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Charles Babbage

Charles Babbage is best known for his pioneering work on the first digital computer. However, he was also a mathematician, scientist and author, and is credited with contributing more than any other writer in the first half of the nineteenth century to the development of the scientific approach to the study of management.

Babbage was particularly interested in formulating laws and generalizations that could be useful to managers. In so doing, he traveled extensively throughout England and the Continent

acquainting himself with all sorts of manufacturing problems and noting the methods used for solving them. As a result of his experiences, he encouraged managers to use division of labor, time study and cost analysis. In his best-known work, *On the Economy of Machinery and Manufactures*, he offered the following recommendations to managers:

1. Analyze manufacturing processes and cost.
2. Use time study techniques.
3. Use printed standard forms for investigation.
4. Use the comparative method of studying business practices.
5. Study the effects of various tints of paper and colors of ink to determine which is least fatiguing to the eye.
6. Determine how best to frame questions.
7. Determine demand from statistics based on income.
8. Centralize the production processes for economy.
9. Inaugurate research and development.
10. Study factory location relative to the proximity of raw materials, considering whether the raw material gained weight or lost weight relative to the finished product.
11. Use a beneficial suggestion system because "every person connected with it should derive more advantage from applying any improvement he might discover."⁴

Babbage's recommendations for managers.

Babbage was concerned with the management of work. So, too, were others, such as William S. Jevons, whose writings contain some important insights into the intensity of labor and fatigue.

1832

CHARLES BABBAGE

- 1791 Born Totner, Devenshire December 26
Father a banker - Benjamin Babbage
- 1810 Entered Trinity College, Cambridge
- 1813 Idea of calculating engine in conversation with John Herschel
while working with log tables.
- 1814 Received degree from Peterhouse
- 1832 Published "On the Economy of Machinery and Manufacturers"
(1) there exist certain principles which can be applied
to all industry
(2) increase output and improve employee lot by
(a) division of labor
(b) substitution of machine for human energy
- 1837-
1848 Personal tragedy - death of father, wife and two children
Calculating engine never completed as a result despite 2
grants from Parliament
- 1871 Died October 18, buried Kensal Green Cemetery

Contributions:

- (1) Provided spark to discover universal principles to
improve organizational efficiency
- (2) Originated basic foundation of computer technology
- (3) Heightened attention to need for public funding of
scientific research