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The Accounting Historians Journal is a refereed scholarly journal published semiannually in the Spring and Fall: printed by The Birmingham Publishing Company, 130 South 19th Street, Birmingham, Alabama 35233. The Journal is the successor to the quarterly publication The Accounting Historian and is numbered as a continuation to maintain the sequence of that issue which commenced in January, 1974. The Accounting Historians Journal does not assume responsibility for statements of fact or opinion made by its contributors. Manuscripts submitted to The Accounting Historians Journal should be sent to the Manuscripts Editor whose address is shown at the end of the Guide for Submitting Manuscripts in this issue.
THE ACCOUNTING HISTORIANS JOURNAL
Semiannual Publication of The Academy of Accounting Historians
Volume 13, No. 2
Fall, 1986

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EDITORIAL

The incoming editor, Gary J. Previts, has requested that all articles accepted by me be published under my editorship, and I am obliging him by doing so. For this reason, the customary book reviews and dissertation abstracts sections of the Journal have been deferred to the next issue.

Nevertheless, it is interesting to note that under my editorship the "normal" Volumes 11 of 1984 and 12 of 1985 averaged 180 pages and 160 pages respectively, as against slightly over 100 pages for Volume 6 of 1979. Thus, we have clear evidence that interest in accounting history is growing, that more good articles are being submitted than ever before, and that subscribers are getting exceptional value for money. May this happy state of affairs continue.

An Editorial in Volume 11, No. 2 pointed out that it takes a long time for an editor's work to become recognizable in the pages of a magazine because he publishes material submitted to, and even accepted by, a predecessor. Presumably this will no longer be true for The Accounting Historians Journal. Moreover, a look back over Volumes 12 and 13 provides some insights into the preferences of the editor and the editorial board, and particularly our contributors.

It is interesting to observe that, although no aspect of accounting is more international than its history, the great majority of contributors continue to be United States accounting professors. This may be due to the influence of the American Association of Collegiate Schools of Business (AACSB), the standards of which have included a "publish or perish" attitude in many departments and schools of accounting. However, the Journal has played host to authors from Australia, Belgium, Canada, Ghana, New Zealand, and the United Kingdom.

Another observation concerns the wide range of contributors' interests. We have had biographical notes, bibliographical studies, analyses of accounting records, in-depth examinations of the history of accounting thought on a number of important issues, and works on auditing and taxation as well as accounting.
The three authors who are represented by two contributions each, George Murphy (Canada), Ernest Stevelinck (Belgium) and Williard Stone (U.S.A.), certainly belong at the head of any list of contemporary accounting historians.

The hands of the editors, including those responsible for book reviews and doctoral dissertations, are visible. Not so those of the editorial board, most of whom have served for more years than they may have intended when first taking upon themselves this obligation. To them a special thanks, and a public recognition of their dedicated service to the Journal. Thanks, also, to the production editors who have worked so diligently on Volumes 11 through 13. And finally, best wishes for the continued success and growth of *The Accounting Historians Journal*.

Kenneth S. Most
Florida International University
1986
THE MANY FACES OF LUCA PACIOLI:
ICONOGRAPHIC RESEARCH OVER THIRTY YEARS*

Abstract: This article, first delivered as a paper at the 1980 World Congress of Accounting Historians in London,1 presents the results of three decades of the author’s research in pursuit of a true image of Luca Pacioli. Portraits, sculptures, and sketches are traced to painters and artists of several periods. The mystery relating to Pacioli’s likeness is considered. Stevelinck suggests that the search for a true portrait continues, given the disputes over the authenticity of various paintings and their faithfulness in representing the appearance of Pacioli. The research also provides important information about the career of Pacioli by considering the relationships revealed in the artwork presented.

Present-day accountants have the advantage of knowing who Luca Pacioli was. I studied accountancy without ever hearing of him, and it was only much later, when I became interested in the origins of accounting and consequently in its history, that I made the acquaintance of this friar who, in 1494, wrote *Summa d Arithmetica, Geometria, Proportioni et Proportionalita.*

His genius allowed him to assimilate a wide range of knowledge and to see things as they were. He associated with the leading men of his time and gained their friendship. Thus he won the favor of Federigo, Duke of Urbino, and gained access to his library.

He lived for a year in Rome with the architect Leon Battista Alberti, who was also a mathematician, philosopher, poet, humanist, and jurist. He made contact with the della Rovere family. Francesco della Rovere was Pope Sixtus IV (1471-84), and his two nephews had a close relationship with Luca Pacioli. One, Giovanni della Rovere, was the brother-in-law of Guidobaldo da Montefeltro, and later Pacioli’s protector. The other, Giuliano della Rovere, who was destined to become Pope Julius II (1503-13), formed an equally strong friendship with Pacioli.

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*Translated from French by Geoffrey A. Lee, University of Nottingham. Adapted, edited and revised by Alfred R. Roberts, Georgia State University.
Then came the call to the ducal court of Milan in 1496, to teach mathematics. As a result, Pacioli came into frequent contact with Lodovico Sforza, known as *il Moro* ("the Moor"), who became his close friend. Accompanied by Leonardo da Vinci he left Lombardy when the French, under Louis XII, invaded Milan, and settled in the Marquisate of Mantua. Luca Pacioli dedicated one of his books to the Marquis and Marchioness. When he moved to Florence he became the protégé of Piero Soderini, Gonfalonier of the Florentine Republic.

Finally, as a lecturer at the Universities of Pisa, Perugia, Bologna, Florence, and Rome (whither he was summoned by Pope Leo X himself to occupy a Chair of Mathematics), he may be said to have enjoyed a well-established reputation in his lifetime.

Nevertheless, after 1514 Luca Pacioli disappeared from the annals of history. The great compiler, having rendered up his soul to God, sank into oblivion, and his works with him. A few erudite mathematicians knew of him, and leafed through his books at long intervals.

**The "Discovery" of Pacioli**

Then came a day, over a century ago, when the Milan Academy of Accountancy asked Professor Lucchini to give a lecture for its members. Lucchini was rather uncertain as to a subject on which to speak. As he searched for something worthy of engaging the attention of the membership of the Academica dei Ragioniere, it may be that his steps turned to a public library — or perhaps his previous studies and research had already led him to examine the work of Luca Pacioli.

Thus it was that in 1869, while addressing his audience, he drew the accountants' attention to a work printed in 1494, entitled *Summa de Arithmetica, Geometria, Proportioni et Proportionalita*, wherein appears a chapter relating to bookkeeping. The author of this treatise, one Luca Pacioli, was unknown to accountants at that time. It was, therefore, a revelation to them to learn that an illustrious predecessor had published before 1500 a book which treated, though not under that name, the theory of double entry — otherwise called Italian — bookkeeping.

One year after Lucchini's lecture, Italian unity was accomplished. The kingdom, after annexing the Papal States and seizing Venice from Austria in 1866, established its capital in Rome. With the movement for unification, a sense of national pride grew stronger. Thus,
in 1870 Italy was a brand-new nation, but one with an astounding past.

Its inhabitants belonged to many different races, with very different origins. There were descendants of Celts, Ligurians and Veneti, there were Maltese, Armenians, Albanians, Catalans, Slovenes, Croats, Germans, Jews, and Gypsies as well — but all were now Italians.

How did the Italian authorities go about the task of forging a communal spirit among a people composed of such disparate elements? They endeavored to make them share an admiration for great men of their past. Indeed, during more than three thousand years of civilization Italy had reared geniuses of every kind. People were led to remember the splendors of the past. Heroes were destined to live again in the memory of every citizen. Such communal fervor was the cement of national unity.

Every city staked a claim to its illustrious sons, sometimes to those it had never had. Thus it is that the tourist may marvel at the two birthplaces of Christopher Columbus, one in Genoa and one in Savona!

Not to be outdone, Florence commissioned busts of its own famous men, and among them was that of Luca Pacioli, the great mathematician of the Quattrocento (fourteen hundreds). If Florence erected a statue to him (Ill. A), it was doubtless because the city took a certain interest in him. Pacioli had visited Florence a number of times, and had lived there while studying philosophy and theology about 1481 and 1486.

Yet, we can imagine the annoyance that the sculptor must have felt when he received this commission. Who was the famous stranger whose features he was supposed to depict? What did he look like when he was alive? Did he die in old age or in his prime? To be on the safe side the sculptor decided to show a young man, inasmuch as all famous men, and others too, pass through this stage at some time. He gave him a Florentine hair-style and, since every normal man has two eyes, a nose and a mouth, he chose a face at random to serve as a model. In any case, so that there should be no doubt that it was Luca Pacioli, his name appeared in large letters in a cartouche beneath the bust.

Such, probably, was the story of the creation of the bust of Luca Pacioli, Si non e' vero . . .

Let us pursue the history of this sculpture. After Professor Lucchini had drawn attention to Luca Pacioli's work on accounting, it came about that V. Gitti, an accountant of Turin, while visiting
the art galleries of Florence at the turn of the century, stopped in front of the bust in question. Delighted to have a graphic portrait of this now famous person, and availing himself of the quite recent invention of photography, he had it recorded for posterity.

In 1909 Gitti sent an enlargement to the Société Académique de Comptabilité of Paris, whose offices were then at 92 Rue de Richelieu. Georges Reymondin, vice-president of the society, was just about to publish his bibliography of accounting treatises in French from 1543 to 1908. This work had exacted from him many years of sustained and unremitting toil. He took the opportunity to insert in his book, on page 21, the print of the first accounting author of all — even though he was not a Frenchman.

A German, Professor Penndorf, being deeply interested in the history of accounting in his own country, brought out a work of great authority among accounting historians — Geschichte der Buchhaltung in Deutschland (Leipzig, 1913). He too reproduced, on page 41, the photograph of the bust at Florence.

We, in turn, could hardly fail to insert it at the beginning of our French translation of Pacioli’s work on accounting. [Luca Pacioli. Sa Vie, Son Oeuvre by Stevelinck and Haulotte, Pragnos, Vesoul, 1975.]

The “Search” for Pacioli

Later on, curiosity (a fault of accountants in general) and a degree of piety towards an illustrious predecessor led me to the art galleries of Florence. But after a week of fruitless searching, I left. That was twenty years ago, and I had only myself to blame for not finding the bust of Pacioli. I did not know when I set out that there were so many galleries and museums in Florence, and I had acted without any real system and without seeking help.

Accordingly, I prepared for a new expedition in 1968 by writing to several Italian colleagues, to various accountancy institutions, and, of course, to the municipal authorities in Florence. In the Via della Ninna there is an Ufficio Inventario, whose principal duty it is to catalog all works of art by name and location. In the Piazza dei Guidici there is also a Museo delle Scienze. Everywhere I went I showed the photograph of the bust, but the work remained unlocated. This was not by any means for lack of searching; I even searched in the attics and cellars of the museums. Florence had suffered from severe flooding in 1966, which had left its mark in many places, and it had completely upset the arrangement of the museums.
All the same, I had informative conversations with several people. During one such conversation a professor from the University of Florence touched on the truth. He told me, in effect, that nationalistic feeling at the time of the Risorgimento had been so strong that statues had proliferated in unimaginable quantities — to such an extent, in fact, that the statuary’s art had enjoyed a veritable renaissance at that period. Italy had once more become a great theater of art where, after a number of audacious experiments, sculpture in particular had regained its former qualities of measure and proportion.

This professor also said that there had been a “clearing-out” and that many works had been withdrawn from circulation. No doubt that was the case with the bust of “young” Pacioli, because in the meantime there had been discovered at Naples, in the Galleria di Capodimonte, a portrait of Fra Luca Pacioli, painted in the mathematician’s lifetime by a contemporary: “Jaco. Bar.” This portrait (III. B) bears no resemblance to the Florence bust, and that, no doubt, is why the bust had disappeared, or perhaps been destroyed.

Portraits of a Mystery

Among the several “portraits” of Luca Pacioli there are two painted by Piero della Francesca [See Ills. R and T later], who was also born in Borgo San Sepolcro, and a third one signed Jaco. Bar. Vigennis P. 1495, (III. B) which we shall call the “Naples” portrait. It is not known for certain who painted the third picture, although it has been attributed to the “Master of the Caduceus,” Jakob Walch (or Walsch), known also as Jacopo de’ Barbari. However, such speculation seems to be mistaken, since Jakob Walch (who also painted the Emperor Maximilian at Nuremberg and, later, Margaret of Burgundy, Regent of the Netherlands) was born in Venice in 1445, whereas the signature at the foot of the portrait of Pacioli means: “Jaco. Bar., aged 20, painted it in 1495.” Since Walch or Walsch was 50 years old in 1495, not 20; and since it was his custom to sign his pictures with his initials separated by a caduceus (Mercury’s winged staff with two serpents) — as the “Master of the Caduceus,” I cannot explain why he would have made an exception for Luca Pacioli’s portrait.

Another hypothesis is, that Bar. is not an abbreviation of Barbari but of Barbaglia, a nickname in use in Pacioli’s family, for, as may be read in his will (drawn up on 21st November 1511), Luca Pacioli
left a legacy to Madonna Caterina, wife of Antonio Massi Pacioli, otherwise called Barbaglia (aliter dictus barbaglia), the testator's nephew. In that case the picture might have been painted by a member of the Pacioli family.

One final modern portrait, signed Angelo Tucca [See Ill. Q later], hangs in the office of the Mayor of Borgo San Sepolcro. It illustrates a controversial allegation that Luca Pacioli plagiarised his ideas from Piero della Francesca. However, all this material is prologue, for the focus of this paper lies elsewhere.

If the disappearance of the first bust of Pacioli is a mystery, the Naples portrait (Ill. B) may also pose a conundrum. At first it was reproduced in black and white. Then attempts were made to print it in color. A 1963 pamphlet published by the Institute of Chartered Accountants in England and Wales, entitled The Earliest Books on Bookkeeping (with preface by the late Hugh W. Thomson), shows Luca Pacioli wearing a spinach-green habit. In contrast, when an article by Christopher Nobes, lecturer in accountancy at Exeter University, appeared in Accountancy with the title: "Pacioli, the first academic accountant?", the illustration showed him in a chocolate-brown habit. In fact, as I discovered from visiting the Galleria di Capodimonte, Pacioli's robe is mouse-grey.

In 1878 the town of Borgo San Sepolcro, in order to be fashionable, decided that Luca Pacioli had been born within its walls, and that his fellow townsmen had seriously undervalued him. With so much discussion about him, public opinion was aroused, and on the occasion of an accounting congress a marble tablet was placed on a wall of the Palazzo delle Laudi which serves as the town hall. Originally, in 1878, the tablet was adorned with a bas-relief of the features of the "Father of Accounting." In 1925 it was replaced by a painting on a metal plate, done by Professor Silvio Zanchi of Borgo San Sepolcro (Ill. C). The portrait was a reproduction of Luca Pacioli's head in the painting of 1495 attributed, rightly or wrongly, to Jacopo de' Barbari.

During my first visit to Borgo San Sepolcro I was able to examine at leisure this memorial tablet, set above a doorway under an arcade. When I came back to the same place ten years later, I was surprised to find the tablet missing. I therefore went to the Pinacoteca, which is opposite the Palazzo delle Laudi, and inquired of the curator what had become of the memorial tablet. He explained that the façade in which it was set had needed repairs, and the stone had to be taken out. He then opened the door of a little closet, and there it was, thick with dust!
Seized with righteous indignation, I quickly crossed the street to the town hall, and marched upstairs to the Sindaco's office. He was not in, as it was election time. I made such a fuss that the municipal secretary, with whom I had a long conversation in very halting Italian, ended by making a note of my complaint for immediate transmission to the mayor of the commune.

Since then I have met Professor Osamu Kojima (in Atlanta in 1976), who told me that he had seen the tablet in a cellar in 1961 and had found it again in the same cellar in 1977.

Also during my first visit to Borgo San Sepolcro I was pleasantly surprised to discover a bust of Luca Pacioli by Filippo Lombezzi, who died in 1963, visibly inspired by the Naples portrait and not yet known to the accounting world. It too was shut up in the little closet already mentioned, from which it was extracted only at my insistence (III. D). Since then, however, it has occupied a more or less honorable position among some old chests.

Before my second visit to Italy I contacted various Italian colleagues in the hope of locating the statue of "young" Pacioli. One of them, Professor Carlo Antinori, told me that if it was statues I wanted, I would find plenty. This reply puzzled me. Why would there be so many?

A Pacioli Competition

When a new school of commerce was opened at Fidenza in the region of Emilia, near Parma, the founders named it the Instituto Tecnico Luca Pacioli, and announced a national competition for a work of art to adorn the entrance hall — namely, a bronze bust of Luca Pacioli on a pedestal. Fifteen Italian sculptors entered the contest and submitted sixteen works.

The winning entry now stands in the entrance hall of the new school. It is modernistic in style; the artist is Beppino Marzot (III. E). The statue by Augusto Perret of Palermo received the second prize (III. F). The third prize was awarded to Renato Avanzinelli of Lucca (III. G). The next entry was that of Virgilio Mori of Rome (III. H).

The bust designed by Bianca Maria Silvestrelli of Rome, shown here full face (III. I), also has undeniable merit. Indeed it is a close copy of the Naples portrait. However, it is the next candidate, Professor Artemio Giovagnoni of Perugia, who seems to me to have most accurately studied and adapted the picture (III. J).

The working methods of Eustacchio Errani of Isernia seem very modernistic to me (III. K). One must not forget that our mathe-
matician was born in the fifteenth century. Very different is the method of Alberto Biasi of Rovereto, whose work appears unfinished (III. L). The Pacioli portrayed by Dante Carpigiani of Bologna is very young; I would have preferred him in his maturity (III. M). The bust by Albano Seguri of Mantua, though quite characteristic, did not please me (III. N).

Even today our search for a true likeness of Pacioli continues. However, the picture of the famous friar appears on the stamps of the Italian National Benevolent Fund for Accountants (III. O), and the outline of his features has become ever more precise.

Historians have come a long way since the time when, trying in vain to depict Luca Pacioli, they thought they had found his likeness in the picture of a friar which forms the initial to the chapter De scripturis, relating to bookkeeping (III. P).

**Piero della Francesca — A Father of Accountancy?**

I have yet to recount the discovery of a painting by Angelo Tucca, which hangs in the Mayor’s office at Borgo San Sepolcro. It shows the blind Piero della Francesca teaching his science to Luca Pacioli. This canvas is still unknown to most historians. I was fortunate to discover it during the stormy discussion with the municipal secretary of Borgo San Sepolcro (III. Q).

I feel it is important to consider what may be implied in this portrait. It has been suggested that Luca Pacioli, a “universal man,” was not loved in his native town; strange, but true. Perhaps it was because his home town could only honor one famous son. Indeed San Sepolcrans seem to have but one love: the great painter, Piero della Francesca. His works still arouse interest and his glory may very well be greater now than in his own time. But he was recognized as a great artist while he lived, and was welcomed as such at courts as brilliant as those of Ferrara, Rimini, Urbino, and Papal Rome.

Piero della Francesca was born at Borgo San Sepolcro between 1410 and 1420, some thirty years before Luca Pacioli. He spent much of his life in the town and took part in the municipal administration. He was nominated Counsellor of the People in 1442. A pupil of Domenico Veneziano, he was also influenced by Leon Battista Alberti and Filipo Brunelleschi. The two latter are credited with discovering the mathematical laws of linear proportion, valuable to painters and architects in the modern development of mathematical perspective.
Plato had affirmed that absolute beauty is to be found only in geometrical figures. Rules of perspective had long been lacking among artists but, once they were established, painters applied mathematical calculations in the proportion of their works. This helps to explain why the great artists of the period were not only painters and sculptors but also geometricians, architects, and mathematicians. This was also the manner of Piero della Francesca, all of whose compositions aspire to geometric regularity. Indeed, for Piero della Francesca perspective was an end in itself. He perceived its value to be so strong as to be an element of first importance.

While he was alive he taught the knowledge that he possessed, and a few years before his death he dedicated his treatises on mathematics and perspective to Guidobaldo I, Duke of Urbino.

In 1487 he made his will, which included an autobiographical passage. One must conclude that at the time he had not yet lost his sight. His eyes had been failing during his last years, and he had to be guided by Marco di Longaro. At the time of his death in 1492, Piero della Francesca was blind.

For nearly five hundred years the inhabitants of Borgo San Sepolcro have had before their eyes, every day, the frescoes painted by Piero upon the walls of the old Palazzo Communale, now called the Pinacoteca. For five centuries they have considered this great artist's loss. Can there be a more dreaded affliction for a painter than to lose his sight? They knew that Piero was especially concerned with perspective and that his fellow townsman Luca Pacioli had the benefit of his lessons. Is it unfair to suspect the student of usurping a blind man's intellectual riches?

The painting of Angelo Tucca is eloquent. It is a large picture which graces the office of the mayor of Borgo San Sepolcro. Piero is seated in a high-backed armchair. His face radiates kindness. He is engaged in revealing the mathematical secrets of perspective. His left hand rests on a stick, which he uses to guide his steps. A gesture of his right hand serves to illustrate his argument. He occupies the center of the picture. On the right three youths are trying to understand the master's explanations. On the left Luca Pacioli in his habit stands before a blackboard and is taking notes on paper of the explanations as they are given. Is he usurping Piero's knowledge? That is what the people of Borgo San Sepolcro think.3

When the accountants of Italy, who accord an honorable place to Luca Pacioli, gathered in his native town in 1878 for an account-
ing congress and paid him due homage, the populace was astounded. Could the citizens have been wrong? The official with whom I spoke expressed astonishment at the enthusiasm of foreigners for Pacioli. He told us that he had received a visit from Professor Osamu Kojima who had come from Japan just to visit Pacioli’s birthplace. He could not understand what we accountants saw in that man who had plagiarized the works of Piero della Francesca.

Apologia

The truth is that Luca Pacioli, in order to write his books, drew upon the work of his predecessors. One cannot reinvent geometry every day — one must consider Euclid. The same is true of double entry. Pacioli did not claim to have invented it. On the contrary, he made it clear that he wished to expound the method in use in contemporary Venice.

The compiler of a book of extracts is content to furnish a preface. Similarly, the author of a Summa brought together scattered data in one place. The labors of one’s predecessors are designed to serve future generations. All our present civilization is for the greatest part inherited from the past.

That Luca Pacioli was inspired by the works of Piero della Francesca is very possible, even probable. But was not Piero himself inspired in his work by his own predecessors? While the great painter’s sight failed in his later years and he was blind when he died, there is no evidence that Pacioli took advantage of his condition. Pacioli admitted that he was inspired and guided by his predecessors. However, even Piero della Francesca was inspired by the work of his forerunners, for that is how civilization advances.

For my part I believe that Piero della Francesca and Luca Pacioli were always on good terms. In the Pinacoteca di Brera at Milan there has been discovered a work of Piero, at first falsely ascribed to Fra Carnevale: La Madonna col Bambino Gesù, in which there is a figure of Luca Pacioli, along with others (Ill. R). A detail of Pacioli’s head is in the center of the picture (Ill. S).

Christopher Nobes, in the article of which I spoke earlier, cites another painting of Piero della Francesca: Virgin, Child, and Saints, from the church of Sant’Antonio in Perugia (Ill. T) (now in that city’s art gallery), in which Pacioli is shown holding a book (Ill. U).

Here in these few pages are the results of research conducted over thirty years. My hope is that this combination of evidence will
assist fellow historians to gain a better understanding of Luca Pacioli and his mentor, Piero della Francesca. I hope the patience and thoroughness of this work will encourage others to investigate and contribute to the understanding of legendary personages in our discipline. Luca Pacioli was unknown for a long time and his likeness forgotten. Now we can concentrate on the evidence before us to establish a proper image of "The Father of Modern Accountancy."

FOOTNOTES

1The original manuscript was in French.
2In August 1984 the tablet was prominently displayed on the wall by the main door of the town hall. It was a focus of attention for accounting historians who visited Borgo San Sepolcro on a field trip which was part of the Fourth International Congress of Accounting Historians, hosted by the University of Pisa.
3The accusation that Pacioli had plagiarised the works of Piero della Francesca evidently became widespread after the publication of Giorgio Vasari's book The Lives of the Painters, first printed in 1550, and partly rewritten and revised in 1568. R. Emmett Taylor wrote a book on the life of Luca Pacioli entitled No Royal Road (Chapel Hill, N.C.: The University of North Carolina Press, 1942: Reprinted by Arno Press, 1980). On page 335 of his book Taylor quoted the following passage, from a translation of the 1568 edition of Vasari's book, which relates to the life of Piero della Francesca: "And the man who should have labored with all his powers to secure the fame and increase the glory of Piero, from whom he had acquired all that he knew, Fra Luca del Borgo, namely, he, on the contrary, envious and malignant, did his utmost to annihilate the name of Piero, his instructor, and sought to arrogate to himself that honor which was due to his teacher alone, publishing, under his own name, all the laborious works of that good old man... This master was exceedingly zealous in the study of the arts. As I have said, he devoted much attention to perspective, and possessed considerable knowledge of Euclid, inasmuch that he understood all the most important properties of rectilinear bodies better than any other geometrician; and the most useful elucidation of these matters that we possess, are from his hand: for the Friar of St. Francis, Maestro Luca del Borgo, whose works treat regular geometrical bodies, was his disciple, and when Piero became old, and finally died, after having written many books, the above named Maestro Luca, attributing them to himself, caused the works of his master to be printed as his own, they having fallen into his hands on the death of Piero."

In chapter eighteen, Taylor presents various arguments and speculations regarding the accusation.
Stevelinck: The Many Faces of Luca Pacioli: Iconographic Research

D

E

F

Published by eGrove, 1986
Stevelinck: The Many Faces of Luca Pacioli: Iconographic Research

J

K

L
SHAKER ACCOUNTING RECORDS
AT PLEASANT HILL: 1830-1850

Abstract: Shakertown at Pleasant Hill, Kentucky was the third largest of nineteen Shaker communities which existed in eight states during the nineteenth century. Many of the accounting records used by the Pleasant Hill Shakers are still in existence. An analysis of these records indicates that the same care and attention to detail which came to be associated with the Pleasant Hill Shakers in agriculture, mechanics, and architecture is also evident in their accounting records.

THE VILLAGE OF PLEASANT HILL
“Let a stranger visit your country, and enquire . . . for your best specimens of agriculture, mechanics and architecture, and sir, he is directed to visit the Society of Shakers at Pleasant Hill.”

—Robert Wickliffe, Senate of Kentucky, January 1831

Shakertown at Pleasant Hill, Kentucky was the third largest of nineteen Shaker communities which existed in eight states during the nineteenth century. Other Shaker communities were founded in the New England states, New York, and Ohio. The Shakers were a religious group and were called Shakers because of the trembling which occurred during their religious dancing. The Shakers were also industrious and inventive people. Some of the many inventions attributed to the Shakers are the flat broom, wooden clothes pins, circular saws, and washing machines.

Shakertown at Pleasant Hill was established in 1805. By 1830, the community had grown to approximately 300 inhabitants. During the years 1820-1860, the Pleasant Hill Shakers were very prosperous in business. They were successful in the production and sale of farm animals, flat brooms, preserves, garden seeds, and herbs. They were also innovators in scientific farming, the propagation of farm animals, and development of agricultural implements. Pleasant Hill continued to prosper until the Civil War in the 1860s. After the Civil War, problems caused by the war and other changes taking place in America resulted in the weakening of the Pleasant Hill community to the point where it was eventually dissolved in 1910. Pleasant Hill has been restored to its early nineteenth century appearance by Shakertown at Pleasant Hill, Inc., a nonprofit, educational corporation. Shakertown at Pleasant Hill is listed in the National Register of Historic Places and has been declared a National Landmark by the Department of the Interior of the Federal Government.

Many of the accounting records used by the Pleasant Hill Shakers are still in existence. An analysis of these records indicates that the same care and attention to detail which came to be associated with the Pleasant Hill Shakers in agriculture, mechanics, and architecture is also evident in their accounting records.

Analysis of Pleasant Hill Accounting Records

Eight Pleasant Hill accounting journals and ledgers are included in The Filson Club Library Collection. The Filson Club, Louisville,
Kentucky, is a private, nonprofit organization dedicated to the preservation of Kentucky history. These records cover various periods from 1826-1910. Permission to photograph and quote from the Pleasant Hill accounting records has been received from The Filson Club. One additional Pleasant Hill account book is included in the University of Kentucky Library collection. Due to the voluminous nature of these records, this article is limited to an analysis of the available records for the period 1830-1850. This period covers the more prosperous years of Pleasant Hill Shakerism.

Use of Day Book (Journal)

Since many early American farmers and merchants bought and sold goods on credit, it was important that they maintain accounting records. Many of these records consisted mainly of personal accounts of debtors and creditors grouped together in a ledger book. When a business transaction involving credit took place, an entry was recorded directly to the related debtor or creditor's account. Some early American merchants, with large numbers of business transactions, would first record a business transaction in a day book (journal) before recording it in a ledger book. The use of a day book provided an accounting record where business transactions were recorded in chronological order of occurrence. The Pleasant Hill Shakers did use a day book for most of the period 1830-1850. An example of the Pleasant Hill day book for the period October 11-13, 1847 is shown in Figure 1.

A review of the entries in the Pleasant Hill day book indicates the Shakers used standard bookkeeping practices of the period. References are made in the day book to debits (Dr.) and credits (Cr.). All debit entries in the day book are prefaced by the word "to" which indicates why the account was charged. All credit entries are prefaced by the word "by" which indicates how the account was settled.

The numbers to the immediate right of the dates in Figure 1 indicate that the Pleasant Hill Shakers used a numerical indexing system in their accounting ledger book. A review of the indexing system indicates that accounts of debtors and creditors were entered into the ledger book and numbered in chronological order of the first transaction. No attempt was made to alphabetize the listing of accounts. Also, accounts of debtors (accounts receivable) and creditors (accounts payable) were not categorized into two separate groups since, as with many early American merchants, continual exchange of goods between various parties could have
Figure 1. — Pleasant Hill Day Book (Journal) for October 11-13, 1847

Pleasant Hill Oct 1847

R. Evans Ex.

Oct 11
By repairing saddle for Levi 3.00
207 1/2 new wagon saddles 22.00 23.00
209 10 13/4 lb ball 2.91 2.91

Thomas Curtis Dr.

11 108 to 1 pair of shoes for wife 1 50

Joseph Fiehlin Dr.

11 183 to cash by Abram 1 00

V' Monday Dr.

207 to cash in full on settlement in May 23 41

Joseph Fiehlin Dr.

12 183 to cash by Purvis 20 00

North Lot Dr.

13 175 to work on saw by Zerahiah 37

Richard Evans Ex.

209 pay note assigned by me to A. M. Williams 5 50
resulted in a debtor one day becoming a creditor the next day and vice versa.

The last entry recorded in Figure 1, a note for $5.50 assigned by M. Crow on M. Willam and given to the Shakers by Richard Evans, is an example of how notes payable were used by early American merchants to expand the limits of trade. A creditor might receive a note receivable in settlement of an account receivable. The creditor would then give the note to someone else in exchange for goods. It was common in the 1800's for a note to circulate between many parties and take on the characteristics of paper money. The value of a note and its negotiability depended on the credit worthiness of its maker.

**Annual Accounting**

Many early American accounting records were not closed and balanced on a regular yearly basis. Accounting records did not have to be kept for income tax purposes; therefore, yearly balancing was not a crucial element in an accounting system. Also, many businesses were owned and operated by one person and did not have to prepare periodic reports for outsiders. For an organization like Pleasant Hill, however, where the village trustees had a fiduciary responsibility to village members, annual closing and balancing of accounting records assumed a more important position. Pleasant Hill accounting records still in existence for the period 1830-1850 were closed and balanced on an annual basis with a March 31 year-ending date. As shown in Figure 2, the Pleasant Hill Shakers sold $17,966.76 of goods and services for the year ending March 31, 1841 and bought $14,968.32 of goods and services for a net increase in assets during the year of $2,998.44. A review of Figure 2 indicates that the Shakers not only kept track of cash receipts and cash disbursements for the year but also adjusted for changes in accounts receivable and accounts payable balances at the end of the year in order to get a more accurate picture of the net change in their assets for the year.

**Income and Expense Accounting**

Revenue and expense accounts are not commonly found in early American accounting records. Lack of a need to keep accounting records for income tax purposes and no need to prepare periodic reports for parties outside the business are cited again as the main reasons for the lack of income and expense accounting among early American businessmen.
Figure 2. — Annual Accounting at Pleasant Hill for the Year Ending March 31, 1841

Pleasant Hill (March 1841) received and paid out:

- Amount bought up: $12,076 82 11/2
- Red for seeds across the river: $269.16
- On old & new notes due: $3,298.75
- On 3 letters notes: $58.50 35 62 53

Paid for advertising garden seeds: 5.00
- for seed paper: 6.00

Sold in Settled acres in Ledger: $5,000.84
- in unsettled acres in Ledger: $19,761 32 27 41
- Bought in Settled acres in Ledger: $17,906.62

1841 — in unsettled acres in Ledger: $12,020.09

April 4: Amount of Bought & Sold during the past year: $17,867 74 149693.2

Photo by Larry Kreiser

Shakertown View...
The Pleasant Hill Shakers did not keep separate revenue and expense accounts in their accounting ledgers. They did, however, make yearly analyses which attempted in a rough way to correlate yearly expenses with revenues for the ventures they entered into each year. Figure 3 shows selected income and expense analyses for the year ended March 31, 1841. During the year, the Shakers made $124.26\frac{3}{4}$ on leather transactions, $1,074.07\frac{3}{4}$ from the sale of linseed oil, $2,177.18$ from the sale of hogs, $1,570.50$ from the sale of cattle, $379.00$ on horse transactions, and $2,468.55$ from the sale of garden seeds. Revenues from the sale of leather, cattle, horses, and garden seeds were consistently good throughout the period 1830-1850. Revenues from the manufacture and sale of linseed oil were extremely good during the late 1830's when linseed oil sold for $1.00$ to $1.25$ a gallon. During the 1840's linseed oil sales steadily declined until in 1850 the linseed oil mill was closed [Ham, 1955, pp. 197-198]. Income from the sale of hogs was consistently good during the period until 1848 when a prohibition against the use of hog meat was made mandatory in all Shaker communities. This prohibition eliminated one of the best sources of revenues for the Pleasant Hill Shakers [Ham, p. 189].

Figure 4 shows some additional income and expense analyses for the year ended March 31, 1842. Among the analyses shown, the Shakers made a net income of $115.10\frac{1}{2}$ on grass seed transactions, made $26.78$ on salt transactions, and paid out $2,162.50$ for 720\frac{5}{8} roods of stone fencing at $3.00$ per rood. A rood is a unit of length varying locally from five and one-half to eight yards. Over twenty miles of stone fencing was constructed around Pleasant Hill over a twenty-five year period from 1826 to 1852 [Ham, p. 136]. Figure 5 shows some of the stone fencing which still surrounds Shakertown at Pleasant Hill.

**Physical Inventories**

During the period 1830-1850, the Pleasant Hill Shakers were innovators in the use of scientific farming and in the propagation of sheep, cattle, and hogs. They introduced purebred shorthorn cattle into Central Kentucky and were frequently asked to judge at fine cattle shows. At various times they took physical inventories of their livestock and recorded the physical counts in their accounting records. As shown in Figure 6, over 4,000 animals and poultry were included in the physical inventory at June 1, 1841.
Figure 3. — Selected Income and Expense Analyses for the Year
Ended March 31, 1841

Sold Leather during the past year 767.27
Paid for hides 377.67
  for Fish Oil 25.00
  for Bark 118.11
  hides for tanning 132.00
Received from West Lot 879 128.21 643.99
  125 26

Received for Oil during the past year 1944.75
Paid for Salt 64.75
  for Oil Barrels 45.00
  for haling & expenses 160.18 870.66 1074.01

Received from the proceeds of the hogs 2376.95
Bought 1500 lbs. of some pigs 80.00
Expenses in selling pigs 119.75 199.75 2177.18

Received on Sale of cattle in past year 2189.00
Paid Expenses on cattle 587.50 1570.50

Sold Horses the past year amounting to 471.00
Bought Horses amounting to 28.10 379.00

Gardens, fields sold in Kentucky 282.45
  sold down the river 2672.16
  2955.57
Expenses sold in Kentucky 14.68
  on down the river 442.56 507.04 2465.65

https://egrove.olemiss.edu/aah_journal/vol13/iss2/16
Figure 4. — Additional Income and Expense Analyses for the Year Ended March 31, 1842

Paid for corn during the past year 505.56
Sold corn 38.00
467.56

Paid for work the past year 967.87
...for Demeeting 139.37
... 1157.24

Received for grass seeds 168.37
Paid for gathering blue grass seed 55.87
115.02

Paid 50 $ Hay for women since 88.00
...A. Ballard for 1st day 18.95
...R. P. Keese for 2nd day 34.00
... 301.95

Paid Mr. Bully for 244 acres stone fence
. Mr. Keese 218 Do. Do
. Mr. Bromley 60 151 1/2 Do. Do
. G. S. Hay for 133 1/2 Do. Do 2162.50

Paid for extra work 77.00
2239.50

Paid for 5 1/2 Barrels Salt 165.72
Paid for hauling 770 Acres 192.50 86.75
Figure 5. — Stone Fencing Surrounding Shakertown at Pleasant Hill

Photo by Larry Kreiser

If you improve in one talent, God will give you more.

Shaker Saying.
Figure 6. — Physical Inventory of Animals and Poultry — June 1, 1841

The Number of Domestic Animals & Poultry in the Church Order on June 1st 1841

- Horses: 46
- Harnessed cattle: 160
- Hogs & Pigs: 464
- Sheep & Lambs: 624
- Turkeys: old young: 164
- Poultry: old young: 2,550

Photo by Larry Kreiser

Shakertown Path.
**Fixed Asset Accounting**

Most early American accounting records consisted mainly of accounts receivable and accounts payable. Accounting records detailing the cost of other assets such as inventory and fixed assets were not common. The Pleasant Hill Shaker accounting records for the period 1830-1850 did not have continuing accounts related to inventory and fixed assets. The accounting records did, however, accumulate costs relating to these areas when the expenditures were made. Figure 7 is an example of how the Shakers accumulated the costs of a new office building which was started in 1839 and completed in 1841. Expenditures on the office building during the year ended March 31, 1840 amounted to $1,551.44. An additional $2,086.13 was spent in the year ending March 31, 1841 to complete the building. A picture of the office building as it exists today is shown in Figure 8. The office building is similar in construction to the other Pleasant Hill buildings.

**Management Accounting Notes**

The Pleasant Hill Shakers acquired a good reputation for the production of quality products and for attention to detail. These attributes carried over to the Pleasant Hill accounting records during the period 1830-1850. On a number of occasions, analyses are included in the accounting records which are concerned with improving the efficiency of business operations. Some of these management accounting notes are included in Figure 9. In the first note, an analysis is made to determine the capacity of the trough in the center stable in terms of animal feed and the milk production coming from the cows feeding at the trough. In note two, the measurements of the Pleasant Hill garden are given. In note three, an analysis is made of business transactions in salt for a two-year period ending December 5, 1843.

**Analysis of Tanyard Profits**

Figure 10 includes an analysis of tanyard profits for the period 1845-1847. The analysis explains why profits in 1847 were so much higher than in 1846. The reasons given for the higher profits in 1847 were that the expenses in 1847 were less than in 1846 and that some of the 1846 expenses benefited 1847.

**Garden Seed Consignment Records**

The Pleasant Hill Shakers conducted a thriving trade in garden seeds during the 1830-1850 period. Sales were made in Kentucky,
Figure 7. — Expenditures on New Office Building Completed in 1841

Expenditures Made During the Year Ended March 31, 1840:

Paid for stone work on new office house 292.56.

- for remodeling brick 32.03.
- for laying brick 263.12.
- for shingles, etc. 3.17.
- for white washing 24.00.
- for saw logs 15.00.
- for boards from Richman 3.37.
- for nails,  hemp, whitewash 72.23.

Total: 1551.44.

Expenditures Made During the Year Ended March 31, 1841:

Paid the whole of carpenter work on new office 1085.08.

- for painting 60.25.
- for plastering 446.18.
- for laths 104.00.
- for hair 14.00.
- for sand 12.00.

- for saw logs 81.00.
- for planks 110.70.
- for shingles 15.00.
- for nails 45.00.
- for locks 25.00.

For unknown items: 276.70.

Total: 2086.13.

The amount paid last year was 1551.44.
The whole amount paid for on the new office is 3637.57.

Published by eGrove, 1986
Figure 8. — Pleasant Hill Shaker Office Building Built at a Cost of $3,637.57¾

Photo by Larry Kreiser

Shaker Saying. . . . . .

Clean your room well, for good spirits will not live where there is dirt.
There is no dirt in heaven.
Figure 9. — Management Accounting Notes Included in Shaker Accounting Ledgers

The trough in the Centre Stable
is 10 feet 5 inches long, 2 feet 10 1/2 inches wide
and 2 feet 3 1/2 inches deep — 14 feet 9 1/2 in. capacity
This trough filled three times a day — 29 feet 6 inches cubed
Of the 29 feet 6 inches of bushels are corn meal and the remainder
is cut oats straw.
The 29 feet 6 inches feed 12 milk cows, 8 dry ones and several calves.
The 12 milk cows yields 26 1/2 measured gallons of milk daily.

January 1840:
796 d.
9677 d.
10.0.0
10.0.0

weekly
monthly
yearly

Measurement & Contents of the Garden 1846

Opposite the House Length 58 feet breadth 19 rods = 16 2/5 a.
Beyond the Medical Garden Length 20 feet breadth 18 rods. = 2:0:16
Centre House Garden Length 66 1/2 feet breadth 23 1/2 rods = 5:1:5
Medical Gardens by John Stains Length 28 by 11 = 1:3:28
= 16:8:11

Decr. 21, 1845 From Jan 27th, 1841 till this date there have been 2455 Barrels of salt hauled up from the river 1409
of these have been hauled away on orders & 1046 barrels have been sold here amounting to $3239.76 average $3.09 per barrel.
Figure 10. — Analysis of Tanyard Profits for the period 1845-1847

Amount of profits of tanyard for three years as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Profits</th>
<th>Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>1847</td>
<td>1306.83</td>
<td>6</td>
</tr>
<tr>
<td>1846</td>
<td>900.68</td>
<td>6</td>
</tr>
<tr>
<td>1845</td>
<td>1089.27</td>
<td>6</td>
</tr>
</tbody>
</table>

The average amount is 1065.46.

Note: The reason the profits this season are so much greater than the last is the best sheep were left accordingly, that the benefits of last year did in some measure result in this. Aug. 6. John T. Scott.
surrounding states, and in the South. A paper (pack) of seeds generally sold for three to five cents. Seed papers were left on consignment at various business locations to be sold by the local merchant. The Shakers would come back at a later date and collect receipts for the seeds sold and pick up the unsold papers. The Pleasant Hill Shakers kept track of garden seed papers out on consignment in their accounting records. Periodically, the garden seed consignment records would be adjusted for sales, returns, and new deliveries. Figure 11 shows an adjustment of the consignment records for garden seed papers sold during 1848.

Concluding Comments

An analysis of the Shakertown at Pleasant Hill accounting records for the period 1830-1850 indicates the records were very useful to the Shakers in managing the business affairs of the Community. The accounting records during this period were prepared with care and attention to detail which characterized the Pleasant Hill Shakers in their other pursuits.

This brief review of the Pleasant Hill accounting records was intended to provide some insight into the business customs and practices of the Pleasant Hill Shakers during the period 1830-1850 as reflected in their accounting records. The Shakers were very successful in business during this period. Their accounting records reflect this success.

Do your work as though you had a thousand years to live, and as if you were to die tomorrow.

Shaker Saying. . . . . . .
Figure 11. — Pleasant Hill Garden Seed Consignment Records from the 1848 Ledger

Pleasant Hill Ky 1848

Receipts for garden seeds

<table>
<thead>
<tr>
<th>Name</th>
<th>Quantity</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>John Leach, St. Louis</td>
<td></td>
<td>2250</td>
</tr>
<tr>
<td>J.P. Britts</td>
<td></td>
<td>697</td>
</tr>
<tr>
<td>C. Comn. &amp; Gallagher</td>
<td></td>
<td>2850</td>
</tr>
<tr>
<td>C. Cowley, Tully</td>
<td></td>
<td>676</td>
</tr>
<tr>
<td>H. D. Washmead</td>
<td></td>
<td>555</td>
</tr>
<tr>
<td>John Stetson</td>
<td></td>
<td>355</td>
</tr>
<tr>
<td>J. A. Baugh &amp; Co</td>
<td></td>
<td>400</td>
</tr>
<tr>
<td>C. Brown</td>
<td></td>
<td>555</td>
</tr>
<tr>
<td>J. B. Hoffman</td>
<td></td>
<td>400</td>
</tr>
<tr>
<td>Actual J. Kyne</td>
<td></td>
<td>913</td>
</tr>
<tr>
<td>M. J. Darby</td>
<td></td>
<td>1441</td>
</tr>
<tr>
<td>W. A. Halton</td>
<td></td>
<td>926</td>
</tr>
<tr>
<td>W. Daniel</td>
<td></td>
<td>2205</td>
</tr>
<tr>
<td>200 &amp; 250</td>
<td></td>
<td>1541</td>
</tr>
</tbody>
</table>

REFERENCE

THE NORTHERN STEAMSHIP COMPANY:
THE DEPRECIATION PROBLEM IN THE
NINETEENTH CENTURY

Abstract: In 1889 a New Zealand company had to write down its paid-up capital by 27 percent, because, the Chairman stated, previous management had failed to allow for depreciation as an expense. An investigation was conducted to see if this capital reduction could have been avoided had the company followed modern depreciation policy. This revealed that the failure to depreciate adequately was not the main cause of the capital reduction, other firms followed the same practice and contemporary English legislation did not permit depreciation as a tax deductible item, while United States courts were rejecting depreciation as a valid expense.

One of the oldest firms in New Zealand is the Northern Steamship Company Ltd., (Northern) formed in 1881. The company, which is still operating, reported net profits for seven of its first eight years. Then, in 1889, to the shock of its shareholders, the chairman announced the retiring managing director had failed to adequately depreciate the company's ships so that they now appeared in the books at an unrealistically high figure, causing a misleading valuation of the assets. Consequently, it would be necessary to write down the company's nominal capital by 27 per cent.

We became interested in seeing whether this unexpected need to reduce the capital by such a large amount could have been avoided had the company depreciated its ships in, what is today, the conventional manner. An investigation of the company's accounts from 1881 to 1889 reveals that depreciation had not even been reported as an expense. The directors, in the first eight years, did not deduct any depreciation from net profits, but instead small amounts were debited to retained earnings and credited to depreciation reserve, which was treated as part of shareholders' funds. The
allocation for depreciation in most years was £1,000, on a fleet of ships costing, on average, £90,000 each, in one year this was increased to £3,000. The Northern directors' concept of depreciation appears to have been as a reserve to which they allocated what the net profit of the year would bear; the amount certainly bore no relationship to the expected lives of the ships or their replacement costs. At the Annual Meeting in 1882 [New Zealand Herald, 1882, p. 6] the Chairman asked the shareholders to approve the allocation of £1,000, just over 2 per cent of the value of the fixed assets, towards depreciation, making it quite clear that the directors did not regard depreciation as a cost, but a discretionary allocation of distributable profits, needing the sanction of the shareholders. At the 1888 Annual Meeting Northern was still following this policy, the Chairman saying "In the matter of depreciation your directors would like to have been able to write off a larger amount [than £1,000] but as the fleet has been maintained in good working order and condition this is a matter that must stand over until the return of better times." [New Zealand Herald, 1888, p. 3] In his 1889 address, he referred to the necessity of writing down the value of the ships to current value, indicating his belief that the balance sheet should approximate net worth. It was logical, therefore, if the ships were not declining in value that there was no need to depreciate them.

The Northern accounts not only failed to include depreciation as an expense, but they also omitted bad debts and insurance. All three items were debited to retained earnings, with corresponding credits to reserves, which were incorporated in shareholders' funds. The company used self-insurance, but the amounts allocated were quite inadequate; even worse, some repairs were debited to the insurance reserve, another instance of management allocating what the year's profit could "afford." Dividends were paid on the Northern shares during the first three years of its life; as the capital had to be written down a few years later there is the possibility some of these dividends were distributed from capital.

Had the Northern accounts been prepared in accordance with modern conventions, with depreciation expense calculated at 7 per cent of cost price (as recommended by some nineteenth century experts) would the amended results have disclosed the imprudence of distributing dividends during the first three years? How could company executives, as late as 1881, have been so unaware of the necessity to charge depreciation to operating income for the decline in value of the company's fixed assets?
Northern's Accounts

For the first five years, the company's auditor was an accountant, described by the Chairman as having been a member of the Edinburgh Stock Exchange for a considerable period.

When the profit and loss accounts are redrafted in a modern format the differences revealed are (See Appendix I for details):

<table>
<thead>
<tr>
<th>Year</th>
<th>Net Profit Reported in Northern Accounts</th>
<th>Restated Net Profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1882</td>
<td>8550</td>
<td>3000</td>
</tr>
<tr>
<td>1883</td>
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<td>42</td>
</tr>
<tr>
<td>1885</td>
<td>905 (loss)</td>
<td>11032 (loss)</td>
</tr>
<tr>
<td>1886</td>
<td>2755</td>
<td>5624 (loss)</td>
</tr>
<tr>
<td>1887</td>
<td>4522</td>
<td>7357 (loss)</td>
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</tr>
<tr>
<td>1889</td>
<td>5417</td>
<td>3430 (loss)</td>
</tr>
</tbody>
</table>

The first three years' cumulative amended profits were £6,338 whereas the dividends paid during that time totaled £13,143 which means that half the dividends were distributed from capital. The restated accounts would have served as a warning that net profit did not justify ten per cent dividends, but there was no legal requirement in 1882 to provide for depreciation, let alone an adequate amount, before paying a dividend.

Had the accounts included all expenses they would have clearly disclosed that the company had been operating at a loss for five of the eight years. The writing down of the nominal capital by 27 per cent is another question. Between 1882 and 1889 the Northern directors provided £12,000 for depreciation, whereas a calculation at the apparently then conventional rate of 7 per cent on cost totals £36,391, a difference of £24,391 (Appendix 2). But capital was reduced in 1889 by £30,000, so that inadequate depreciation is not the only explanation. Faulty depreciation policy was not the sole reason for the balance sheet value of the assets being unduly high. There were additional factors, such as the depression in the shipping industry, with the consequent surplus of idle ships. New competitors on Northern routes meant the older ships were taken out of service but could not be sold, and the advent of steel ships dramatically reduced the worth of Northern's wooden vessels, The Northern directors' failure to envisage the matching concept was,
therefore, not the full reason for the required capital write down in 1889.

The second question is much more difficult to answer. It may be asked why a company formed as late as 1881 did not provide for depreciation as an expense. Surely it was by then recognized that no profit could be reported before the decline in value of the fixed assets had been allowed for; was it not regarded then as imprudent to distribute a dividend without first making provision for depreciation be included as an expense? Audit text books certainly taught auditors to ensure that a proper amount was written off for depreciation, and it would appear the Northern Steam directors were negligent in their stewardship. However, there were many companies which did not provide for depreciation at that time, and if the Northern Steamship directors had sought guidance from legal decisions they would not have obtained clear directions, because the English Courts did not establish well defined principles for the treatment of depreciation until after the Northern reconstruction. It was during the ten years between the founding of Northern in 1881 and its reconstruction in 1890 that the English Courts changed their definition of capital from a legal to an economic concept, and even amongst those advocating the desirability of providing for depreciation there was no general agreement as to what purpose it served.

There is no doubt that by 1881 many firms, including shipping companies, provided for depreciation of their assets. An English case, Davison v. Gillies, [1879] clearly expressed the Court's opinion that provision for depreciation was desirable, particularly mentioning the case of ships. Jessel, M.R. stated:

Supposing a warehouse-keeper, having a new warehouse, should find at the end of the year that he had no occasion to expend money in repairs, but thought that, by reason of the usual wear and tear of the warehouse, it was a thousand pounds worse than it was at the beginning of the year, he would set aside £1,000 for a repair or renewal or depreciation fund before he estimated any profits; because, although that sum is not required to be paid in that year, still it is the sum of money which is lost, so to say, out of capital, and which must be replaced. . . . Shipowners, I believe, generally reckon so much a year for depreciation of a ship as it gets older. Experience tells them how much they ought to set aside; and whether the ship is repaired in one year or another makes no difference in
estimating the profits, because they know a certain sum must be set aside each year to meet the extra repairs of the ship as it becomes older. . . . That being so, it appears to me that you can have no net profits unless this sum has been set aside.

Accounting and Auditing Views

One accountant, J.D.S. Bogle [1889, p. 693], in a prize winning essay on depreciation, also used shipowners' practice to illustrate the way in which depreciation should be calculated, stating, "As a rule it may be taken that the life of a steamer averages about 20 years, and frequently the rate of depreciation is fixed by the articles of association, or in general meeting. Sometimes 6 and 7 per cent is allowed for, which in most cases may be considered a fair rate." It appears that by 1880 the practice of depreciating ships was also well established in Australia and a recent survey of nineteenth century Australian companies by R.D. Morris [1984, p. 74] found that "All shipping companies sampled [four in 1880] charged depreciation on their ships either as an expense or as a profit appropriation."

New Zealand companies in the nineteenth century presented accounts in accordance with their articles of association, but after 1860 those companies without articles were required to comply with Table B of The New Zealand Joint Stock Companies Act [1860], copied from the English 1856 Act. This included a set of model articles incorporating a model Balance Sheet that set out the assets as follows:

Immovable Property, distinguishing
(a) Freehold Land
(b) Ditto Buildings
(c) Leasehold ditto

Movable Property, distinguishing
(d) Stock-in-Trade
(e) Plant

The cost to be stated with deductions for deterioration in value as charged to the Reserve Fund or Profit and Loss.

It is quite clear that the legal draftsman envisaged depreciation would be provided in the normal course of events, and what is more that the amount designated as depreciation was also to be deducted from the cost of the fixed assets in the balance sheet.
This the Northern board failed to do, crediting instead the small depreciation amount to shareholders' funds. What is of interest is, that in both the English and the New Zealand Acts, the company chosen as an illustration for the model memorandum of association was a shipping company. Table A of The New Zealand Companies Act [1882] included the same model balance sheet, and the illustrative company was again the "Wellington Steam Navigation Company Limited." The Directors should have been familiar with the Companies Act, and the use of a shipping company should have influenced the Northern board to deduct depreciation from assets in their financial statements.

As regards the auditing texts, Pixley [1881, p. 118] a leading authority at the time of the formation of Northern, expressly stated:

The Auditor should also require a proper amount written off for depreciation of plant, machinery, &c. This is usually a percentage on the cost, and small or large according as it has to be seldom or frequently replaced, the object being to charge the Revenue Account of the period with a proper sum for the usage of the plant, and for the balance to represent its present value.

Another English accountant, J.W. Best [1885, p. 8] had no doubt that depreciation on ships was a necessary expense before profit could be calculated, certainly not a token allocation from retained earnings:

[If a shipowning company] begins the year with ten ships, value say £100,000, and ends the year with the same ten ships, and the result of the trading, after allowing for depreciation of the ships, is a loss of £100 [this] would be what is here called a loss on revenue account.

Nevertheless, there was, in 1881, no unanimity as to the desirability of providing for depreciation, and less agreement as to its treatment in financial statements, nor even amongst advocates of depreciation was there any general agreement as to what was to be achieved thereby. H. Pollins [1956, p. 343] wrote that railway companies' experience was that some saw depreciation as representing a fall in value (which meant depreciation was not required if the asset had increased in value); some perceived it as an allowance for replacement; while others meant no more than current repairs and maintenance. R.P. Brief [1976, p. 66] mentions that others reasoned depreciation did not involve a cash outlay and was
therefore avoidable in periods of low profits or at the discretion of the manager. The Northern directors from 1881 to 1889 were thus not unique. Brief also provides an example of an English shipping company, operating at the same time as the Northern, which provided for depreciation at irregular intervals. The National Steamship Company of Liverpool in 1886 belatedly allocated £650,000 for past depreciation.

Ewing Matheson, [1893, p. 44], a nineteenth century authority on depreciation, agreed that in certain circumstances depreciation could be a discretionary allocation of profits rather than a necessary annual expense, saying:

There are cases where it is very difficult to apply exact rates of depreciation, and yet where the uncertainty which causes the difficulty increases the need for writing off. . . . Therefore while in average or normal years of working a moderate rate of depreciation may suffice for mere physical deterioration, advantage should be taken of prosperous years to write down liberally the book value of the plant.

Matheson was referring specifically to iron, steel and chemical works.

Another confusion remarked by E.H. Turner [1894, p. 549], much later than the formation of Northern, was in the calculation of the actual amount to be provided as depreciation.

A manufacturer in the good old days . . . . looked upon bookkeeping, in anything approaching a scientific manner, as a waste of time. . . . Consequently, in providing for depreciation, the course of reasoning would be something like this: “This machine will last for 20 years if it is well looked after, therefore I must depreciate at 5 per cent.” He did so at the end of the first year, and correctly so, but at the end of the second year he overlooked the fact that the depreciation should have been not only at the same rate but also should have been the same in amount, and took it on the reduced capital value. . . . And so the error was perpetuated, and is still being perpetuated to-day in the majority of cases.

**Evaluation of Northern’s Accounting**

Inadequate depreciation by the Northern board therefore seems to have been the result of a general lack of understanding of what
we would call the matching concept and not a particular management's incompetence. The Northern directors could, with hindsight, be blamed for naivety in failing to depreciate their ships adequately, but some shipowners made no allowance for depreciation at all, as illustrated by another English accountant, J.M. Wade [1866, p. 693]. He pointed out that shipowners were an exceptional case.

There is another class of investments, which consist of shares in Limited Companies, formed for the purpose of owning ships or mines,... Some of these companies make due provision for depreciation themselves, and the dividends they declare may be treated as Income. Others make no such provision. This is especially the case in single ship companies, whose capital consists of the ship solely, and all the earnings are divided. Here the recipient of the dividend has got to make his own provision for depreciation out of the dividend he receives, and this should receive his full consideration.

Wade drew attention to the difficulty of a trustee in making his own provision for depreciation where he had to apportion the dividend between tenants and remaindermen. His solution was, [Wade, 1886, p. 694] "I don't know that any rules have yet been laid down as to dealing with ship's dividends, and I can only say that trustees should be very shy of holding such investments, and be carefully advised as to what portions of the dividends they treat as Income." Northern was formed when a syndicate which had been operating as nine single ship companies merged. Even after the founding of Northern, a separate ledger was kept for each ship, so the convention that shareholders, on receipt of a dividend, made their own allowance for depreciation was probably still a factor in the Northern directors' thinking during the company's earlier years.

A further circumstance which would have confused the issue was that at the time of Northern's formation the English Courts had not yet clearly formulated their policy regarding depreciation. In an 1879 case, Davison v. Gillies [1879], the Master of the Rolls granted an injunction preventing London Tramway Company directors from paying an ordinary dividend without first restoring the tramway to an efficient condition. One year later, the same judge ruled in Dent v. London Tramway Company [1880] that the identical company did not have to make good the failure to provide for depreciation in previous years before paying a preference dividend. These ap-
Tabb and Frankham: The Northern Steamship Company

parently contradictory decisions were later described by Cotton, L.J. in Lee v. Neuchatel Asphalte Company, [1889] as "entirely consistent with one another, and entirely depend on the directions contained in the articles of association, not on the general law." However, another judge in the same case was of the contrary opinion saying, "I feel there is a little difficulty in reconciling the two." If the legal attitude was uncertain it is not to be wondered that in the early 1880s Northern's management did not perceive a clear need to provide for depreciation as an expense. The London Tramway Company's Article 107 did require that "No dividend shall be declared except out of the profits of the company" [Davison v. Gillies] and the 104th Article stated "The directors shall, before recommending any dividend, set aside out of the profits of the company, but subject to the sanction of the company in general meeting, such sum as they think proper as a reserve fund for maintenance, repairs, depreciation and renewals." One judge in the Lee v. Neuchatel [1889] case, stated "There is nothing at all in the Acts about how dividends are to be paid, nor how profits are to be reckoned; all that is left, and very judiciously and properly left, to the commercial world. It is not a subject for an Act of Parliament to say how accounts are to be kept; what is to be put into a capital account, what into an income account, is left to men of business." Northern did have its own articles, so that it was not bound by the requirements of Table B of The Companies Act, and the Northern articles made no mention of depreciation. It would appear, therefore, that Northern's directors were, as the English Courts at the time saw it, lawfully exercising their discretion to determine annual profits.

The Tax Aspects

The nineteenth century English treatment of depreciation for tax purposes would not have persuaded the Northern board to regard depreciation as an expense. The English Income Tax Act [1842] imposed income tax upon the annual profits or gains arising from any trade, employment or vocation, providing in section 100 that:

In estimating the balance of profits and gains . . . no sum shall be set against or deducted from . . . such profits or gains, on account of any sum expended for repairs of premises occupied for the purpose of such trade, manufacture, adventure, or concern, nor for any sum expended
for the supply or repairs or alterations of any implements, utensils, or articles employed . . . beyond the sum usually expended for such purposes according to an average of three years preceding the year in which such assessment shall be made.

Following this clause the Court, in Forder v. Andrew Handyside and Company [1876], disallowed an appeal that depreciation be accepted as a tax deductible expense, even though the company's articles empowered the directors "from time to time, before recommending any dividend, to set aside out of the net profits of the Company such sum as they think proper . . . for the purpose . . . of restoring, reinstating or maintaining the works, plant and other premises or property of the company . . ." The majority of the local tax commissioners were of the opinion that persons in trade were equitably entitled to write off from their profits a sum for depreciation and that the amount claimed was fair and reasonable, and so decided in favour of the company. However, the Surveyor of Taxes appealed this decision and the Court, while agreeing "the sum of £1,509 is a sum which a prudent man would put by for the purpose of meeting what may be called the expenses of renewal" nevertheless decided "the net profits are not really less by reason of this deduction. The deduction is made 'for the purpose of meeting contingencies, or of purchasing, improving, enlarging, rebuilding, restoring, reinstating or maintaining the . . . property of the company'."

In New Zealand there was no income tax until the Land and Income Assessment Act [1891] but the English 1842 Act plus the 1876 interpretation of that would not have influenced the Northern directors to alter their depreciation policy.

**U. S. Precedents**

United States Court decisions of the time supported the Northern directors' attitude. Whereas the English Courts regarded depreciation as an optional expense, the amount and indeed its incidence depending on the individual company's articles and the discretion of the directors, the American Courts until 1893 seem to have positively rejected depreciation as a valid reduction of net income because it did not involve the expenditure of cash. The Supreme Court case Eyster v. Centennial Board of Finance [1877] spelt this out. "Popularly speaking, the net receipts of a business are its profits," when disallowing a claim for depreciation as an expense because "The public, when referring to the profits of the business of a merchant, rarely ever takes into account the depreciation of
the buildings in which the business is carried on, notwithstanding they may have been erected out of the capital invested." H. R. Hatfield [1909, p. 125] in his *Modern Accounting*, disapprovingly mentioned six other American cases where the Courts refused to recognize depreciation as an acceptable deduction from net income, labelling it "not a proper charge" which "cannot be tolerated for a moment". These decisions can be explained to some extent by the American Courts' belief that depreciation was an allocation of distributable profit and not an operating cost, and also by the special circumstances of some cases, where the inclusion of depreciation as an expense appeared to be an attempt to improperly depress reported net profits to the detriment of another party. One of the "less satisfactory" cases listed by Hatfield, that of Tutt v. Land [1873] illustrates this "depreciation is an allocation" theory. Here, one partner provided the capital and the other "time, labor and skill". The articles of copartnership included the requirement that "Profits shall only be reckoned after deducting all expenses of the business . . . ." The partner supplying capital charged depreciation on store fixtures and stock as expenses when calculating profits, but a Court-appointed auditor disallowed the depreciation, a decision supported by a jury and later upheld by the Supreme Court of Georgia. The Court held that depreciation was something for which the owner should have provided from his share of the profits, not deducted as an expense of the business, expressing the view that an allowance for depreciation would be a factor in the owner's share of the profits being 75 per cent, saying:

> We do not think that under this contract the partner who furnishes the stock, can, at the dissolution, claim for the ordinary, natural decrease in the value of the goods. That is a risk or incident which attaches to his property, and is [doubtless] an item considered and passed upon by the party who invests his capital in that form, when he enters into such a contract.

Another U.S. Supreme Court case exemplifying the allocation theory was United States v. Kansas Pacific Railway Company [1878]. The Kansas railway had received a Federal Government subsidy of $16,000 per mile for construction of a line from the mouth of the Kansas River to connect with the Union Pacific. In exchange the company agreed to pay the Government five per cent of the net earnings from the line. The Government disputed the company's deduction of depreciation in the calculation of net earnings. The
Government's claim was upheld by the Court, which stated "Depreciation . . . is explained to be the amount necessary to put the road in proper repair, but which was not actually expended for that purpose. We are clearly of the opinion that it is not a proper charge. Only such expenditures as are actually made can with any propriety be claimed as a deduction from earnings." Ten years later a Michigan Court also rejected depreciation as "not proper" in Macintosh v. Flint & Pere Marquette Railroad Company [1888] and not surprisingly, because the company's use of depreciation could be regarded as part of a scheme for the controlling group to unlawfully maintain their dominance. This company had been reorganized with two classes of stockholders, preferred seven per cent stock, with one vote per share, and common stock, not entitled to vote nor to a voice in the management until the new company had earned and paid, for five successive years, seven per cent annual dividends on the preferred stock. The company paid seven per cent to the preferred stockholders in some years, but not for five consecutive years, claiming that although there was sufficient cash to pay the full seven per cent dividend, it had not been "earned" every year. The plaintiffs contended that the accounts had been kept wholly in the interests of the preferred stockholders, expensing items which should have been capitalized so as to deprive the common stockholders of their voting rights. An example of this was the replacement of iron rails with steel rails, charging the difference between the cost of the new rails and the value of the old to operating expenses under "track repairs." Again, two steamers owned by the company were enlarged and made more efficient, the cost being charged to earnings, while the purchase of eight new freight engines and 200 coal cars was charged to operating expenses. The court regarded this bookkeeping as an unwarranted attempt by the preference class to maintain their control, and rejected the company's allowance for depreciation as part of the same unacceptable scheme, stating:

These [Depreciation] charges were not actually expended out of earnings, but were estimated and charged against operating expenses. This was not proper. No depreciation account was either kept or warranted by the charter as between the two classes of stockholders, and no expenditure having actually been made to meet such depreciation, the estimated amount thereof could not properly be deducted from earnings or net income.

Another decision Hatfield regarded as unsatisfactory was that of
San Diego Water Co. v. San Diego [1897], but the details of the case indicate that this decision seems to have been based on specific facts rather than a conscious policy to reject depreciation as a valid expense. Here, the water company appealed against the water rates imposed by the City of San Diego which were, it was claimed, insufficient to meet the water company's operating expenses. Included amongst these operating expenses was annual depreciation of the plant on account of natural decay and use amounting to three and one third per cent of its value. The Court dismissed the appeal, saying it "cannot be tolerated for a moment." But this is certainly understandable in the circumstances as a large proportion of the depreciated plant took the form of wells and land. As the Court validly pointed out, "there is no depreciation of these things; there is no wear and tear, no permanent and gradual destruction by use and age." However, the following year this decision was quoted as a precedent to determine that "... the water company is not entitled to be reimbursed from the income derived from rates for interest upon its indebtedness nor for depreciation of its plant, aside from the amount requisite for its maintenance and repairs during the year." [Redlands Water Co. v. Redlands (1898)].

Redefining Capital

A factor which may have confused the issue was one to which E. A. French [1977, pp. 306-331] has drawn attention; it was during the 1880s that the concept of capital was being reconsidered, particularly by the English Courts. The Companies Act [1862] did not specify the manner in which profits were to be calculated nor the requirements for payment of dividends, though article 73 of Table A stated "No Dividend shall be payable except out of the Profits arising from the Business of the Company." Therefore, in the absence of definite instructions in the legislation, the English Courts formulated their own standard to protect both creditors and shareholders, the concept of "capital maintenance." At the time Northern was formed these Court decisions were in the process of evolving the concept, hence the apparently contradictory decisions of Dent v. London Tramways and Davison v. Gillies, mentioned above. Originally, the notion of capital to be maintained was a legal one, that is the paid-up capital on the liabilities side of the balance sheet, but during the 1880s some of the Court of Appeal judges became concerned about possible undesirable effects of their capital maintenance doctrine. It seemed to them that a rigid interpretation could immobilize company resources and restrict management's ability
to reallocate them, with as one judge said in Lee v. Neuchatel Asphalte [1889] the potential to "paralyze the trade of the country." The English Court of Appeal found a solution in accepting submissions that an economic definition of capital should be used, consequently capital became the "aggregate of the assets" on the other side of the balance sheet. This change had the advantage of enabling a particular economic definition to be chosen, that which divided assets into fixed and circulating, a dichotomy introduced by Adam Smith [1776]. This dichotomy permitted the Courts, as in Verner v. General Commercial Trust [1894], to redefine their notion of capital maintenance, replacing the view that nominal capital had to be maintained before a dividend could be declared with the rule that no dividend could be distributed until the company had made good any loss in circulating capital. A logical consequence of the removal of fixed assets from the capital to be maintained was to clearly establish the rule that it was not necessary to provide for depreciation on fixed assets before distributing a dividend. In the case Re Kingston Cotton Mill (No. 2) [1896] it was held that a company could lawfully pay a dividend out of current profits without setting aside a sum sufficient to cover depreciation in the value of the fixed capital.

This redefinition of capital occurred despite the opposition of most accountants, and it was not unconnected with the noticeable absence of accounting theory in the Courts' deliberations, all the more remarkable because the omission was apparently a deliberate policy of the Courts. The judge in Glasier v. Rolls [1889] went so far as to say:

Accountants are useful to arrange figures and deduce and explain results, . . . But it is not within [their] province to tell the Court what the expression "capital employed" means, or what any other word means. . . . If there is a term of art or a usage . . . [even] concerning mercantile use of the English language . . . the only evidence admissible would be that of merchants, bankers, or others of that class, and the evidence of accountants would still be excluded.

This statement certainly explains why accountants had not participated in the legal deliberations defining the word capital, but the Court's opinion in the Glasier case is unexpected because here the plaintiff claimed there had been deceit and misrepresentation in the financial details of a company prospectus. The prospectus stated the company was making 17 per cent return on capital em-
ployed; if capital was defined as the economists' circulating capital, then the prospectus was correct, but if capital was the aggregate of assets it was certainly misleading. The evidence of accountants would have been most pertinent to this case.

Conclusion

The 1889 capital reduction was not the result of a faulty depreciation policy, but mainly of an economic recession. If the ships had been adequately depreciated during the first eight years, however, shareholders would have been better prepared for the crisis in 1889, because they would have known that the company had been making substantial losses for the past five years.

Ships were known to deteriorate, and had an expected life of no more than 20 years, so that the policy of only allocating depreciation when the operating profit could afford it seems wrong. But the Northern board were not alone in this practice, other shipping companies operated the same policy. Morris [1984, p. 74] mentions that although Australian shipping companies at the time were charging depreciation "the amount of depreciation was not always reported, only the fact that depreciation had been charged. This always appeared in the directors' report but not always in the profit and loss account." Hendriksen [1977, p.60] has pointed out "The inadequacy of depreciation in income statements is evident from the findings of the Federal Trade Commission in 1915-16, which showed that out of 60,000 successful corporations doing a business in excess of $100,000 a year, fully one half did not include depreciation at all." The Northern board did at least provide for some depreciation, although the amount proved insufficient. However, it was obviously hard in the 1880s to determine what would be an adequate amount. Even as late as 1892 the auditing authority, Dicksee [1892, p. 131] said, "Ships undeniably depreciate, although the rate at which they do so is so variable that no general rules can be given that would prove of any practical utility."
APPENDIX 1 RESTATED PROFIT AND LOSS

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<tr>
<th>Year</th>
<th>1882</th>
<th>1883</th>
<th>1884</th>
<th>1885</th>
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<td>Amended Net Profit</td>
<td>3000</td>
<td>3267</td>
<td>42</td>
<td>(11032)</td>
<td>(5623)</td>
<td>(3985)</td>
<td>(7357)</td>
<td>(3430)</td>
</tr>
</tbody>
</table>

APPENDIX 2 CALCULATION OF DEPRECIATION DEFICIENCY

<table>
<thead>
<tr>
<th>Year</th>
<th>Cost of Ships</th>
<th>Depreciation at 7 Per Cent</th>
<th>Depreciation Charged to Reserves</th>
<th>Deficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1882</td>
<td>50723</td>
<td>3550</td>
<td>1000</td>
<td>2550</td>
</tr>
<tr>
<td>1883</td>
<td>54235</td>
<td>3796</td>
<td>1000</td>
<td>2796</td>
</tr>
<tr>
<td>1884</td>
<td>74375</td>
<td>5206</td>
<td>3000</td>
<td>2206</td>
</tr>
<tr>
<td>1885</td>
<td>105303</td>
<td>7371</td>
<td>2000</td>
<td>5371</td>
</tr>
<tr>
<td>1886</td>
<td>105413</td>
<td>7378</td>
<td>1000</td>
<td>6378</td>
</tr>
<tr>
<td>1887</td>
<td>107249</td>
<td>7507</td>
<td>1000</td>
<td>6507</td>
</tr>
<tr>
<td>1888</td>
<td>101379</td>
<td>7096</td>
<td>1000</td>
<td>6096</td>
</tr>
<tr>
<td>1889</td>
<td>97820</td>
<td>6847</td>
<td>2000</td>
<td>4487</td>
</tr>
</tbody>
</table>

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THE INCEPTION AND EVOLUTION OF FINANCIAL REPORTING IN THE PROTESTANT EPISCOPAL CHURCH IN THE UNITED STATES OF AMERICA

Abstract: This research documents the emergence of accounting procedures and concepts in a centrally controlled not-for-profit organization during a period of change and consolidation. The evolution of accounting as prescribed by the General Canons is identified and its implementation throughout the church conferences is examined.

Introduction

Accounting has been called the language of business and finance. It is a universal language which is applicable to all cultures and historical periods. Basic cost accounting or financial procedures are applicable in Japan or America and have their chronological antecedents in the Near East and Western Europe. Institutions such as the Christian church, military groups, and even feudal governments contributed to the development of accounting procedures, auditing practices and new theories. Each of these institutions was also joined by the nascent capitalistic enterprises which began to emerge in the early modern era in places such as the Italian city states. These city states, with their commercial interests helped to stimulate the development of new free enterprise accounting practices.

Historically, the Western church has played a central role in the development of capitalism and accounting. During the Middle Ages the Roman Catholic Church provided literate people who maintained primitive sets of books during the feudal period. Pacioli, who is often credited with being the father of accounting, was a church trained scholar. His Summa includes a summary of double entry bookkeeping practices in the fifteenth century.
The historical development of accounting in the United States has grown from a variety of sources including European tradition since Pacioli, commercial practices in the United States, and various not-for-profit centers such as the churches and other charitable institutions. Since the “Church” has played such a critical role in American society, it seems appropriate to trace the historical development of financial reporting as it evolved in the new nation from 1780 to 1860. This eighty year period was critical for the development of the nation and was central to the adjustment of ecclesiastical institutions in an independent, free market society.

The Protestant Episcopal church, which was originally founded as part of the Anglican communion in the Seventeenth century, had come to play a vital role in American society. Although it was a hierarchial church in England, it was only nominally supervised by the Bishop of London during the colonial era from 1607 to 1776. Church governance was actually controlled by the vestry which consisted of wealthy Americans and was supported to various degrees by involuntary tax contributions which paid the salary of the 250 clergymen in 300 parishes from Maine to Georgia [Marty; Addison].

During the period 1780-1820 the Episcopal Church underwent both economic and constitutional changes. First, it ceased to be an established church which was supported by tax contributions: “even in the South the Church at once became chiefly dependent for support upon the voluntary contributions of its members. With varying degrees of success that system was gradually adopted in all the states...” [Addison, p. 57]. In addition to the change in the source of Church financing, the Episcopacy began to be consolidated through the appointment of bishops and the creation of new canons as well as other church law on topics ranging from financial reporting to demographics.

Efforts at consolidation of the Episcopacy continued from 1820 to 1860 as the Church underwent new challenges. Greater efforts were taken to heighten the power of the bishops over particular dioceses and to strengthen the general power of the Church. There were also increased financial demands to fund missionary work and to create seminaries for the training of Episcopal clergy. All of these demands, as well as societal problems such as heightened race relations, were increasing the need for reporting. The very structures of the church (e.g., the Episcopacy and three year general conferences) also demanded better financial reporting on both the local
and national church levels which influenced the growth of accounting within this part of the private sector.

The new canons enacted during this transition period reflect the consensus of the church on key issues. Consequently, it is appropriate to chronicle the development of financial reporting in the canons. The evolution of reporting throughout the Church may then be viewed with reference to the evolution of Church consensus on the matter.

Accounting Prescribed by the General Canons

The constitution and canons of the General Convention of the Protestant Episcopal Church in the United States of America form the code by which the Episcopal Church is governed. Canon 5 entitled, "Of the Mode of Securing an Accurate View of the State of this Church," provides the accounting methodology and processes to be used in the governance of the church. Exhibit 1 identifies key elements in its evolution.

The first legislation of the General Convention on the subject of Canon 5 was by the convention of 1804 [Canon 11, 1804]. The idea of an accurate view of the state of the church was formulated in this incipient canon and has persisted to the present. The "accurate view" was considered both highly useful and highly necessary.

The report process instituted by the 1804 convention is depicted in Exhibit 2. Each minister was to report on the state of his parish to the annual convention of the diocese. From the various diocese conventions, the reports went to the general convention where they were processed to become part of a "pastoral letter" from the House of Bishops for the general information of the church. Apparently, this incipient reporting process was designed to gather information of a general nature to be distributed to all participating members of the church. The process provided for the interpretation of the data by the House of Bishops before the information was generally distributed. The initial canon did not call specifically for either statistical or financial data. Neither did it offer advice on how to measure the "state" of the church.

Within a few years, the General Convention specifically designated certain measurements of the state of the church and expanded the entity being measured to include the activities of the diocese itself. The 1808 convention designated the number of baptisms, marriages, funerals, and communicants for inclusion in the report [Canon 45, 1808]. This is the first codification to the use of statistics in the reporting system. It would be forty-five years be-
Exhibit 1
The Evolution of Accounting in the General Canons
1804-1862

<table>
<thead>
<tr>
<th>Initial reporting system</th>
<th>1804</th>
<th>To provide “full and accurate” view of the “state of the church”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parochial reports required</td>
<td></td>
<td>Parish is reporting entity</td>
</tr>
<tr>
<td>Requires number of baptisms, marriages, etc.</td>
<td>1808</td>
<td>Specific measures of “state” identified, first statistics</td>
</tr>
<tr>
<td>Diocese-level reports required</td>
<td></td>
<td>Reporting entity expanded to include diocese activities</td>
</tr>
<tr>
<td>Condensed report required</td>
<td>1820</td>
<td>Data reduction-summarization</td>
</tr>
<tr>
<td>“Tabular view” of “state” required</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All clergymen required to report activities</td>
<td>1835</td>
<td>Reporting entity expanded</td>
</tr>
<tr>
<td>Requires amounts of contributions be reported</td>
<td>1853</td>
<td>First required financial statistics</td>
</tr>
<tr>
<td>Requires amounts to be included in tabulations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Requires that schools, hospitals and etc. managed by members report</td>
<td>1862</td>
<td>Reporting entity expanded</td>
</tr>
<tr>
<td>The requirement for diocese reporting changed from a recommendation to a duty</td>
<td></td>
<td>Upward flow of information to the General Convention now mandatory</td>
</tr>
</tbody>
</table>

The requirement for diocese reporting changed from a recommendation to a duty

fore financial statistics were brought into the canons. Why this lag occurred is not apparent, because many of the diocesan reports submitted during this period of time contain financial statistics.

The 1808 convention emphasized that the ultimate users of the report information were expected to be laity as well as clergy by stating that the published pastoral letter should be “to the members of the Church.” [Canon 45, 1808] The attitude that report information was useful and necessary for members of local congregations apparently intensified through 1820. In that year the General Convention provided that the pastoral letter be read to congregations at some occasion of public worship. The accounting information process continued to loop back to the members of local parishes until 1910 when the provision for the pastoral letter was deleted from the canons.
The definition of the reporting entity expands over time from its inception as the parish in 1804 to include the diocese in 1808, ministers without parishes in 1835 [Canon 51, 1835], and "... [a]ll incorporated schools, all parochial schools, all academies and colleges, and all hospitals, asylums for orphans or other children, of either sex, maintained at the expense or conducted under the management of members of this church" in 1862 [Canon 15, 1862]. The 1862 expansion sought to consolidate entities that for the most part did not comply so this provision was dropped in 1904 [Canon 47, 1904].

Throughout the period from 1804 to the present, the canons relating to the accounting process have become more specific in defining the responsibility for reporting as well as the contents of
reports. Initially, the canon simply stipulated the order of conventions through which the reports should be processed. In 1808 provision was made for a committee to be appointed in the House of Clerical and Lay Deputies to draw up a report on the state of the church from the various parochial and diocesan reports. This was the first committee to be established by the General Convention. The 1832 convention instituted the recommendation that the "ecclesiastical authority" at the diocese level prepare a condensed report for the General Convention [Canon 51, 1832]. This responsibility was designated specifically to the Bishop and Standing Committee of the Church in 1841 [Canon 51, 1841]. It would not become a "duty" until 1874 [Canon 17, 1874]. It would be another thirty-nine years before the Joint Commission on Business Methods in Church Affairs was appointed and three more years before a "uniform form of report" was adopted.

The specificity of statistical content required by the 1808 convention was expanded to include "a tabular view" by the 1832 canon. Still no financial statistics were mandated. It was not until 1853 that the canons required the submission of financial data. At the same time, this data was required to be entered in the condensed report and the "tabular view."

The Implementation of Canonical Accounting

The requirements for reporting contained in the canons apparently lead the development of diocesan level reporting of statistical and demographic information. In New Hampshire, for example, statistical and demographic information first appeared with the eleventh annual convention in 1811 [New Hampshire Proceedings 1811, pp. 28-29]. This conformance lagged the canon requirement by three years. The information included a general listing of communicants as well as descriptive statistics such as births, deaths, and marriages. Instances of tabular summaries of the same data did not appear in New Hampshire until 1822, two years following its requirement by the canons [New Hampshire Proceedings, 1822].

On the other hand, the diocesan reporting of financial data in Vermont predates the canon requirement by twelve years. The canon required financial data in 1853 and Vermont was reporting it by 1841 [Vermont Proceedings, 1841, pp. 50-51].

During the period 1819-1850, the reports begin to indicate an increasing use of financial data. A detailed Treasurer's report existed by the early 1840's in Indiana along with tabular summaries of the assessments required of the local parishes [Indiana Proceedings,
Financial data first appeared in Maryland in 1814 and very detailed Treasurer's reports appeared from 1841-1860 [Maryland Proceedings, 1841, pp. 61-76; Maryland Proceedings, 1814, Appendix pp. 10-11]. The attest function apparently began to emerge during this same period. For example, in Massachusetts, an internal procedure for verifying accounts for the annual conference was developed by 1834. In that conference, two delegates stated "We hereby certify that we have examined the above account, with the vouchers and feel the items duly charged and cast." [Massachusetts Proceedings, 1834, p. 41].

By 1860, on the eve of the Civil War, several trends had emerged in the reporting of financial information in the Protestant Episcopal Church. First, almost all of the dioceses required the reporting of a wide variety of financial and demographic data. Some of the diocesan conventions were utilizing a basic system of debits and credits in order to list the disbursements and receipts from the various funds which were needed to support the Episcopacy. A voucher system had emerged in some dioceses and the convention treasurers were making very complete reports on the condition of the dioceses based on the parochial accounts which were made available from the local rectors [Louisiana Proceedings, 1857; Illinois Proceedings, 1853; Ohio Proceedings, 1860].

During the incipient period, the trend towards more complete financial data in the General Church reports was apparently influenced by both the growth of the strength of the Episcopacy and the practices which had emerged in many of the local dioceses. This duality of top-down and bottom-up influence may be broadly characteristic of accounting development in general.

The roughly seventy year period following the incipient period was characterized by both continuity and change. The fundamental requirements of the canons remained intact while two trends emerged at both the general and diocesan convention levels. First, there was a growth in the detail and sophistication of the financial data which appeared in the tri-annual general convention and annual convention reports. For example, balance sheets began to appear in the first two decades of the twentieth century [Indiana Proceedings, 1910, pp. 56-57]. A more significant trend was the expansion of the audit function at both the national and local diocesan levels as evidenced in the financial reports. By 1910, in the Diocese of Ohio, separate reports were issued by the Treasurer, an Auditor, and a separate (though non-professional) audit committee [Ohio Proceedings, 1910, pp. 113-135]. Independent audits began to appear by the 1920s. As early as 1927, for example, in California
a CPA's audit report stated that "... we have audited the accounts of your Treasurer, ... and we certify that ... his accounts ... [are] ... correct." [California Proceedings, 1927, pp. 158-159]. No pattern of use of outside auditors was found in other states, but their reports were well accepted at both the General Conference and diocesan levels by mid-century.

Conclusion

The history of the use of financial data in the Episcopal Church is an interesting phenomenon in the United States. The data reflects the growing complexity of American free enterprise and was based on the internal needs of a church which was moving from being state supported to being financially more a part of the private sector. Thus, the church had to be aware of the need for more financial data and clarity in financial reporting. Additionally, the church had to expand both the internal and external audit function as it attempted to cope with a more complex world in which financial security insured its economic viability and actual survival.

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Proceedings of the 1860 Convention of the Protestant Episcopal Church of Ohio.
Proceedings of the 1910 Convention of the Protestant Episcopal Church of Ohio.
Proceedings of the 1927 Convention of the Protestant Episcopal Church of California.
A standard title format was established for the various state conventions in the interest of uniformity of citation.
FINANCIAL REPORTING AND STEWARDSHIP ACCOUNTING IN SIXTEENTH-CENTURY SPAIN

Abstract: This paper examines an early modern contribution to the literature on stewardship accounting, the Tratado de Cuentas or Treatise on Accounts, by Diego del Castillo, a sixteenth-century Spanish jurist.

Introduction

The delegation of authority and the stewardship function have been the subject of written comment for centuries. It is the intent of this paper to explore the accounting implications of an early modern contribution to this body of work, the Tratado de Cuentas or Treatise on Accounts written by Diego del Castillo, a sixteenth-century Spanish jurist. [Del Castillo, 1522].

Despite its preeminence in politics, commerce and culture during the sixteenth century, Spain lagged behind most other European powers in its contribution to the literature on double-entry bookkeeping. Indeed, by 1590 when the first major native work on the subject — Solóranzo's Libro de caxa y manuel de cuentas — appeared, Italian, German, Flemish, English, Dutch, French and Yugoslav books on the newest system already had a wide audience [Hernández Esteve, 1983, 139-40]. Although Spanish authors largely neglected the double-entry system for most of the sixteenth century, a number of indigenous works on pre double-entry techniques and other accounting usages appeared at this time. The earliest of these texts was the Tratado de Cuentas.

We know relatively little about the author of the Treatise other than a few biographical details. A native of Molina de Aragon in the province of Guadalajara, Diego del Castillo began the study of law in 1515 and acquired the doctorate six years later. He apparently returned at some time in his career to his native city to write, sending his completed manuscripts away to printers in various cities for publication. The date of his death is unknown, but it is thought to be around 1551 [Hernández Esteve, 1981, p. 108].
The Legal Profession In Spain

Three different kinds of lawyers serviced the Castilian legal system: the advocate or abogado; the attorney or procurador; and the solicitor or solicitador. As a law graduate or letrado, Del Castillo would have occupied the highest of these ranks, that of advocate. Legislation required advocates to have at least a baccalaureate degree; many, including Del Castillo, went beyond this requirement and obtained the licenciado, the higher degree in law. As we have seen, Del Castillo was also a doctor of law, a title which at this time was largely honorific, and which only a small minority of advocates possessed.

No major study has yet been conducted of the legal profession in early modern Spain, but it is known that advocates were responsible for researching cases and devising the legal arguments that formed the basis of their clients' suits. They also prepared briefs and argued cases in court. The royal courts in the major cities provided advocates with their most lucrative source of business. Nevertheless, advocates could also be found plying their trade in smaller provincial centers and villages. A willingness to practice in relatively minor courts may account for Del Castillo's long residence in the town of his birth.

Advocates derived their income from client fees and retainers. Spain in the sixteenth century was an extremely litigious society, and advocates as a class enjoyed considerable wealth. Many supplemented the income of their practices by serving as royal commissioners, seigneurial judges and, most importantly for our purpose, estate agents [Kagan, 1981, pp. 52-78]. Although Del Castillo makes no allusion to such experience in the Treatise, it is conceivable that tenure as an estate agent provided the original inspiration for his text on stewardship.

Del Castillo's Writing

The sixteenth century was not a period of intellectual specialization, and Del Castillo, like other writers of his age wrote on a variety of topics. Among his known works are a commentary on the Laws of Toro, Las leyes de Toro glosadas, first published in 1527; a manual for confessors (1522); two works condemning gambling (1557); and the present work, the Tratado de Cuentas. The treatise was first published in the Spanish city of Burgos in 1522 when Del Castillo had already attained the licentiate. Two editions followed,
in 1542 and 1551, both published in Salamanca [García López, 1899, pp. 59-63].

Diego del Castillo wrote the Treatise on Accounts in order to inform “tutors, guardians, chamberlains, treasurers and anyone else responsible for administering another’s goods” [Del Castillo, 1522, f. 1v] of how to render a proper account. The stewardship function was a popular theme in the accounting literature of early modern Spain. Over the course of the sixteenth century, a large number of other legal writers in addition to Del Castillo discussed, albeit briefly, various aspects of the agent-principal relationship, such as the duty to keep accounts [Hernández Esteve et al., 1981, VII, 2-8,9]. The lengthiest and most complete treatment of stewardship from both a legal and accounting perspective appeared in 1603, De ratiociniis administratorum et aliis variis computationibus tractatus by Francisco Muñoz de Escobar, a magistrate of the Chancilleria of Valladolid. Muñoz de Escobar, in the dedication to his book, claimed inspiration for his work from two sources: his reading of Del Castillo’s earlier and much shorter tract and also the interest the Emperor Charles V himself expressed in a full-length treatment of the subject [Hernández Esteve, 1981, p. 92]. Although we may question just how genuine an interest the sovereign actually expressed in this issue, the stewardship function was sufficiently important in and of itself in early modern Spain to warrant special consideration by learned jurists.

Estate Management In Spain

Land at this time was the principal source of wealth, and most of it was concentrated in the hands of the upper aristocracy. Indeed, this immensely wealthy class, which constituted somewhere around 2 to 3 percent of the population, controlled approximately 97 percent of the land of Castile; in the late fifteenth century they added to their already sizeable holdings large portions of the newly conquered kingdom of Grenada. [Elliott, 1963; Lynch, 1964]. In order to administer these vast, oftentimes geographically disparate, tracts it became necessary to delegate oversight of agricultural operations and other kinds of business affairs to various types of managers or agents, called generically administradores. These administrators were legally required to communicate the results of operations to their employers or patrons and for this purpose used accounts and books of accounts.

The particular social, economic and political conditions of the
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time also created other managerial opportunities, but those agents who sought to take advantage of them were, according to Del Castillo, subject to the same kind of financial reporting requirements as the administrators of agricultural holdings. The Church at this time was a sizeable landholder in its own right and employed administrators in much the same way as the secular nobility, to oversee the farming and other business operations of churches, monasteries and hospitals. Although agriculture remained the principal economic activity, the internal and international trade of Castile expanded considerably during the late fifteenth and sixteenth centuries [Elliott, 1963; Lynch, 1964], and in this area agency relationships developed as well. In cases where several individuals pooled their resources to form a trading company, it was common for them to designate one of their number as a kind of managing partner to handle the company’s dealings and trade on behalf of the investment group. As in other agency relationships, the managing partner was obligated to give an account, in this case to his compañeros, of all that he had “gainfully received and of what he gave, paid, distributed, spent and lost.” [Del Castillo, 1522, f. 4r]. City administrators, collectors of royal taxes, executors of wills and guardians of minor children labored under similar reporting requirements.

The “Treatise”

It was this audience, then, of “tutors, caretakers, ... majordomos, receivers, trustees, almoners, rectors, treasurers, governors,” and other administrators whom Del Castillo addressed in his treatise. [Del Castillo, 1522, f. 4r]. As a jurist, it was Del Castillo’s purpose to advise agents of their legal responsibilities in the area of financial reporting. He also sought to convince his audience of the importance of careful recordkeeping to winning them a clean discharge at the conclusion of their commissions.

The Treatise is divided into fourteen parts and a prologue addressed to the Emperor. In part one (see Figure 1) the author defines the term account, called cuenta or razon in Castilian. In parts two through six he discusses who is required to keep and exhibit accounts, to whom the accounts are to be presented, the manner of presentation, the place and the intervals at which an administrator is in general required to surrender his books. Part seven treats the proper arrangement of an account book. Part eight discusses how it is that accounts are accepted as proof of the financial realities they purport to represent. After a general discussion of the
Mills: Financial Reporting and Stewardship Accounting

Figure 1. A Folio from Part One of the Treatise; the introduction to Part Two is also shown.

Parte primera.

Otra distincion mas convenible a nuestro caso.

CY digo q la cuenta y razo/7
ministradores es una memoria
Ponq delo q recibe/ tiene
memoria y ansi mismo delo q
cedres y personas q tiene
asientan en sus libros; en uno
en otra parte lo q dan.
Y quai
cuestas con otros: entra por var

tros asieta en una plana lo q
ap
na lo q deue de acuer. y quado hacen cuenta: en-
trá con deue y deue acuer.
Otros contadores/
entró por cargo y descargo: haseido cargo al ad
ministrador de todo lo que recibió y recibiendo
le en descargo: todo lo q dio y gastó. CY qualde
ras otras maneras de asentar y contar: son bastá
tes para salir con la cuenta: mas las dos prime-
ras parecé mejores; y la postrera algo grossera:
poz entrar por cargo y descargo. CY pozq arri
da se nombra cuenta/o razon. y algunos podría
peñar que son diversas. digo que en derecho en-
tre cuenta y razon no se haze diferencia. Y an-
si podemos saber que cosa es cuenta.
agent's responsibilities in the ninth section, Del Castillo devotes parts ten, eleven, twelve and thirteen to the procedures to be invoked if errors or shortages are detected in the accounts; and part fourteen to the various legal documents that must accompany accounts submitted to the courts for probate.

To begin his treatise, Del Castillo discusses a number of current opinions on the nature of an account. In its simplest form, the account constituted a confirmation, *confirmacíon*, of a financial transaction. It could also be seen as an accounting entity proceeding from higher intellectual causes, as a movement or motion of the will, or of the mind, "showing what has been received and in what manner expenditure or payment is given." [Del Castillo, 1522, f. 3r]. As might be expected, Del Castillo himself preferred a more juridical formulation. He saw the account as fulfilling the same purpose in stewardship as did a witness' testimony in a court case, serving to separate the "truth of what is received and justly spent from the false." [Del Castillo, 1522, f. 6v]. However defined, the account was in the author's view the most important formal bond between the administrator and his principal. The presentation of a properly compiled set of accounts was as much a responsibility of the administrator's office as discharging the principal's financial affairs.

What constituted, then, a properly compiled set of accounts? First, there was the matter of physical arrangement. The book of accounts or *libro de cuentas* was to contain written entries describing "all that the administrator received," whether from his principal or other sources, and "all that he gave," [Del Castillo, 1522, ff. 10v-11r]. A single volume containing both receipts and expenditures was the preferred arrangement although it was also acceptable to set down receipts or *el recibio* in one book and expenditures or *la dacta* in another. Del Castillo advocated the use of a single volume because it was commonly believed that the two-volume approach invited errors and irregularities.

As for the content of entries, agents were advised to record in addition to monetary values such details as the date of the transaction, the proper name of the other party, the place the business was transacted, the circumstances that gave rise to the transaction and any other details likely to lend credence to the agent's records. Del Castillo made the "all-inclusive" approach a requirement for expenditures but optional for receipts, perhaps under the impression that an agent was more likely to be questioned concerning outflows than inflows.
These comments are about as far as the author goes in his discussion of bookkeeping methods. Remember that Del Castillo did not intend to educate readers in current principles of bookkeeping or of any accounting system but rather to discuss financial reporting requirements and procedures. Accordingly, we learn little from the Treatise concerning such matters as the system of bookkeeping entries in use at this time or the relationship between journals, ledger and other books of account. Nor is it clear, despite the author’s attempt at definition, precisely what is meant by the term “account.” Certainly, Del Castillo gives a good idea of the kind of information to be recorded, but the form of the accounting entity remains obscure. Despite this obscurity, it is safe to conclude that the type of bookkeeping Del Castillo had in mind was one of the several forms of single entry then in use rather than full-blown double entry. The method as alluded to in the Treatise consists entirely of receipts and expenditures with no differentiation between nominal and real accounts. The Treatise also makes no mention of an account book auxiliary to an original book of entry. External evidence also supports the conclusion of single entry. As we have seen, explicit discussion of double-entry bookkeeping did not enter Spanish accounting literature until relatively late in the century. Moreover, according to Henri Lapeyre, the first known use of the system in Spanish account books dates from the years 1551-54 [Hernández Esteve, 1981, p. 153] although further research in Spanish archives may eventually uncover earlier appearances. Based on the characteristics mentioned above, the particular form of single entry envisioned in the Treatise was probable cargo y data, a bookkeeping method common at the time.

Reports and Audits

In normal circumstances the administrator exhibited his book of receipts and expenditures at the end of each year. Reporting periods shorter or longer were also permitted as long as the interval received the agreement of both parties. Whatever the length of the reporting period, the administrator could not be compelled to exhibit his accounts prior to the reporting date unless he “should make himself suspicious” by dissipating his own goods or worse yet, flagrantly mismanaging those of his principal or “señor.” [Del Castillo, 1522, f. 9r].

Although protected from unscheduled intrusions, the administrator still labored under an absolute obligation to present his books
for inspection at the required intervals. Indeed, the administrator was required to give his patron "all the writings that pertained to the administration" or face a lawsuit. [Del Castillo, 1522, f. 9r]. Under certain circumstances, this responsibility could continue long after the delegation of authority had ostensibly ended. For example, in cases where the administrator had not reported at the conclusion of his commission, his obligation to make an accounting remained intact for 30 years, 40 years if he had administered a church or monastery.

The agent's records as exhibited were subject to audit in a court of law. By the sixteenth century an array of local, municipal, ecclesiastical and royal tribunals had grown up to administer Castilian law, and among their functions was the probate of accounts. Del Castillo neglects to specify at which level of the judicial hierarchy or in which type of tribunal the examination was to be conducted, but he does stipulate that the court of first instance possess jurisdiction over the geographical area in which the administration was originally held. In practice, this stipulation would generally not have constituted much of a restriction. Jurisdictions at this time often overlapped, and courts actively competed for cases with the result that litigants in most cases enjoyed a choice of tribunals [Kagan, 1981, pp. 32-33.]

It is unclear from the Treatise whether the administrators who served in an ongoing capacity were required to have their accounts judicially reviewed every reporting period or whether a full-scale investigation took place only at the conclusion of an administrator's tenure. In any case, probate of the accounts was conducted by accountants or contadores who were charged by the court to "do the accounts well and loyally" and "to guard and watch equally the rights of each of the parties without inclination." [Del Castillo, 1522, f. 8v]. In order to assure this impartiality, the investigation was conducted by a committee of auditors named by both parties. If either employer or administrator was unable or unwilling to nominate individuals to this panel, the judge was empowered to make such nominations himself.

Accountants were attached as a matter of course to tribunals at most levels of the judicial hierarchy along with magistrates, scribes, constables, porters, receivers and other court officials. Typically for court officials, they bought their offices and were unsalaried, subsisting on the official fees, bribes and gifts that litigants paid for their services. The particular functions of court accountants are somewhat more obscure. It is clear, however, that they were in-
involved in some way in producing the permanent written records of court actions required by Castilian law [Kagan, 1981, pp. 37-39]. To this general responsibility, the treatise adds the audit of agential records.

The *Treatise* reveals little about the actual audit process, but Del Castillo does give some idea as to audit objectives and procedures. The auditor's chief responsibility was the detection of fraud: to "investigate the truth of what is received and justly spent." This assessment was to be based on the information contained in the agent's records and on the opportunity to question both agent and employer in person should the need arise. The auditors were to ascertain, among other items, that receipts and expenditures were recorded in their entirety, and that counts and appraisals had been conducted in an orderly fashion and were neither "too high nor too low." [Del Castillo, 1522, f. 7v]. It is at this point that an agent would begin fully to appreciate Del Castillo's earlier admonitions concerning the importance of detailed records. Thrust into the position of having to persuade the court through its accountants of the honesty — and effectiveness — of his administration, the agent's chief support was a properly maintained book of accounts. To believe Del Castillo, any administrator whose book was incomplete or contained discrepancies fell automatically under suspicion of fraud.

Should the court determine as a result of its examination that the agent had withheld or diverted goods or revenues unjustly, the administrator was required to make good any shortages of funds. Double damages could also be imposed. For the truly recalcitrant administrator, unable or unwilling to make restitution on demand, Del Castillo recommended incarceration.

Although the detection of fraud and other irregularities constituted the chief focus of the court's concern, plain mismanagement or honest errors if discovered were also penalized. Indeed, Del Castillo makes little distinction among the possible causes of a shortage — whatever the circumstances the principal was to be indemnified. The agent was not entirely without recourse, however. If during the course of the examination errors were discovered in the accounts, the administrator could request that his records be reviewed a second time and another count made. This second examination was to be conducted by two new auditors, one named by each party or by the judge should either or both parties demur.

Additional protection was afforded by the segregation of duties within the judicial process. While it was the responsibility of the
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auditor "to appraise or investigate," [Del Castillo, 1522, f. 23r] only the judge could sentence, or formally render the court's opinion on the performance of the administration. Procedure required that the judge subject the accounts to a final review before proceeding to sentence, and the administrator could hope that the judge might catch an item that the accountants had wrongly rejected or misinterpreted. Unfortunately, it was equally as likely that the judge would find against the administrator, observing that "the accountants had approved something that they were unable to pass justly." [Del Castillo, 1522, f. 23v].

The Administrator As Agent

Del Castillo makes it plain that the administrator who exceeded the bounds of his authority, either by accident or design, courted financial or other forms of retribution at the time of probate. To help the administrator avoid such an outcome, the author outlines in general terms some of the rights and responsibilities inherent in the agent's office. First, the agent was empowered to disburse funds on the order of either principal or law court, and to the principal's creditors. He was also able to pay himself a salary from the goods and funds he administered, and to receive reimbursement for any expenses he had incurred in the execution of his duties. The administrator was obligated to sell or otherwise transfer the perishable goods in his charge before they spoiled, or indemnify the principal for their loss. He was also required to submit to arbitration any disputes that might arise in the conduct of the principal's business affairs. Collection of notes receivable was another common responsibility.

Notwithstanding the large amount of effort the author devotes to haranguing agents on the proper conduct of their duties, and the penalties awaiting them should they err, he concedes, albeit reluctantly, that an administrator might suffer financial loss unjustly at the hands of his principal. Such a situation could occur, for example, if the principal failed to reimburse his administrator for expenses incurred in the execution of the administration. Armed with the evidence contained in his book of accounts and the auditors' opinion, the administrator could theoretically demand restitution from his principal, but Del Castillo neglects to explore this possibility, a result entirely to be expected by this point in the Treatise.

The author's sympathies in favor of the principal reveal themselves early in the tract. Although ostensibly a guide to steward-
ship accounting and financial reporting, the Treatise is also something of a moral diatribe in which the author seeks to dissuade his audience from engaging in disreputable practices, practices which in Del Castillo's mind were entirely synonymous with injury to the patron's interests. Del Castillo never ceased to believe that the typical administrator was shifty and dishonest by nature and in need of such exhortation. In his opinion, many officials and administrators are wolves, robbers and dogs who with inordinate tricks and deceits treat their patrons like beheaded sheep and drink their blood. And many times they don't content themselves with the blood but also eat the meat right to the bone . . . and you can find rich administrators who shortly before had no goods whatsoever and poor patrons, broke and much in debt . . . the reason is that money blinds administrators, making them covet as their own what belongs to another. [Del Castillo, 1522, f. 13v]

Conclusion

The author's prejudices aside, the Tratado de Cuentas is important to the study of accounting history. As far as we know, it is the first work of accounting literature written in Spanish, and from a legal perspective. Moreover, the Treatise explores some of the fundamental principles of accounting. It discusses, among other topics, the nature of the account, the preparation of accounting information in accordance with uniform principles and procedures, and the attest function. It also adds to our knowledge of the role of the accountant in early modern government, a role which in terms of accounting history is still largely unexplored.

FOOTNOTES

1 Notwithstanding what the eclecticism of the age might lead us to believe, Del Castillo is not the author of the Tractatus de Duello. This treatise is often ascribed to him, but it is actually the work of another Del Castillo, Diego del Castillo de Villasante. Their identities have been admirably disentangled by the Spanish scholar García Lopez in his short biography of Del Castillo. [García Lopez, 1899, p. 58].

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ACCOUNTING FOR GOLD AND SILVER MINES: THE DEVELOPMENT OF COST ACCOUNTING

Abstract: This study found evidence which supports the thesis that cost accounting techniques evolved rapidly during the last quarter of the nineteenth century. The cost accounting system employed by the leading mines of the Comstock Lode during the 1870's is compared to a system used in the Cripple Creek district of Colorado during the first decade of the twentieth century. The cost accounting techniques of the mining industry appear to have developed rapidly during this period from crude to sophisticated systems.

Introduction

Littleton [1977, p. 340] stated that the bookkeeping texts of the first three quarters of the nineteenth century presented very inadequate cost accounting techniques. Garner [1976, p.67] maintained that developments in “industrial accounting were at a low ebb in the period 1840-75.” It was only in the last quarter of the century that well organized cost systems were developed in response to an increasingly complex business environment. Chatfield [1977, p.160] expressed the following similar view: “Between 1885 and 1920 cost accounting evolved from a level where the methods used seem almost as remote as medieval bookkeeping, to a point where most of the descriptions in today’s texts were approximated by the best practice.” On the other hand Johnson [1972, p.469] found evidence of an elaborate fully integrated cost accounting system that was employed by a small textile mill prior to 1860. Johnson’s research raises the question of whether industrial practice developed more quickly than Chatfield, Garner and Littleton have indicated. This is the issue addressed in this study.

In 1954 Garner [1976, p.69] declared that very little study had been made of the accounting records of nineteenth century industrial firms. Twenty years later Johnson [1972, p.466] expressed a similar opinion. Johnson [1972, p.468] argued that such studies are needed because this type of research provides the most reliable
evidence about the evolution of industrial management accounting practices. Since 1972 several accounting historians have directed their attention to this important area of research.

The account books and records of underground gold and silver mines provide an excellent opportunity to study the evolution of cost accounting procedures between 1870 and 1910. Mining played an important role in the development of America and particularly of the West. The California gold rush, the Alaska gold rush and the bonanzas of Nevada’s Comstock Lode are leading examples of the importance of mining.

This study focuses on the accounting systems of the Consolidated Virginia Mining Company, the California Mining Company and the Portland Mining Company. The first two firms were the most successful mines on the Comstock Lode. These mines were quite active during the 1870’s. Many of their account books have survived and can be found in the special collections of the University of Nevada Reno Library. The Portland Mine [Finlay, 1910, p.376] was the leading mine in the Cripple Creek district of Colorado during the first decade of the twentieth century. The accounting system of the Portland Mining Company is described in great detail by Charlton [1912, pp.275-316]. These firms were selected for a number of reasons including: the similarity of the nature and size of their operations, and the dates that they were actively mined.

In the following sections the cost accounting systems employed by the Comstock mines will be described and compared to the system used in the Portland Mine. These accounting systems are separated by approximately 30 to 40 years. According to Chatfield, Garner and Littleton it was during this period that American industry made great technical advances in the area of cost accounting. This thesis is supported by the evidence gathered during the current study of mine accounting. The Comstock mines used a primitive system for determining the cost of mining, whereas the cost accounting system of the Portland Mine was far more sophisticated. While this paper is not considered to be proof of the Chatfield thesis, it provides substantial support for this image of the evolution of cost accounting.

Some might argue that the mines selected for this study are not representative of their respective periods. Perhaps the Comstock mines were unusually backward or the Cripple Creek mine was unusually advanced. However the accounting system of the Portland Mining Company is described by Charlton as being representative of its industry in 1910, not as an unusually advanced system. The
California and Virginia mines were the leaders of the industry in the 1870's. These firms could afford the best laborers, managers and accountants. All of the evidence indicates that these two mines possessed accounting systems that were typical of the better managed firms of the era. This study shows the evolution that occurred in accounting for the nation's top mining operations.

The next section of this paper gives a history of the Comstock Lode and the Bonanza mines. This is followed by a brief discussion of mine accounting. Then the cost accounting systems of the Portland and Comstock mines are illustrated. With the advanced accounting system of the Portland Mine as a reference, the inadequacies of the cost system of the Comstock mines are more clearly seen.

**History of Comstock**

One of the most fascinating chapters in the history of the American West is the story of the Comstock Lode and Virginia City, Nevada. The Comstock Lode was the first large silver deposit found in the United States of America. It was discovered in 1859 by placer miners who had been working stream deposits in the Washoe district of Nevada since 1850. While many mines operated along the Comstock Lode during the 1860's and 1870's, the two greatest were the Consolidated Virginia Mining Company and the California Mining Company. These two firms held adjacent claims near the northern end of the Comstock. The legendary "Big Bonanza" ore body was situated entirely within these claims. During the years 1873 through 1881 the Big Bonanza yielded over one hundred million dollars in gold and silver bullion.

The Big Bonanza was extracted during the period from 1873 through 1881. The production for that period was as follows [Smith, 1943, pp.260-261]:

<table>
<thead>
<tr>
<th>MINES</th>
<th>GOLD</th>
<th>SILVER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consolidated Virginia</td>
<td>$29,168,227</td>
<td>$31,959,256</td>
</tr>
<tr>
<td>California</td>
<td>$23,395,270</td>
<td>$20,646,106</td>
</tr>
<tr>
<td>Totals</td>
<td><strong>$52,563,497</strong></td>
<td><strong>$52,605,362</strong></td>
</tr>
</tbody>
</table>

Over $74 million in dividends were paid from these revenues.

Eliot Lord [1883, p.311] gave the following description of the Big Bonanza: "No discovery which matches it has been made on this earth from the day when the first miner struck a ledge with his rude
pick until the present.” Dan De Quille [1953, p.371] described it as the heart of the Comstock Lode while Shinn [1980, p.182] called it the “richest hoard of gold and silver that ever dazzled the eyes of a treasure-seeker.” In most mines veins of precious metals range in thickness from several inches up to a few feet. However at the 1,500 foot level of the bonanza mines the ore body was 320 feet wide and 900 feet long.

During the 1870’s the partnership of Mackay, Fair, Flood and O’Brien held a controlling interest in the capital stock of the two bonanza mines. This partnership was known as the Bonanza Firm. It was the vision and enterprise of these men that was responsible for discovering, developing and producing the ore of the Big Bonanza. Mackay and Fair were experienced mine superintendents. During the bonanza period they remained in Virginia City and directed the operations of the mines.

The Bonanza Firm proved to be a highly profitable partnership. In addition to the bonanza mines the Firm owned and operated a large lumber company, a milling company and the Virginia & Gold Hill Water Company. The organization of the Firm remained unchanged until the death of O’Brien in 1878. Fair withdrew from the partnership in 1881 by which time the Big Bonanza had been exhausted. The total profits of the firm were estimated [Smith, 1943, p.263] to be as follows:

- Mackay $25,000,000
- Fair $15,000,000
- Flood $12,000,000
- O’Brien $10,000,000

A fire broke out in the stopes in 1881 and the firm sealed the mines to cut off the supply of oxygen to the flames. The mines were not reopened until 1884 when Senator John P. Jones contracted to extract low grade ore from above the 1550 foot level. As soon as Jones demonstrated that the low grade ore could be mined profitably Mackay began similar mining operations in the lower levels. In 1886 the Jones’ lease was terminated and the newly reorganized Consolidated California and Virginia Mining Company took over all mining operations. During the next eight years $16,447,221 in bullion was produced and the firm paid $3,898,800 in dividends.

Mine Accounting

Very little has been written specifically on the problems of mine accounting. Each mine has internal and external economic factors
which influence its design, its operations and its cost accounting system. However the basic problems of cost finding are the same for a mine as for other industries. These include the determination of the labor, supply and overhead costs of the mine's production. This type of data can be used for the evaluation and motivation of managers and for planning future operations.

The managers of a mining company need to know the cost of producing goods and services. Ore delivered to the surface is the basic product of a mine. To produce this good many services are required. These services include assaying, hoisting, pumping air into the mine, pumping water out of the mine, timbering, and tramming. A supervisor should be placed in charge of each important activity and he should be held responsible for the efficient operation of that unit. This type of information enables the mine's superintendent to evaluate the job performances of his employees.

**Portland Mine**

The Portland Mining Company had the best mine in the Cripple Creek gold mining district of Colorado. It had yielded $29,430,842 in bullion and paid $8,227,800 in dividends by the end of 1908. This gold deposit was discovered in the early 1890's and was associated with an extinct volcano.

The Portland Mining Company established cost accounts for each service activity. The payroll records were used to charge labor costs directly to these accounts. The supervisor of each department was held accountable for controlling these costs. In addition to accumulating labor costs the service department accounts were charged with the cost of supplies used each month and with distributed overhead costs. The total monthly cost of operating each service department was determined by this procedure.

The service costs were distributed at the end of each month to the development and stoping accounts which represented the two major divisions of mining expense. During the accounting period a separate distribution sheet was maintained for each active opening within the mine (i.e. cosscuts, drifts, shafts and stopes). Labor, supply and allocated service department costs were charged to these distribution sheets. The total stoping expense for a month was equal to the total cost of the distribution sheets for all active stopes. The total development expense was equal to the total of the development distribution sheets. Both development and stoping expenses were closed each month into the mining expense account.

This system has elements of both job order and process costing.
The use of a separate distribution sheet for each shaft, drift, cross-cut or stope is a job costing technique. The monthly accumulation of mining costs and the assignment of these costs to the ore sent to the mill, the next operation, is a process costing procedure. At the mill the cost of labor, supplies and overhead used in the milling process were added to the cost of the mined ore to determine the cost of concentrates that the mill produced.

Depreciation and depletion were treated as a distribution of the Portland Mining Company's profits rather than as operating expenses. However the Consolidated Virginia Mining Company charged the costs of equipment and buildings to current operations. Accounting for depreciation and depletion was an unsettled issue during this period [Chatfield, 1977, p.97]. As late as 1939 it was a generally accepted accounting principle to either include or exclude depletion from the cost of mining operations [Fernald, Peloubet and Norton, 1939, pp.114-115].

Comstock Mines

The following discussion of the accounting system of the Comstock mines is based on the company records found in the Consolidated Virginia Mining Company collection of the Special Collections, University of Nevada Reno Library. This collection is quite extensive with 199 bound volumes plus 14 boxes of additional business records.

During the period of the 1870's, the cost accounting system of the bonanza mines changed very little. Because the bonanza was exhausted in less than eight years there really wasn't a great deal of time for the accounting system to evolve. Management was very busy during this period and was likely to make changes only when conditions mandated such actions. If the cost system as it was originally designed proved to be adequate, there would be little incentive to modify it. The mines were small enough so that the superintendents could use personal supervision in place of a detailed cost accounting system.

The richness of the Big Bonanza probably also contributed to the lack of innovation in the cost accounting system. The superintendent of a marginal mine has to monitor costs very carefully to make the mine a successful operation. He is always looking for a new way to reduce costs or increase profits. The manager of a rich mine can afford to have a more casual approach and the bonanza mines were extremely rich. This is not to imply that the mines were poorly run. On the contrary, the evidence indicates that these mines were
models of operating efficiency. However the mines possessed such large deposits of high grade ore that profits were virtually guaranteed. Under these conditions it was natural for the managers to assume that the cost accounting and other management systems were adequate.

**Monthly Cost Sheet**

The bonanza mines used a monthly cost sheet to provide a classified report of all mining and milling expenses. This report was prepared in conjunction with a statement of cash receipts and disbursements. In this report the monthly expenditures of the firm were classified by such categories as salaries and wages, supplies, milling, assaying, hoisting, freight, office expenses, water, and construction. Data from the cost sheets were used to compile a quarterly report to state and county tax assessors and the annual reports to the corporate stockholders. The average cost of mining a ton of ore and the average cost of milling a ton of ore was determined from the classified expenses of the cost sheets.

The way that various costs are categorized on this report changes from month to month. However there is no discernible pattern to these changes. For example, in October 1873, hardware, wood, lumber and many other items are classified under the general heading of supplies. In September 1874 there are four separate accounts for hardware, wood, lumber and supplies. By April of 1875 lumber and wood are listed as a single account on the cost sheet while hardware has disappeared into the general supplies category.

This system of classifying costs is superior to systems which combine all costs into one or two accounts and to systems which mix revenues with expenditures. However there are a number of primitive aspects in the procedures for accounting for labor costs, supply costs and overhead. The report can be a little misleading since only payments to outside interests are included. The monthly hoisting expense of the Consolidated Virginia consists of the costs of hoisting performed by the Gould & Curry Mining Company but not the cost of operating the Virginia's own hoists. In addition the acquisition cost of land, buildings and equipment is treated as a mining expense in this monthly report. Since all milling was performed by outside firms, this expense should be quite accurate.

The labor costs are the first items reported on the monthly cost sheet. The salaries of the mine superintendent and the mine clerk are listed individually. The remaining labor costs are sometimes reported as a single payroll total. In other months these labor costs
are subdivided to give greater information. For example, in April 1875 the labor costs were reported as follows: $68,738.75 general payroll; $3,845.50 for work on the 1550 foot level, and $325.00 for work on the Latrobe Tunnel.

This appears to be a primitive system of accounting for labor. While it does determine total monthly labor costs, it provides little additional information. The labor costs of the service activities are mixed with the cost of digging development tunnels and breaking ore. The more precise system of the Portland Mine treated the service departments as cost centers.

During the 1870's a large inventory of supplies was maintained at the hoisting works of the Consolidated Virginia Mine. The monthly purchases of supplies for this inventory were included in the cost sheet as a mining expense. Thus the supply costs are not expenses in the modern sense. In addition the costs of these supplies are not allocated to specific cost centers such as the blacksmith and machine shops. Instead supply expenditures are an undistributed subcategory of mining expense.

Another supply inventory was established at the hoisting works of the C&C Shaft. The C&C Shaft was a joint venture of the bonanza mines. Each mine was charged for the actual quantity of materials obtained from this inventory. The mines were also charged for the hoisting performed by this shaft. Any unbilled costs associated with the C&C Shaft were shared equally by the California and Virginia mines. The accounting for this inventory required a perpetual inventory system that could show the exact quantities of the various supplies issued to each mine. For example, during January 1879 the Consolidated Virginia Mine received 23,520 pounds of ice from the C&C inventory while the California Mine received 63,450 pounds at one dollar per pound.

The expenditures associated with operating the mine office in Virginia City are included in the cost sheet's mining expenses. However the cost of operating the corporate headquarters office in San Francisco is not treated as a mining or milling expense and it is therefore not reported on the monthly cost sheet.

The Consolidated Virginia's ore was milled by "independently" owned mills. These mills were independently owned by Mackay, Fair, Flood and O'Brien. The superintendent of the Consolidated Virginia Mining Company paid the mill operators to reduce the ores of the bonanza. The expenditures reported on the cost sheet represent the actual fees charged by these mills to the bonanza mines. The other items on the cost sheet represent mining costs, except for the problem with supply expenditures. Thus this report provides
accurate information on milling costs and an approximation of mining costs for each month.

**Labor Efficiency**

The daily report was used to monitor the productivity of the mine workers. It was not a cost based report. However since the majority of underground workers earned four dollars per day, labor costs could be estimated from this report fairly easily. This report provided the type of information that could have been used by the mine superintendent to control labor costs, motivate the shift bosses, and evaluate the performance of each shift boss on a daily basis. An example of this report is given in Exhibit 1.

**EXHIBIT 1**

CONSOLIDATED VIRGINIA MINING CO.
DAILY REPORT

<table>
<thead>
<tr>
<th>No. of Cars</th>
<th>No. of Tons Ore</th>
<th>No. of Waste</th>
<th>Men</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 1st, 1876</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surface Hands</td>
<td>.................................</td>
<td>118</td>
<td></td>
</tr>
<tr>
<td>Assay Department</td>
<td>................................</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>500 feet Level</td>
<td>New assay office</td>
<td>110</td>
<td></td>
</tr>
<tr>
<td>1000 &quot; &quot;</td>
<td>Latrobe Tunnel</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>1200 &quot; &quot;</td>
<td>.................................</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>1300 &quot; &quot;</td>
<td>................................</td>
<td>4</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>SHIFT BOSS</th>
<th>No. of Men</th>
<th>Cars of Ore</th>
<th>Tons of Ore</th>
</tr>
</thead>
<tbody>
<tr>
<td>1400 &quot; &quot;</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 O'Toole</td>
<td>72</td>
<td>44</td>
<td>210</td>
</tr>
<tr>
<td>1500 &quot; &quot;</td>
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<td>44</td>
<td>210</td>
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<td>28</td>
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</tr>
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</tr>
<tr>
<td>11</td>
<td></td>
<td>28</td>
<td>70</td>
</tr>
<tr>
<td>Gould and Curry</td>
<td>69</td>
<td>113</td>
<td>113</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
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</tr>
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</tr>
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<td>Total</td>
<td>365</td>
<td>454</td>
<td></td>
</tr>
</tbody>
</table>
This particular report describes operations that had not entirely recovered from the fire of October 26, 1875 which devastated much of Virginia City. This fire had destroyed the hoisting works of the Consolidated Virginia Mine, the inventories, the assay office, the Virginia Mill and the California Stamp Mill. Mining operations were greatly restricted for several weeks following the fire. However the hoisting of ore was resumed on December 13, 1875.

On January 1, 1876, most of the mining activities were being conducted on the rich 1,500 foot level. The name of each shift boss is listed along with the following information concerning each shift: the number of workers, the number of cars of ore and waste rock hoisted, and the number of tons of ore hoisted. By means of this report the performance of a shift boss could be properly evaluated in light of the productivity of the men on his shift. The report shows that 113 tons of ore were hoisted through the main shaft of the Gould & Curry Mine. There was a rather large number of surface hands, 118 men. Some of these were probably engaged in constructing the new hoisting works to replace those destroyed two months earlier in the great Virginia City fire. The assay office had also been destroyed in the fire and many of the 110 men employed at the new assay office were undoubtedly construction workers. The 1875 annual report indicated that the new assay office was under construction at the end of the year. The three men stationed in the Latrobe Tunnel and the small numbers stationed on the 1,200, 1,300 and 1,400 foot levels were watchmen.

**Milling Efficiency**

While the daily report provided a detailed record of the quantity of ore that was mined each period, the company maintained other records that traced the shipment of ore to the various mills in the region. The mine managers were interested in the values as well as the quantities of the ore which were mined and milled. The report of assays provided a daily record of the value and quantity of ore shipped to the various mills of the region. Assays were also made of the tailings and from the underground workings of the mine. In the mill the pulp was sampled hourly and all of the samples were assayed. A record of all of these assays was maintained and comparisons were made between the results [De Quille, 1953, p.236]. The mine’s superintendent knew the quantity and estimated value of the ore shipped to each mill. This allowed him to monitor the efficiency of each mill. The milling process normally yielded about 70 to 80 percent of the assayed value of the ore. It was not
economically feasible to extract all of the gold and silver. Each mill's production was expected to exceed 70 percent and if it did not the mill would be accountable.

Post Bonanza Operations

The Consolidated California and Virginia Mining Company was created in 1884 by the merger of the two bonanza mines. This firm extracted low grade ore during the 1880's and 1890's. There are cost sheets from this period which show that the costs of labor and supplies were being distributed between the operations of the shaft and the mining activities in specific levels of the mine. The labor and supply costs of July 1894 operations on the 1,000 foot level amounted to $2,280.34. The monthly cost of operating the shaft was $1,935.38 while nearly $300 was spent to repair the shaft below the 1,100 foot level. This type of detail was not provided by the cost sheets of the 1870's. It represents an evolution toward the detail of the distribution sheets of the Portland Mining Company. The distributed supply costs appear to represent the costs of those items requisitioned each month. This procedure is superior to that demonstrated in the Consolidated Virginia's cost sheets during the bonanza period.

Summary

Significant advances appear to have occurred in the cost accounting practices of underground gold and silver mines between 1870 and 1910. The Comstock mines classified costs as either mining or milling expenditures. The mining expenses were further subdivided into labor, freight, hoisting, lumber, and supply categories. The cost of acquiring land and buildings was treated as a current mining expense. Expenditures were not accumulated and organized in a manner that could help the managers control costs.

By 1910 the Portland Mine was accumulating costs by responsibility centers such as the carpenter shop, the blacksmith shop, the machine shop, the boiler room, the assay office, the hoisting department and the tramming department. The cost of labor, supplies and allocated overhead costs were charged to these service departments. These costs were distributed each month to the two mining accounts, stoping and development. The mining accounts controlled subsidiary distribution cost sheets. There was a distribution sheet for each active opening within the mine. The mining accounts were also charged for direct labor and the direct usage of
supplies. This system provided accurate data on the monthly cost of operations in each stope and tunnel. It also reported the monthly cost of running each service department. This type of data was not being provided by the cost accounting system of the Comstock mines.

This study found evidence which supports the thesis that industrial cost accounting techniques evolved rapidly during the last quarter of the nineteenth century. The cost accounting procedures of the Comstock mines of the 1870's were crude and provided only a limited amount of useful information to the mine managers. The systems employed in the early twentieth century at the Portland Mine provided management with a great deal of useful data concerning the costs of various mining activities.

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A CHRONOLOGICAL REVIEW OF THE AUTHORITATIVE LITERATURE ON INTERPERIOD TAX ALLOCATION: 1940-1985

Abstract: In this paper, the authoritative literature is reviewed chronologically to trace the development of interperiod tax allocation from its inception in the early 1940s to late 1985. The study reveals an evolution from acceptance of either the liability, deferred or net-of-tax methods of partial allocation to the deferred method of comprehensive allocation. The FASB's recent endorsement of the liability method of comprehensive allocation suggests a major theoretical shift from accounting policy followed since 1967.

Introduction

On January 27, 1982, reconsideration of an issue that had been debated for over forty years was initiated. The Financial Accounting Standards Board (FASB) added a project on accounting for income taxes to its agenda.

From enactment of the first income tax law in 1913 to the early 1940s, universal accounting practice (except for utilities) was to determine the income tax provision on the basis of income taxes payable. During that period income taxes were relatively low and the differences, if any, between pretax accounting income and taxable income caused no significant distortion of reported net income [Crawford, May 1946, p. 756]. Thus, income tax allocation was not an issue in this country until the decade of the forties. Since then, the controversy has ebbed and flowed, with changes in the authoritative accounting literature generally resulting from changes in the tax statutes and/or to minimize diversity in financial reporting.

The purpose in this paper is to trace the development of income tax allocation from the 1940s to the present. Research for the paper is limited primarily to the authoritative literature. No attempt is made to survey the whole body of literature on the subject. There
is no intent to argue the pros and cons of tax allocation nor of the various methods of application. While some secondary issues are necessarily broached, the primary thrust in the paper is the more controversial question of interperiod income tax allocation. This historical perspective should enrich our knowledge of the past and assist resolution of related issues currently and in the future.

1940-1950

The concepts of interperiod and intraperiod tax allocation were first introduced in the authoritative literature in December 1942 in Accounting Research Bulletin (ARB) No. 18, “Unamortized Discount and Redemption Premium on Bonds Refunded (Supplement).” Previously, in 1939, the Committee on Accounting Procedure (in ARB No. 2) had recognized two acceptable methods of accounting for discounts and premiums on bonds refunded: Immediate write-off by a charge in the income statement or to earned surplus, and amortization over the remaining life of the bonds refunded. In ARB No. 18, the Committee on Accounting Procedure (CAP) recognized that immediate write-off to earned surplus or amortization of the discount could lead to a serious distortion of the income statement.

While discouraging but not prohibiting immediate write-off to earned surplus (as opposed to the income statement), the bulletin required that the charge to surplus be tax-effected and that an amount at least equal to the reduction of current taxes to which the refunding gave rise be charged to the income statement. Although applied in a very specific case, tax effecting the charge to surplus was an early example of intraperiod tax allocation.

If one elected to amortize the discount over the remaining life of the bonds refunded, ARB No. 18 stated the following:

One method of accomplishing the result required by the two preceding paragraphs would be to charge a portion of the unamortized discount equal in amount to the reduction of income tax, in the income statement of the period in which the benefit of tax reduction is reflected. Another method would be to create a reserve for future taxes by a charge in the income statement equal in amount to such tax reduction [1942, p. 152].

Thus, in this very narrow context, the CAP also introduced (without labeling it as such) interperiod tax allocation by either the net of tax method or the liability method.
A more comprehensive treatment of income tax allocation was discussed in ARB No. 23, "Accounting For Income Taxes," that was issued in December 1944. The debate over whether income taxes were an expense or a distribution of income was prevalent during this period. Also, it was common acceptable accounting practice to charge or credit losses and gains to earned surplus or to the income statement. Another common practice was to make the income tax provision equal to the income tax liability.

The significant distortion in income where an entity amortized discounts on bonds refunded had already been identified in ARB No. 18. Subsequent to the date of that bulletin, the U.S. government, under Section 124 of the Internal Revenue Code, had issued "Certificates of Necessity." These certificates permitted the amortization of the cost of "emergency facilities" considered essential to the war effort over a period of 60 months. Depreciation of such facilities at normal rates for book purposes and at accelerated rates for tax purposes generated significant differences in pre-tax accounting income and taxable income.

The CAP concluded that "Income taxes are an expense . . ." [AICPA, 1944, p. 183]. With respect to charges or credits to earned surplus, the bulletin stated that they should be tax-effected and that the tax effect should be specifically disclosed and appropriately described in the income statement (intraperiod tax allocation).

Regarding the impact of the amortization of discounts on bonds refunded and of "certificates of necessity," the CAP identified these as timing differences and recommended partial interperiod tax allocation using the net of tax or the liability method. Partial allocation is deduced from the statement that "neither allocation nor disclosure is necessary, however, in case of differences between the tax return and the income statement where there is a presumption that they will recur regularly over a comparatively long period of time." Bulletin 23 also permitted companies to disclose pertinent facts if allocation of income taxes was not practicable.

On a related issue of accounting for the tax effects of loss carrybacks and carryforwards, ARB No. 23 recommended including the tax benefits in the period in which they were realized with disclosure separate from operating results for the period.

On November 16, 1945, the Securities and Exchange Commission (SEC) stated its opposition to income tax allocation (among other issues) in Accounting Series Release No. 53, "In the Matter of
'Charges in Lieu of Taxes'..." Actually, the Commission appeared to be not so much against tax allocation as it was the manner of disclosure, as evidenced by their conclusions:

1. The amount shown as provision for taxes should reflect only actual taxes believed to be payable under the applicable tax laws.

2. It may be appropriate, and under some circumstances such as a cash refunding operation it is ordinarily necessary, to accelerate the amortization of deferred items by charges against income when such items have been treated as deductions for tax purposes.

3. The use of the caption "Charges or provisions in lieu of taxes" is not acceptable.

4. If it is determined, in view of the tax effect now attributable to certain transactions, to accelerate the amortization of deferred charges or to write off losses by means of charges to the income account, the charge made should be so captioned as to indicate clearly the expenses or losses being written off.

5. The location within the income statement of any such special charge should depend on the nature of the item being written off. In the case of a public utility, for example, a special amortization of bond discount and expense should not be shown as an operating expense but should be classified as a special item along with other interest and debt service charges in the "other deductions" section.

6. It is appropriate to call attention to the existence of the special charge by the use of appropriate explanatory language in connection with intermediate balances and totals.

7. In the preparation of statements reflecting estimates of future earnings, it is ordinarily permissible to reflect as income taxes the amount which it is expected will be payable if such earnings are realized provided, of course, the assumptions as to the tax rates are disclosed.

8. In the preparation of statements which are designed to "give effect" to specified transactions, the provision for taxes may, depending on all the facts and circumstances, properly represent either (a) the actual taxes
paid during the period adjusted to give effect to the specified transactions, or, (b) an estimate of the taxes that it is expected will be payable should the income of future years be equal in amount to the adjusted income shown in the statement. The statement should, of course, clearly show what the provision for taxes purports to represent [SEC, 1956, pp. 128-129].

The SEC questioned the CAP's contention that income taxes were an expense and that tax allocation "is purely an effort to have items shown in the income statement at what is considered to be a 'normal' amount." Nevertheless, in the specific case at issue, Virginia Electric and Power Company's 1944 Income Statement, net income in the SEC's revised statement was the same as in the original registration statement.

The American Institute of Accountants official response to ASR No. 53 was a statement by the research department in which the positions of the CAP and the SEC were reviewed and illustrated [AIA, 1946, pp. 127-129]. ARB No. 23 was not changed.

At the close of World War II (9/29/45), an executive order was issued declaring an end to the emergency period. Thus, any previously unamortized costs of emergency facilities were henceforth to be deducted for tax purposes over their remaining useful lives (recall that previously, their cost had been deductible for tax purposes over a period of 60 months). In ARB No. 27, "Emergency Facilities," the CAP reasoned as follows:

It is the opinion of the committee that where the facts clearly indicate that the accelerated amortization or depreciation of emergency facilities at rates permitted for tax purposes has resulted in a carrying value materially less than that reasonably chargeable to revenues to be derived from the continued use of the facilities, . . . , the adjustment of accumulated amortization or depreciation of such facilities is appropriate. . . . Consideration of these factors, . . . , will usually result in the determination of a carrying value for emergency facilities less than the cost of the facility reduced by the depreciation that would have been appropriate had no certificate of necessity been involved [par. 7].

The significance of this bulletin in the context of income tax allocation, is that the recommendation of the CAP was consistent with the net of tax concept of tax allocation previously espoused.
The asset should be carried at less than its market value because all or a significant portion of its tax deductibility had been used up.

1950-1960

The Revenue Act of 1950 again provided for the issuance of certificates of necessity with amortization of all or part of the cost of emergency facilities over 60 months. In ARB No. 42, "Emergency Facilities — Depreciation, Amortization and Income Taxes," the CAP, for the first time, expressed clearly a preference for the liability method of allocating the tax effects of differential timing of depreciation on emergency facilities for book and tax purposes. The CAP also introduced the term "deferred income taxes" by stating that "... the related credit would properly be made to an account for deferred income taxes" [par. 12].

While stating a preference for the liability method of tax allocation, the bulletin said the net of tax method of presentation was still acceptable: "Although this procedure [net of tax method] will result in the same amount of net income as the procedure outlined in paragraph 12 [liability method], and therefore may be considered as acceptable, the committee regards the paragraph 12 procedure as preferable" [par. 13].

In June 1953, ARB No. 43, "Restatement and Revision of Accounting Research Bulletins," was issued. Chapter 9C was essentially a restatement of ARB No. 27 and Chapter 10 Section B was essentially a restatement of Bulletin No. 23.

The Internal Revenue Code of 1954 recognized declining-balance and sum-of-the-years' digits methods of depreciation for tax purposes. ARB No. 44, "Declining-Balance Depreciation," issued in October 1954, recognized that "there may be situations in which the declining-balance method is adopted for income tax purposes but other appropriate methods are followed for financial accounting purposes." [par. 4] In this case, the CAP recommended partial allocation stating that deferred taxes need not be recognized unless it is reasonably certain that the reduction in taxes in the earlier years is merely a deferment of income taxes until a relatively few years later, and then only if the amounts are material. In an unpublished paper, Sprouse [1981, p. 6] said "that ARB signified the beginning of a controversy about deferred income taxes in the U.S. that has raged continuously to this very day."

Following a brief period of debate as to the extent of tax allocation that was appropriate, the CAP issued ARB No. 44 (Revised)
in July 1958. This bulletin recommended allocation of all timing differences generated by the use of different depreciation methods for computing taxable income and pretax accounting income with one exception: "... where charges for deferred income taxes are not allowed for rate-making purposes, accounting recognition need not be given to the deferment of taxes if it may reasonably be expected that the earlier deduction of declining-balance depreciation for income-tax purposes only, will be allowed in future rate determinations" [par. 8]. In this case, full disclosure of the amount of deferred taxes not recognized in the accounts was required.

The bulletin further stated that where the cumulative tax deferral resulting from continuing asset expansion was expected to continue for a long or indefinite period the net of tax method of tax allocation was alternatively appropriate [par. 5]. Some certifying accountants interpreted this language as permitting the deferred tax account to be classified as earned surplus restricted for future income taxes.

To resolve the controversy, the CAP sent a letter to all members of the American Institute of Certified Public Accountants (AICPA) dated April 15, 1959 stating that it used the phrase “deferred tax account” in ARB No. 44 (Revised) in its ordinary connotation of an account that should be presented in the balance sheet as a liability or a deferred credit. The letter also said “A provision in recognition of the deferral of income taxes, being required for the proper determination of net income, should not at the same time result in a credit to earned surplus or to any other account included in the stockholders’ equity section of the balance sheet.” This interpretation served notice that charges and credits to earned surplus were no longer accepted practice.

ARB No. 51, “Consolidated Financial Statements,” issued in August 1959, concluded for the first time that including undistributed earnings of a subsidiary in the pretax accounting income of a parent in consolidation was a timing difference and provision for income taxes generally was required. The exception to the general case would apply where there was evidence of permanent reinvestment by the subsidiaries or a plan for a tax-free liquidation. Years later we refer to this as the “indefinite reversal criteria.”

1960-1970

Some of the regulated public utilities had continued to treat the deferred income tax credit as a part of stockholders’ equity, even though the CAP had rejected this alternative accounting in both
ARB No. 44 (Revised) and its letter to the AICPA membership dated April 15, 1959. Late in 1958, the SEC had announced in Release No. 4010 its intention to issue a statement of administrative policy on this issue. Carman Blough reported that after extended public hearings and fourteen months of further consideration, the SEC issued the proposed statement as Accounting Series Release No. 85 on February 29, 1960. In it, the Commission took a position that was consistent with the view expressed by the CAP in its 1959 letter to the membership [Blough, June 1960, p. 65]. In ASR No. 85, the SEC also imposed comprehensive tax allocation with the following statement:

A number of comments indicated that, should the Commission take the foregoing position, it should be limited to matters connected with depreciation and amortization, or, if not so limited, any additional items should be clearly specified. It is the Commission's view, however, that comparable recognition of tax deferment should be made in all cases in which there is a tax reduction resulting from deducting costs for tax purposes at faster rates than for financial statement purposes.

The SEC further stated that the CAP agreed with their position. Also, in a footnote, the SEC expressed support for the deferred method of comprehensive tax allocation whereas authoritative literature supported the liability approach.

In response to a comment from Carman G. Blough, Director of Research of the AICPA, the SEC issued ASR No. 86, dated April 12, 1960, in which the Commission stated it was not its intent in ASR No. 85 to “make mandatory the use of deferred tax accounting beyond the requirements of generally accepted accounting principles.” Thus, Chapter 10B of ARB No. 43 and ARB No. 44 (Revised), as interpreted by the CAP, were supported and not modified by the releases of the SEC.

Accounting Principles Board (APB) Opinion No. 1, “New Depreciation Guidelines”, issued in November 1962, was the profession’s response to Revenue Procedure 62-21, “Depreciation Guidelines and Rules,” which permitted significantly shorter depreciable lives for tax purposes than had previously been used. No new theory was introduced by the APB, rather the opinion reiterated the need for tax allocation where shorter lives were used for tax purposes than for financial accounting purposes.
In October 1965, APB Opinion No. 6, "Status of Accounting Research Bulletins", was issued, and, for the first time, the net of tax approach was not explicitly stated as an acceptable alternative for tax allocation. The APB called for either the deferred method or the liability method and introduced descriptive terms for each method:

Provisions for deferred income taxes may be computed either (a) at the tax rate for the period in which the provision is made (the so-called 'deferred credit' approach) or (b) at the tax rate which is estimated will apply in the future (the so-called 'liability' approach) [par. 23].

Under the "deferred credit" method, the opinion stated "... Accordingly, the deferred amount is allocated to (drawn down in) the future periods based on the recorded tax benefit, which may be at a rate different from the then current rate," thus implying what we now refer to as the "gross change approach" to computing the tax deferral.

The lack of consensus regarding the circumstances that required allocation (partial allocation vs. comprehensive allocation) or the appropriate methods of tax allocation (deferred, liability, or net of tax method) motivated the APB to ask the Accounting Research Division of the AICPA to commission a research study on those issues. The study was conducted by Homer A. Black and was published as Accounting Research Study (ARS) No. 9, "Interperiod Allocation of Corporate Income Taxes," in 1966. Research studies are not considered authoritative, but ARS No. 9 is the most thorough treatise ever on this topic and its recommendations are included in this paper because of that. The study "begins with two accounting assumptions which have long been accepted by the majority of the profession: (1) income taxes are expenses rather than distributions of income, and (2) income taxes are to be allocated to applicable periods (corollary - disclosure of tax timing differences in a note is not an acceptable substitute)" [Black, 1966, p. 5].

The conclusions of ARS No. 9 are as follows:

1. Interperiod income tax allocation should be applied comprehensively, that is, to all material timing differences (comprehensive allocation) [p. 113].
2. Deferred tax credits should be recorded under the liability method. Deferred tax debits should be recorded under the
deferred method. The net of tax method is a poor tax allocation procedure and is not recommended [pp. 112-113].

3. "... to avoid overstating liabilities and misstating periodic net income, discounting of long-term tax liabilities is required whenever the interest factor is significant." The entity's internal rate of return is recommended as the appropriate discount rate [p. 115].

4. Tax effects of operating loss carryforwards should be recognized in the loss year when realization is substantially assured. If the carryforward benefit is not recognized in the loss year, it should be treated as a correction of the loss year results when realized [p. 115].

The earliest official response to the conclusions of ARS No. 9 was in APB Opinion No. 10 "Omnibus Opinion — 1966," in which the APB concluded "Pending further consideration of this subject and the broader aspects of discounting as it is related to financial accounting in general and until the Board reaches a conclusion on this subject, it is the Board's opinion that . . . deferred taxes should not be accounted for on a discounted basis" [par. 6]. Regarding the other issues addressed in ARS No. 9, the Board stated that it was "giving attention to the general subject with a view to issuing an opinion on it" [par. 6].

In the following year, December 1967, the APB issued Opinion No. 11, "Accounting for Income Taxes," the most complete and authoritative statement ever issued on the subject. The Board agreed with the assumption of ARS No. 9 that income taxes are an expense and summarized its major conclusions as follows:

a. Interperiod tax allocation is an integral part of the determination of income tax expense, and income tax expense should include the tax effects of revenue and expense transactions included in the determination of pretax accounting income.

b. Interperiod tax allocation procedures should follow the deferred method both in the manner in which tax effects are initially recognized and in the manner in which deferred taxes are amortized in future periods.

c. The tax effects of operating loss carrybacks should be allocated to the loss periods. The tax effects of operating loss carryforwards usually should not be recognized until the periods of realization.

d. Tax allocation within a period should be applied to obtain
fair presentation of the various components of results of operations.

e. Financial statement presentations of income tax expense and related deferred taxes should disclose (1) the composition of income tax expense as between amounts currently payable and amounts representing tax effects allocable to the period and (2) the classification of deferred taxes into a net current amount and a net noncurrent amount [par. 12].

In opting for the deferred method of comprehensive tax allocation, the Board concluded that partial allocation and both the liability and net of tax methods of interperiod tax allocation were unacceptable.

Thus, for the first time in twenty-five years, the SEC and the accounting profession had moved to a common ground on both the extent of and the method of interperiod tax allocation. From initial opposition to tax allocation (see ASR No. 53), the SEC had moved more rapidly than the profession to this position (ASR No. 85 had supported the deferred method of comprehensive allocation in 1960). As to the authoritative literature, the profession was the first to recognize the need for tax allocation (see ARB Nos. 18 and 23) and its thinking had evolved from allocation with respect to specific transactions (see ARB No. 18), to partial allocation using either the liability or net-of-tax methods, (see ARB No. 23), to partial allocation with a preference for the liability method (see ARB No. 42), to partial allocation under either the deferred method or the liability method (see APB Opinion No. 6), to the deferred method of comprehensive tax allocation.

Timing differences were differentiated from permanent differences and the opinion stipulated the with and without method of measuring the tax deferral generated by timing differences. Under certain conditions, either the net change approach or the gross change approach could be used.

The Board reaffirmed its opposition to discounting of deferred taxes (as previously stated in Opinion No. 10) pending further study.

In deferring modification of paragraph 16 of ARB No. 51 regarding accounting for income taxes in consolidation on undistributed earnings of subsidiaries, the Board reaffirmed the indefinite reversal criteria concept, i.e., income taxes need not be accrued by the parent if there is evidence of permanent reinvestment by the subsidiary or of a tax-free liquidation [par. 39].
Decisions affecting some special areas were deferred until further study:

1. Undistributed earnings of subsidiaries.
2. Intangible development costs in the oil and gas industry.
3. "General reserves" of stock savings and loan associations.
4. Amounts designated as "policyholders' surplus" by stock life insurance companies.
5. Deposits in statutory reserve funds by United States steamship companies [par. 38].

In APB Opinion No. 18, "The Equity Method of Accounting For Investments in Common Stock," the requirements of paragraph 16 of ARB No. 51 that income taxes be accrued on undistributed earnings of consolidated subsidiaries (except where the indefinite reversal criteria apply) were extended to include investments in common stock of unconsolidated subsidiaries, corporate joint ventures and other investee companies accounted for by the equity method in consolidated statements. Also included were equity method investments in parent company financial statements [par. 19J].

Positions on accounting for income taxes in three of the five special areas that had been deferred for further study in APB Opinion No. 11 (see above) were taken in APB Opinion No. 23, "Accounting For Income Taxes-Special Areas," issued April 1972. In this opinion, the Board concluded that "including undistributed earnings of a subsidiary in the pretax accounting income of a parent company, either through consolidation or accounting for the investment by the equity method, may result in a timing difference, in a difference that may not reverse until indefinite future periods, or in a combination of both types of differences, depending on the intent and actions of the parent company" [par. 9] (a reaffirmation of paragraph 16 of ARB No. 51 and APB Opinion No. 18, paragraph 19J). This literature, however used the term "indefinite reversal criteria" for the first time and extended the concept to investments in corporate joint ventures, bad debt reserves of savings and loan associations and "policyholders surplus" of stock life insurance companies. In the latter two areas, indefinite reversal was presumed to be the general case, however, and not the exception. One could argue, of course, that introduction of the indefinite reversal criteria in these specific situations was a means of invoking partial allocation without recognizing it as such.

Concurrently, APB Opinion No. 24, "Accounting For Income Taxes-Investments in Common Stock Accounted for by the Equity
Method (other than subsidiaries and corporate joint ventures),"" determined that the tax effects of differences between taxable income and pretax accounting income attributable to an investor's share of such investee companies accounted for by the equity method have the essential characteristics of timing differences and tax allocation is required. Accounting for this type investment is different from undistributed earnings of subsidiaries and investments in corporate joint ventures because of the inability of the investor to exercise control over the investee and, therefore, the indefinite reversal criteria do not apply.

Up to this point in time, the authoritative literature had not addressed accounting for income taxes in interim financial statements. In May 1973, APB Opinion No. 28 stated that "income tax provisions should be determined under the procedures set forth in APB Opinion Nos. 11, 23, and 24" [par. 19].

Two phenomena were associated with the issuance of Financial Accounting Standards Board (FASB) Statement No. 9: Action on accounting for income taxes for oil and gas producing companies had been deferred in APB Opinion No. 11, and the Tax Reduction Act of 1975 substantially reduced or eliminated percentage (statutory) depletion for many oil and gas companies.

Prior to Opinion No. 11 and up to the effective date of FASB Statement No. 9 (1/1/75), some oil and gas producing companies allocated income taxes with respect to intangible drilling and development costs (IDC) and some did not. Those companies not allocating taxes generally cited the interaction of percentage depletion as the conceptual basis. Statement No. 9 required interperiod tax allocation for IDC and other costs associated with exploration for or development of oil and gas reserves that enter into determination of taxable income and pretax accounting income in different periods. This statement also permitted but did not require an entity to recognize the interaction of percentage depletion. With the issuance of Statement No. 9, all of the special areas deferred for further study in APB Opinion No. 11 had been addressed in the authoritative literature except for deposits in statutory reserve funds by United States steamship companies.

Although FASB Statement No. 9 permitted recognition of the interaction of percentage depletion with book/tax timing differences, the question of whether interaction should be recognized was not addressed. In FASB Statement No. 19, however, the Board concluded that recognition of the above interaction would be inconsistent with comprehensive tax allocation and that excess statutory
depletion should be accounted for as a permanent difference, i.e., interaction should not be recognized.

In April 1978, the FASB responded to those wanting to apply the indefinite reversal criteria of APB Opinion No. 23 to other areas in Interpretation No. 22, “Applicability of Indefinite Reversal Criteria of Timing Differences.” The Board stated the provisions of APB Opinion No. 23 do not apply to timing differences other than those specified in that opinion.

Less than two years later, however, the FASB applied the indefinite reversal criteria in Statement No. 31, “Accounting for Tax Benefits Related to U.K. Tax Legislation Concerning Stock Relief,” (September 1979). The Board determined that the tax benefit of “stock relief” provided by the U.K. tax law should be deferred only if recapture was probable within the six year recapture period.

1980-1985

FASB Statement No. 37, “Balance Sheet Classification of Deferred Income Taxes,” issued July 1980, clarified the requirements of APB Opinion No. 11 that deferred taxes be classified as current or noncurrent based on the classification of the related asset or liability as follows:

A deferred charge or credit is related to an asset or liability if reduction of the asset or liability causes the timing difference to reverse. A deferred charge or credit that is related to an asset or liability shall be classified as current or noncurrent based on the classification of the related asset or liability. A deferred charge or credit that is not related to an asset or liability because (a) there is no associated asset or liability or (b) reduction of an associated asset or liability will not cause the timing difference to reverse shall be classified based on the expected reversal date of the specific timing difference. Such classification disregards any additional timing differences that may arise and is based on the criteria used for classifying other assets and liabilities [par. 4].

With the enactment of the Economic Recovery Act of 1981 that introduced a new “accelerated cost recovery system” (ACRS) for depreciable assets, renewed efforts were directed toward reconsideration of comprehensive interperiod tax allocation based on
the deferred method. The literature suggests the major concerns about interperiod tax allocation were as follows:

1. Perhaps the greatest concern was the increasing magnitude of the amount of deferred income taxes reported. Compounding this already empirically validated phenomenon was that under ACRS not only were current deferred income tax balances expected to accelerate; they also would appear on some enterprises' balance sheets that had not previously had different amounts of depreciation for book and tax purposes [Sprouse, 1981, p. 7].

2. The complexity of applying the deferred method comprehensively. Recognition of the interplay of deferred income taxes and unused investment tax credits (see FASB Interpretation 25) had significantly increased that complexity [Sprouse, 1981, p. 8].

3. The concern of many managers and users about how to interpret deferred taxes. Moreover, considering the complexity of calculation and the difficulty of interpreting the meaning, did the cost exceed the benefits [Sprouse, 1981, p. 8]? 

4. The inconsistency of the deferred method and the FASB conceptual framework. Specifically, in Concepts Statement No. 3, the Board said that only the net of tax and liability methods are compatible with the definitions therein [Beresford et al, 1982, p. 5].

5. Critics also suggested that the deferred method of comprehensive tax allocation was not in harmony with some other countries' principles and, thus, contrary to international harmonization of generally accepted accounting principles [Beresford et al, 1983, p. 6].

In response to the above concerns the FASB added a major project on "Accounting for Income Taxes" to its agenda on January 27, 1982. As part of this project, Ernst & Whinney completed a survey of the existing literature on accounting for income taxes that was published as a research report by the FASB in July 1983. [Beresford et al, 1983] Two studies sponsored by the American Gas Association and the Edison Electric Institute were completed by Coopers & Lybrand and Arthur Andersen & Co. in February 1983.² Research sponsored by the Financial Executives Research Foundation focusing on the impact of interperiod tax allocation on reported financial information and on the views of financial statement
preparers and carried out by James E. Wheeler of the University of Michigan has been completed, not yet published.

In August 1983, a Discussion Memorandum, "Analysis of Issues Related to Accounting for Income Taxes," was issued. Public hearings were held in April 1984 and three special meetings were held in May 1984 to obtain the views of preparers, users, and auditors associated with the financial statements of small companies.

At a meeting on June 12, 1984, the Board tentatively decided that comprehensive interperiod tax allocation should be required. The Board did not address interperiod tax allocation for special areas, such as those noted in APB Opinion No. 23, at that meeting. In December 1984, the Board tentatively decided in favor of the liability method of comprehensive tax allocation. In FASB Status Report No. 164, January 10, 1985, the following also was reported:

The Board believes that accounting for the tax benefit of NOL and ITC carryforwards should be the same. The tax benefit should reduce net deferred tax liabilities that mature during the carryforward period, and the Board tentatively favors recognition of an asset for any remaining benefit if certain conditions are met. Whether the basic methods (deferral and flow-through) to account for investment tax credits should remain within the scope of this project was discussed, but no decision was reached [p. 3].

Progress on the income tax project also was reported in FASB Status Report No. 168 dated July 10, 1985. Tentative positions announced in that document were confirmed and extended in FASB Status Report No. 170, October 8, 1985, as follows:

The Board has addressed all of the issues in the 1983 discussion memorandum except (a) accounting requirements for private or small public companies, (b) financial statement disclosures, and (c) transition provisions for adopting the new accounting standards for income taxes.

The Board has decided that comprehensive interperiod tax allocation should be required. The Board has also decided to reject the notion of "indefinite reversal" as set forth in APB Opinion No. 23, "Accounting for Income Taxes — Special Areas."

The Board favors a tax liability (or asset) approach to interperiod tax allocation. However, the Board decided to
exclude discounting from the income tax issues to be addressed at this time.

Deferred tax liabilities and assets should be adjusted to reflect any enacted changes in tax rates or laws that will be effective for the years in which deferred tax liabilities and assets mature. In addition, the Board tentatively favors measurement of deferred tax liabilities and assets (a) using tax rates expected to be applicable to the settlement of the deferred tax liabilities and (b) using feasible and prudent tax-planning alternatives.

Recognition requirements should be the same for (a) tax assets resulting from prepayment of taxes, (b) net operating loss (NOL) carryforwards, and (c) tax credit carryforwards. Those three types of future tax benefits should be recognized as a reduction of deferred tax liabilities that mature during the same future periods. In addition, tax assets should be recognized if they can be realized by an NOL carryback in a year for which taxes were paid. Otherwise, the three types of future tax benefits should be recognized in the year(s) that they reduce taxes payable on the tax return. When realized, the tax benefits ordinarily should be reported as a reduction of income tax expense attributable to continuing operations and should not be reported as extraordinary items.

The Board has decided against a discounted, net-of-tax approach to assigning amounts to the individual assets acquired and liabilities assumed when a business combination is accounted for as a purchase under APB Opinion No. 16, "Business Combinations." Instead, a deferred tax liability or asset should be recognized based on the same recognition requirements described above for other situations. Subsequent realization of tax benefits (NOL and tax credit carryforwards or an excess of tax basis over the net amount assigned to the net assets acquired) not recognized at the acquisition date should be applied to reduce goodwill. After goodwill is reduced to zero, additional benefits realized should be included in the determination of income.

Most of the present accounting requirement for income taxes in periods would remain unchanged. However, a
tax asset should not be recognized for future tax benefits (for example, an NOL carryforward) that will not be realized in subsequent interim periods of the current year. Income taxes should continue to be allocated between income from continuing operations, items other than income from continuing operations (for example, extraordinary items), and stockholders' equity (for items of comprehensive income such as translation adjustments that are initially reported in stockholders' equity). However, income taxes should not be allocated to stockholders' equity for the tax effect of (a) stock compensation plans that create permanent differences between compensation expense for financial reporting and for taxes and (b) the tax deductibility of dividends paid to stockholders.

The Board has tentatively decided that the issue of the basic method to account for investment and other tax credits should be removed from the scope of this project.

The Board's tentative decision to favor a tax liability (or asset) approach to interperiod tax allocation is a major theoretical shift in accounting policy, but it is consistent with positions stated in Statement of Financial Accounting Concepts No. 3:

Both the liability and the net-of-tax method are compatible with the definitions [of elements] in this Statement. Only the deferred method that is prescribed by APB Opinion No. 11, Accounting for Income Taxes, does not fit the definitions [pars. 163-164].

The decision to exclude discounting from the income tax issues to be addressed at this time is theoretically inconsistent with the liability method, however, and must be viewed as expedient.

Likewise, the removal of the issue of the basic method to account for investment and other tax credits from the scope of the project appears inconsistent with the liability method and should be considered a political solution.

FOOTNOTES

1 The liability method is inferred from Peloubet's dissent: "... the consistent application of the bulletin to reserves would be difficult and confusing, requiring the use of charges or credits net of tax, the amount of which was not known with any certainty."

2 Interperiod Allocation of Income Taxes, A Study Sponsored by the Edison Electric Institute and the American Gas Association, New York: Coopers & Ly-
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THE RECENT HISTORY OF CORPORATE AUDIT COMMITTEES

Abstract: This article explores factors in the financial, legal and social environments that have significantly influenced the development of corporate audit committees. Particular emphasis is given to the actions of the Securities and Exchange Commission and the American Institute of Certified Public Accountants.

The New York Stock Exchange (NYSE) decision requiring that all listed corporations have audit committees as of June 30, 1978, made audit committees an integral part of the corporate organization.

The concept of an audit committee is not new. Audit committees first attracted attention in the late 1930's when the Securities and Exchange Commission (SEC) and New York Stock Exchange encouraged their establishment after the McKesson and Robbins case. In recent years there has been a significant increase in the number of corporations that have formed audit committees [AICPA, 1978]. A 1970 survey by R. K. Mautz and F. L. Neuman showed that 32 percent of the corporations responding had audit committees, while a repeat of the survey in 1976 showed that 87 percent had audit committees [Mautz and Neuman, 1977]. Congress, the SEC, the accounting profession and others have expressed an interest in and support for audit committees.

Actions of the Securities and Exchange Commission

In 1940, the SEC first recommended the establishment of audit committees in Accounting Series Release No. 19. This was issued in response to the McKesson and Robbins, Inc. investigation. The release proposed that, to assure auditor independence, a committee be selected from non-officer board members to nominate auditors and arrange details of the engagement.

In Accounting Series Release No. 123, issued March 23, 1972, the SEC stated its long interest in corporate audit committees, and concluded with the following statement:
To this end, the Commission, in the light of the foregoing historical recital, endorses the establishment by all publicly-held companies of audit committees composed of outside directors and urges the business and financial communities and all shareholders of such publicly-held companies to lend their full and continuing support to the effective implementation of the above-cited recommendations in order to assist in affording the greatest possible protection to investors who rely upon such statements.

The stated intention of these recommendations was to impress on the auditor his responsibilities to investors, particularly the need for independence. The SEC noted in Accounting Series Release No. 126, issued July 5, 1972, that the existence of an audit committee of the board of directors, particularly if composed of outside directors, should also strengthen such independence.

In 1974, the SEC issued Accounting Series Release No. 165 which, among other things, added the following provision to Regulation 14A of the proxy rules:

If the issuer has an audit or similar committee of the board of directors, state the names of the members of the committee. If the board of directors has no audit or similar committee, so state.

In recent years, the SEC has strongly endorsed or required, as a result of enforcement proceedings, that individual corporations establish audit committees. In the matter of *National Telephone Company*, the SEC discovered the following facts:

1. The company faced serious cash flow difficulties.
2. The company made public disclosures which did not disclose problems but which reported high earnings and projections of growth.
3. Outside directors were aware of the company's troubled financial condition and were also aware of the optimistic disclosures.
4. The company had an audit committee of three outside directors, but the committee never met.
5. Outside directors did not take meaningful steps to see to it that adequate disclosure be made [SEC, January 1978].

With regard to the audit committee, the SEC concluded:
Finally, the facts developed during this investigation demonstrate the need for adequate, regularized procedures under the overall supervision of the Board to ensure that proper disclosures are being made. Such procedures could include among other things, a functioning audit committee with authority over disclosure matters, or any other procedure which involves the Board of Directors in a meaningful way in the disclosure process. With such procedures, the corporation's shareholders and the public should be more adequately protected from haphazard or fraudulent disclosure [SEC, January 1978].

The case of SEC v. Killearn resulted in a consent decree in which the company agreed, among other things, to form an audit committee of three outside directors. The SEC specifically stated that duties of the committee would include:

1. Review the arrangements and scope of the audit and the compensation of the auditor.
2. Review with the independent auditor and the company's chief financial officer the company's internal accounting controls.
3. Review with the auditor the results of the audit, including —
   (a) The auditor's report.
   (b) The auditor's perception of the company's financial and accounting personnel.
   (c) Cooperation received by the auditor.
   (d) Steps to make the audit more efficient.
   (e) Significant unusual transactions.
   (f) Changes in accounting principles.
   (g) Significant adjustments proposed by the auditor.
   (h) Recommendations by the auditor with regard to internal accounting controls.
4. Inquire concerning deviations from the company's code of conduct and periodically review that code.
5. Meet at least twice a year with the company's financial and accounting staff to review internal accounting and auditing procedures.
6. Recommend to the board the retention or discharge of the independent auditors.
7. Review all public releases of financial information.
(8) Review activities of officers and directors in dealing with the company.

The audit committee would also be authorized to conduct investigations related to carrying out its duties and to approve settlements of certain litigation involving the company's officers.

The SEC underscored the importance it places on an audit committee in an enforcement action concerning misleading interim reporting. In the case of SEC v. Mattel, Inc., it accepted Mattel's consent to establish an audit committee. As a part of the ensuing settlement, the court ordered that the company appoint a majority of unaffiliated directors and that it establish a financial controls and audit committee among whose major functions would be a review of financial controls, accounting procedures, and financial statements disseminated to the public.

In the consent decree arising from SEC v. Lum's, et al., the court, as part of the settlement of the SEC's allegation of manipulations and proxy fraud, ordered that a standing audit committee be established. The audit committee was to consist of two or more members of the board of directors who were not officers or employees of the company and whose function would be to review the auditor's evaluation of internal controls and to oversee other required evaluations of casino operations, personnel, and security.

When submitting its report on its inquiry into the reason for the Penn Central collapse to a House subcommittee, the SEC noted that:

The Commission, taking a look at the future, has paid increasing attention to the role, the qualifications, the responsibilities, and the independence of corporate directors, which appear to be called for. Last month the Commission released a statement endorsing the establishment of audit committees composed of independent directors. The staff report points up the critical importance of the whole subject of the responsibility of directors, the greater utilization of public and independent directors, the professionalization of their function, providing staff support for directors and judging their performance not on the basis of hindsight but on the basis of the reasonableness of their judgment in the circumstances and at the time it was exercised.

In 1976, the SEC again underscored its interest in audit committees, this time as a means of deterring questionable and illegal
corporate payments and other practices. In its report to the Senate on "Questionable and Illegal Corporate Payments and Practices," the Commission wrote:

Actions to further enhance the creation by public corporations of audit committees composed of independent directors to work with outside auditors would serve as a valuable adjunct to these legislative proposals.

The importance of the role of the board of directors, independent audit committees, and independent counsel has been illustrated by the Commission's enforcement actions in the area of questionable or illegal corporate payments. Significantly, in some of these cases no audit committee existed. In others, with a single exception, audit committees either operated only during a portion of the time when the questionable payments were alleged to have been made, or were not wholly independent of management. Accordingly, the resolution of these proceedings typically has involved establishment of a committee comprised of independent members of the board of directors, charged to conduct a full investigation, utilizing independent legal counsel and outside auditors, to conduct the necessary detailed inquiries.

The thoroughness and vigor with which these committees have conducted their investigations demonstrate the importance of enhancing the role of the board of directors, establishing entirely independent audit committees as permanent rather than extraordinary, corporate organs and encouraging the board to rely on independent counsel.

Acting to further strengthen the independence of auditors, the SEC in September 1977 proposed a rule to require disclosure in a company's proxy material of audit fees and services and approval thereof by the board of directors or its audit committee. The text of the proposal included the following comments:

It is desirable for all public companies to have audit committees composed of independent directors and ways are being considered by which such committees might be encouraged or required.

The Commission believes that objectivity and independence are enhanced if the auditor deals with an audit
committee of independent directors or the board of directors in determining services and fees. In order to provide investors with knowledge of whether the board of directors or audit committee has approved all services provided by the auditors, the Commission proposes to require disclosure of whether such approval has taken place.

More recently, in response to the recommendations of U.S. congressional subcommittees, the SEC urged the AICPA to require audit committees as a condition of an independent audit. Speaking at the American Institute of Certified Public Accountants (AICPA) Fifth National Conference on Current SEC Developments on January 4, 1978, Harold M. Williams, Chairman of the SEC, stated:

The profession must take whatever steps are reasonably available to it — such as insisting that their clients maintain audit committees — to insure and enhance its independence. If the profession is reluctant to take steps of that nature voluntarily and of its own accord, the Commission will need to understand why and how that reluctance can be reconciled with a profession which desires to maintain the initiative for self-regulation and self-discipline.

Harold M. Williams commented again on the importance of audit committees in a paper presented at Carnegie-Mellon University on October 24, 1979. He stated that:

Audit committees are critical because of the fundamental role which the independent auditor plays in corporate accountability and the special trust which the public places in the auditor’s work. With the wide acceptance of the concept of the audit committee, the next question which must be faced is the definition of the committees’ responsibilities. At present, many audit committees are, undoubtedly, not yet working fully effectively, and some may serve more to provide windowdressing rather than to add substance to the accountability process. The development of a better consensus as to the minimum responsibilities of audit committees should be an important priority.

SEC regulation is assumed to be in the public interest, and the SEC’s support for the development of audit committees gained
momentum due to the declining corporate image in the public sector. The August 9, 1976 issue of Business Week, began a review of a book on the world of business by stating that "American business has seldom been held in such low regard as it is today. A succession of scandals, ranging from the collapse of Penn Central to ITT's misadventures in Chile to the illegal payoffs of Gulf, Lockheed and scores of others, has given business a corrupt and de-humanizing image. . ." Antibusiness and anticorporate attitudes were not new in American political history, but perhaps never before had the critics been more strident in their accusations, more zealous in their crusade for reforms. Public confidence sagged; public regulation proliferated. Proposals abounded for more accountability and more control of corporate activities. And there was the expectation that outside directors would become more involved in monitoring corporate conduct and governance [Schornack, April 1979].

Since the 1940 issuance of Accounting Series Release No. 19, the SEC has consistently shown its support of corporate audit committees. Through several court cases it has required certain individual corporations to establish audit committees and has prescribed definite duties for them. In addition, Accounting Series Releases Nos. 123 and 165 addressed the issue of audit committees and further stated the SEC's endorsement of these committees.

**Actions of the New York Stock Exchange**

The first major endorsement for the establishment of audit committees came from the New York Stock Exchange in 1939, also as a result of the McKesson and Robbins case. The Exchange's report stated, "... where practicable, the selection of the auditors by a special committee of the board of directors composed of directors who are not officers of the company appears desirable."

For over twenty years the Exchange has required all newly listed companies to have at least two outside directors. In 1973, the Exchange published a 'white paper' which stated that an audit committee "no longer represents a corporate luxury, but has become a necessity."

At the urging of the SEC, on January 6, 1977, the NYSE adopted a requirement for all listed companies to maintain an audit committee. It specifically stated:

Each domestic company with common stock listed on the Exchange, as a condition of listing and continued list-
ing of its securities on the Exchange, shall establish no later than June 30, 1978, and maintain thereafter an audit committee comprised solely of directors independent of management and free from any relationship that, in the opinion of its board of directors, would interfere with the exercise of independent judgment as a committee member. Directors who are affiliates of the company or officers or employees of the company or its subsidiaries would not be qualified for audit committee membership.

Thus, the audit committee became a required part of the corporate organization for all companies listed on the New York Stock Exchange.

**Actions of the American Institute of Certified Public Accountants**

In July 1967, the AICPA executive committee statement on audit committees of board of directors recommended that publicly owned corporations appoint audit committees. Specifically, the committee stated:

The executive committee of the American Institute of Certified Public Accountants recommends that publicly owned corporations appoint committees composed of outside directors to nominate the independent auditors and to discuss the auditor's work with them.

Wide adoption of this practice would represent a further step in the continuing improvement of corporate financial reporting to the investing public. Audit committees can be a constructive force in the overall review of internal control and financial structure and give added assurance to stockholders as to the objectivity of corporate financial statements.

Audit committees can assist their full boards of directors in matters involving financial statements and control over financial operations. They can also strengthen the positions of managements by providing assurance that all possible steps have been taken to provide independent review of the management's financial policies and operation. This is good for the company and good for the public.

In July 1977, the AICPA board of directors again urged the establishment of audit committees and urged AICPA members to
encourage corporations to establish audit committees. The board has also asked the American Stock Exchange and regional exchanges to adopt audit committee requirements similar to the requirement of the New York Stock Exchange.

Report of the Commission on Auditors' Responsibilities. In its report issued in January 1978, the Commission on Auditors' Responsibilities (which was established by the AICPA) stated:

The board of directors, with outside members and an audit committee when appropriate, is the best vehicle for achieving and maintaining balance in the relationship between the independent auditor and management. Therefore the Commission believes that steps should be taken by boards, auditors, and when necessary, by regulatory authorities to help assure that boards will actively exercise this opportunity. Where appropriate to the size and circumstances of the corporation, board members should include independent outsiders, and an audit committee should be formed.

Special Committee on Audit Committees. In early 1978, the AICPA appointed a Special Committee on Audit Committees to study whether the AICPA should require that companies establish audit committees of their boards of directors as a condition of an audit by an independent public accountant. Under consideration by this special committee were such questions as whether audit committees should be required to strengthen auditor independence, and should a requirement for audit committees specify duties to be performed by the committee.

As a supplemental issue, the committee was also asked to consider whether the independent auditor should be required to be present and available to answer questions at the annual meeting of stockholders. While this issue is not directly related to audit committees, it does involve similar questions of applicability and implementation.

The special AICPA committee, which was formed in response to congressional and SEC recommendations for requiring corporate audit committees, concluded that it was not possible to sustain the considerable burden of identifying the necessity of an audit committee requirement. The AICPA reported to the Securities and Exchange Commission that while it continues to support the concept of audit committees for publicly owned corporations, it has found
no reasonable basis for issuing a technical standard requiring their establishment. The committee pointed out that it does not find audit committees necessary for the maintenance of auditor independence or for performance of an audit in accordance with generally accepted auditing standards. The AICPA committee also stated, however, that it is convinced that audit committees can be helpful to both corporate directors and to independent auditors. In addition, the committee stated that any Institute requirement would be viewed as an intrusion into the area of corporate governance and recommended that the accounting profession urge other bodies such as the stock exchanges and the National Association of Securities Dealers to encourage or require committees for publicly held companies.

While the AICPA is unwilling to make the existence of an audit committee mandatory before an independent audit can be performed, it has consistently shown its support for audit committees. The AICPA's expressed belief in the value of the audit committee has contributed to their significant increase in number and importance.

**Actions of Congress**

While the accounting profession, the SEC and the NYSE have advocated the audit committee for many years, Congress has only recently expressed its interest in the matter. Senate Bill 3379, introduced May 5, 1976 by Senators Church, Clark and Pearson in response to the publicity involving questionable corporate payments, had as one of its requirements that companies establish audit committees made up of outside directors. The bill also would have required that outside directors constitute at least one-third of the total board membership. There was, however, no action taken on this bill.

In its 1976 report on an investigation of the Securities and Exchange Commission, the Subcommittee on Oversight and Investigations of the Committee on Interstate and Foreign Commerce, House of Representatives (the Moss Committee), was critical of board of directors performance in general and specifically noted the desirability of audit committees. The following is an excerpt from that report:

> A director must be willing to devote considerable time to his important and continuing responsibilities. A director elected because of demonstrated expertise should be expected to manifest that expertise in fulfillment of his
responsibilities and should be compensated appropriately. The majority of the board should be detached from management and from any other conflict of interest, e.g., association with the company's investment banker or corporate counsel. The board should provide itself with an independent staff. A board's key audit committee should be comprised of a majority of independent directors who adopt rules to govern the committee's proceedings. The audit committee should have available to it independent expert advisors. Likewise, the nominating committee should be comprised of a majority of independent directors. Assuring the independence of the board and its key auditing and nominating committees as well as holding directors to professional standards of performance are critical to building an effective system of corporate accountability to protect public investors as well as a corporation's customers, suppliers, and competitors.

The Foreign Corrupt Practices Act was passed December 19, 1977. This Act made recordkeeping and an internal control system for all public companies a matter of law. Interpreters of this Act have subsequently suggested that audit committees could provide a vehicle for insuring that the provisions of the Act are met. For example, Leonard M. Savoie, CPA, vice-president and controller of Clark Equipment Company, Buchanan, Michigan, and former executive vice president of the AICPA, spoke on some of the practical problems of monitoring compliance with internal accounting control systems under the Foreign Corrupt Practices Act. Savoie suggested that, to assure compliance, companies institute special procedures including annually distributing corporate policy statements and guidelines to all management personnel and authorizing internal auditors and lawyers to investigate and report to the audit committee on violations of the conduct guidelines. Dennis R. Beresford and James D. Bond, in an article in the Financial Executive stated that the immediate effect of the internal control provision of the law will be for management, audit committees, and independent auditors of public companies involved in international trade to challenge more rigorously systems of internal control with a broad question similar to the following:

How does the company's system of internal control provide reasonable assurance that an illegal foreign payment does not occur [August 1978]?
The Subcommittee on Reports, Accounting and Management of the Senate Committee on Governmental Affairs (the Metcalf Committee) stated the following in its November 1977 report:

The Subcommittee strongly believes that the accounting profession or the SEC should immediately require that publicly owned corporations establish audit committees composed of outside directors as a condition for being accepted as a client by an independent auditor.

Given this new interest on the part of Congress, a possibility looms that new legislation may require boards of directors of all publicly held companies to establish and maintain such audit committees. The principal concern is that such legislation could conceivably go on to establish specific rules and regulations governing the responsibilities and performance of audit committees and boards of directors in general [Arthur Andersen & Co., 1978].

Increases in Responsibilities of Directors

At least part of the explanation for the suddenly increased enthusiasm for corporate audit committees is the increased awareness of the legal responsibilities of directors. A large number of articles in periodical business publications have emphasized the increasing scope of director responsibility [Mautz and Neuman, 1977]. For example, a May 11, 1974 editorial in Business Week includes the following:

The Securities & Exchange Commission's suit against the old management of the bankrupt Penn Central Railroad abruptly extends responsibility for corporate misdeeds to a broad new area. In effect, the SEC is saying that anyone connected with the company who was in a position to know what was going on and to do something about it will be held liable along with those who actually committed the offenses. Applying this philosophy to the Penn Central case, the SEC did not stop with bringing suit against . . . the former president and . . . the former top financial officer. It also included as defendants three outside directors of the company.

In an article entitled "The SEC Looks Harder at How Directors Act," [Business Week, February 2, 1976], the following comments are included:
Birkett: The Recent History of Corporate Audit Committees

Last week's dismissal of Gulf Oil Corporation Chairman, Bob R. Dorsey, by the company's board suggests that some directors are already worried. Gulf's directors reportedly fear that the SEC would hold them liable for a failure to act in disciplining management implicated in illegal acts.

Even outside directors without knowledge of wrongdoing may be legally obligated to ferret out the facts for themselves. That is the thrust of a consent decree that the SEC negotiated last summer with Theodore Kheel and John Castellucci, the two outside directors of Sterling Homex Corporation when insiders were allegedly practicing fraud in hiding the company's financial deterioration.

A book review in the April 26, 1976 issue of Business Week commences with this statement:

Corporate scandals have become such everyday occurrences that they hardly evoke surprise anymore, but until a few months ago, at least, one question always popped up in their wake: where were the directors when the price fixing, bribing, or polluting was going on.

Corporate directors, faced with such charges and assertions, can scarcely continue in ignorance of their risks and responsibilities. To the extent that corporate audit committees are perceived as a means of reducing such risks, they are likely to be a welcome addition to corporate practice [Mautz and Neuman, 1977].

Because of limitations of time and resources, the board's responsibility is particularly heavy and, in recent years, directors have been facing intensifying challenges:

(1) Companies have increased in size, diversity and complexity.
(2) Directors find it virtually impossible to be knowledgeable about and discuss every facet of their directorate companies.
(3) The number of lawsuits against directors has increased, not only because of board actions but also because of actions by management.
(4) The directors' obligation to exercise reasonable care in the fulfillment of their responsibilities to shareholders is underscored by the trend toward litigation [Coopers & Lybrand, 1976].
Corporate boards of directors must meet the challenges of their changing duties and responsibilities in order to fulfill their role within the corporate organization. The audit committee can be an important aid in this endeavor.

Other Actions Supporting the Establishment of Audit Committees

The Corporate Director's Guidebook, prepared by a subcommittee of the American Bar Association, states that it is desirable that boards of directors establish audit committees. The audit committee is described in this publication as "the communication link between the board of directors as representatives of the stockholders, on the one hand, and the independent auditors on the other hand."

Some states have audit committee requirements. For example, a recently enacted statute of Connecticut requires that certain corporations of that state with at least one hundred stockholders must establish audit committees [Connecticut General Statutes Annotated, 1980].

In Canada, the provisions of the Business Corporations Act include the following:

(1) The directors of a corporation that is offering its securities to the public shall elect annually from among their number a committee to be known as the audit committee to be composed of not fewer than three directors, of whom a majority shall not be officers or employees of the corporation or an affiliate of the corporation, to hold office until the next annual meeting of the shareholders.

(2) The members of the audit committee shall elect a chairman from among their members

(3) The corporation shall submit the financial statement to the audit committee for its review and the financial statement shall thereafter be submitted to the board of directors.

(4) The auditor has the right to appear before and be heard at any meeting of the audit committee and shall appear before the audit committee when required to do so by the committee.

(5) Upon the request of the auditor, the chairman of the audit committee shall convene a meeting of the committee to consider any matters the auditor believes
should be brought to the attention of the directors or shareholders.

Many segments of the business community and the general public have shown interest in and support for corporate audit committees. These segments may differ in the purposes for which they support audit committees and in the objectives they hope will be achieved. However, a historical review of the development of audit committees shows that all interested segments expect the committees to strengthen the corporate image to the general public.

While the composition of audit committees has been addressed by the SEC, the NYSE, the AICPA and Congress, only the SEC has issued any specific duties to be performed by audit committees, and this has only been done in specific cases for individual companies. Without guidelines to maintain some consistency and standardization of functions and responsibilities for all audit committees, the goals for which these bodies support corporate audit committees may not be achieved.

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U.S. Congress, Senate Subcommittee on Reports, Accounting and Management of the Committee on Governmental Affairs. *Improving the Accountability of Publicly Owned Corporations and Their Auditors*.


HISTORICAL NUGGETS

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WILLIAM O. DOUGLAS ON THE TRANSFER OF THE SECURITIES AND EXCHANGE COMMISSION’S AUTHORITY FOR THE DEVELOPMENT OF RULES FOR FINANCIAL REPORTING

Abstract: As an SEC Commissioner, William O. Douglas favored active SEC participation in the development of rules of accounting for financial reporting under the Securities Acts. A retrospective letter dated September 29, 1973 indicates that the pre-War SEC Commission did not contemplate the virtually complete transfer to the private sector of the authority for development of corporate financial reporting that characterizes the position of today’s SEC.

The present initiative for corporate financial reporting rules is in the hands of the private sector, and there are serious doubts in the minds of some contemporary Congressmen about the wisdom of that arrangement. As of this writing, a year-long series of hearings was being conducted by a major House subcommittee into Securities and Exchange Commission oversight of the accounting profession. The hearings covered arrangements for the development of rules for corporate financial reporting and auditing standards. The manner in which those rules became institutionalized in the private sector has been spelled out elsewhere [Chatov, 1975] and need not be covered in this paper. What is at issue at the present time is the question of the vesting in private groups of functions originally specified as governmental responsibilities. Regardless of the desirability of having a self-regulating, profit-oriented professional group control the rules under which they carry out their business operations, over a period of some fifty years the control of those functions has become increasingly institutionalized in private hands. This clearly makes for a form of
legitimacy through de facto operations, rather far from any kind of authorized de jure process or intention.

Accordingly, it is appropriate to inquire into the origins of that process and to see what were the views of the original members of the Commission when the transfer of authority to the private sector began to occur. One Commissioner was William O. Douglas, appointed SEC Commissioner in January, 1936, and Chief Commissioner in September, 1937 (on James M. Landis' resignation) until in April, 1939 he resigned to take a seat on the U.S. Supreme Court. His thirty-six years on the bench of the Supreme Court was the longest tenure of any Supreme Court Justice in U.S. history. Douglas' views on law are well known, and he was regarded as an important champion of civil and constitutional rights. His views on business were influenced by his studies of corporate financial operations as a member of the Yale Law School faculty, studies which served him well on the Securities and Exchange Commission. He was known as "firm" when it came to the business sector, but was not considered an enemy [New York Times, 1980]. Douglas was an activist in most matters, and this characterized his attitude while an SEC Commissioner, and was reflected in his view that the SEC should take a leading role in the regulation of corporate financial reporting.

In response to an inquiry I sent to him in connection with the background to the initial transfer of authority for corporate financial reporting from the SEC to the private sector in the latter part of the 1930s, Justice Douglas first wrote that the events were far enough back that he would have to do some research and recollection before he could respond. Subsequently, I received from him the following letter, which is reproduced below in its entirety.

Supreme Court of the United States
Washington, D. C. 20543

Chambers of
Justice William O. Douglas

September 29, 1973

Dear Professor Chatov:

I have your letter of August 22nd and as I wrote you the answer to your questions entailed research on problems raised nearly 40 years ago.

In 1936 and 1937 Robert E. Healy and I thought the Commission should take the lead in formulating accounting principles as it was
empowered to do under § 19 (a) of the 1933 Act. No one in the
Commission thought it should be abdicated. All of us had seen even
partners in the best of firms walk perilously close to the line both
as respects civil and criminal liability. Landis in his speech of
December 4, 1936 before the Investment Bankers said that our
experience with accountants led us to conclude that the form of
financial statements should not be left “to professional responsi-
bility alone” that the SEC had a responsibility to see to it that
financial statements were not permissible if they were misleading.

Carmon A. Blough stated on December 13, 1937 that SEC action
on statements required immediate action but the Commission
often did not have time to do the extensive research necessary to
formulate the correct accounting principles in a given case. Even
though the practice used seemed “improper,” the Commission
(over the dissent of Healy and me) often accepted a statement
provided there was in a footnote, a “complete” disclosure of the
questionable matters.”

On February 12, 1938 the Commission appointed an intra-agency
committee to work on “rules prescribing accounting practices and
procedures.”

Healy’s view and mine were reflected in a Commission Release
No. 4 on April 25, 1938:

In cases where financial statements filed with this
Commission pursuant to its rules and regulations under
the Securities Act of 1933 or the Securities Exchange Act
of 1934 are prepared in accordance with accounting prin-
ciples for which there is no substantial authoritative sup-
port, such financial statements will be presumed to be
misleading or inaccurate despite disclosure contained in
the certificate of the accountant or in footnotes to the
statements provided the matters involved are material. In
cases where there is a difference of opinion between the
Commission and the registrant as to the proper principles
of accounting to be followed, disclosure will be accepted
in lieu of correction of the financial statements themselves
only if the points involved are such that there is sub-
stantial authoritative support for the practices followed
by the registrant and the position of the Commission has
not previously been expressed in rules, regulations, or
other official releases of the Commission, including the
published opinions of its chief accountant.
As I recall George Matthews dissented from that position. Healy had anticipated that ruling in an address on December 27, 1937 before the American Accounting Association when he said the Commission was undertaking "to express a few standards as to principles which we believe are accepted by a majority of good accountants, especially those who do not assume the role of special pleaders for their more lucrative clients."

One example he gave was preferred stock issued at $80 a share with a par value of $40. On its balance sheet the company showed $40 per share for the preferred and $10 a share as "paid-in-surplus." The company claimed the $10 could be used to pay dividends to the common stock. Healy denounced that practice. He listed others of like gravity and gave instances where the Commission was divided, the majority clearing registration statements, though in Healy's view and in mine they were misleading. It was our view that "if an earnings statement and a balance sheet reflect the results of improper accounting they amount to misrepresentative and misleading statements in violation of the Security Act."

Healy said that "The Commission will continue its efforts to develop a body of accounting principles through its decisions."

What happened in my time was a common-law development of precedents—case by case. Some principles were established by Commission rulings; others by opinions of the Chief Accountant.

I speak only of the period ending in April 1939 when I left the Commission. I have not followed the problem since then.

Yours faithfully,
William O. Douglas

Justice Douglas' letter indicates several things about the subject during his term as SEC Commissioner. First, two of the five commissioners, including Douglas, wanted the SEC to lead in accounting rule development. The initial mandate to the private sector had been given in December, 1936, and the first steps toward institutionalizing it there taken in the following year [Chatov, 1975, 106-32]. Just as important is Douglas' statement that "No one in the Commission thought it should be abdicated." The next sentences in his letter leave no doubt why the Commissioners held that belief. There was the problem of temptation, and the SEC had an obligation to see that the rules developed were appropriate to the purpose intended under the Securities Acts. The text of the SEC's Accounting Series Release No. 4 indicated, as far as
Douglas was concerned, that the SEC would remain an active participant in accounting deliberations. Also of note is Douglas' endorsement of Healy's views, quite evident in the above letter.

One can conclude that the present arrangements for the development of financial reporting rules, endorsed in full by the present SEC Commission, and reaffirmed in Chief Commissioner Shad's statement before the Dingell Committee on March 6, 1985 [Shad, 1985] were not at all contemplated or endorsed by the members of the pre-World War II Commission, regardless of the initial transfer of authority to the American Institute of Accountants in 1936-38.

REFERENCES
The Monetary System, Taxation, and Publicans in the Time of Christ

Abstract: The Jews used bars and rings of gold and silver as money prior to using coins. Syrian, Roman, and Jewish coins were used during the time of Christ. The Roman Government imposed a tremendous tax burden upon its subjects. The people of Israel also had to pay a tax to the temple. Publicans, or tax collectors, were well known for their corruption. Thus, the Jews had utter contempt for publicans. Christ paid his share of taxes and taught that it was right to do so even under the corrupt system of the Romans.

Introduction

What type of monetary system was used in Palestine in the time of Christ? How did taxes affect the lives of people living in Palestine during that time? How did the Romans collect taxes? What type of person was the average publican? What were the relationships among the Roman Government, the publicans, and the Jews? What was the attitude of Jesus Christ toward taxes and publicans? These questions concern a major part of the economic condition of Palestine during the time of Christ which this paper will address.

The Monetary System

Prior to the system of coins, bars and rings of gold and silver were used as media of exchange by the Jews. The values of these bars and rings were determined by a system of weights of which the standard was the shekel, which was equal to 224 troy grains. In Palestine gold coins were rarely used — values were based upon silver. The coins mentioned in the four gospels are Syrian, Roman, and Jewish [Muirhead, 1907, p. 48].

The Syrian coins were the stater, another name for which was argurion, the didrachmon, and the drachme. The stater corresponded to the Jewish shekel, and it was the largest silver coin used in Palestine. The didrachmon was equivalent to a half shekel,
the amount of the temple tax. The *drachme* was half a *didrachmon* [Muirhead, 1907, p. 48].

Roman coins consisted of the *denarius* or *denarion*, the *assaion* and the *kodrantes*. The *denarius* is translated as a penny in the Bible. It was the customary wage paid to a worker in the field or vineyard for a day's work. Also, it was the coin used to pay Roman taxes. The *denarius* was silver, but the *assaion* and *kodrantes* were bronze. The *assaion* was called a farthing. The *kodrantes* represents about a half farthing [Muirhead, 1907, p. 48].

The Jewish coin was the *lepton*, which is translated as mite in Mark 12:42. It was worth half a *kodrantes*. The widow, whom Christ commended for her giving attitude, contributed two *lepta* into the temple treasury. It was unlawful to give Roman coins to the temple. To change Roman coins into Jewish coins one had to apply to the *kollubistai* — money changers.

The references of the New Testament fairly illustrate the two facts: (1) that in New Testament times little use was made of native Jewish coins; and, (2) that of the Graeco-Syrian and Roman coins in use, a distinct preference was given on religious and patriotic grounds to the Graeco-Syrian [Muirhead, 1907, p. 48].

**Taxation**

One of the main responsibilities of the Roman provincial governor was to oversee the collection of taxes.

Taxes proper were of two kinds. There was the tax on landed property and the poll tax — *tributum soli* or *agri* and *tributum capitis* . . . As Judaea was (after 6 A.D.) an imperial province, its taxes were paid not into the *aerarium*, or treasury of the Senate but into the *fiscus* or imperial treasury [Muirhead, 1907, p. 44].

Of the population of Palestine, only Judaea and Samaria paid taxes directly into the Imperial treasury.

Herod Antipas and his brother Phillip, who governed the rest of Palestine (except Abilene), probably continued to pay to the emperor the kind of tribute their father had paid even in the days of the Republic of Mark Antony, but the taxes within their dominions were (in theory) neither levied nor controlled by the Roman Government [Muirhead, 1907, pp. 44-45].
The Romans exacted from the Palestinians (to the same extent as from the natives of other countries subject to Rome) a water-tax, a city-tax, a tax on such necessities of life as meat and salt, a road-tax and a house tax [Klausner, 1929, p. 188]. Frontier taxes were especially difficult. At every stopping place some tax was levied. The result was that sometimes the price of a good exceeded one hundred times its original cost. Despite the tremendous tax burden, a portion of the Jews became wealthy through trade. Shipping was one of their chief concerns.

Not only were men of Israel subject to tax by the Romans, but there was also the temple tax to pay. Special officers, called Gazophulakes in the Greek, were appointed over the temple treasury. It was their duty “to collect the half-shekel, or tax levied upon the male heads of Israel for the upkeep of the temple, which the officer at Capernaum asked of Jesus. In Nehemiah’s time the tax was one-third of a shekel” [Muirhead, 1907, p. 82].

Apparently prior to the Exile the kings provided the public sacrifices at their own expense. “The half-shekel tax differed from the tithes in being distinctively a tax for the temple and not for the priests” [Muirhead, 1907, p. 82].

Publicans

There appear to have been two classes of publicans. There were the chief publicans as well as the ordinary publicans. The ordinary publicans were the lowest class of servants employed in collecting revenue for the Roman Government. The Jews despised the publicans because it was through them that they were subject to the Roman emperor. The paying of tribute was viewed as a recognition of the emperor’s sovereignty. “They were noted for their imposition, rapine and extortion, to which they were tempted to oppress the people with illegal taxes that they might more quickly enrich themselves” [Tenney, 1967, p. 598].

Publicans had no responsibility over the real property tax or the poll tax. It was their task to collect the customs or taxes levied upon export-import goods. The Roman Government gave the right to collect these taxes to private contractors. Thus, it is not strictly accurate to speak of the publicans as being Roman officials. This was practiced in Judaea and throughout the Roman Empire.

“The Ptolemies, the Seleucidae, and later the Romans, all adopted the very cruel but efficient method of ‘farming out the taxes,’ each officer extorting more than his share from those under
him, and thus adding to the Jewish hatred of the publicans . . .” [Tenney, 1967, p. 828].

The rights granted to the publicans by the Romans were very difficult to define in detail. This was a weakness of the system which led to the unpopularity of publicans throughout Palestine. In Galilee, those publicans possessing Roman citizenship were totally exempt from the taxes imposed by the provincial publicans.

The phrase “publicans and sinners” (Luke XV 1; cp. Matt. XXI 31) is fair evidence not only of the extreme unpopularity of the customsmen as a class, but also of the fact that the associations of their office were such as to make honesty extremely difficult, though not impossible (Matt. XXI 31; cp. Luke III 12f.), to those who held it [Muirhead, 1907, p. 46].

The Roman tax system with its self-interested publicans repressed trade. It also avoided fraud for the state. “It was a favorite device of the tax-gatherers moreover, to advance money to those unable to pay, thus converting the tax into a private debt, upon which an usurious interest was exacted” [Hausrath, 1878, p. 188].

The Jews had such utter contempt for the publicans that money known to have come from them was not accepted at the synagogue or temple. It is apparent that few publicans would have had a chance to hear Christ's synagogue discourses. “They would probably not have been admitted even if they had sought entrance . . .” [Bruce, 1896, p. 111].

Jesus Christ chose Matthew, a tax collector, to be his disciple. His talent for keeping records would prove to be of great value. “The only word that Matthew has about himself is that he was a Publican. . . His business as a tax collector accustomed him to keeping records” [Halley, 1965, p. 413]. Perhaps Matthew even knew shorthand because shorthand was well known in the ancient Hellenistic world.

After Matthew's call to discipleship many publicans ate with the disciples and Jesus in his house. There were a number of them that followed Jesus [Mark 2:15]. Matthew was an ordinary publican and dealt only with the government of Herod. The only other publican mentioned by name as a follower of Christ was Zacchaeus. He was a chief Judean publican who most likely dealt directly with the Roman government.

Christ did not condone the publicans' corruption. However, Christ did not exclude himself from publicans and sinners, but rather he
freely socialized with them. Christ paid his share of taxes [Matthew 17:24-27] and taught that it was right to do so even under the harsh system of the Romans [Matthew 22:17-22].

REFERENCES

Holy Bible, (KJV).
WHERE'S THE "R" IN DEBIT?

Abstract: The common abbreviation for the accounting term "debit" is a puzzling one—"Dr." Today, particularly with our depersonalized treatment of the accounting or bookkeeping "debit," there is no obvious clue as to why there is an "r" in "debit" at all. An investigation of the history and evolution of the "debit" in bookkeeping reveals the reason for the abbreviation—a reason almost totally lost without historical perspective. Whereas the accounting "debit" is now viewed as a "technical" term, devoid of any value considerations, referring simply to the left side of a journal entry or ledger account, this was not always the case. Originally, "debits" did have a "bad" side. They were used to record the debts of the merchant or businessman. Debits were debtors. And the abbreviation for "debtor" is "Dr."

As a liberal arts undergraduate, I spent part of the summer of my sophomore year enrolled in an introductory accounting course at the University of Pennsylvania's highly regarded Wharton School. At an accelerated pace, meeting three hours a day, four days a week, we flew through ledger accounts, journal entries, financial statement preparation — and accounting struck a chord in me. I found its symmetry satisfying. It appealed to my sense of order by its ability to organize and summarize diverse and seemingly chaotic transactions. Even journal entries made sense to me almost from the start. Debit Accounts Receivable, credit Sales Revenue; debit Cash, credit Accounts Receivable; debit Accounts Payable, credit Cash; and so on. I genuinely enjoyed this introduction to accounting EXCEPT for one thing — where's the "r" in debit?

One of the first obstacles in learning (or teaching, as I discovered later) the basics of accounting is the need to dispel the notion of "bad" debits or "good" credits. Students come to accounting having already acquired (or suffered) experience with bank statements and credit card receipts and other everyday exposure to the terms "debit" and "credit." Quite naturally, they assume that the same characteristics which debits and credits possess in those limited situations will apply in all accounting transactions — viz. credits are "good" because they add to one's account or worth
(e.g. the bank "credits" one's account for a deposit or an individual is given "credit" for his accomplishments), debits are "bad" because they are "charges against" or diminish one's account or value. It is no small task to overcome the years of common-sense experience to the point of accepting that there are no value judgments which can be associated with the accounting "debit" and "credit." They simply mean "left" and "right." No more, no less.

After overcoming this first obstacle, I found the use of debits and credits to be nothing less than perfectly reasonable and logical. But I was still troubled by the abbreviations for these two basic bookkeeping terms. On the surface it was easy enough — "Dr" for debit, "Cr" for credit. But wait a minute. Even as a sophomore liberal arts student, I could see how we get the "Cr"; but show me an "r" in debit! Why isn't it "De"? or "Db"? I'd even settle for "Dt." Why "Dr"?

This anomaly bothered me enough that I began asking a few accountants, both practitioners and academics, to explain it. Though my research for the "r" in debit was by no means systematic, neither were the explanations I received. These varied widely in intellectual and aesthetic appeal. Perhaps the worst was the totally predictable — "because that's the way it's always been done." Not only was this unsatisfactory because it left unanswered the question — WHY has it always been done that way, but it isn't even accurate. At various times, in various texts, debit has been abbreviated as "Dr," "Deb," "Debr," "Debtr," and even as the "Dt" which I was willing to accept as justifiable [Dafforne, 1636; Hayes, 1741; also see excerpts cited in Yamey, Edey & Thomson, 1963]. So the search continued.

One of my favorite theories was that the abbreviation for debit was indeed the entirely logical "De." At least it was originally "De"; but due to some sloppy handwriting, the "De" was mistaken for a "Dr." The result was that an unclear manuscript begot a printer's error in a published treatise. Debit, as abbreviated as "Dr," was thus memorialized and, what is worse, became accepted as correct. As absurd and outlandish as this theory might seem, it would not be the first time one author's mistake was perpetuated in another's work. As Professor Yamey notes in his essay on the development of bookkeeping, "demonstrable errors were sometimes transmitted from one author to another" [Yamey, 1980, p. 81]. Thus, sloppy handwriting may have been the culprit behind the "r" in debit. Too whimsical to be true? Unfortunately yes — but it makes a good story.
Sherman: Where's the "r" in Debit?

Maybe it has something to do with the Italians. After all, the invention and use of double-entry bookkeeping, with its diabolical system of debits and credits, is commonly linked to the development and growth of the great merchant cities of Italy — Genoa, Florence, and Venice [Yamey, 1980, p. 88; Peragallo, 1938, p. 2]. Modern Italian does indeed provide a likely explanation for the abbreviation "Dr" — the Italian word for the accounting term "debit" is dare. Finally, I had accounted (no pun intended) for both the "D" and the "r" in "debit." It was easy enough. I had just been looking in the wrong language. Dare seems to be the answer to my sophomoric question. There's only one slight problem. If the abbreviation "Dr" is from the Italian word for debit, then where's the "Cr" in avere? (Avere is the Italian word for the bookkeeping "credit.") If it was troublesome enough to find an "r" in debit, what will it take to get the "Cr" out of avere? Perhaps I had better look elsewhere for the "r" in debit.

Modern Italian seemed a good starting point. Maybe the problem is that it is TOO modern. Lurking a few steps back in time is the reputed "father" of double-entry bookkeeping — the Franciscan monk Luca Pacioli. His Summa de Arithmetica Geometria et Proportionalita, printed in Venice in 1494, provides an interesting historical perspective on the development of accounting. Pacioli took no credit (again no pun intended) for inventing the system of bookkeeping he described in his treatise. Instead, he sought merely to present the system already in use in Venice at the end of the 15th Century [Brown & Johnston 1963, p. 4]. This system bears remarkable similarities to the bookkeeping methods we use today — even to the point of having developed fairly stylized journal and ledger entries. Today we have an established format for our journal entries, viz. first debit the appropriate account(s), then indent and credit the other appropriate account(s). For example, to journalize the collection of an open account the entry would be:

\[
\begin{align*}
\text{Cash} & \quad \text{XX} \\
\text{Accounts Receivable} & \quad \text{XX}.
\end{align*}
\]

Anyone familiar with modern bookkeeping can identify which accounts are being debited or credited by simply noting the order and position in which the account appears on the page of the journal. Pacioli's Summa reveals a similarly stylized entry. Though in full paragraph form, the recording of a transaction follows a set pattern with the account being debited always being preceded by the Italian preposition Per and the account credited being pre-
ceded by another preposition — A, thereby revealing, at a glance, the accounts affected by a particular transaction.

Per and A? If there's a "Dr" or a "Cr" in the Pacioli debit and credit, I am certainly not able to find it. But this is trying to be a bit too literal, trying to pluck abbreviations directly out of what Professor Littleton calls "technical" terms [Littleton 1933, p. 157]. These "technical" terms — debit & credit, dare & avere, Per & A — have all acquired meanings in an accounting or bookkeeping sense quite apart from any other meanings which they may have in other contexts. As noted before in regards to the non-judgmental nature of "debit" and "credit," in an accounting sense, these terms have taken on a simple "technical" meaning of "left" and "right." But initially at least, these terms had other non-accounting, non-technical meanings. These other meanings may well shed some light on the rather peculiar abbreviations we use today.

The modern Italian dare and avere are derived from the Latin debent dare and debent habere and are the equivalents of the English verbs "to give" and "to have." A similar, though somewhat condensed meaning can be given to the Pacioli prepositions Per and A. These can be literally translated as "for" and "to." Finally, the English "debit" and "credit" can be traced to the old Italian words debito and credto, which translate as "oweth" and "trusts," respectively [Jackson, 1956, p. 296; Baladouni, 1984, p. 108]. Combining these terms into one thought, one could say that the dare/Per/debit entry refers to a person who owes something and is obligated to give to another person for goods or services which that other person has provided. The avere/A/credit entry represents the other side of the transaction — i.e. the person to whom an obligation is owed, who has a right to have something paid or returned to him by the "debitor" inasmuch as he has entrusted this other person with his goods or services. In short, these "technical" terms were originally used to summarize and record personal debt relationships among merchants — they recorded debtor-creditor transactions.

Debtor and creditor? At last — the "Dr" and the "Cr"! These simple abbreviations are for the English translation of Italian terms denoting the parties to a debt relationship. Can it really be so easy? Does it really explain the "r" in debit? After all, "debits" are used in all kinds of transactions which have nothing to do with debts or liabilities to creditors. In fact, if "Dr" is short for "debtor," then we are thrown back into the old problem of "good" credits and "bad" debits because certainly the "debtor" status is unfavorable.
and the position of the "creditor" is preferred and superior. So value judgments do apply to the accounting "debit" and "credit." Right?

Wrong. Though it is true that ledger accounts and journal entries were originally developed to note debt relationships among merchants, their use was expanded to cover an increasing number of business dealings. A fiction was created whereby accounts totally unrelated to the original debtor-creditor status became "personified" and treated, for bookkeeping purposes at least, as either a debtor (debit) or creditor (credit) [Littleton, 1933, p. 49]. As one writer notes, "it became the practice to extend the meanings of the term 'debit' and 'credit' beyond their original personal connotation and apply them to inanimate objects and abstract conceptions . . ." [Jackson, 1956, p. 295]. In the process, "debit" and "credit" lost their original characteristics of being "good" or "bad"; and also lost was the rather obvious source of the "r" in debit.

A look at the complete titles of early English treatises on the "Italian" system of double-entry bookkeeping confirms the origin of the "Dr" abbreviation. The first known English text, printed as early as 1543 and reprinted by Mellis in 1588, bore the descriptive title —

Here ensueth a profitable treatyce called the instrument or boke to learne to knowe the good order of the kepyn of the famouse reconyng, called in latyn Dare et Habere, and in Englyshe Debitor and Creditor.

A similarly long and descriptive title was given to Richard Dafforne's master-work, published in London in 1636, as —

The Merchants' Mirrour: or, Directions for the Perfect ordering and keeping of his Accounts, Framed by way of Debitor and Creditor, after the (so-tearmed) Italian manner: containing 250 rare Questions with their Answers.

The use of the terms "debitor" (or "debtor") and "creditor" in describing the proper methods for the recording of transactions and the keeping of books is indeed the rule rather than the exception in these early works. In fact, it was not until quite recently that the use of the mere technical terms "debit" and "credit" became the vogue [Jackson, 1956, p. 312]. Contrast the rule of double-entry as enunciated by Mellis in 1588 with the explanation offered by a modern accounting text.
Know yee for certayne that for every one parcell that is sette in your Journall ought to bee made two parcels in your Leager, that one in Debitor, and that other in Creditor, aforesaide for each of them ought to be one parcell by himselfe in the Leager [Mellis, 1958].

The double entry rule states that when recording each transaction, the total amount of the debit entries must be equal to the total amount of the credit entries for that transaction. Thus for each recorded transaction there must be at least one debit entry and one credit entry (although there could be more entries of each type), and the total amounts must be equal [Nikolai & Bazley, 1983, p. 40].

As Littleton concludes, this modern presentation of the bookkeeping “procedure now leads one to think of debit-entries waiting to be posted, not debts or debitors; that is, to think of ‘accounting units’ to be transferred or tabulated and not of personified obligations” [Littleton, 1933, p. 233]. It is small wonder that the accountants I had asked knew nothing of the “r” in debit. They had been taught an abstraction, just as we now teach an abstraction, which is unrelated to the very real and personal dealings for which “debits” and “credits” were used in helping merchants remember who owed whom what. As Professor Baladouni concluded in an article which recently appeared in this journal, “the modern meaning of debit and credit cannot in any way be related to the original words [Baladouni, 1984, p. 108]. And without the knowledge of the use of the original words, the “r” in debit cannot be found.

Now the mystery is solved — “Dr” is an abbreviation for “debtor”; “Cr” is short for “creditor.” But when were these abbreviations first used? Certainly by the 18th century, writers on the methods of bookkeeping were using “Dr” and “Cr” extensively [Yamey, Edey & Thomson, 1963]. Littleton has traced the use of “Dr” back to 1690 in Stephen Monteage’s Debtor and Creditor Made Easie [Littleton, 1933, p. 232]. However, there are even earlier uses of the dreaded “Dr.” The 1690 treatise cited by Littleton was the third edition of Monteage’s work. Both the first (1675) and second (1682) editions use this abbreviation, first in describing the proper keeping of the “Country Gentleman’s” accounts, and then throughout the remainder of the text.

Dafforne’s Merchants’ Mirrour, cited earlier, appeared in editions dated 1635, 1636, 1651, 1660, and 1684. The “Dr” abbreviation appeared in the 1636 and later editions, along with other abbrevi-
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ations — "Debtr," "Dtr," and "Debr," and may well have been used in the 1635 edition, though I have not been able to find a copy of this earliest printing. (The 1635 and 1636 editions appear to have been the same in every way except for the year in which they were printed and are, therefore, usually cited as the same First Edition of Dafforne's work.)

An even earlier treatise, Handson's *Analysis or Resolution of Merchant Accompts*, contains the abbreviation in both its third (1633) and fourth (1669) editions. The first and second editions may well also use the "Dr," thereby moving the first appearance of this abbreviation back to an even earlier period, but, as with Dafforne's earliest printing, I have not been able to locate copies of these editions of Handson's work.

In sum, even if the "Dr" makes little sense today as an appropriate abbreviation for "debit," it does have quite a long history behind its use. Where's the "r" in "debit"? Today it's in convention; but the basis of this convention lies in the history and evolution of accounting and the need of businessmen to remember who owed whom.

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AN ACCOUNTANT IN THE BOLIVIAN JUNGLE

Abstract: In January, 1900, Henry l'Anson applied, successfully, for the position of accountant at a rubber plantation in Bolivia. He and his wife journeyed there by steamship, steam launch, and canoe, to find a less than hospitable welcome. l'Anson's professionalism was offended by the condition of the plantation's accounts, and he was disconcerted by the prices he was charged for food. He complained, was insulted, threatened, and, finally, he and his wife were obliged to return to England. There, he found that he had been dismissed. This article is based wholly on his undated statement made in connection with a lawsuit he took out against his former employers.

Introduction

Henry l'Anson's Bolivian adventure began in London in January, 1900, when he read an advertisement in the Daily Telegraph. A Bolivian rubber-producing firm sought an accountant "with a good knowledge of South America" to replace the existing accountant at their principal rubber plantation at Cachuela Esperanza, Department of Beni, Bolivia. What follows is taken from an undated statement (presumed to have been made in early 1901) by Henry l'Anson in pursuit of a claim for damages against that firm, Suarez & Co. All the quotations in this article are taken from l'Anson's statement, which came to light amongst the personal effects of one of his descendants, some eight decades after the events described here had occurred.

The narrative is incomplete, as I do not have the defendants' statement, nor have I been able to discover the final outcome of the suit. Yet, in Henry l'Anson's statement, expressed in matter-of-fact language, we do have an unusual, and first-hand, account of the intrepidity of a late Victorian accountant and his wife, in the face of disappointment, discomfort, disease and financial distress.

The Interviews

In January 1900, Henry l'Anson visited the London offices of Suarez & Co., which had advertised for an accountant, to seek
Further details of the position. Two of the owners of the firm, Pedro and Blanco Suarez, informed him that the position was at Cachuela Esperanza, Bolivia, and that the accountant currently there had managed to save about £2,000 during his employment with them. They further informed him that the “necessities of life” were always obtainable, although luxuries were generally impossible to procure in Bolivia.

At the interview, I’Anson must have expressed his concern about the area’s reputation for unhealthiness, for Pedro Suarez was at pains to point out that he had himself married “an English lady” whom he had taken out with him to the plantation, where she had remained for some time “without either of them suffering ill effects from the climate.” This, Pedro Suarez quoted “as an example of the incorrectness of the reputation for extreme unhealthiness that is generally accorded to the fluvial regions of Bolivia.” However, after careful questioning by I’Anson he “acknowledged that one or two of their employees had contracted fever so badly that they had to be sent home,” but added that “the fever was not contracted in the neighbourhood of Cachuela Esperanza, but the climate there was such that fever previously contracted was not easily shaken off.”

I’Anson was further assured by the owners that he could obtain whatever furniture he needed in Bolivia, and that should he want any particular belongings, these “could most easily be sent out to him.” Correspondence and goods bound for Cachuela Esperanza were sent by steamer up the Amazon to Santo Antonio, “where they had to be transhipped over a few rapids and shallows by boats to the plantation, above which the river again became navigable by steam launches.” However, as the connections between steams and boats often entailed a wait of some weeks in Santo Antonio, “which was unhealthy, they had resolved to prevent the chance of any of their employees catching fever there by sending them out by a different route.” Cachuela Esperanza “was too small to be marked on any map, but was about two days journey from Trinidad, the latter place being the Capital of the Province and distant from the well known centre of Cochabamba about ten days by mule or river.”

After a second interview, I’Anson was informed that his testimonials and references were “excellent in every respect” and he was offered the appointment as an accountant at a salary of £25 per quarter. He had already made enquiries as to the standing of
Suarez & Co., which proved to be satisfactory, and so on 7th February, 1900, he signed a contract of employment with the firm.

Arrival at Cachuela Esperanza

At the end of February, 1900, Henry I'Anson and his wife set sail from Liverpool on the S.S. Oravia, bound for South America. At the time he was suffering from influenza, but, against his doctor's advice, he "determined to comply to the letter with his contract" and left, as planned, for South America.

On arrival at Cochabamba, via Valparaiso, Chile, difficulties of every kind beset them. Had it not been for the kindness of a "stranger countryman," a Mr. Barber, the firm's agents would have sent them on their way "utterly unequipped." On 16th May, 1900, I'Anson and his wife left Cochabamba, and "had to travel through swamps and jungle — without sight of a house — until 28th May, when they reached the river and waited for canoes until 5th June; embarking then, finally reached Trinidad on the 21st, and there they took a steam launch to the first rapid . . . and changed again to a small canoe for two days, and [on] 7th July reached Cachuela Esperanza after 129 days travelling."

I'Anson had sacrificed comfort throughout to expedite the journey, and, on arrival, was complimented on his quick passage. He later learned that he and his wife "were almost the first employees to arrive who were able to walk up to the house."

The I'Anson's reception at the plantation disappointed them. They were accommodated in a bamboo shed and were without washing utensils for two days — "even the table and chair to which he was entitled by his contract were not obtainable." However, after he "had taken the measure of his surroundings, and worked up back accounts," I'Anson asked the manager of the plantation why he had been charged at "siege prices" for goods he had been obliged to buy at the store. He received the unsatisfactory reply that "it was the custom of the firm". He complained that this was "not right and fair" but he postponed further action "while he enquired into details."

As he worked on the books, I'Anson was disconcerted by the "complete absence of all vouchers, and on looking into one transaction, found that an entire page had been torn out of the journal." With masterly understatement, I'Anson observed that "this style of work did not suit [him] at all; his remonstrances, however, were met with the remark that he knew nothing about book-keeping, and
the following day the books were taken out of the office into the Manager's house, who sent word that he was having them written up there.” I'Anson was re-assigned to the more menial task of checking and calculating invoices.

**Insults, Protests and Violence**

On 6th September, 1900, I'Anson wrote a letter of protest to Nicholas Suarez, the head of the firm, who was “some days journey up river,” but otherwise left himself entirely in the hands of the plantation manager “hoping and waiting for any change in affairs which he was powerless to bring about.” To add to his discomfort, the other employees, encouraged by the manager's treatment of I'Anson, “took to making audible remarks in Spanish to each other about the English.” I'Anson stood this for a short time “until three of them saw fit to stand outside his door after office hours and to insult him by passing insulting remarks about himself and the English generally.” I'Anson went outside and asked them what they meant, at which one approached him threateningly. I'Anson knocked him down, the others immediately left, and I'Anson wrote a letter of complaint to Suarez & Co.

**Departure from Cachuela Esperanza**

Suarez & Co.'s response to I'Anson’s letter was extreme. The I'Ansons were “forcibly turned out of the Cachuela Esperanza on 13th September, 1900, by the mayor domo (the head of the native workers) and several native indians, acting on the manager's orders.” They were also presented with an account, and supporting invoices, of the goods which they had purchased from Suarez & Co. during their stay. They went to a nearby settlement, Bella Vista, on the border with Brazil, where the only accommodation was an unused Custom’s Shed. There they remained until 10th October, 1900, living “on the barest of food.” From there, the I'Ansons were able to arrange a meeting with Nicholas Suarez, the head of the firm. They traveled up river by steam launch to his home on 23rd October 1900 where I'Anson laid a complaint against the plantation manager. Nicholas Suarez offered I'Anson the managership of another plantation, but shortly afterwards said that it was “no fit place for a white man to live in, much less a lady,” and the offer was dropped. Instead, it was decided that the I'Ansons should return to London, report to the firm's representatives there, and take instructions. As the I'Ansons departed by launch, they
were handed a draft for £170, to cover the expenses of the journey back to England, in return for which I’Anson signed a bill which acknowledged his indebtedness to the firm for the goods he had bought at Cachuela Esperanza, and for the £170.

As Henry I’Anson emphasized in his statement:

it was impossible for anybody to live on any such Settlement as the Cachuela Esperanza, excepting on sufferance of the owners of the Settlement. It is impossible to leave the place without money, and not even then without the permission of the owners, as they control all the canoe and mule traffic for practically hundreds of miles around. . . . It is necessary to thoroughly understand the absolute impossibility of living or travelling in this country, unless it is done under the protection of a large trader. . . . and travelling with their goodwill. No supply of ready money would be likely to make it possible, as, in such regions, the trading firms are absolute despots.

For these reasons, although he had protested about siege prices and the amounts charged to him at the time of his forcible removal, he was unable to prevent the charges from being made, even though the contract required Suarez & Co. to provide him with food and necessaries. As I’Anson described it:

their system was, nominally, to make [the employee] an allowance per month for food and necessaries, and then to charge enormous prices for everything supplied so that, whatever the allowance was nominally, they could so inflate the prices that there was bound to be a considerable balance due to them out of his salary.

I’Anson said that he had no choice but to sign an acceptance of these debts, and added that even if Nicholas Suarez “had insisted upon . . . . giving him a bill for 100% interest, [he] would have been positively compelled to have signed it, or else have died in the swamp.”

Return to London

I’Anson and his wife arrived back in Liverpool on 9th January, 1901. There they rested for a few days, “being somewhat exhausted,” then returned to London. They estimated that, quite apart from the debt that had been incurred in Bolivia, they had been
obliged to spend at least another £100 “to obtain anything in the way of even comfort or luxury on their travels.” Further, they learned that their bank account in London had been credited with only two quarterly salary payments, whereas I’Anson’s personal account with Suarez & Co. showed three.

I’Anson presented himself at the London offices of Suarez & Co., to find that they regarded him as having been dismissed from their employ. As evidence of this, they produced the bill which Nicholas Suarez had required I’Anson to sign. I’Anson must have disputed vigorously this interpretation of his actions, as the head of the London office eventually invited I’Anson to “take action against [Suarez & Co.] which he said had often been threatened and by people who referred to their Bolivia connection as a ‘shambles.’”

At this point the story ends. Was I’Anson successful in his claim against Suarez & Co.? I hope so . . . but not all stories have happy endings.

FOOTNOTES

1 Cachuela Esperanza, roughly translated, means “Hope Rapids”.
2 Cachuela Esperanza is to be found in North East Bolivia, close to the Brazilian border, at approximately 65.5° W, latitude 11.5° S.
ACCOUNTING MEASUREMENT AND CAPACITY LIMITS OF TECHNOLOGICAL DEVICES*

Abstract: In this paper the capacity limits of technological devices used in ancient Egypt are used to explain the Biblical phrase that in accounting for grain the Egyptians ran out of numbers.

The Bible describes accounting for the quantity of grain that Joseph stockpiled during the seven years of plenty in anticipation of the seven years of hunger. “And Joseph laid up corn as the sand of the sea, very much, until they left off numbering; for it was without number” [Genesis 41:49].

The phrase “without number” is puzzling. How was it possible to run out of numbers? The set of numbers is unbounded. A larger number can always be created by adding one to the previous number.

A study of the ancient Egyptian numbering system [Gardiner, p. 191] confirms the impossibility of running out of numbers. The Egyptians had symbols representing the number one, ten, and all powers of ten up to a million [see Figure 1]. Symbols were repeated to show multiples of numbers. For instance, 152,123 was expressed as: and 966 was expressed as:

Furthermore, multiplication was occasionally employed to express larger numbers. For instance, 10,100,000 was expressed as 100,000 × 101: and 470,000 was expressed as (100,000 × 4) + (10,000 × 7): In such a numbering system one cannot run out of numbers.

We suggest a solution based on the assumption that in Joseph’s time the Egyptians used an abacus for numbering. This assumption has not been proven but there is some supporting evidence.

Herodotus [circa 450 B.C.E.] describes his experiences in Egypt and explains that “in the writing of characters and reckoning with pebbles, while the Hellenes carry the hand from the left to the right, the Egyptians do this from the right to the left” [p. 23, emphasis supplied].

*The author is grateful for the help of Y. Elman and D. Carmichael.
In his classical work on the development of numbers, Menninger [p. 299] claims that:

The problems and questions in Egyptian papyri offer some intriguing glimpses into the mathematical thought of Pharonic times, but the actual operations by which the Egyptians found or attempted to find the solutions must be laboriously deduced from the rules, and can often be only guessed at. We know the numerals used by all of these ancient cultures [the Babylonians, Egyptians, Indians, Greeks, and Romans]. These support the hypothesis that computations were performed on counting boards.

Given the assumption that the Egyptians used an abacus, it is possible to explain how they ran out of numbers. Joseph set up a multiple warehousing system under the control of a central administrator whereby each city warehoused its own food. As Joseph suggests:

Now therefore let Pharaoh look out a man discreet and wise, and set him over the land of Egypt. Let Pharaoh do this, and let him appoint overseers over the land, and take up the fifth part of the land of Egypt in the seven years of plenty. And let them gather all the food of these good years that come, and lay up corn under the hand of Pharaoh, for food in the cities and let them keep it [Genesis 41:33-35, emphasis supplied].

Joseph implements his plan. “And he gathered up all the food of the seven years which were in the land of Egypt, and laid up the food in the cities. . .” [Genesis 41:48, emphasis supplied].

Joseph must have estimated how much food would be amassed and distributed an abacus to each city for keeping count of the amount of grain stored. However, the amount of grain amassed far exceeded Joseph's estimate and was larger than the capacity of the abacus. If there was only one warehouse the problem could be solved by issuing a larger abacus with an extra digit or by re-defining the units of measure of the abacus. However, since the warehouses were spread all over Egypt it was impractical to implement a solution to this unexpected accounting problem.

The Bible, in stating that they ran out of numbers, is thus observing that the quantity of grain amassed was a magnitude greater than originally estimated by Joseph. The error the Egyptians faced may well be the first overflow error on a calculator.

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