**American System**

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The American System of manufacture is a term used to describe systematized production processes for

technologically complex and/or exacting products. In 1803, Marc Isambard Brunel and Henry Maudslay began

production of rigging blocks using interchangeable parts for the British Royal Navy during the Napoleonic War.

Sir Samuel Bentham, the Inspector General of Naval Works at Portsmouth Block Mills at Portsmouth Dockyard,

devised specialist woodworking machines to systemize the making process. The process remained limited and

specialized in England until it was revived using an American model. This model is commonly seen to have

originated in the firearms factory of Samuel Colt in 1855. Colt believed that handguns could be made from

interchangeable parts, so long as the machines that made them could be mechanically programmed to

produce identical components and the machines’ operators were not able to intervene in the process.

Colt’s plan worked in terms of manufacture, but Colt had also thought that, in the battlefield, his guns

could be assembled from the parts salvaged from others. However, it was found that once the gun had been

fired it was dangerous to rebuild it from components from others without serious reworking by a gunsmith.

This was not a problem for other products, however, and interchangeability is a key feature of the American

System.

Colt’s system involved high setting-up costs. “Bespoke” precision machine tools were expensive, but

once installed, production was increased substantially; skilled machinists could be replaced by lower paid

machine minders, while the products could be assembled by unskilled fitters. This was highly beneficial in the

mid-nineteenth-century United States where there was a shortage of skilled mechanics, but it is also seen as a

key development in “deskilling” a workforce. The American System was quickly adopted in other industries,

most notably clock- and watchmaking. Here makers such as Seth Thomas and Ansonia could turn out a wall

clock for about a fifth of the price of a traditional craft-made one, using stamped-out rather than cut gears and

frames, and assembled by unskilled labor.

Sewing machine makers adopted the American System, as the industry went through massive

speculative expansion in the late 1850s. The rise of bicycle manufacture benefited from this, as many cycle

companies, most significantly the Pope Manufacturing Company, bought failing sewing machine factories and

converted them to produce bicycles using the established system. Pope built his “Columbia” machine in the

former Weed Sewing Machine factory in Hartford, Connecticut. Pope had acquired the Lallement Patent of

1866 that covered the principle of pedals and cranks and had the monopoly on bicycles in the USA until 1883.

American bicycles of the 1890s had all the features of the American System of manufacture, often

using steel stampings instead of castings and new technologies such as liquid brazing, further reducing the

need for skilled assembly and finishing. They also were built on an assembly line system where different tasks

were performed by different people, the machines being built up by numerous fitters. This often produced

bicycles lighter and more rigid than many of the best “factory built” products from Europe, at a fraction of the

price and in far greater quantities. During the “Bicycle Boom” of 1894 to 1897 American makers could supply

orders to Britain within a fortnight, where many British makers were often unable to supply to their home

market within more than a month.

Developing directly from bicycle production, the American System was to reach its apotheosis in Henry

Ford’s “rolling line” assembly of the Model T motorcar at the Highland Park works in Detroit, introduced in

1913. Here the product was moved from fitter to fitter using conveyors. Again the System was able to slash the

price of the most expensive consumer durable of its time by about 66 percent and hugely increase its

production. Ford took the American System beyond technicalities, creating a philosophy of philanthropic

capitalism around it that is named after him, “Fordism.”

**References and further reading**

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