**PIONEERS IN MANAGEMENT**

The development of management thought has been evolutionary in nature. Though the systematic study of management started only in the second half of the nineteenth century, but management in some form or the other has existed ever since the dawn of civilization. Evidence of the use of principles of management is to be found in the administration of Mohenjodaro and Harappa in 2000 B.C., the Buddha order and the sangha in 530 B.C., the organization of public life in ancient Greece, the organization of Roman Catholic Church and the organization of military forces.

Some important contributors in the field of management are:

**F.W. TAYLOR**: The scientific Management era is profoundly associated with F.W.Taylor, so much so that he is called the “Father of Scientific Management”. Taylor was the first one to recognize the need of a scientific approach to the task of managing an enterprise. He was an Industrial Engineer. He studied the causes of low efficiency carefully and concluded that management did not really manage. He decided to work out a system whereby the interests of the management and workers became the same. His scientific approach comprised of (a) Observation, (b) measurement, (c) experimentation and (d) Inference. He further condensed the knowledge and experience by classifying, tabulating and reducing to rules, laws and formulae. He summed up his approach in these words:

1. Science, not rule of thumb.
2. Harmony and not discord.
3. Co-operation and not individualism.
4. Maximum output in place of restricted output.
5. Development of each man to his greatest efficiency and prosperity.
6. Equitable division of work and responsibility between management and labour.
7. To find one best method of working.
8. Carefully determine a fair day’s work for a fair day’s wage.

Techniques recommended for the achievement of these principles and objectives are:

1. Functional control instead of line control to prevent the necessity of all round executive which is of rare occurrence. Division of work into thinking and doing for separation of mental work from manual work.
2. Determination of task - on the basis of method study, routing, motion study, time study, fatigue study and rate setting.
3. Planning of Industrial operations - what work shall be done, how the work shall be done, where the work shall be done and when the work shall be done.
4. Proper selection, placement and training of workers by a centralized personnel department.
5. Improvement in the methods of work viz:

(a) Standardization of tools and equipments

(b) Regulation of speeds of machine.

(c) Improvement of work environment

1. Introduction of cost analysis to find out inefficiency and wastage and to distinguish between profitable and unprofitable activities.
2. Mental revolution to bring about harmony between labour and management.
3. Creation of healthy and cheerful atmosphere within the factory to remove dullness and monotony of factory life.
4. Supply of proper materials and up to date machineries.

**Limitations of Taylor’s approach:**

Taylor’s approach had mixed reaction during his lifetime.

1. It was not appreciated by workers and their unions for obvious reasons. It prescribed one best way’ of doing jobs and workers were compelled to follow it.
2. The approach gave advantage to physically strong workers over others.
3. The Industrial psychologists challenged the assumption of ‘one best way’ and criticized treating workmen as cogs in a machine without giving them an opportunity to think about their jobs and methods of work.
4. The human approach got subordinated to mechanical approach. Many vital aspects of management were overlooked.
5. His insistence on detailed planning was flawed as such plans were not flexible and any new circumstance or situation rendered the plan clueless.

Taylor's methods have also been challenged by socialist intellectuals. The arguments put forward relate to **progressive defanging of workers** in the workplace and the subsequent **degradation of work as management, powered by capital**, uses Taylor's methods to render work **repeatable, precise yet monotonous and skill-reducing**. James W. Rinehart argued that Taylor's methods of transferring control over production from workers to management, and the division of labor into simple tasks, intensified the **alienation of workers** that had begun with the factory system of production around 1870–1890

**Henry Fayol:** A French Industrialist, he developed a theory of general management applicable equally to all kinds of organizations and in all fields whether social, political, economic or Industrial.

He was born in 1841 and graduated as a mining engineer. He worked as a director general for 30 years in a mine. During the period he brought the enterprise from bankruptcy to a great success. In 1916 he published his well-known work - *Industrial and General Administration*.

1. He identified six activities in a management setup:
2. Technical activities concerning production.
3. Commercial activities concerning buying, selling and exchange.
4. Financial activities concerning optimum use of capital.
5. Security activities concerning protection of property.
6. Accounting activities concerning final accounts, cost and statistics.
7. Managerial activities concerning planning, organizing, commanding, coordinating and controlling.

He suggested following principles of management:

1. **Division of work**: This emphasizes the importance of specialization so as to produce more and better with same effort
2. **Authority and Responsibility**: These two terms are correlated and responsibility is a corollary of authority.
3. **Discipline**: It is essential for successful management. In essence it is obedience, application, energy, behavior and outwards mark of respect shown by subordinates to the superiors.
4. **Unity of Command**: An employee must receive orders from one and one person alone.
5. **Unity of direction**: Each group of activities with common objectives should have one head and one plan.
6. **Subordination of individual interest to group interest**: Group interest must always prevail over individual interest.
7. **Remuneration of personnel**: It should be fair and afford maximum satisfaction to both the organization and its employees.
8. **Centralization**: Everything that increases the importance of the subordinate’s role is decentralized, everything that reduces it is centralized. Degree of concentration of authority varies according to the needs of the situation.
9. **Scalar chain**: It denotes the line of authority from the highest executive to the lowest one for the purpose of communication. An employee should feel free to contact his superior.
10. **Order**: There must be a place for everything and everything must be kept in its place. Similarly a place should be assigned to each employee and every employee should be at his assigned place.
11. **Equity**: Equity is the combination of kindliness and justice in a manager. This helps in creating loyalty and devotion among the employees.
12. **Stability of Tenure of Personnel**: Management should strive to minimize employee turnover. High turnover is detrimental to the organization.
13. **Initiative**: It refers to freedom to propose a plan and execute it. Freedom to take initiative helps in increasing zeal and energy of the employee and makes him more responsible.
14. ***Espirit de Corps***: The need for teamwork and the importance of effective communication.

Fayol made it clear that this list was not complete and more may be added to it. He also emphasized that none of these principles are inflexible. However he did emphasize the universality of management principles.

**Compare and Contrast Taylor and Fayol**

Taylor an Fayol.

* Both were Engineers
* Both employed scientific approach to revolutionize Management
* Both were extremely successful
* Both were contemporaries
* Both advocated
  + Fair wage for fair work
  + Discipline
  + Subordination of individual interest to group interest
  + Division of work
  + Order

Both differed:

1. Taylor was involved with Operations Management whereas Fayol with general management
2. Taylor experience pertained to grass root functions; Fayol had the view from the top
3. Taylor suffered criticism towards the end but Fayol remained above criticism
4. Taylor favored centralization; Fayol autonomy.
5. Taylor had no place for initiative; Fayol believed in Initiative
6. Taylor could not comprehend the importance of human motivation; Fayol emphasized *Espirit the corps*.

**Contribution of Frank Gilberth (1868-1924)**

He and his wife (Lilian Gilberth - 1878-1972) made substantial contribution to management thought. Their contribution included:

* **Motion Study**: This technique went on to revolutionize the work efficiency and efficacy. They defined it as "The science of eliminating wastefulness resulting from unnecessary, ill-directed and inefficient motions."
* He evolved the principles of **motion economy**.
* He evolved the concept of **flow-charts**.
* He identified 17 (to which subsequently an 18th was added) **Therbligs** - the fundamental motions involved in performing a manual task.
* He introduced **micromotion study** and **simo chart**.
* To perform the above he invented Microchronometer, Cyclegraph, Chronocyclegraph and two-handed charts.
* He successfully applied motion analysis to enhance efficiency and effectivity in office procedures.
* While serving in US army he developed astonishingly efficient method for assembling and disassembling weapons.
* He analyzed the fatigue, the reasons behind it and came out with practical solutions to overcome it.
* The very concept of **systems management was evolved by him**. He provided 231 rules for mixing cement!

He understood that productivity is also linked to **personality** and **working environment**. He listed fifteen characteristics such as anatomy, experience, habits, health, temperament, nutrition etc as parameters to understand personality and productivity. He also proposed 19 elements such as clothes, entertainment, lighting, reward and punishment to define working environment and its possible relationship with productivity.

**George Elton Mayo**: Elton Mayo was born and educated in Australia, joined the faculty of Howard University in 1926. He studied the output of a few workers in relation to the changing conditions of the work and prescribed the following:

1. Optimum and proper lighting arrangement.
2. Optimum Rest periods
3. Optimum number of working hours.

He also propounded that it is not just the relationship between the management and the workers but that between workers themselves also which was an important consideration. He wrote two books viz., *The Industrial Civilization* and *social problems of Industrial Civilization*. He pointed out that attitude and motivation of workers are the result of of a number of factors. To understand human behavior, therefore, one has to take an overall view of the situation.

The **Hawthorne Studies** were, without question, *the* most important contribution to the developing OB field.

1. These were a series of experiments conducted from 1924 to the early 1930s at Western Electric Company’s Hawthorne Works in Cicero, Illinois.

2. The studies were initially devised as a scientific management experiment to assess the impact of changes in various physical environment variables on employee productivity.

3. Other experiments looked at redesigning jobs, making changes in workday and workweek length, introducing rest periods, and introducing individual versus group wage plans.

4. The researchers concluded that social norms or group standards were the key determinants of individual work behavior.

5. Although not without critics (of procedures, analyses of findings, and the conclusions), the Hawthorne studies did stimulate an interest in human behavior in organizations

The major finding of the study was that almost regardless of the experimental manipulation employed, the production of the workers seemed to improve. One reasonable conclusion is that the workers were pleased to receive attention from the researchers who expressed an interest in them. The study was only expected to last one year, but because the researchers were set back each time they tried to relate the manipulated physical conditions to the worker's efficiency, the project extended out to five years.

Four general conclusions were drawn from the Hawthorne studies:

* **The aptitudes of individuals are imperfect predictors of job performance.** Although they give some indication of the physical and mental potential of the individual, the amount produced is strongly influenced by social factors.
* **Informal organization affects productivity. The Hawthorne researchers discovered a group life among the workers.** The studies also showed that the relations that supervisors develop with workers tend to influence the manner in which the workers carry out directives.
* **Work-group norms affect productivity.** The Hawthorne researchers were not the first to recognize that work groups tend to arrive at norms of what is "a fair day's work," however, they provided the best systematic description and interpretation of this phenomenon.
* **The workplace is a social system.** The Hawthorne researchers came to view the workplace as a social system made up of interdependent parts.

**The first experiments** were with illumination - lighting in the factory. It was thought that workers might work better when there was more light, but light was very expensive, so they needed to find the optimum level to satisfy both requirements.

They assigned workers making induction coils to 2 groups: test and control. Both started with same amount of light. Then the Test group was given more light. Productivity went up. But, unfortunately, it also went up in the control group. So then they increased the light in the Test group again. Once again, productivity went up or stayed the same in both groups. Again they raised the light level, and again the same result.

So then they reduced the lighting in the Test group way down, below the level in control group. Productivity soared in the Test group, and continued to go up in the control group. They reduced light some more: same result. They finally got down to a level of light equivalent to a moonlit night, and found that productivity was still the same or higher. This really confused the researchers. As one of the researchers put it at the time, they were "knocked galley-west" by the results.

They finally took two workers and put them in a closet with no light at all -- just the crack under the door. Productivity was just fine.

They had to conclude that light didn't seem to matter in the way they expected. And there was something very strange about why output kept going up relative to the rest of the factory. So they planned a more elaborate experiment

The **second experiment** was the relay assembly test room. Six women who assembled telephone relay switches were taken out of the main area and placed in special test room where they could be observed. All immigrants (as were most factory workers).

It was a 5 year experiment. Productivity was measured the whole time by a machine that counted the number of relays that each person assembled as she dropped it down a little chute. They gauged the effects of rest pauses, shorter work days, shorter work weeks, wage incentives and different supervisory practices on output.

The results were just like the results of the lighting experiment. No matter what change they introduced, it always seemed to either have no effect, or it improved productivity, even when the change was just returning the variable to its original state!

As a result of these two studies, the Hawthorne team theorized that there was a key variable that managers had been ignoring, which had to do with workers' relationships, attitudes, feelings, and perceptions. By separating people into groups and then making lots of changes in working conditions, the researchers inadvertently did two things:

1. Made workers feel like management actually cared about them. They felt important and special. This is a problem with the experimental design.
2. They created bonds among people in the test and control groups -- in effect turning them into true groups as described above. People work better when they are part of a clear social structure.

So an important conclusion (in spite of the experimental design problem) was that people did not necessarily behave according to models of economic rationality. Social processes within the group that formed were much more important than purely material gains. Also, even material goods or physical events or wages or work hours etc. were perceived differently by different people in different situations and so it's not so much the money or the hours themselves that matter, it's what meaning they hold for people, and meaning is something that is socially mediated. The group affects