What we do not know about management history

Some categories of research and methods to uncover management history mysteries

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Abstract Management history contains many unsolved mysteries. In this paper four categories of mysteries are discussed, along with methodologies that have proved useful in solving such mysteries. Examples of the successful use of the outlined methodologies are also presented with illustrations of the results achieved.

Introduction
In 1964, Richard Whiting observed that the historic origins of management theories and practices were a mystery, but that serious research could possibly uncover the facts (Whiting, 1964). In his research, Whiting relied on US census schedules and a few genealogical methods. At present, obituaries, cemetery records, wills, deeds, court records, county atlases and similar genealogical records, along with the records of corporations, can all be used to discover original documents. Although management history is frequently written without such material (because the material has been lost or destroyed), original documents can provide us with verifiable history, not historical conjecture.

An important question, however, is: “What management mysteries are there to solve and how can we solve them?” The following are some categories of mysteries that seem useful to explore and, wherever possible, some suggestions towards a solution of the mysteries are also offered. We do not claim that these categories cover all mysteries, since the individual management historian must, of necessity, also identify his/her own mysteries. However, these are some of the
mysteries whose solution would move us away from a reliance on published works, secondary sources, or the same archival resources for papers on management history.

Categories of management mysteries

Category I
The most challenging management mysteries are those where historical material exists, but no living person interested in management history currently knows:

• what it is;
• who created it;
• where it was utilized;
• where it is located; or
• exactly how to find it.

Although the components just listed seem to be impossible to investigate, it is these very components that have helped the authors to uncover the existence of the mysteries discussed in the remaining categories. Some examples of such investigations will be explained more fully.

Category II
The next most challenging management mysteries are those where historical material, at some time in the past, was readily available, but owing to deliberate or accidental actions of individuals (presently unknown), the present location of the material is unknown.

In this category, the research performed under the first category has uncovered the previous existence of currently unknown material, but additional work is needed to locate the actual material. Book manuscripts are a major focus of this category.

Category III
In this category, there is historical material which at one time played an important role in management theory and practice, but owing to shifting emphasis in the field of management, or in the research interests of management historians, the material has become virtually unknown.

This material has come to our attention by exploring obscure published material not normally examined by management historians because, on the surface, it seems only remotely related to management history as we know it.

Category IV
In this category, there is historical material that exists in various archival collections, but which has not been uncovered owing to a lack of knowledge of its existence by management historians.
Category I: unknown material
In situations where we do not know what the material is, who created it, where it was utilized or where it is currently located, the historian must proceed on a faith basis, believing he/she can find the material. How to accomplish this type of research is best illustrated by the following three examples. In the first example, an entire new area of previously unknown material was uncovered, but its complexity requires additional research; in the next two examples, the unknown material was readily discovered.

Methodology
Case 1: utilization of seemingly unimportant information
In searching the pages of Frank Copley's biography of Taylor, it was discovered that Taylor's grandfather, at his death, was the largest landowner in Bucks County, Pennsylvania (approximately 1,000 acres); his land holdings included a summer home in Bristol Township (Copley, 1923). This information further led to a search of the land records of both Bucks and Montgomery Counties, since they were adjacent to Philadelphia. The result was the discovery of a large estate in Ashbourn, Montgomery County called "Mouseridge," owned by Taylor's relative, Frederick Walter Taylor. The estate was adjacent to the Talcony Edge Tool Works and close to three other shovel factories: the Myers and Ervien Shovel Works and two factories of the Rowland and Sons Shovel Works in Cheltenham, the second largest shovel manufacturers in the USA. "Mouseridge" was completed in 1893, at a time when Taylor was leaving the Manufacturing Investment Company, becoming a consulting engineer, and developing an interest in shoveling, high heat filament steel, and metal-cutting processes used at Talcony Edge Tool and the shovel companies. A map of this estate and two of the companies appears in the atlas map of Montgomery County, Pennsylvania of 1893. The full importance of this discovery is still being explored, but the existence of such factories next to the estate of Taylor's relative certainly is an entirely new piece of information that would not have been discovered by conventional methods.

Case 2: utilization of names
We have found the examination of the names of corporations and individuals frequently leads to previously unknown material. As an example, the name International Sulphite Pulp and Fibre Company, Michigan and the payment of $2,000 noted in the accounting sheets of the Manufacturing Investment Company in F.W. Taylor's papers, led to the discovery of the records of the company in the Secretary of State's office in Michigan. This discovery subsequently led to further data on F.W. Taylor and his work in Michigan. Another example was the name George Hathorn in a brief note from Taylor to Bowditch in the Simonds Rolling Machine Company records. This discovery led to the court records of the patent case between Simonds Rolling Machine Company and the Hathorn Fancy Forgings Company in the National Archives (Wrege and Greenwood, 1986). Taylor's testimony in the court records of the case gave insight into his previous work at the Midvale Steel Company.
Case 3: utilization of erroneous information
On the surface, the discovery that there were typed records of the steel experiments of Taylor at the Bethlehem Steel Company in 1898 might not seem extremely important. But, they were marked “Experiment on steel cutting, Bethlehem Steel Company”, and since the company was not formed to replace the Bethlehem Iron Company until June 1899, it was obvious that the records were not originals. A search was undertaken to locate the original records and they were eventually discovered in court records held by the National Archives. The details of this discovery and its importance are discussed under Category III.

Category II: location mystery
Methodology
Case 1: utilization of information gathered in Category I. In utilizing names of individuals and the subsequent discovery of materials they produced, a multitude of material has been uncovered. In 1979, the senior author began examining all the microfiche records of the daily history sheets in the test room at Western Electric's Hawthorne plant for the years 1927-1929, to search for any unusual events or names that might provide leads to new information. In records from 1929, the name Mr Frazer appeared. It did not say Frazer followed by a department number, for instance Frazer, 3619, which would indicate he was a Western Electric employee from Department 3619. It appeared he was an outsider, but where did he come from and what was his role, since he was not mentioned by Roethlisberger, Dickson, or Mayo? Further reading revealed that Frazer returned to Massachusetts in the fall of 1929. Aware that Western Electric had a close working relationship to MIT through George Pennock, it was hypothesized that Frazer was from MIT, so this possibility was investigated.

On contacting MIT, however, it was learned that a Professor Richard Frazier (not Frazer) had retired a few years before, but MIT had no other data. A search of telephone directories in the area around Cambridge, however, revealed a Richard Frazier living in Winchester, Massachusetts. Subsequently, contact was made with this Professor Frazier and it was learned that he was a retired professor of electro-mechanics, still working part-time for MIT. Professor Frazier wrote to the senior author on 11 October 1979, acknowledging that he had worked in the test room in 1929 and that he had prepared a considerable report on the project. In a subsequent letter of 7 November 1979, Professor Frazier revealed he had discovered more records and also that two other MIT students had worked at Hawthorne in 1930: (Edward Prendergast and Jarvis M. Wilson), thereby providing additional individuals to research. In 1984, Professor Frazier, at the invitation of the senior author, addressed the Management History Division during the Academy of Management meeting in Boston and discussed his role in the Hawthorne Studies.

Case 2: utilization of references to unpublished manuscripts. By uncovering references to unpublished manuscripts, both in published literature and in
original documents, several still undiscovered, mysterious, but potentially important book manuscripts have been identified.

In 1980, the senior author found the personal papers of Dr Frederick Gay in Springboro, Ohio. Dr Gay was the author of a book on Dr Ernest Southard, a Boston psychiatrist who studied “the mental hygiene in industry” with a $2,796 grant from the Engineering Foundation (Metz and Viest, 1991). Among these papers was Southard’s last letter to Gay on 5 February 1920, just days before his sudden death on 8 February 1920. In the letter, Southard told Gay he was going to start work on his brain anatomy book and on other manuscripts (Southard, 1920). According to Louise Nicholl, Southard’s assistant, the other manuscripts included one on the mental hygiene of industry. An outline of this book is in the Mary Jarrett papers at Smith College. Jarrett attempted to have the book published after Southard’s death but did not succeed. The fate of the book is still a mystery.

In the introduction to the book Creative Experience, Mary Parker Follett noted the debt she owed to Herbert Croly and Eduard Lindeman (Follett, 1924). The archival material on Lindeman revealed he and Follett had originally cooperated on a joint book in 1922-1923, but had subsequently divided the manuscript after some disagreement between Lindeman, Croly and Follett (Lindeman, 1923). The original joint manuscript is still a mystery, but would be a valuable discovery.

The correspondence between industrial psychiatrist Dr Jau Don Ball and August Vollmer of the Berkeley Police Department contains references to a mysterious “book” to be prepared by Ball and Vollmer on industrial psychiatry and industrial unrest. It was to use the Ball method of integrating workers into departments by a study of their personality traits (Vollmer, 1919). The location of the book manuscript remains an unsolved mystery.

**Category III: once known, now unknown**
This is a large category covering both published and unpublished materials. It contains many mysteries and potential areas of research normally ignored by historians. Here one can start with obscure published material, then proceed to original documents; a few examples of this progression appear here.

**Methodology**
Case 1: review obscure periodicals. There are a number of obscure periodicals neglected by management historians because they are too old to be found on current computer databases, might not contain the term “management” in their title, and might not seem to be sources of management information. A few of these obscure publications are listed here (an asterisk is placed next to the ones that have provided leads for our published research already). The periodicals are (in alphabetical order): *Dodge Idea; Edison Round Table Weekly; Electrical World; *Engineering Record; *Isolated Plant; *Iron Age; 100%; Journal of the New England Water Works Association; Lighting Journal; *Minutes of the Association of Edison Illuminating Companies; *Monthly Bulletin National Commercial Gas Association; Proceedings, National Commercial Gas
Case 2: review of more familiar periodicals to uncover material on popular ideas of a particular period which today are unknown. Through the study of obscure periodicals, several new facets of management history have been discovered that in turn have raised some additional management mysteries. Many of these still remain to be solved, while others have not only been solved, but new documents have also been discovered. The following are a few examples of such discoveries.

Example 1. Early charts of information flow, decision alternatives and the psychology of decision (1903-1923). In 1903, Charles Day and John Calder revealed a series of charts designed to outline information flow and to demonstrate the advantage of network analysis of alternative methods of modernizing factories (Day, 1903).

Day’s Company, Dodge and Day (later Day and Zimmerman), utilized his network charts, “betterment reports” and early form of “decision trees” until his death in 1933, building a consulting company worth millions. After Day’s death, Day and Zimmerman reportedly sold Day’s original charts to the Lockheed Company, but their eventual fate and how they became incorporated into management information systems literature is still a mystery.

Parallel to Day’s work were “information flow” charts prepared by Carl Barth (Taylor’s mathematician), to implement the Taylor system (Barth, 1960). The first chart appeared in 1908 and more elaborate charts depicting information flow with decision points and decision symbols appeared by 1915. Barth continued to prepare these charts until 1923, but where they were used and how they influenced systems theory is unknown.

In 1914, in an effort to increase the use of higher illumination in street lighting, a Joint Street Lighting Committee was formed by the Association of Edison Illuminating Companies and the National Electric Lamp Association. The details of tests on this topic were printed in the Minutes of the Association of Edison Illuminating Companies (which are privately printed but not published for public use). Reading these minutes it was discovered that problems arose during the tests and Hugo Munsterberg was consulted to study the decisions reached by the test administrators. Examining Munsterberg’s records at Boston Public Library revealed that Harold Burtt was sent to New York to conduct new tests and J.W. Bridges assigned the task of studying the decision at Harvard (Wrege et al., 1982; Munsterberg, 1914). Bridges’ work was described in a 1915 thesis now at Harvard, but the full impact of Munsterberg’s decision studies is still to be explored.

Carpenter outlined a committee system of management specifically designed to counter the “soldiering” claims of Taylor (Carpenter, 1908). Carpenter’s ideas were adopted by Richard Feiss of the Clothcraft Company, who established worker-management committees where workers could veto management proposals (Feiss, 1916; Wrege and Lattanzio, 1977).

Example 3. Industrial lighting and production (1908-1924). In 1907, there arose a competitive struggle between the General Electric Company and the Welsbach Company (manufacturers of gas lights, controlled by the United Gas Improvement Company) for domination of the field of industrial lighting. Gaslight dominated because of cost, but General Electric made inroads by claiming that electric lighting was superior and provided increased production and safety. The gaslight industry countered with new, efficient gas lights and the claim that they improved production by increasing ventilation, killing harmful bacteria and increasing output (Scofield, 1916). Associated with industrial lighting were efforts by electric companies to shut down so-called “isolated plants” or privately owned power plants in apartment houses, hotels, and factories. This led to the Isolated Plant Association which formed a Preliminary Planning Board for Public Utility Research in 1914, to foster scientific management in municipal electric plants. The board consisted of Frederick W. Taylor, Louis D. Brandeis and others, but its accomplishments and records remain a mystery (Blankenburg, 1914).

Example 4. Ventilation, temperature and production (1908-1922). Claims of the gas light producers led General Electric to establish an Air Laboratory in 1910 to study air movement and worker efficiency, but its studies and results are a mystery. Parallel to the General Electric work, C.E.A. Winslow and Winthrop Talbot studied temperature and ventilation in relation to efficiency in 1912 and 1913 (Winslow, 1912; Talbot, 1913). The most complex studies were made by Professor Ellsworth Huntington of Yale University who studied the effect of temperature and humidity on the efficiency of 550 workers in three factories, discovering efficiency was highest on the dampest days of winter and in the spring and fall when relative humidity was 75 per cent (Huntington, 1915). Huntington’s detailed records for the years 1910-1912 are still at Yale University, but have not been studied by management historians.

Example 5. Fatigue tests (1918-1930). The popularity of scientific management resulted in a flood of articles in literature and more interest in fatigue which was bolstered by the work of Josephine Goldmark, a relative of Louis Brandeis. The First World War resulted in the formation of the Subcommittee in Industrial Pursuits by the National Research Council. Headed by Frederick S. Lee, the committee focused on methods of detecting and reducing fatigue. One method was the pulse product test of H. Ryan of the Scoville Manufacturing Company. This test and methods of reducing fatigue were thoroughly investigated by George Sheppard and his students at Purdue University in 1921-1923 (Geupel et al., 1922). The Purdue fatigue tests influenced the later work at the Hawthorne plant and at MIT by Dr Claire Turner, but the exact details of this influence are still a mystery.
Example 6: Physicians and scientific management: 1910-1918. The influence of management theories and practices on the activities of physicians and on the operation of hospitals has been studied in recent years, but much more research is required (Wrege, 1983).

Dr Ernest Codman, in 1910, began to study ways of improving the management of hospitals, including methods of surgery. He also developed methods of charting information flow concerning the effects of surgical procedures, a process he called the end result system (Wrege and Koller, 1981). The full influence of his work on hospital management is unknown.

Likewise, the full extent of Dr Ernest Southard’s investigations into the psychopathology problems of industry, the development of psychological tests for industry, and the use of medical teams to study psychological problems in industry is unknown. Southard’s untimely death in 1920 terminated his work. When Elton Mayo came to the USA he was considered a likely replacement for Southard since Mayo’s early ideas were a continuation of Southard’s work. The exact connection between Mayo and Southard is still a mystery. The senior author located many of Southard’s records in Springboro, Ohio in 1980, but the remainder, once held by his wife, Dr Mable Southard, are still unaccounted for.

Example 7. Management research groups. In 1921, through the efforts of Edward Filene, 11 New England companies and Harvard University organized into the Manufacturers Research Association, with the idea of pooling business information, experience and joint investigation to solve common managerial problems (Tweedy, 1926). By 1926, the work of the association was incorporated into the case studies developed and used by the Harvard Business School. The concept of the Manufacturers Research Association was eventually incorporated into the work of the International Management Institute in 1927, under the name of management research groups, and became popular in Europe.

The ideas of the Manufacturers Research Association of Massachusetts were also incorporated into the Retail Research Association of New York, according to a 1928 report of the International Management Institute, now held in the History of Management Theory Collection at Cornell University (International Management Institute, 1928). At present no data are known to exist on the Retail Research Association of New York. It is possible the management research group concept was the motivating force in the formation of the Electric Railway President’s Conference Committee (PCC) to conduct the research required to produce a streetcar adapted to the urban conditions of the 1930s. According to its chief engineer in 1931, the principal executives formed a cooperative organization “to provide mechanism though which the industry’s resources may be mobilized and guided in the production of more suitable rail equipment” (Hirshfeld, 1931). In this respect, the PCC fulfilled one of the guiding principles of the Manufacturers Research Association and the Management Research Group’s idea of the International Management Institute. Aside from the Retail Research Association and the PCC group, however, the use of the management research group idea in the USA remains a mystery.
Category IV: uncovered archival knowledge

Public archives, such as the National Archives and the Manuscript Division of the Library of Congress, contain a great amount of materials generally unused by management historians. As was true of the searches mentioned under Category I, the most interesting material is that which is generally unrelated to management. Only the historian’s imagination will limit his/her discoveries. Some interesting examples appear below.

Example 1. Manuscript Division of the Library of Congress. The collected papers of William C. Whitney, Secretary of the Navy: 1885-1889, fill 100 storage boxes. They not only cover the International Sulphite Pulp and Fibre Company and the Manufacturing Investment Company, but also the studies in naval efficiency conducted for Whitney in 1886-1887. The Library of Congress also holds the papers of Bishop Charles Brent, who was a member of the Inquiry Group which conducted early studies in group interaction in the Dennison Manufacturing Company and the Pennsylvania Telephone Company in 1926-1928 (Wrege and Hata, 1984). Finally, there are the papers of Edward Carter (also a member of the Inquiry Group), some of which are among the papers of Senator Joseph McCarthy since the Institute of Pacific Relations (also part of the Inquiry Group) was investigated by McCarthy.

Example 2: National Archives. The National Archives contains the records of the Federal Courts and the US census schedules to the year 1920. The court records are especially useful because of the extensive testimony preserved with each case including original letters and other records. As an example of the kind of records available, the original first page of Frederick Winslow Taylor’s 1898 “Steel cutting experiments” is still preserved as page 1041/2 in the Bethlehem Steel Company v. Niles-Bement-Pond Company patent suit (Case No. 4641) of 1905-1908.

There are also the thousands of linear feet of records of the United States Shipping Board’s Emergency Fleet Corporation (1917-1926). These include the various 1918-1919 reports of management consultant Charles Knoeppel which reflect his concept of cooperation with workers since they concern “employment building” and “the selection and placement of workers”. Knoeppel also prepared a 1 February 1918 list of nine important management functions. More of his work and other management activities of the Emergency Fleet Corporation remain a mystery.

Concluding remarks

There are new tools available for research. For example, a national telephone directory can now be found on the Internet or on software, so it would no longer be as arduous a task to find “Fraziers” living in the Cambridge, Massachusetts area, as it was in 1979. Some census data, atlases, and genealogical data are also available on the Net and researchers can be grateful for the many databases available, such as: Social Scisearch, A BI/Inform, Sociological Abstracts (SA), and America: History and Life (AHL). However, the ease of finding material on the databases must be weighed against their limitation: material included on these databases cover only the periods from: 1972, 1971, 1963, and 1964.
respectively. Other sources of information via computer are Web sites devoted to management history or related topics, such as the electronic mail network of the Management History Division of the Academy of Management (http://www.mailbase.ac.uk/lists-k-o/management history). The network allows discussion and exchange of information with management history scholars and researchers worldwide. Another source of information is an archive of original material related to Frederick W. Taylor which is being developed for online use by the Stevens Institute of Technology. The project can be contacted at http://attila.stevens-tech.edu/~rdowns

The work on the F.W. Taylor Project is particularly exciting because it will provide scholars with original documents. Although you cannot feel the document in your hands, you can read the original work, not an interpretation or analysis. Original documents are important; the serendipitous discovery of solutions to mysteries and new material cannot occur with a reliance on secondary sources, and dependence on secondary sources can also lead to error. So, both for the joy of the hunt and the pursuit of truth, management historians need original documents.

The answers to our original questions are obvious. What management mysteries are there left to solve and how can they be solved? There are a vast number of management history mysteries remaining and no limit, other than the imagination and creativity of the management historian, to the ways a mystery might be pursued. Along the path, one can uncover fascinating facts, management insights, and more mysteries.

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Further reading

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