

**From: St. Francis Univ. Business School**

## **Frederick Winslow Taylor**

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Frederick Winslow Taylor, the father of scientific management, was born on March 20, 1865, into an upper class liberal Philadelphia family. His father, a Princeton graduate and lawyer, made enough money from mortgages and did not have to keep a regular job. His mother was a spirited abolitionist and feminist who was said to have run an underground railroad station for runaway slaves. Both parents were Quakers and believed in high thinking and plain living. Parental authority was not questioned and children were seen and not heard in the Taylor family. Family members referred to each other as "thee" and "thou". At an early age Taylor learned self-control and his Quaker upbringing helped him to avoid conflicts with his peers and to resolve disagreements among them.

Taylor was a compulsive adolescent and was always counting and measuring things to figure a better way of doing something. At age twelve, he invented a harness for himself to keep from sleeping on his back, hoping to avoid the nightmares he was having. At age twenty-five, Taylor earned an engineering degree at the Stevens Institute of Technology in New Jersey while holding a full time job. To date, no one has broken that record. Another of his achievements was his winning of the U.S. Lawn Tennis Association doubles championship where he used a patented spoon-shaped racket that he himself designed. Even though he excelled in math and sports and had a degree from an exclusive college, Frederick chose to work as a machinist and pattern maker in Philadelphia at the Enterprise Hydraulic Works (Weisford 1987).

After his apprenticeship at the hydraulic works plant, he became a common laborer at the Midvale Steel Company. He started as shop clerk and quickly progressed to machinist, foreman, maintenance foreman, and chief draftsman. Within six years he advanced to research director, then chief engineer. While working there he introduced piece work in the factory. His goal was to find the most efficient way to perform specific tasks. He closely watched how work was done and would then measure the quantity produced (Kanigel 44).

Taylor's work was taking place in a time period when there was much industrial change happening after the Civil War. National industries grew out of local trades -- steel, glass, textiles, and shoes and what were small factories became large plants. Owners of capital became wealthier with mass production, and workers received little for their efforts. Problems included carelessness, safety, inefficiencies, and soldiering (worker foot dragging) on the job. Taylor sought to get past the futile incentive bonuses that management thought would remedy the problems. He believed that incentive wages were no solution unless they were combined with efficient tasks that were carefully planned and easily learned. He proposed that management should work cooperatively in a supportive role (Freedman 26-38). "Not only did Taylor have some definite ideas about work and how it should be studied, organized, and rewarded, but it appears he also knew something about organizational change" (Wredge and Greenwood 270-272). Taylor believed that the secret of productivity was finding the right challenge for each person, then paying him well for increased output. At Midvale, he used time studies to set daily production quotas. Incentives would be paid to those reaching their daily goal. Those who didn't reach their goal would get the differential rate, a much lower pay. Taylor doubled productivity using time study, systematic controls and tools, functional foremanship, and his new wage scheme. He paid the person not the job.

At age thirty-seven, Frederick became a consulting engineer. Unfortunately, he did not understand the resistance of the people most threatened by his system -- supervisors and middle

managers. He focused on cost cutting methods when a problem called for new customers and products. At the Simonds Roller Bearing Company he increased productivity while improving speed and accuracy. Taylor's critics said he was too harsh because his innovative plan caused people to lose their jobs, referring to his replacing of 120 workers with only 35 at Simonds. In practice, Taylor "took a harsh, often ruthless approach" to chopping heads rather than saving jobs. He believed that unions wouldn't be necessary if workers were paid their individual worth (Weisbord 1987).

As a consultant, Frederick's most important client was Bethlehem Iron Company, later known as Bethlehem Steel Company. In 1901, he and another Stevens graduate made Bethlehem "the world's most modern factory and potentially a prototype for manufacturers and engineers in other industries" by installing production planning, differential piece rates, and functional foremanship (Nelson 1980). Among Taylor's other contributions to Bethlehem in 1901 were a real time analysis of daily output and costs, a modern cost accounting system, reduced yard worker's ranks from 500 to 140, doubled stamping mill production, and lowered cost per ton of materials handled from eight cents to four cents. He successfully implemented cost saving techniques even though he added clerks, teachers, time-study engineers, supervision and staffing support positions. While at Bethlehem, Taylor and Manusel White co-developed the Taylor-White system for heat treating chrome-tungsten tool steel, which won Frederick international recognition. Despite his many impressive achievements, Taylor made enemies. Some managers were also landlords and when Taylor reduced the yard force population, they thought he would depopulate South Bethlehem (Weisbord, 1987). Ironically, that is exactly what they had hired Taylor to do, but they never expected that he would actually do it. In fact, displaced workers were moved to other jobs and did not lose employment. After disputes with new management at Bethlehem, Taylor was eventually fired in May of 1901.

Taylor did not suffer financially from losing his job, but the event did hurt his self-esteem. He began to concentrate on his home and hobbies and with his wife, Louise Spooner, adopted three orphaned children. After Bethlehem, Frederick never worked for money again. Much of his famous book, "The Principles of Scientific Management", was written from transcripts of talks Taylor gave at his estate years after he stopped working for money. The system he describes in his book is an actual composite of everything he had learned from trying different things at many companies. Taylor did what he could to fit as much of his thinking to his client's problems and motives for each particular situation. Consultants use this type of process today." He was the first person in history to make a systematic attempt to improve both output and work life in factories" (Weisford 1987).

In his last years Frederick felt misunderstood by quick-fix managers and zealous unionists, and wronged by consultant imitators. His energy was sapped by the constant attention he paid to his wife's severe illnesses.

While on a speaking tour in the Midwest, in 1915, he contracted influenza. He was admitted to a hospital in Philadelphia and celebrated his fifty-ninth birthday there. He died the next day. Taylor's core values: the rule of reason, improved quality, lower costs, higher wages, higher output, labor-management cooperation, experimentation, clear tasks and goals, feedback, training, mutual help and support, stress reduction, and the careful selection and development of people. He was the first to present a systematic study of interactions among job requirements, tools, methods, and human skill, to fit people to jobs both psychologically and physically, and to let data and facts do the talking rather than prejudice, opinions, or egomania (Weisford 1987).

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