

**THE
CONTRIBUTIONS
OF ALEXANDER
HAMILTON
CHURCH TO
ACCOUNTING AND
MANAGEMENT**

Edited by
Richard Vangermeersch

ROUTLEDGE LIBRARY EDITIONS:
ACCOUNTING HISTORY



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Volume 14

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HAMILTON CHURCH
TO ACCOUNTING
AND MANAGEMENT*

Richard Vangermeersch, editor

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PREFACE

My interest in A. H. Church began when I was involved in a project to redesign a cost accounting system for a highly capital-intensive firm and discovered Church's concept of the "machine-hour rate" method. An article discussing this was published in *Management Accounting* in July 1983 and was awarded the NAA Certificate of Merit. After presenting a paper on Church at the 1983 American Accounting Association meetings, which was commented on by Robert Kaplan in his plenary session address at the 1983 meetings and in his 1984 article "The Evolution of Management Accounting," I continued my research on Church. One aspect of this research dealt with an innovative accounting flowchart prepared by Hans Renold in apparent collaboration with Church that was used to illustrate the redesign of cost accounts for the robotics age at Robots 9, a conference in Detroit in June 1985. I believe that Church has much to say about accounting and management for today and the future and hope that this anthology spurs the reader to review more of Church's work.



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INTRODUCTION

Alexander Hamilton Church was a renowned expert in the fields of cost accounting and management.¹ He introduced the “machine-hour rate” method,² the production-center concept,³ the “regulative principles of management” (with L. P. Alford),⁴ and distribution cost-analysis.⁵ Church was selected as one of the pioneers of management by Urwick, who said that his contribution to management “was as great as or greater than that of many whose names are famous in the movement.”⁶

Church was born on October 11, 1866,⁷ near London of American parentage.⁸ All we know about his early history was that he had a liberal education, after which he worked for the National Telephone Company.⁹ He was then employed as either an electrical engineer¹⁰ or a technical expert and works manager¹¹ for an electrical manufacturing business, where he was an associate of J. Slater Lewis for a few years.¹² (Lewis was another pioneer of management chosen by Urwick.¹³) Church then went to B. & S. Massey in Manchester, England, from 1898 to 1900¹⁴ and then to Hans Renold Ltd. for three¹⁵ or five¹⁶ years. After this, he became European editor¹⁷ or manager¹⁸ of *The Engineering Magazine*, which had its main office in New York and was founded by John R. Dunlap.¹⁹ Church went to the United States in 1909.²⁰ Until the early 1920s, he was, apparently, self-employed as a consulting industrial engineer,²¹ except for short periods with C. H. Scovell and Co. in 1911²² and Patterson, Teele, and Dennis in 1913.²³ From the early 1920s to his death in 1936, he had a long-standing relationship with the Mount Hope Finishing Company of North Dighton, Massachusetts.²⁴

Church was a prolific writer who wrote mainly on the areas of cost accounting and management, but also published papers on business and society and industrial engineering. A list of his published work is presented chronologically at the end of this Introduction. If a reference to the publication is cited elsewhere, the source is noted, and each

work is classified under accounting, management, business and society or industrial engineering.

This collection includes primarily articles written by Church not reprinted in his books. For instance, the series of articles written in 1901 and 1909 were published in the 1908 and 1910 books and are not included in this collection. However, since the 1913 articles in industrial engineering were reprinted as awkwardly placed appendices to the 1914 book, they are reprinted here. For this reason, the four-part series on reporting from the *American Machinist*, which was reprinted as the third part of Church's 1917 book, are also included. This anthology contains some related work by Cole, Richards, and Sterrett on the inclusion of interest as a manufacturing cost; the exchanges with Gantt and support by McHenry; an article written by Edtterson on which Church commented; the comments by Barth, which included a reference to Church; and two reviews of Church and Alford's 1912 article.

This collection demonstrates the breadth of Church's work and proves him a holistic writer. Church himself never put his ideas together even though there were central themes in his writings, as evidenced by the following brief review of each of the selections in this volume.

"The Meaning of Commercial Organisation" (1900) identified Church as an associate of J. Slater Lewis. The article was, most likely, a continuation of a series of articles written by Lewis, who was quite ill at the time²⁵ and died shortly thereafter in July of 1901.²⁶ Church stressed that a new world had been entered and that coordination between independent operations was needed. He considered administrative control to be the key, with accounting included as an important factor. Prime cost was not the only cost with which to be concerned: there were also work expenses and general establishment expenses. He used an interesting analogy of the master's eye and brain for the collection of necessary detail in this more complex world. Church demanded monthly statements and amount of profit on every order.

"British Industrial Welfare" (1901) was concerned with the declining status of British production in comparison to that of the United States and Germany. Church was concerned that British workers were not being informed about management concerns. Church expressed a recurrent theme that low wages with good productivity is less desirable

than high wages with high productivity. He was worried about a fear of new machinery by the workers.

"The Meaning of Scientific Management" (1911) was a continuation of Church's attacks on what had become known as "scientific management." Church was concerned with the claim that "scientific management" was going to settle magically the warring claims of capital and labor. He here presented his first version of principles of management. His first principle was the planning of industrial activity from a consideration of its simplest units; the second was the comparison of actual results with the forecasted results. Church felt this quest for accuracy would lead to a larger surplus to distribute to capital and labor and, therefore, decrease labor's attraction to socialism, which Church feared. He also brought into this article his notion of the machine-hour rate method. Church was quite optimistic about the evolution of the science of management.

"Intensive Production and the Foreman" (1911) showed Church's concern for the foreman in relationship to outside experts (systematizers) brought in to increase production. Church expressed a central theme, that evolutionary change was to be preferred to revolutionary methods. The foreman should be given a new role in the maintenance of a certain elasticity that would allow adaptation to the rigidities of planning. This article also illustrates Church's concern for the individual, another theme in his writings.

"Distribution of the Expense Burden" (1911) was presented as a paper at the convention of the National Machine Tool Builders Association. In it Church stressed his machine-hour rate method. Increased competition had made cost analysis quite important. He attacked the "jumbled" nature of allocating overhead on direct labor dollars. He argued that overhead was in reality a series of charges for factors of production and was the cost of capacity to produce. He also discussed his philosophy of idle time charges, which were to be charged via a supplementary rate to all jobs.

"Has 'Scientific Management' Science?" (1911) marked Church's shift of interest from accounting to management. In this article he began his attack on the claims of Frederick Taylor and his disciples that they had founded a science of management. Church felt that Taylor had done a fine job in rediscovering certain management mechanisms like time study, but these mechanisms were not a science of management. Since

this article led to a "war" between Church and L. P. Alford on one side and Carl Barth and H. L. Gantt on the other, it is an important one.

"Direct and Indirect Costs" (1912) was written by J. Edtterson, and a comment on that article by Church showed that while the "direct costing" school had not yet evolved, Church's response would have been right on target as an attack on that school of thought in accounting.

"The Principles of Management" (1912), coauthored with L. P. Alford, is a classic in management and was chosen by Harwood F. Merrill for the American Management Association's *Classics in Management*.²⁷ Church and Alford here projected their three principles of management: (1) the systematic use of experience; (2) the economic control of effort; and (3) the promotion of personal effectiveness, in which they made use of the field of psychology. The authors stepped up their attack on Taylor, whose work was labeled a collection of axioms and arbitrary combination of specific mechanisms rather than a body of principles. The comments by Kimball and Calder were very favorable.

"Comments" (1912) by Church and by Barth were written for the 1912 discussion at the American Society of Mechanical Engineer's (ASME) Subcommittee on Administration, whose secretary was Alford.²⁸ The report of the subcommittee had endorsed the three principles of Church and Alford²⁹ and added a fourth one of transfer of skills.³⁰ Church continued his attack on the emphasis on mechanisms by the schools of scientific efficiency; he felt that the study of machines would yield the true line of progress and also stressed the importance of habit. Church was mildly rebuked by Barth in his comments to the subcommittee's report. Barth, also chosen as an early pioneer in *The Golden Book of Management*,³¹ gave an interesting and a spirited defense for Frederick W. Taylor. The comments by Barth are illustrative of the split that Church and Alford must have had with the "Taylorites."

"The Treatment of Interest on Manufacturing Investment" (1913) was a debate on the inclusion of interest on manufacturing investment as a manufacturing cost. Cole argued for the affirmative in that interest computed on capital was crucial for determining prices, eliminating wastes, and determining what is to be undertaken. Church also argued for the affirmative and stressed that interest charges were related to various production factors. Richards and Sterrett argued the negative side and stressed that (1) taking depreciation results in a double charge if one computes interest; (2) it is important to keep interest as a financing cost; and (3) interest should not be charged to inventory. This

debate does show that the current concerns about imputed interest are not new.

"Premium, Piece Work, and the Expense Burden" and "Bonus Systems and the Expense Burden" (1913) tried to make readers aware of how important burden was when a wage incentive system was chosen. Church gave excellent discussions of four such plans: (1) Piecework 100% premium; (2) Halsey 50% premium; (3) Halsey 33⅓% premium; and (4) Rowan premium. He was very fearful of the controversies inherent in the 100% piecework system. The Gantt Bonus Method and the Emerson Efficiency Method offered great hope as they were based on a minute survey of the maximum possible production, and they caused workers to strive for an attainable ideal.

"The Scientific Basis of Manufacturing Management" (1914) was a preview of Church's 1914 book. It was not to be a book of recipes or plans but of principles. He added the five organic manufacturing functions of design, equipment, control, comparison, and operations and retained his and Alford's three principles.

"The Evolution of Design" (1915) included a comment by Church that the sight of a collection of chemical apparatus may be just as intellectually appealing as the Sistine Madonna. "Machine Design and the Design of Systems" (1915) was much more rigorous and raised the key point that while a poorly designed machine and its effects can be easily spotted, a poorly designed control system is much more difficult to spot. One does not throw away a machine that is working until a new model is made and tested, but control systems are easy to tinker with.

"The Relation Between Production and Costs" (1915) was written by H. L. Gantt, who stated that idle time costs should not be charged to production. It led to the most colorful and interesting exchanges in this collection of readings. He made no reference to any of Church's works, which set Church ablaze. In "Mr. Gantt's Theory of the Expense Burden" Church reminded Gantt that he (Church) had already dealt with burden distribution and that Gantt had been careless in assuming that there were no other burden methods but the general burden approach. Gantt soon responded with "Relation Between Production and Cost," a vituperative attack on Church, who was, he claimed, preempted by Taylor on the machine-hour rate approach. Gantt also felt Church had slurred him as an engineer. It was Church's turn to rebut in a mild letter headed "Relation Between Production and Cost,"

where he wrote he had no knowledge of Taylor's machine-hour rate method. In this letter Church, for the first and last time, referred to himself as an accountant and also called cost accounting the field where accounting and engineering meet. William McHenry entered the fray and took Church's side, befitting one who called Church his "master." Gantt then ended this exchange by concluding that he and Church were not very far apart, although he had some harsh things to say about accountants. Since this exchange has apparently not been noted by other sources, these articles are important.

"What Is a Cost System?" (1915) was an overview, and a very thorough one, of a good reporting system. Church stressed reporting on management by exception. At the foreman level, that level would be the job. Church advocated quick reporting for immediate action. Spoiled work would be analyzed by workmen as the superintendent was more interested in the control of orders than in a specific job, the executive was most interested in the budget/actual comparison, and the proprietor was most interested in profits. "What a Foreman Should Know About Costs" gave illustrations of very specific forms for such control documents as the time card, the shop album, and the daily payroll report. "What the Superintendent Should Know" focused on forms of a broader nature, such as a finished-order stub, finished-order list, spoiled-work register, list of machine earnings, and burden schedule. "What the Executive Wants to Know About Costs" gave illustrations of even broader reports. There is no doubt that Church emphasized the need for accuracy, accuracy, and more accuracy with detail, detail, and more detail. Church was, therefore, concerned not only with broad managerial principles and organic functions but also with the most minute details.

"Industrial Management" (1915), presented at the International Engineering Congress in San Francisco during the Pan Pacific Exposition, was a synopsis of Church's 1914 book. Church summarized it as a movement away from rule-of-thumb management to quantitative treatment of management problems. He placed management into an evolutionary model and contrasted analysis and synthesis. Increased competition was again stressed as a key reason for more detailed accounting. This paper is a good preparation for reading Church's 1914 book.

"The Future of Industry" (1917), by far the most offbeat work done by Church, was published in *The Unpopular Review*, a "progressive"

quarterly journal published by Henry Holt and Company. The themes of the science of management, of the importance of coordination, and of America as the chief hope for the future of the world were old refrains for Church, but his views on competition and cooperatives were surprising. Ultimately, Church was an optimist rather than an utopian. He was also a humanist with a global viewpoint.

“Overhead: The Cost of Production Preparedness” (1931) previewed Church’s 1930 book on overhead. His ideas on overhead burden rates were consistent, and he introduced some very interesting figures to portray the effects of idle time. This article represents the last work published by Church and showed that he was still innovative and sharp in his mid sixties.

Since Church was an engineer, an accountant, an editor, a consultant in factory administration, a consulting engineer, and an industrial engineer, his writings would be expected to cover a wide area. In fact, they spanned the fields of accounting, management, business and society, and industrial engineering. While Church wrote many books, not one of them captured the essence of his work and his central themes. This anthology attempts to do just that.

NOTES

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2. *Ibid.*
3. S. Paul Garner, *Evolution of Cost Accounting to 1925*, Accounting History Classic Series (University of Alabama, 1954, 1976), p. 249.
4. Urwick and Wolf, *op. cit.*, p. 114.
5. Garner, *op. cit.*, p. 142.
6. Urwick and Wolf, *op. cit.*, p. 115.
7. Urwick and Wolf, *op. cit.*, p. 116.
8. F. G. Colley, reviewer of *The Science and Practice of Management*, *The Journal of Accountancy*, December 1914, p. 484.

9. *Ibid.*
10. Urwick and Wolf, *op. cit.*, p. 116.
11. Colley, *op. cit.*, p. 484.
12. Urwick and Wolf, *op. cit.*, p. 116.
13. *Ibid.*, pp. 55–57.
14. *Ibid.*, p. 116.
15. Colley, *op. cit.*, p. 19.
16. Urwick and Wolf, *op. cit.*, p. 116.
17. Editor, *Management Engineering*, in an April 1922 note to Church's "Internal Transportation in a Large Textile Finishing Plant—I," p. 197.
18. Colley, *op. cit.*, pp. 484–485.
19. Editor, "Inspiring Growth of the New Science of Industrial Management," *Industrial Management: The Engineering Magazine*, November 1916, p. 148.
20. Editor, *Management Engineering*, *op. cit.*, p. 197.
21. A. Hamilton Church, "Industrial Management," *Transactions of the International Engineering Congress*, Paper 238 (San Francisco: Neal Publishing Company, 1916), p. 446.
22. A. Hamilton Church, "Intensive Production and the Foreman," *American Machinist*, May 4, 1911, p. 830.
23. A. Hamilton Church, "On the Inclusion of Interest in Manufacturing Costs," *The Journal of Accountancy*, April 1913, p. 236.
24. Urwick and Wolf, *op. cit.*, p. 117, and A. Hamilton Church, "Internal Transportation in a Large Textile Finishing Plant—I," *Management Engineering*, April 1922, p. 197.
25. J. Slater Lewis, "Works Management for Maximum Production," *Management Engineering*, Vol. 19, May 1900, p. 211.
26. Urwick and Wolf, *op. cit.*, p. 57.
27. Harwood F. Merrill, ed., *Classics in Management* (New York: American Management Association, 1960), p. 196.

28. Subcommittee on Administration, "The Present State of the Art of Industrial Management," *Transactions of The American Society of Mechanical Engineers*, 1912 (New York: ASME, 1913), p. 1147.
29. *Ibid.*, p. 1142.
30. *Ibid.*
31. Urwick and Wolf, *op. cit.*, pp. 86–90.

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Source: Urwick and Wolf, *The Golden Book of Management* (1984)
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- 1901 "British Industrial Welfare: The Erring Policy of the British Workingman," *Cassier's Magazine*, March, Vol. 19, pp. 404–408.
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BUSINESS AND SOCIETY
- 1901 "The Proper Distribution of Establishment Charges," *The Engineering Magazine*, Vols. 21 and 22 (three articles in each volume).
Source: Urwick and Wolf
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(These articles were basically reprinted in Church's 1908 book and, hence, are not included in this collection of readings.)
- 1908 *The Proper Distribution of Expense Burden*, Works Management Library, London: *The Engineering Magazine*, 116 pages.
Source: *The Accountants' Index*, 1920
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- 1909 "Organization by Production Factors," *The Engineering Magazine*, Vol. 38 (in six parts).
Source: Urwick and Wolf