucault's "genealogical history," or history as an illumination of the present through detailed analysis of past social and historical conditions (not a reconstruction of the past from the anachronistic viewpoint of the present), a variation on Croce's dictum that all history is contemporary history.

Her genealogical history of the present begins in Chapter Three with an historical search for early manifestations of management accounting and incipient professionalism. During the Industrial Revolution (1750-1840), the independent village artisan was moved to the factory. This necessitated the development of intensive labor management practices in the Age of Capital (1840-72), which in turn needed the support of a growing bureaucratic clerical workforce. During the Great Depression period (1873-96), accountants distinguished themselves

as independent professionals in charge of bankruptcies and audits, but continued to distance themselves from costing activities. By the Prewar Period (1897-1914), however, cost accounting had marginally entered the discourse in textbooks and in professional examinations.

Chapter Three is a marvelous example of history written through a sociological lens, focusing on generic issues as they relate to management accounting (centralization of authority, shifting hierarchy of occupations, coalescing of a body of knowledge) with only a secondary interest in unique historical events, politics and personalities. Loft makes good use of quotations from contemporary observers, and her fluid writing style complements the ebbing and flowing of the social forces which she describes. On the other hand, readers accustomed to historical narratives anchored by primary source documents, dates, and statistics may feel uneasy with the heavy use of secondary references.

In Chapters Four and Five, ambitiously entitled "The First World War" and "After the War: Reconstruction and Reality," Loft continues her methodological move from the general to the specific, restricting her reader's attention to management accounting with admirable persistency. Cost accounting emerged in Britain during the war, she says, "as an unanticipated result of the way in which government mobilized the industrial resources of the country" [p. 140]. Unwilling to surrender the capitalistic industrial heritage, even when seriously threatened by profiteering on munitions contracts, the government began a massive program to employ accountants to cost war contracts. Cost accounting, previously regarded by accountants as "somewhat beneath their dignity" [p. 158], gained enormously in stature by becoming a part of the political discourse. Not surprisingly, both Capital and Labor looked forward to the post-war reconstruction period where the same means — modern cost management and scientific production efficiencies — would serve their very different desired ends.

In Chapters Six and Seven, Loft details the difficulties surrounding the establishment of the new professional association, the Institute of Cost and Works Accountants, its internal conflicts, its membership selection criteria, and its examination procedures. The discussion ends with a return to Foucault's theory on knowledge accumulation, its claim of encapsulating the "truth," and the social implications of its ability to generate privilege and power for the profession which claims it.

In her concluding chapter, Loft reemphasizes her commit-

ment to studying accounting in its social and political surroundings, rather than as a purely technical body of knowledge. She recognizes, however, that her own coverage of the interdependent relationship between accounting and the state is limited and suggests this area as a productive direction for future research.

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Loft, A., "Towards a Critical Understanding of Accounting: The Case of Cost Accounting in the U.K., 1914-1025," *Accounting, Organizations and Society*, Vol. 11, No. 2 (1986), pp. 137-70.

Frank J. Swetz, *Capitalism & Arithmetic: The New Math of the 15th Century* (La Salle, Illinois: Open Court Publishing Company, 1987, 345 pp., \$16.95)

by Maurice S. Newman
University of Alabama

This fascinating window into the world of mercantile capitalism at the end of the fifteenth century, together with its associated arithmetical practices, offers an unusual insight into how the burgeoning trade of the time was enhanced by the use of arabic numbers and printed arithmetic texts. This is accomplished by the somewhat unusual device of a completely translated Italian book, the "Treviso Arithmetic," within another book that analyzes the arithmetical practices and the cultural background of the times.

The so-called Treviso Arithmetic was, as its principal claim to fame, the first printed arithmetic book. It was printed at Treviso, near Venice, in 1478 and bore no title and no author's name. The author was most likely a reckoning master, familiar with the computational processes of the time, and writing for a group of pupils or friends about practical uses of these arithmetical concepts. Probably it was not the best book on the subject written around that period but it was the first printed book, it was written in the vernacular for popular consumption, and it was short and to the point. The book was translated by David Eugene Smith, Chairman of the Mathematics Department at Teachers College, Columbia University in 1907 but has not been previously published except for fragmentary references by Smith in articles and speeches.

Picking up where Smith left off, Swetz has published a study of early Renaissance arithmetic based on the Treviso text and has delved deeply into the mathematical and sociological

significance of the contents. As Swetz says in his preface, the "study focuses on a book and its contents but, perhaps more importantly, it also concerns a time (the early Renaissance), a place (the Venetian Republic), and circumstances (the rise of mercantile capitalism and the economic beginnings of industrialization), and how these three aspects molded and affected the directions of human involvement with mathematics." [xvii].

Swetz has done his research admirably. His arguments and suggestions are well supported by some twenty-one pages of extensive chapter and notes, together with a bibliography of historical references, a general bibliography, and a good index.

Chapter One sets the stage for the study of discussing the social and intellectual changes that were going on, the growth of towns and cities, the rise of the Venetian Republic, the position of Treviso astride the great overland trade routes, the development of the Italian Reckoning School, the breaking of the monopoly on intellectual knowledge that came with the printing of texts in the vernacular such as the Treviso Arithmetic, and the subsequent impetus to the rise of a successful middle class.

Chapter Two consists of a short introduction and the free translation by David Eugene Smith of the Treviso Arithmetic in its entirety. The first sixty pages of the Treviso text (pp. 40 to 100) deal with the basic operations of numeration, addition, subtraction, multiplication, and division. The unknown author was selective in his use of methods and was apparently guiding his readers into the best possible approaches to the practical problems that they would face. This part of the text is likely to be useful to students of the history of mathematics particularly as it may relate to such new areas of knowledge as the mathematical operations within computers. The general reader may prefer to skip over several pages and rely on the interpretation supplied by Swetz later in the book. The remainder of the Treviso text deals with practical problems and algorithms that can be useful in their solution. Some of these problems, particularly those involving multiple currencies, could be challenging to students at the high school level. The general reader should read through the problems so as to gain the background for the analysis and discussion in later chapters. The methods of solution may only have appeal to the dedicated historians of mathematics.

In Chapter Three, Swetz begins his interpretation of the Treviso Arithmetic in relation to the environment and times. The required use of Roman numerals was breaking down before the pressure of mercantile needs although acceptance of the

arabic numbers was somewhat slow in coming. The algorithms that could be put to use in trading situations were easy to learn and could be used without elaborate equipment such as counting boards. The evolution of numerals over five hundred years which is presented in Table 3.1 is a most interesting exhibit.

The remainder of the chapter deals with the basic functions of addition and subtraction as they are given in the Treviso text. This is supported by reference to other texts of contemporary and earlier times to show how current usage had developed. The examples are limited to adding or subtracting two numbers and stress is laid on various methods of proof such as "casting out nines" or use of the inverse operation. A minimum number of illustrative problems is given and it would appear that the author expected the student to learn by doing. The cost of printing at that time would also restrict the author to the basic fundamental requirements of his craft.

Chapter Four deals with multiplication and Chapter Five explains division as found in the Treviso text. Each of these chapters is short and to the point. These were considered difficult to teach in a way that the student could fully understand. The concept of multiplication as repeated addition [p. 67] and division as repeated subtraction [p. 85] as used in the various methods described is insightful when we consider that this is the basic method used by an electronic computer. Again, considerable stress is placed on proving out the work by various methods and Swetz interprets the methods used against an historical background to put them in proper perspective.

Chapter Six describes the types of problems that are used in the Treviso text and categorizes them as follows:

1. The Rule of Three
2. Tare and Tret
3. Partnership
4. Barter
5. Alligation
6. Rule of Two
7. Pursuit
8. Calendar Reckoning

These types of problems were clearly of some importance in the late fifteenth century but would be solved algebraically today if they needed to be solved at all. While most people would not know when Easter or Passover will fall next year, neither do they have any urgent desire to know until those holidays come closer. The problems in connection with the determination of partnership earnings bear a marked similarity, however, to

some that have appeared on CPA examinations within recent memory. Barter was obviously a complicated problem when different weights and measures were in use along with multiple currencies and problems of valuation. These still exist although the amount of barter in the commercial world today is relatively nowhere nearly as great.

The final chapter, as its title implies, gives a fascinating glimpse of fifteenth century life, trade, and applied mathematics. Swetz has done an excellent job in recreating the life and times through the analysis and investigation of the problems contained in the Treviso tome. The various commodities that are mentioned in the book are made to reveal the background of the traders, manufacturers, merchants, and eventual purchasers and have them come to life.

The scope of the trade items mentioned in the Treviso is broad, and includes "saffron, pepper, cinnamon, ginger, sugar, wheat, silver, cotton, crimson cloth, French wool, balsam, and wax" [p. 258]. While monetary problems are not too prevalent in the Treviso, Swetz uses other texts of the period to indicate the difficulties in changing from other currencies, the lack of high standards in the coinage of the period, the use of counterfeit coins and the varied weights and measures used in the burgeoning international trade. Swetz points out that Venetian money [p. 271] and Venetian weights and measures [p. 279] became the standard for international trade during that period.

The book closes with a fitting tribute to Professor David Eugene Smith inasmuch as the book probably could not have been written without his prior research interest and translation.

P. Tantral, *Accounting Literature in Non-Accounting Journals: An Annotated Bibliography* (New York: Garland Publishing, Inc., 1984, 325 pp., \$35.00)

by Robert J. Bricker
The Ohio State University

It is important for accounting scholars to have knowledge about literature related to their area of inquiry. Even if interdisciplinary literature is disregarded, it is difficult to keep up with literature published in accounting journals, although this has been made easier by indexes such as the *Accountant's Index*, and by various extended bibliographies. Accounting articles published in non-accounting journals are even less accessible.

Scholars interested in identifying accounting literature relevant to their work in non-accounting journals face a daunting task.

This book identifies accounting literature in a set of non-accounting journals. The first eighteen pages discuss the method used in developing the annotated bibliography and its taxonomization. Using *Ulrich's International Periodicals Directory*, eighty-eight important non-accounting journals (seventy not counting journal name changes) ultimately were selected for use from the disciplines of actuarial science, economics, finance, operations research, and statistics (listed on pages 19-21). The list of journals was originally more extensive. However, journals were excluded if the author judged them to be accounting journal equivalents.

Accounting articles were identified by searching titles and by reviewing the substance of individual articles. Most journals were searched from volume 1 — the earliest being volume 1 of *The Assurance Magazine* (1851, one accounting article identified). In total, 460 accounting articles were identified. An annotated reference for each accounting article was prepared, and each article was classified using a variation of CCH's *Accounting Articles* taxonomy. Articles are listed in the book in taxonomic order, and a separate index of authors' names appears on pages 213-224.

This database is most useful for referencing accounting articles in the fields of actuarial science, economics, and statistics, which among them contain 81 of the 88 (unadjusted for journal name changes) journals studied. The taxonomy used is unidimensional, and provides for quick referencing within the set of taxons. The visual layout of the individual references is good. The individual references are well prepared and the abstracts are concise and easy to understand. The author largely avoided the use of cryptic phrases in favor of longer but far more useful comments.

A different approach to taxonomization and a somewhat different mix of non-accounting journals might have increased the useability of the database. While the CCH taxonomy is detailed, it is nonetheless unidimensional and classifies articles by subject-matter. The author ameliorates this condition to some degree by classifying articles under both a primary and secondary category (although still on subject-matter) and by providing the author index. A different taxonomization approach is used by Vasarhelyi and Berk, as noted by the author, which classifies articles multidimensionally — for example in terms of research-method and foundation-discipline (among

others) in addition to subject matter. This approach, of course, would have required additional indexes for referencing articles.

Some also may question the choice of journals covered — particularly in terms of 1) disciplinary coverage and 2) the author's categorization of accounting-equivalent and non-accounting journals. Some disciplines, such as sociology, history, psychology, organizational science, and management are notably absent. In others, some important journals are missing. In political science, for example, which is covered in the database under "economics," journals such as *Public Choice* might have been included. One way to identify potential accounting articles in non-accounting journals not included in this database would be to examine their citations of accounting journals, as summarized in the Social Science Citation Index. Journals with high accounting journal citation rates probably also publish accounting-related articles.

Some of the journals excluded from the database for being accounting journal equivalents appear to be more similar to accounting than some that were excluded. The database excludes the *Journal of Law and Economics* and *Industrial and Labor Relations Review* as accounting journal equivalents, yet includes the *Journal of Business*, the *Journal of Finance*, and *Management Science* as non-accounting journals. Not surprisingly, these last three journals contain about one-quarter of the database's articles.

Despite these features, *Accounting Literature in Non-Accounting Journals* can be a useful and time-saving tool for accounting scholars who are interested in exploring the periodical accounting literature published in the covered non-accounting journals. It is certainly commendable in this way as the first work of its type.

Basil S. Yamey, *Art & Accounting* (New Haven and London: Yale University Press, 1989, 157 pp., \$45.00)

by Stephen D. Strange
Indiana University at Kokomo

In this book Basil Yamey discusses works of art that include the image of an account book. One might expect a rather brief discourse on such a topic and that of limited interest. However, Yamey develops a number of fascinating relationships between art and accounting and in doing so exposes the reader to novel perspectives of both art and business. The general

reader should not be frightened away by a lack of knowledge of accounting or art as Yamey deals with both areas in a lucid fashion.

The book consists of discussions of works of art in which account books make their appearance. The first chapter, in effect, is a detective story dealing with the identification of account books in paintings. The techniques vary from direct evidence to identity to inference. In addition Yamey discusses the predominance of works of art produced in the Low Countries in the sixteenth and seventeenth centuries in which account books are represented. Throughout the book these insights provide interesting and informative reading.

Chapters two to seven are organized according to subject categories: portraits of merchants, businessmen, bookkeepers, and accountants; bureau scenes; allegories and emblems; *vanitas* still-life paintings; and allegories of commerce. There is no pretense of comprehensiveness in the discussion of the works of art — all are Western works, mainly from the period 1300 to 1800. Yamey weaves in other threads connecting art, history, and accounting and in so doing creates a rich and varied tapestry.

In the final chapter, Yamey expounds on the importance of double-entry bookkeeping and the rise of capitalism, and the influence of the double-entry system on artists and Renaissance art in general. The remainder of the chapter deals with Luca Pacioli, author of the first published work to include an exposition of double-entry bookkeeping (the *Summa de arithmetica* of 1494).

This book will delight the scholar, student, or casual reader. Yamey writes in a clear and concise manner which allows the reader to integrate the text and illustrations in a meaningful fashion. In addition, the notes to the book provide a wealth of material expanding on the illustrations. They are worth reading by themselves and provide expert guidance for further study.

In reading this book the artist will find that art and business are indeed connected, and the accountant will discover new relationships and perspectives about his profession.

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Announcement

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