To best or not to best

And the time is coming when all great things will be done by the cooperation of many men in which each man performs that function for which he is best suited, each man preserves his individuality and is supreme in his particular function, and each man at the same time loses none of his originality and proper personal initiative, and yet is controlled by and must work harmoniously with many other men.

-Frederick Winslow Taylor

Brief Biography

Frederick Winslow Taylor was born into an affluent upper class liberal family in the state of Philadelphia on March 20, 1865. His father Franklin Taylor, was a lawyer by profession but made enough money from mortgages and did not have to keep a regular job. His mother, Emily Winslow, was a dynamic lady and is said to have run an underground railroad station for runaway slaves. Both parents were staunch followers of Quakerism and believed in high thinking and plain living. Parental authority was supreme in the house and none of the three children of the family, Edward, Frederick and Mary could question their parents. In this atmosphere, Frederick developed into a young man with a lot of self-control. Fred was a person given to lofty thinking by nature and was eternally engaged in solving practical problems faced by him and his friends. He was by no means an average person and wanted to improve things continuously. An example of his innovativeness right from childhood is his analyzing and attempting to find a solution to his own problem of having nightmares, which he observed he'd been having when sleeping on his back.

After a stay of two years with his family in many countries across Europe, during which he learnt a lot about the countries in addition to their languages, Frederick went to school in Exeter, New Hampshire. His competitive spirit made him study in dim light to make up for his poor memory and the eye problems that he developed consequently forced him to discontinue his education. After some therapy at home, Fred seized upon an opportunity to learn through an apprenticeship at a small Philadelphia pump manufacturing company, the trades of a pattern-maker and machinist. His openness about learning is demonstrated in a statement from his diary:

"The very best training I had was in the early days of apprenticeship…when under a workman…I learned appreciation, respect and admiration for the everyday working mechanic."

Having learnt certain tricks of the trade over a period of four years, Frederick joined the Midvale Steel Company. In his early times of employment as an apprentice, machinist etc., Fred gave more importance to learning and hence went up the ladder quicker than an ordinary worker while taking nominal wages, and living with help from his father. He phenomenally rose from the rank of a shop-clerk to that of a Research Director, and thereby Chief Engineer in a short span of six years. It is here that he came up with many of his ideas based on systematic observation and subsequent analysis. Also, he picked up a Mechanical Engineering degree at the Stevens Institute of Technology in New Jersey while holding a full-time job at the age of twenty-five years, a record yet to be broken. Frederick Taylor's analysis of metal cutting, especially with single-point cutting tools, which was done at Midvale, is considered one of the pioneering works in the field.

Theory of Scientific Management and other contributions

Frederick Taylor's contribution to the world of management science can be categorized into two, one being scientific management and the other being organizational theory. He also introduced many other concepts used in modern management practices, but they cannot be dealt with in as much detail in the current essay due to length restrictions.

After years of observing industries from outside and inside, and from both the management's and workmen's perspective, Taylor arrived at three main reasons for the productivity (in that era) being low.

1. *The fallacy….that a material increase in the output of each man or each machine in the trade would result in the end in throwing a large number of men out of work.*
2. *The defective systems of management which are in common use, which make it necessary for each workman to work slowly, in order to protect his own best interests.*
3. *The inefficient rule-of-thumb methods…in practicing which our workmen waste a large part of their effort*.

As part of his strategy to improve efficiency, in his book Principles of Scientific Management, Frederick Taylor has suggested the following principles:

1. *Deliberate gathering, on both the management and employees' sides, of all the knowledge about the functioning of the industry, recording it, tabulating it, and reducing it to laws, rules and formulae.*
2. *Scientific selection and then the progressive development of the workmen, treating each workman individually, by the management.*
3. *Bringing of the science and the scientifically selected and trained workmen together.*
4. *Almost equally dividing the actual work of the establishment between the workmen and the management.*

As part of the "scientific methods" that he refers to in his book, Taylor uses Time and Motion Study extensively. These, along with the other tools he developed, provide a rational method of measuring the performance of a workman quantitatively. Till then, almost all other evaluations of the worker were subjective and hence prone to the prejudices of the manager.

Based on the performance seen, the workmen and the management must work together to improve the efficiency of the whole system according to Taylor. This working in tandem is unequivocally advocated by Taylor in his book.

> *"…(through scientific management) both sides take their eyes off the division of the surplus…and together turn their attention toward increasing the size of the surplus until the surplus becomes so large that it is unnecessary to quarrel over how it should be divided."*

For the optimal performance of the management technique, Taylor felt that there was a need to change the prevalent organizational structure because the existing theories of management concentrated too much on the division of the surplus. Hence, he suggested a framework which had among other things, a clear delineation of authority, responsibility, separation of planning from operations, incentive schemes for workers, management by exception and task specialization.

In his testimony to the Special House Committee of the House of Representatives, Taylor said:

> *"scientific management is merely the equivalent of a labor-saving device;…it is a means of making men more efficient than they now are, without imposing material burdens on them than they now have"*

Taylor considered the "wealth of the world" to be high productivity of the industry, and this could be achieved through sustained effort based on the principles of scientific management. The "wealth of the world" would then increase the real wealth of both the employer and the employee.

Relevance of the principles today

The phenomenal contribution of Frederick Taylor to the world may go unheralded, but the fact is that he has influenced the world of management more than any other individual ever has. His principles and associated techniques have been modified over time and have been used to cater to the changing requirements of the industry. It can be seen that Time-study and Motion-study are still among the widely used tools for preliminary analysis, though they may have been modified to provide for aspects which Taylor did not include.

The differential piece-rate system developed by Taylor when he was at the Bethlehem Steel Company is a widely used method of wage payment in many industries world-wide. In fact some of the schemes of payment of salaries to employees at various levels of the organization, in industries that involve high competition are modifications of the basic idea given by Taylor.

As argued by Ton Korver of the University of Amsterdam, twin objectives of Taylorism can be arguably stated to be (i) the standardization of throughput and (ii) the development of an internal labor market. Standardization, defined as the "reduction of any one line (of products, methods, implements, etc.) to fixed types, sizes, and characteristics", is the result of refining the concept of "Assembly-line" which was devised by Taylor. This is vital since specialization, which also was suggested by Taylor, is being considered all-important in mass production in these days of cost-reduction.

Development of an internal labor market is inherent to development based on the principles of Scientific Management. Taylor knew that unless the purchasing power of people was increased, the production would be unwarranted. In fact in his testimony to the Congress committee, he says that the management has to be aware of the demand of its product before implementing further cost-cutting through increased output. If managements across the world would have followed his suggestions fully, there should not be slumps in the economy as regularly as are seen now.

Taylor's stress on education and training of the employees based on their abilities is followed extensively in today's world by recruiters of organizations. According to Daniel Nelson, the concept of internships for college students was suggested by Taylor when he said that at the end of the first year of college, students must be compelled to compete with those working for their living. His emphasis on management education focusing on real world activity rather than purely on books and theory has been well taken by schools and colleges world around.

A man of lofty ideals and a strong intellect, Taylor's philosophy that a worker puts in his best when given an adequate challenge is the highest need of an employee according to some modern organizational theorists. This challenge is something that people of high intelligence and creative abilities enjoy, and even the most resolute critics of Taylor must accept that this aspect of Taylorism holds even now.

The great thing about all of Taylor's investigations was not the information they yielded by themselves considered, but the demonstration they gave of the economic gain to be derived from the management's waking up to its own functions and establishing standard practices based on the scientific method. Taylor wanted people to realize the importance of following a scientific regime in day-to-day work, not just in the industry but anywhere possible. This is valid for eons to come, not just for today. As stated by his biographist Copley, Frank B.,

> *"Universal in scope, his (Taylor's) work long since has penetrated to every country where modern industry is established, and it is probable that in these countries there is no person who has not in some degree been affected by it, however unconsciously."*

Limitations of these principles in today's world

Most of the criticism Taylorism has incurred to date indicts him for not recognizing the "human" aspect. It can be clearly seen that Taylor expected people to have finite capacities but he failed to see that there are other aspects of humans which he did not consider in his theory. The emotional needs of humanity are as important as others and they must be catered to. Even in the garb of a workman or of a member of the management, a human is a human is a human. Behind the veil of rationality, Taylor could not view the other side. And that makes his set of principles insufficient in forming the best possible plan of action.

In his effort to improve efficiency, Taylor concentrated too much on the micro-managerial aspects of an organization and did not bother too much about the bigger picture. His obsession with individualism led him to misunderstand the essential place of institutions such as unions, groups and committees in the functioning of the economy. He did not believe in teamwork and discouraged collaborations. While Taylor makes sense in this era of ultra-individualism, the very fact that such individualism more often than not is undesirable leads us to the conclusion that Taylor was not perfect in his approach. His belief that there exists "one best way" for any problem is not valid in today's world of simultaneous alternative technologies.

In his flow of analysis, Taylor made certain assumptions which do not hold in today's world. He assumed the existence of a capitalist system for time to come and a money economy, where companies in a free market have as their main objective, the improvement of efficiency and profit. The political metamorphosis that has occurred through the twentieth century could not have been foreseen by a rational scientist. Though the market in most countries is opening up, a guarantee of the existence of the customers is not there anymore in lieu of the dynamics of the economy and the competition involved. Technological advances have brought us to a situation that alternative technologies have completely replaced older ones. In such circumstances, it is not desirable to go for maximizing output in order to get optimal efficiency of production.

One of the statements Taylor made in his testimony to the Congressional committee was about the "trickiness" of the management and the workforce. In that context he said:

> *"There are few manufacturers…who are kindly enough disposed to…desire that their employees should be better off than the employees of their competitors…"*

This is not true in today's world and this is another proof of Taylor's assumptions being reversed as civilization's outlook toward the employee-employer relationship changed.

Another assumption made by Taylor is that people will work hard and behave rationally to maximize their own income, putting the perceived requirements of their organization before their own personal objectives and goals. The underlying implication of money being the only driving force is not relevant today when people are educated. There is a lot more to life than just money and the other factors of motivation that are missing in Taylor's philosophy make it ineffective to a large extent in today's world.

One of the biggest mistakes Taylor has made in developing his theory is presuming that everybody carries out what is expected of them to perfection. One of the main causes of the notoriety of Taylor, to the extent that he was portrayed as a villain in one of Charlie Chaplin's films, is the management's selective implementation of the principles he suggested. This is possible problem in almost every theory's columns, but is more of a problem in the case of scientific management because of the onus being laid on almost each and every member of the organization.

Interesting Facts
(most of the family history is given in the first section)

Frederick Taylor was an analytical mind since his childhood. His disciplined upbringing did not provide too much of adventurism. He enjoyed the "principled" life he was used to lead and hence did not have a big friends' circle. Among a number of abnormalities, he suffered from insomnia almost the whole of his life and in the early part of his life was involved trying to logically come to a solution for the condition.

Taylor is known to have said openly, and in his diaries also, that his memory ranged from indifferent to poor. In his attempt to understand things and retain them in his limited memory, he must have devised methods for arranging his knowledge on a subject in a logical manner. Thus, he trained himself to think more and more logically and it became natural to him by the time he reached adolescence. Being brought up in very rational environs, and coupled with his logical thinking, he was a good prospect for developing the scientific management techniques.

As he grew up, Taylor became more of a "hands-on" person and his shop-floor experiences gave him enough knowledge to question the prevalent system, be it of management or of any other technical field. He began thinking of possible improvements to the system he was working on right from his apprenticeship. It is here that he designed the famous steam-hammer. He was held in high esteem for his abilities and the confidence he got thus helped him question rule-of-the-thumb principles being followed at that time.

Frederick Taylor was brought up in a family where plain living was the order of the day. This helped him stay humble through most of his life, unlike many theorists of his stature. For the enormous contributions he made to science in general, and management science in particular, and the low profile he tried to maintain, he can be termed self-effacing at the least. As Copley said of him,

> *"…with him the important question always was, not who originated the thing, but what the thing was worth…"*

One of the possible reasons for his expecting so much from individual workers could be his own condition of insomnia. Rarely getting the sleep he needed, it is well possible that he grossly underestimated the rest an individual requires.

The political scenario during Taylor's life was changing towards unionization of workers and strengthening of the capitalists. Since Taylor proposed a change in the workload of both the workmen and the management, he befriended neither, unlike many other theorists who generally took sides and hence were championed by that sect. Local politics with managers (who were scared of his practices of cutting workforce because that would imply a loss in their revenue from renting houses) made life tough for him. Taylor's wish was to turn the world into an efficient place through rational means, and this he continued to do even after he stopped working in 1901. He gave many lectures and did free consultancy to upcoming industries as part of his pursuit of his ideal.

It is rather unfortunate that the rationality of Taylor could not be countered scientifically and hence people took to absurd criticism. In the words of Copley,

> *"…while many of his contributions to the pure technique of management have now entered into the very warp and woof of modern management, they usually have gone unrecognized as his handiwork."*

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