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The Battlefield of the Industrial World: Academic Interpretations of Frederick Winslow Taylor’s Scientific Management

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Abstract: Historians and business management scholars have fought about the legacy of Frederick Winslow Taylor for the past six decades. Taylor lived during the second half of the nineteenth century and worked as a consultant to different steel companies during the height of the Gilded Age in the United States (1877-1900). He propagated several different principles of industrial management that guided not only the physical space of a factory, but also the relationship between worker and manager. Historians often identify Taylor as the father of scientific management, so much that they have labeled it Taylorism. While scholars agree on the importance of Taylorism, they disagree on the wider implications of scientific management. Scholars either praise or condemn Taylor’s desire for industrial efficiency. The division of scholarship stems from the types of sources that historians and business scholars use. This article analyzes the historiography and broader scholarship around Taylorism to evaluate the priorities of business today.

Keywords: Taylorism; Scientific Management; Frederick Winslow Taylor; Industrial Revolution; Business Management; Operations Management.

Introduction
In 2001, the fellows of the Academy of Management, an association of scholars who organized academic journals on business management, voted The Principles of Scientific Management as the most influential management book of the twentieth century. The fellows wrote that the book’s author, Frederick Winslow Taylor, had a philosophy on management that was still as valid today as it was in the early twentieth century. Similarly, Jeremy Rifkin, an economist and social theorist wrote that “Taylor made efficiency the cardinal virtue of American culture… [he] has probably had a greater effect on the private and public lives of the men and women of the twentieth century than any other single individual.”¹ Given a century of leaders in management from Henry Ford to Bill Gates, this statement begs the question: What is it about Taylor’s work that still echoes a century later?

Frederick Winslow Taylor lived during the second half of the nineteenth century in the United

States. He worked as a mechanical engineer, but more importantly, as a consultant to different steel companies during the height of the Gilded Age. Taylor propagated several different principles of industrial management that guided not only the physical space of a factory, but also the relationship between worker and manager. In Taylor’s view, managers should oversee the workplace by relying on scientific principles and not by what workers thought was commonly accepted as correct. Thus, historians often identify Taylor as the father of scientific management, so much so that they have labeled it Taylorism.

Historians and business management scholars have grappled with Taylor’s work and its wider historical significance throughout the second half of the twentieth century and early twenty-first century. Earlier historians such as Alfred Chandler provide the general context and goals of Taylorism and the other scientific managers. Most business management scholars have applauded the importance of Taylor’s management style in industrialization. Management thinkers, including David Savino, trace Taylor’s impact on management not just in the past, but also in the institutions of today. Many historians, in contrast, condemn Taylorism for turning workers into cogs in the industrial machine. Historians such as Elizabeth Esch and David Roediger look at the similarities between race-management and Taylor’s scientific management and apply a Marxist lens to their analysis. Other historians such as Mary McLeod and Karsten Uhl analyze Taylorism’s significance in the international stage.

Scholars either praise or condemn Taylor’s desire for industrial efficiency. Even in the twenty-first century, the idea of digital Taylorism – or the idea of managing efficiency in the world of computers and electronic media – still haunts the fabric of modernity. For many historians, then, Taylorism represents a demon that has yet to be exorcised from American culture. For business management scholars, Taylorism constitutes the inevitable infiltration of science into all facets of the workplace. However, the sources each type of scholar relies on determine their conclusions. Business scholars take the historical success of scientific management at face value. Instead of questioning the effects of scientific management on the worker or the workplace, business scholars largely accept the writings of Taylor or his disciples for their theoretical value. Historians, on the other hand, look beyond Taylor’s writings to the reality of the application of Taylorism to the workplace. Therefore, the split in the interpretation of Taylorism stems from the sources that scholars use to interpret scientific management. If scholars focus on Taylor’s writings, then they will applaud him for being innovative for his time, while those that look at the greater context of how managers or business owners utilized scientific management, then the flaws of Taylorism become self-evident.

The Historical Method and Business Management Scholarship

Business management scholars and historians often have two very different goals, even though they might write about the same topic in management. While historians focus on interpreting and evaluating the past, business scholars often look to the past to trace the origin of modern management practices. Modern historians use primary sources from a wide variety of origins to paint a picture of what happened in the past.
Business scholars, on the other hand, look primarily to the theoretical component of past industrialists, like Taylor, to prove their arguments about what management should look like today. Business academia often offers tribute to past business thinkers like Taylor and how their life led to contemporary business practices. Many historians would question whether this academic pursuit is history at all. However, as business scholars cite historians and attempt to argue within the realm of the past, their contributions remain important to the tapestry of management history. Yet, historians go beyond the realm of the theoretical and give a nuanced picture of how industrial managers practiced Taylorism.

**Early Works on Taylorism**

As early as the 1960s, scholars argued about the legacy of Taylor and whether his work should be relegated to the past or used in modern management. In his work, “Frederick Winslow Taylor Revisited,” Jean Boddewyn tries to look at the philosophical ideas around scientific management and what made it novel earlier in the century. When writing in 1961, Boddewyn felt as though scientific management was still very much alive and saw it as being present in the modern workplace. Boddewyn outlines three major arguments that were made against Taylorism by other thinkers of his time: “A. Taylor emphasized the individual worker and ignored the group; B. Taylor sacrificed the worker to the system; C. Taylor stressed the use of financial incentives to induce workers to produce more.” While there was significantly less formal scholarship around Taylorism when Boddewyn wrote, he wanted to “set the record straight” when it came to these arguments against Taylor. Boddewyn goes through these arguments in turn and presents quotes from Taylor’s *The Principles of Scientific Management* that were intended to counter the arguments posited against Taylorism. For example, when countering the claim that “Taylor sacrificed the worker to the system” Boddewyn mentions that Taylor’s writing actually fought against the piece rate system present in his day. Boddewyn does not make any attempt to create further context or research in regard to Taylor’s thoughts or how those thoughts might have been misconstrued by managers who enacted scientific management. Boddewyn does not explain how Taylorism might have been applied; instead he cites *The Principles of Scientific Management* as the only proof of Taylor’s value. Concurrently, the importance of Boddewyn’s work was that it stirred the philosophical debate around Taylorism. While he was certainly responding to arguments already established in academia, many of the arguments that Boddewyn explores became common in the historiography on Taylorism after this publication. Marxist scholars would argue that Taylor sacrificed the worker to the system and other historians questioned the monetary incentives that Taylor propagated. Like Boddewyn, countless later business scholars also defended Taylorism, but did so from a theoretical standpoint that presented almost no data on the impact of these management models on businesses or workers.

Despite the attention scholars give to Taylorism, it certainly was not the only form of labor management.

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In a community study done by Daniel Nelson and Stuart Campbell in 1972, Taylorism conflicts with another managerial system that was popular in the early 1900s: welfare work. Nelson and Campbell illustrate that the two systems competed for followers and had different assumptions about the common worker. Welfare work, an inexact management style, attempted to promote the “physical wellbeing” of the worker. Welfare work included opportunities for recreation, suitable sanitary homes, and educational benefits. Nelson and Campbell state that the two managerial systems were not completely in separate spheres; both systems tried to get as much work out of the employee as possible by offering additional benefits. Through these benefits, both systems tried to create harmony between labor and management. However, Nelson and Campbell make it clear that while Taylorism could be cold and calculating, welfare work was paternalistic and familial. Nelson and Campbell portray Taylorism as “measuring, analyzing and controlling the worker by techniques analogous to those that proved successful when applied to physical objects.” Nelson and Campbell state that Taylor saw the common worker as simplistic in only wanting higher wages.

To prove the differences between welfare work and Taylorism, Nelson and Campbell look at the unique Bancroft Company that attempted to utilize both systems. During the first years of the twentieth century, the Bancroft Company utilized welfare programs at the company in order to prevent turnover, unionization and strikes. Employing a Miss Elizabeth Briscoe, an ex-teacher, to promote the welfare programs and satisfy the employees, Bancroft created a familial atmosphere with their employees. However, as the company grew, bottlenecks in production became more common, so the Bancroft Company decided to hire one of Taylor’s closest disciples, Henry Gantt, to try to increase efficiency. Nelson and Campbell exemplify the difference between the two management styles by showing how Gantt failed in his pursuits with Bancroft. While Gantt tried to institute changes in how employees were managed, the owners of Bancroft did not want to change the welfare-style system that the company had instituted in previous years. This conflict caused Gantt to comment in a letter to Taylor himself: “Bancroft’s mindset toward his employees became the obstacle: he never gives anyone an order, and with us [scientific managers] clear cut orders are the essence of success.” Through this quote, Nelson and Campbell try to reveal the difference between the two systems: while Taylorism demanded the worker to act in a certain way, welfare work created a more humanistic bond between employee and employer.

Nelson and Campbell’s entire work revolves around this one conflict in this one business. Their sources come from the correspondence between the different stakeholders in the community including workers, supervisors, and the owners of Bancroft. While the scope of the work remains limited, it breaks from Boddewyn’s writing in terms of methodology.

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Nelson and Campbell illustrate how Gantt applied Taylorism firsthand at the Bancroft company. They reveal, through primary accounts, how Taylorism conflicted with a “warmer” style of management. Gantt wanted the owners of Bancroft to discard the welfare programs that they had already built. While Taylor promoted financial incentives, he and his followers were oblivious to the greater needs of the worker including autonomy and a familiar work atmosphere. Because Taylorism also led to increased layoffs, the management style resulted in increased combativeness between workers and managers. Written in 1972, at a time when young historians began questioning the foundations of institutions like businesses, Nelson and Campbell question the cold, calculating world of scientific management and embrace the “warmer” management style of welfare work.

Alfred Chandler presents a highly regarded work in his 1977 classic, *The Visible Hand: The Managerial Revolution in American Business*. The *Visible Hand* defines the very heart of industrial management and attempts to get at the true dialogue that happened between industrialists in the Gilded Age and early twentieth century. To Chandler, the value of a factory system came from the speed of production. Industrialists did not necessarily care about the size of their factories, nor the number of employees they had. Rather, industries cared about how efficiently the factory could create a final product, or throughput. In the pursuit of more efficient businesses, not only did industrial capitalists use new automated technology, but they also created new organizational models that included multiple tiers of management. As Chandler argues: “the modern factory was as much the specific organizational response to the needs of the new production technology as the railroad and the telegraph enterprises were responses to the operational needs of the new technologies of transportation and communication.”

Chandler describes countless industries and the systems that they developed in order to increase efficiency and throughput as much as possible.

Taylorism, by definition, focused on the scientific management of workers. Chandler describes in full detail the way that Taylor presented his ideas to American manufacturers. Taylor advocated for high degrees of specialization in the structure of workers. Manufacturers rejected some parts of Taylor’s specialization, but they accepted the basic premise of most of his ideas. Chandler states that while Taylor focused on the analysis of individual actions, other scientific managers of Taylor’s day thought that Taylor did not see “the synthesis of those actions into the fuller organization.”

Chandler points out that no factory owner ever fully accepted what Taylor or his disciples promoted. Instead, factory owners changed their operations to conform partially to what Taylor specified. Chandler gives several examples of how Taylor or his disciples changed the operations in different industries and describes how employees were reorganized in each.

In contrast to Nelson or Campbell who focus on smaller community studies or Boddewyn who looks

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only at the broad arguments surrounding Taylorism, Chandler gives the most technical historical picture. While Boddewyn does not utilize any historical sources besides Taylor himself, and Nelson and Campbell have a narrower, community centered approach, Chandler broadens his work to include as much of the industrial system as possible. Chandler gives his reader the technical dialogue that industrialists had. Chandler brings together many sources to support his argument and distinguishes between the needs of different industries including payroll records, sales numbers, and the writings of the industrialists themselves. To an extent, Chandler’s work is devoid of any larger political argument and asks the question: “do we truly understand early American industry at an applied level?” However, even then, Chandler examines how Taylorism applied to day-to-day industry. Chandler underlines that industrialists never fully embraced scientific management. They utilized whatever they found practical. Finishing his work in the late 1970s when the United States entered a stage of stagflation, Chandler looks at what made the industrial United States operate – Taylorism being no small part of that system. For the past four decades, while scholars have debated the questions that Boddewyn outlined about Taylorism, they have looked back to Chandler for the historical reality of how the industrial machine developed. The reason that scholars still regard Chandler as one of the strongest works on industrial management remains his ability to paint the most vivid picture, one that reveals the nuance of Taylorism in practice.

Scholarship in the Era of the Great Recession

Business theorists, such as Daniel A. Wren, look at the impact that Taylorism still has on the business world today. Wren, a professor of management at the University of Oklahoma, has written extensively on the influence of Taylor in business efficiency since 1974. As recently as 2011, Wren argues that “our nation and world continue to encounter the problems of [Taylor’s] period. Taylor’s solution was better management of our natural human resources and he provides ideas that still endure today.”9 Looking back a century after the publication of Taylor’s The Principles of Scientific Management, Wren looks to apply Taylorism to a world hit by the Great Recession of 2008. To Wren, Taylor provided “beginning points that have enabled us to extend our thinking [about] the need to think more efficiently.”10 Presenting a cursory summary of the early life of Taylor and the publication of his work, Wren explores the dialogue that Taylor had with his contemporaries in developing his management system. Taylor, in his time, feared workers were “soldiering,” the idea that some workers produced less output than they were capable of. While physical resources remained important to a manager, more important were the human assets that needed to be managed in the workplace. Workers needed the opportunity and incentive to produce more. Taylor propagated the “piece-rate” incentive plan that paid ordinary wages for producers who reached the output standard and higher wages for those who performed above the minimum. Monetary incentive, therefore, became the

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solution to soldiering workers who did not produce to capacity. Wren focuses on the publication of Taylor’s two writings, *Shop Management* and *The Principles of Scientific Management*, which both explained the need of reducing wasted motions, setting appropriate standards of performance, and paying for performance through differential piece rate. Wren does not provide evidence or other sources that prove or disprove that workers were, in fact, soldiering. He takes Taylor at his word that workers were not producing as much as they possibly could be.

Wren explains that Taylorism found “common ground in combining the interests of manufacturers, who wanted lower costs and workers who wanted higher wages.” However, this intersection of goals did not always meet. For example, in the famous Eastern Rate Case, Louis Brandeis argued that the Eastern Railroad Company could save $300 million if they applied scientific principles that reduced the number of workers working railroads, which would reduce rates. Brandeis believed that the company used inefficient systems and should instead operate under scientific theories propagated by Taylor. While these scientific principles could be applied to increase efficiency, they also meant the firing of hundreds of railroad workers. Therefore, the workers themselves often rejected Taylor’s management approach as it sought a leaner model that was often indifferent to the needs of workers.

Wren’s methodology involves taking Taylor’s writing at face value. Wren reviews Taylor’s correspondence with other business theorists of the time but does not go beyond letters or Taylor’s major writing. With the exception of the controversy around the Eastern Railroad Case, he does not examine Taylorism’s impact on the world of the early twentieth century, let alone the world of 2011. Wren does not discuss how Taylorism impacted the companies where it was implemented. While Wren does portray the general rejection of Taylor’s ideas in events like the Eastern Rate Case, he fails to show the success of Taylorism in independent companies. However, where Wren does illustrate Taylor’s impact was on collegiate business education. By 1920, twenty-one universities offered a course in scientific management or engineering. Wren emphasizes that Taylorism strongly influenced how professors taught business management in the 1920s. Business academics today often trace Taylor as one of the progenitors of academic business management.

Niall Piercy, writing only a year after Wren, takes up where Wren left off. However, while Wren ends his article by discussing how Taylor influenced academic business management, Piercy argues that modern operations management has become disconnected from business history. Writing in the early 2010s when business schools became more prevalent on academic campuses, Piercy believed that business schools became too focused on contemporary issues and abandoned the history of how operations management came to be. In his article “Business History and Operations Management,” Piercy portrays operations management as constantly reinventing the wheel and promoting thoughts that have been propagated for nearly a

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century. Piercy wants to “emphasize the importance of considering history in operations management and to highlight the generally poor or inaccurate histories being portrayed.”\textsuperscript{13} To Piercy, those interested in teaching business management should not leave history to historians, but instead should use the past to better understand contemporary operations management. The works of Frederick Taylor still have much to teach about worker relations. Piercy believes that current issues in “evidence-based management” would be very familiar to scientific managers such as Taylor, Charles Babbage, or Frank Gilbreth. Piercy argues that “the business history community has an opportunity to play a major role in working with colleagues in operations management to reshape the next generation of textbooks and university programs to better integrate historical analysis into operations.”\textsuperscript{14} History and business management, therefore, should be better combined in order to make sure that students have full understanding of the academic management they follow.

Piercy examined undergraduate textbooks on operations management over the past few decades. In the case of Taylorism, while textbooks mention Taylor, they only briefly mention him as one of the fathers of scientific management. Business textbooks overlook “Taylor’s work both in terms of the pre-existing ideas on which he built and the positive, humanistic working environment Taylor tried to build, which stands in contrast to the anti-worker portrayal Taylor too often receives.”\textsuperscript{15} Emphasizing the importance of the works of historians like Alfred Chandler, Piercy states that textbooks ignore Taylor’s correspondence with other industrialists like Carl Barthe, Harrington Emerson, or Charles Bedaux. Piercy emphasizes that Taylor’s general impact on operations academics cannot be understated as Taylor was at the right place (the United States) at the right time (the 1910s). Piercy focuses on “the primacy of Taylorist based approaches is an inheritance passed down to the current generation of operational academics, often without an appropriate level of question and consideration.”\textsuperscript{16} Since business schools came into being around the same time and place that thinkers such as Taylor and Ford did their work, Taylor’s influence remains ubiquitous throughout contemporary management academia. However, Piercy sees textbooks often denigrating what came before in order to promote the newest fad in business management.

Where Piercy’s analysis falls short is in his solution of the problem he presents. While the separation of operations management and its history becomes apparent, there is no clear way forward on how to directly address the works of thinkers like Taylor. Should everything that Taylor espoused be utilized in contemporary business management? Piercy does not distinguish what exactly in Taylorism or scientific management in general should be adapted and what should be discarded. Piercy does not give specific examples where Taylorism saw success and in what contexts. While Piercy mentions that history

\begin{itemize}
  \item \textsuperscript{13} Niall Piercy, “Business History and Operations Management,” \textit{Business History} 54, no. 2 (April 2012): 155.
  \item \textsuperscript{14} Piercy, “Business History and Operations Management,” 157.
  \item \textsuperscript{15} Piercy, “Business History and Operations Management,” 163.
  \item \textsuperscript{16} Piercy, “Business History and Operations Management,” 168.
\end{itemize}
should not be simply “dry lecture” and that a variety of different methods should be utilized to bring the history alive like case studies or visual media, he does not give specific examples of what case studies should be used or where Taylorism can come alive today. Piercy mentions that Chandler was responsible for pushing business history into the mainstream curriculum at Harvard Business School and applying past works into contemporary applications. However, Piercy does not reveal how business professors can emulate Chandler’s example moving forward. Chandler himself used historical analysis and primary data to craft a complex narrative of how Taylorism came to industry. Piercy instead wants more history in textbooks, but without the questions or context that historians often present.

Unlike Wren or Piercy who largely accept the tenets of Taylorism, historians such as David Roediger and Elizabeth Esch question the purpose and context of scientific management. In their work, “One Symptom of Originality: Race and the Management of Labor in the History of the United States,” Roediger and Esch look at how the concept of antebellum race management and scientific management originated from the same racial assumptions. The factory and the plantation systems separated races into different categories—slave and free. In the management of these two systems, it became necessary for managers to play one race against another. Managers and foremen were not outside of the race system in the United States, and in many ways, “created that system.”

Roediger and Esch point out that past historians have mentioned that managers used race to divide workers during strikes or during similar times of unrest; however, Roediger and Esch state that managers used race as leverage in day-to-day operations as well. Roediger and Esch argue that “race-management came into being long before scientific management, and the two for a time coexisted as complementary rather than alternative strategies for exacting production.”

Roediger and Esch portray scientific management as utilizing the apparent weaknesses and strengths of different races in order to create supposed industrial efficiency.

To prove their argument, Roediger and Esch utilize sources from the antebellum period and apply their historical context to the world of scientific management. They analyze the history of how slaveholders managed their slaves and how different racial groups came into conflict with one another, such as African Americans against Irish Americans. Slavemasters gave “scientific reasons” as to why Blacks needed to be managed. While plantation life and the factory seem like different places, foremen and plantation owners managed in similar fashions.

To Roediger and Esch, “the brutalities of racism seem to intersect only obliquely with the cold science of management that Frederick Winslow Taylor is credited with inventing in the late nineteenth century US… [however] Taylor wanted to create ‘high-priced men’ by selecting them studiously and regimenting their motions scientifically suggests an overlap between managerial

science and race-management.” In Taylorism, some were destined to become successful high-priced men while others should be paid less because they were not as fit for work. To Roediger and Esch, this system stems from the same assumption of racial superiority. Some are destined to be slaves, while others should manage over the workers. However, these assumptions were no longer just about race, but were also now about ethnicity. Roediger and Esch utilize some of Taylor’s writings to illustrate the similarities between the systems. For example, Taylor used race to explore the fact that the average worker is more productive in some civilizations but less productive in others. Taylor believed in Black inferiority as seen in his writing, but also portrayed some ethnicities as superior or inferior. “True Americans” could operate machinery, but the “dirt handling [should be] done by Italians and Hungarians.” While Taylor never explicitly spoke of race management, many of his followers used race and ethnicity to slot workers of a particular race into certain jobs. Roediger and Esch explain that managers or foremen who promoted scientific management used racial graphs like the one below (see Appendix A) in order to “scientifically” determine who was most optimal for a certain job. Typically the scientific managers that Roediger and Esch analyze did not seek empirical data to prove the value of races, but rather compiled anecdotal assumptions to prove stereotypes. Roediger and Esch also evaluate the work of followers of Taylorism like Hugo Münsterberg, a pioneering psychologist, tried to combine “scientific psychology” with Taylorist scientific management. Münsterberg tried to systemize race and management, but in the end conceded that the best way to find the correct worker for a job was to devolve into racial stereotypes.

Writing in a Marxist publication, Historical Materialism, Roediger and Esch focus on the potential weaknesses and problems of scientific management and Taylorism – the byproducts of unfettered capitalism. Like Wren and Piercy, Roediger and Esch also wrote after the Great Recession of 2008, but drew very different conclusions. Roediger and Esch ask what assumptions of the capitalist system continue to fail a century after Taylor’s time. Racial inequality in the workplace and racial tensions were at the forefront of the world of 2008 and remain an ongoing question today. Wren and Piercy write instead for business periodicals and see the way forward as creating a more scientific workplace that harkens back to the industrial past. The purpose of their work is to not question, but to enshrine the success of early pioneers such as Taylor. Historical analysis, however, cannot accept the past at face-value but rather must evaluate past assumptions to better understand the world of today. Roediger and Esch prove that once managers applied Taylorism to the workplace, racial assumptions became a discriminatory element that plagued the workplace. Neither Piercy nor Wren give their reader any evidence of how scientific management changed the workplace – but rather give a cursory overview of how Taylorism can be applied today.

Taylorism in Europe

While most scholars focus on Taylorism from the perspective of industry in the United States, historians such as Mary McLeod look at the impact of scientific management on industry in Europe. McLeod, an architectural historian, analyzes the impact of Taylorism on the work of Le Corbusier, a French architect and urban planner. Le Corbusier did most of his early work after World War I. McLeod portrays Taylorism as having little impact in France before the war, as critics saw its implementation as “systemized sweating” which caused several strikes in 1913.22 However, World War I led to the loss of manpower in the factory and the need for faster output. Less skilled workers in French factories led industrialists to be more willing to adopt American management systems like Taylorism or Fordism. A French newspaper proclaimed “the War made Taylor the order of the day. The name of Taylor, which was barely known in France by well-informed people only a few years ago, is now mentioned by everyone: owners, engineers and workers.”23 Even prime minister Georges Clemenceau signed a decree that asked for “all heads of military establishments to study new industrial techniques and proposed the creation of a Taylorite planning department in every plant.”24 Taylorism, then, became a timely tool to assist the French war machine. After the war, the production of many commodities, not the least of which was buildings, caused further need for an increased industrial output. France also had contention between a growing socialist movement and a conservative right. With these factors in place, Le Corbusier saw architecture as a tool of social redemption – a way to moderate the needs of workers while not discarding the old society.

Taylorism offered a way for Le Corbusier to increase the number of buildings being produced while benefiting workers. McLeod states that European thinkers like Le Corbusier largely discarded Taylor’s technical recommendations, but the “the social and political implication [of Taylor’s work] generated European interest.”25 What interested Le Corbusier was the belief that more production would create higher wages which ultimately would solve many of society’s ills. Le Corbusier mentioned Taylorism in many of his early writings, yet the largest influence can be seen in the development of his architecture during the post-war period. Le Corbusier developed the “Dom-ino” system which was one of the earliest mass production techniques of housing in France using Taylor’s ideas. Le Corbusier wanted to create prefabricated housing for those devastated after World War I. In this way, Le Corbusier saw architecture as a social fixing tool where the problems of society that stemmed from low housing could be fixed by having a huge supply of cheap buildings. Taylorism became “the one way in which an architect could remain relevant in a society faced with destruction.”26 The destruction, in this case, was France falling to its own form of Bolshevism.

McLeod reveals Le Corbusier’s rather utopian impulse, but she also illustrates that other urban

25 McLeod, “Architecture or Revolution,” 133.
26 McLeod, “Architecture or Revolution,” 133.
planners in France followed Le Corbusier’s example. Le Corbusier mentions Taylorism in his public writing by stating that France needed to abandon old architecture production techniques and embrace a system that included workshops, technical specialists, and standardization. Other thinkers shared their agreement with Le Corbusier in the magazine *L'Esprit Nouveau*. *L'Esprit Nouveau* remains McLeod’s primary source, which she supplements with Le Corbusier’s other letters and writings. *L'Esprit Nouveau* proves that Taylorism had a large impact on Le Corbusier and his followers, but it did not reveal that there was a bigger push for a Taylorist approach in architecture or other industries in France. Taylorism appears instead as a temporary solution to the problems that plagued France during the first World War and the period of post-war reconstruction. Writing “Architecture or Revolution” in 1985 after France had elected its first socialist government earlier in the decade after economic turmoil, McLeod attempts to reveal that the solutions to that economic crisis could not be cured with political division, but rather with economic efficiency. Her work may not manifest these higher ideals, but she does prove that Taylorism did impact Le Corbusier and a subset of French architects.

Similar to McLeod, Karsten Uhl analyzes the effect of American models like Taylorism and Fordism on German industry. Like McLeod, Uhl states that Germans appropriated some parts of Taylorism, but tried to adapt those principles to German culture. Through his work, Uhl argues that “Germany and the United States have differences in industrial labor strategies that still exist and have a history that can be traced to the beginnings of the twentieth century.”

Uhl wrote his work “Giving Scientific Management a Human Face” in 2011 when Germany, as a leading power in the European Union, attempted to distinguish itself from the economic preeminence of the United States. Uhl states that ever since its empire phase, Germany has always been different from the liberal market economy of the United States and instead had a coordinated market economy. Uhl attempts to prove this difference through the way that the workplace was handled as early as the beginning of the twentieth century in Germany.

Uhl’s methodology involves examining the Duetz engine factory in Cologne, Germany. One of the managers of Duetz, Fritz Wolfensberger, went to the United States during the early 1910s to study American industry. Wolfensberger saw how Taylorist factories performed time and motion studies that allowed operations to be fragmented into simple motions. The operations process would be brought to perfection by finding the “one best way.” However, when Wolfensberger returned to Germany, he believed only some parts of Taylor’s model could be applied to German factories. Wolfensberger, as well as many of his fellow industrialists thought that “whereas Taylorism focused on discovering and imposing a fixed pattern of movement from above, team-based

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organizations would instead focus on monitoring and remaking employee attitude.”

Believing that a more humanistic approach would be more fitting to German sensibility, management at Duetz wanted the worker to become his own foreman, unlike the American model which placed managers in place of direct control of each worker. While efficiency was the desired result, Wolfensberger would write that “German engineers [should] study Taylor, but [should] never become Taylorists!”

Instead, German managers empowered their employees to increase output by building a more humanistic factory. Like in McLeod’s work, Uhl mentions that Taylorism was adopted to counter the rise of socialism. As one German engineer stated “a good shot of American individualism could make way for worker’s self-development. In turn, this could be a cure for the all-embracing collective, that is socialist ideas, which made Germans lose their sense of responsibility.”

Uhl mentions that even as late as the Third Reich, Germans appropriated some of Ford’s and Taylor’s work but tried to maintain a human element in the factory.

The European application of Taylorism has similar meaning in both Uhl’s and McLeod’s works. The American model of industrial efficiency might have diffused to different parts of the globe, but it was never fully accepted. Instead, Taylorism represented a possible counter to the growing socialist sentiment that boiled up in Europe after the success of the Russian Revolution. While European industrialists and engineers tried to obtain the efficiency promised by scientific management, they often discarded many of the technical recommendations that Taylor promoted. Instead, Europeans adapted the spirit of American efficiency to their own models of production.

Business management scholars like Piercy and Wren often cite the “international success” of Taylorism in the international stage. They list countries that adopted Taylorism like “Germany, Italy, France…and even the Soviet Union.”

However, what these scholars fail to mention was the complexity of the reasons of how or why European companies accepted Taylorism. Taylorism represented not an American export, but rather a shield against the rise of socialism and a way to keep discontented employees working. Industrialists like those at Duetz only took some of the basic structures of Taylorism but diluted the system to their own needs. By looking at how Taylorism was applied internationally, McLeod and Uhl prove that European industrials did not accept Taylorism as readily as business managers would argue.

**Recent Scholarship**

Recent historiography, such as in the work of Diana Kelly in “Perceptions of Taylorism and a Marxist Scientific Manager,” tries to change the general trend of historians to view scientific management as purely exploitative and a product of unfettered capitalism. Kelly focuses on the work of one of Taylor’s followers, Walter Polakov. Polakov, a scientific manager, also

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29 Uhl, “Giving Scientific Management a ‘Human’ Face,” 516.
31 Uhl, “Giving Scientific Management a ‘Human’ Face,” 518.
followed a socialist, if not Marxist, ideology. By studying Polakov, Kelly hopes to prove that the scientific managers of the 1910s were not focused on exploiting the common worker, but instead had a progressive need to change the management of the workplace. Kelly demonstrates that the scientific management of Walter Polakov should be acknowledged as an “accepted part of Taylorism, at least before the 1940s… If that were the case, then ideas that early Taylorism was anti-worker and management control-oriented would also need reconsideration.”33 The purpose of Kelly’s work is to see the work of Taylorists in a more complex light – a general trend in contemporary history.

Writing in 2016, Kelly presents a counter-revisionist perspective on the history of Taylorism. Kelly starts her work with a summary of the general trends in the historiography of scientific management through the second part of the twentieth century. To Kelly, past historians have portrayed Taylorism as being a form of job fragmentation, deskilling and the degradation of work. Kelly mentions the work of historians such as Harry Braverman in Labor and Monopoly Capital, which not only portrayed the entire capitalist system as exploitative and demeaning toward workers, it portrayed scientific management as “ensuring that the worker would sink to the level of general undifferentiated labor power adaptable to a large range of simple tasks [while power] would be concentrated in the hands of management.”34 Like Braverman, writers like Howard Zinn made Taylor the anti-hero of the management movement in the United States. If historians did not portray scientific managers as exploitative, they portrayed them as stunt peddlers who tried to sell a fad to various industries. On top of the critical approach of historians, Kelly also looks at recent history textbooks that illustrate scientific management as exploitative.

To counter this recent perspective of Taylorism, Kelly looks at the work and letters of Polakov. Polakov was a member of the Taylorist Society who wrote about and debated the works of Taylor. Kelly illustrates that the rules of the Taylorist society were not absolute and there was a plurality of opinions that its members expressed. Those who were close to Taylor showed “that the early Taylorists were genuine in their concerns for making work reasonable, feasible and better for workers.”35 As a part of the Taylorists, Polakov remained committed to Taylorism his entire life, but also was an expert advisor in Russia, a public servant in New Deal organizations, and a senior trade union official with the United Mine Workers of America. Kelly’s primary evidence remains Polakov’s published writings and debates with other Taylorists. The debates demonstrated the “inextricability for Polakov of his commitments to both scientific management and socialism,” as they revealed that “scientific management would ultimately pave the way to socialism by increasing wages and output.”36 Kelly then finalizes her work by trying to prove that Polakov’s political views were not necessarily too

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34 Kelly, “Perceptions of Taylorism and a Marxist Scientific Manager,” 301.
35 Kelly, “Perceptions of Taylorism and a Marxist Scientific Manager,” 304.
36 Kelly, “Perceptions of Taylorism and a Marxist Scientific Manager,” 311.
distant from that of his other colleagues in the early Taylorist society including Morris L. Cooke. Given this evidence, Kelly believes that we need to rethink the overriding belief that Taylorism was exploitative to workers.

The scope of Kelly’s work remains narrow, as it only presents the work of one Taylorist. There is no evidence to show how Polakov’s beliefs were accepted by other Taylorists. Even if more of the Taylorists themselves were progressive, there is no way to show how factory managers or owners used Polakov’s ideas or shared his socialist ideas. While Kelly does not simply take Taylor’s ideas at face value, she does not exemplify how Polakov’s work applied in industry.

While Kelly might be a historian and not a business management academic, she stays in the realm of the theoretical and does not give tangible evidence of how Polakov changed industry. Kelly’s work, like Uhl’s or McLeod’s, however, does show that a variety of parties did utilize Taylorism in various contexts, but usually adapted Taylor’s work to their own ends. Taylorism was not a monolithic management system that was followed uniformly—rather different industrialists abridged and changed it to fit their own practical needs.

As late as 2016, business management scholars have continued to express the importance of Taylor as a father of contemporary management. In his work, “Frederick Winslow Taylor and His Lasting Legacy of Functional Leadership Competence,” David Savino looks at the legacy of Taylor in various industries. Beginning with a general explanation of Taylor’s life and work, Savino argues that “Taylor not only greatly influenced how work was done in the twentieth century but also had a direct impact on contemporary management practices and management education.”

Savino portrays Taylorism as not being callous to the common worker, but rather as part of the greater Progressive Movement that grew during the first part of the twentieth century. Savino states that “Taylorism and Scientific Management made business and industry what it was going to become anyway, only more so and more rapidly.” Today’s industries that exemplify scientific management’s inevitable victory include management accounting, codetermination, human performance technology, compensation, lean management, marketing, pollution prevention, and human resources. Savino gives few examples of Taylorism’s actual impact in each of these industries. He tries to go into the practices of some companies like Toyota who illustrate some degree of Taylorist influence. For the most part, the benefits of contemporary Taylorism include measurement systems that evaluate how well workers are performing, a more harmonious relationship between workers and management and waste prevention. If anything, Savino’s work proves that Taylor’s impact on today’s industries is far from universal. While it is easy to see the connection between Taylorism and modern efficiency measurements, it is more difficult to see Taylor’s hand in modern human resources and waste prevention. The fact that Savino brings up both “lean management” and “human resources” together reveals


38 Savino, “Frederick Winslow Taylor and His Lasting Legacy,” 71.
a contradiction and conflict in the goal of workers and managers.

Savino’s primary evidence for his portrayal of Taylor as pro-worker comes from the fact that Taylor, in his last days, “promoted the idea that knowledge rather than power should rule the workplace … Taylor basically believed the best way to balance knowledge and power in the workplace was through codetermination.” Savino’s thought that Taylor believed in this balance between workers and management came only after Taylor was under pressure by unions who believed that he was anti-worker. The motivations of Taylor were also balanced against his desire for general efficiency, which he sought above all else in the workplace. Savino’s sources for most of his articles are other business managers like Piercy and Wren, proving the circular logic of how business management scholars utilize history. None of these scholars look to actual primary sources in order to prove their arguments, but rather accept the soundness of Taylor’s theories on management.

Conclusion
After nearly six decades, scholars continue to dispute the legacy of Taylor. Boddewyn in 1961 stated that “the phantom of Frederick Taylor is not quite dead.” As Kelly states in her writing in 2016, “what’s of interest in the contemporary debate is that Taylor still incites contention so many years after his death.” These quotes show that regardless of the decade, scientific management stirs disagreement and division in academics. Though Taylor has been gone for over one-hundred years, historians and business management thinkers have drawn vastly different implications from his work. If Taylor’s work remains valid, then contemporary management principles also have validity. Time measurement and digital Taylorism in the online marketplace affects countless workers across the world. If Taylor’s work proves unusable, then many of the assumptions on the modern workplace need to be questioned. Business management thinkers take Taylor at face value – their legitimacy comes from Taylor himself. Historians remain divided, but ultimately see the more complex side of the industrial world in which Taylor worked. Taylor’s true goal was efficiency, but the academic world continues to ask: at what cost?

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39 Savino, “Frederick Winslow Taylor and His Lasting Legacy,” 75.
41 Kelly, “Perceptions of Taylorism and a Marxist Scientific Manager,” 306.
Bibliography
Appendix A


Appendix B