‘Design’
The etymology of the word

From disegno (Italian) = drawing. During the Italian Renaissance disegno was used as a way of planning paintings. It served as a set of instructions for the master painter’s helpers.

1540s: designare, “mark out, devise, choose, designate, appoint.”
1580s: desseign (thoughts must be “marked out” on paper...)

Pattern Books

Pattern books disseminated designs in the form of technical drawings.

Pattern books were models for production. The designs could be used directly or modified.

Pattern books served design education, storing the knowledge and helping to pass it from master to student.

Pattern books were the visual “memory” of emerging design culture.

Design and Production

“Design is what all forms of production for use have in common. It provides the intelligence, the thought or idea that organizes all levels of production, whether in graphic design, engineering and industrial design, architecture, or the largest integrated systems found in urban planning.”

Richard Buchanan
Two uses of the word “design”

"I like design" ~ the look of things.

"I am working on the design of a car"
~ the preparation of instructions for the production of manufactured goods.

These are connected, because "the way things look is a result of the conditions of their making." (Adrian Forty: Objects of Desire)

The beginnings of Industrial Design

The birth of industrial design in the late 18th century marks a transition from artisanal to industrial production.

In artisanal production there is no clear separation between design and manufacture. Designs are often inherited, passed from master to disciple, or copied from pattern books.

The birth of the designer’s profession is related with this transition. The designer’s role becomes separated from the manufacturing and marketing of designed items.

The designer becomes a specialist with a professional identity of one’s own.

For centuries, curiosities were produced for the Rich and the Powerful. They were special artisanal products that a King or a Prince could display to his guests as signs of his power and wealth.

Picture shows a Dragon Horn, 1560-70 (Augsburg, Germany)

Some “princely treasures” had a nominal function, but they were rarely used. They were kept in “cabinets of curiosities.”

Picture shows An ornamental lathe from the late 18th century

Automata

Automata were unique showpieces made by clockmakers and mechanical engineers as ways of getting fame and demonstrating skills for potential clients.
The Androids Charles, Marianne and Henry, created by the Jaquet-Droz family of clockmakers (1770s) are still kept today at Musée d’art et d’histoire, Neuchâtel, Switzerland.

*******

From Automata to Mass Production

Thomas Alva Edison invented the phonograph in 1877. He began producing talking and singing dolls (with a miniature phonograph mechanism inside). Production ended soon because the phonograph mechanism was too fragile.

Picture shows an Assembly line for Edison’s talking dolls, c.1890.

*******

How did industrial design begin?

In the 17th and 18th century state-financed manufactories emerged in Europe (products: gobelins, porcelain figurines). Prestige products were for created for the upper class. Designs were taken from court artists or pattern books. This happened under the economic policy of mercantilism (resources, skills and products served the purposes and profits of the state; the system was symbolically embodied in the ruler).

*******

Jacques de Vaucanson (1709-1782)

Became famous as a master automata maker. In 1738 presented “The Flute Player,” and in 1739 “The Tambourine Player” and “The Duck,” his most famous creation (it could flap its wings, eat and digest grains).

In 1741 made inspector of silk manufacture. Achieved a far-reaching re-organization of production and delivery.

Improved existing looms and invented punch-cards to facilitate production. Hostile reaction from weavers. Technique was later perfected by Jacquard, ‘the father of the modern loom’. Punch cards anticipated programmable computers.

*******

Jacquard Loom

Joseph Marie Jacquard’s loom (1801) was a step toward industrial mass production. Like the android Charles Droz, the Jacquard loom was a programmable device, but it served a practical purpose. Punched cards were used to control hooks and needles. Jacquard introduced the idea of a machine following an algorithm.

*******
From Craftsman to Factory Worker

With industrialization craftsmen who had previously worked from home as independent contractors became factory workers.

This caused dramatic changes in their status. They could no longer control their own time, and were separated from their families.

They often had to produce stereotypical products using production machines. They feared that machines would displace them and leave them unemployed.

******

Ludditism

The shift from artisanal to industrial production led to social unrest.

Ludditism was a social movement against machines (such as power looms) and mass production.

Luddites were ‘machine breakers’ worried about their jobs and lifestyle. They were named after their mythical leader ‘Ned Ludd’.

In our time the word “neo-luddite” has been used about thinkers who oppose the excessive use of new media technology.


******

Rationalization of factory production in England

In the 18th century efforts were made to systematize, rationalize and standardize production. It was centered in factories that were often powered by steam. Cheaper materials were invented (Sheffield plate, etc.).

Pioneering industrialists: Thomas Chippendale, Josiah Wedgwood, Matthew Boulton. Products: furniture, dishes, “toys” (buttons and other small everyday objects), textiles.

Josiah Wedgwood (1730-95), founder of the Etruria factory (Stoke-On-Trent), made a notorious statement, saying he wanted "to make such machines of the men that cannot Err".

******

John Flaxman, the First Industrial Designer
John Flaxman (1755-1826), neoclassical sculptor, is known as “the first industrial designer”. He provided neo-classical tableware designs for Wedgwood’s Etruria factory.

He worked from London where he lived, staying far from Wedgwood’s Etruria factory.

Flaxman was a contractor working for several clients at the same time. Like him, many early designers were professional artists.

Designs emphasized standardization and the elimination of chance and variation: all products had to be identical!

*******

Marketing designed products

Wedgwood’s London showroom was a novelty. Orders had to be made after viewing samples.

From the early 19th century specialized shops, often located in arcades (“passage”) appeared. For these shops the window display became an important way of promoting products.

Print shops in London often displayed satirical cartoons, functioning as free public picture galleries for passers-by.

*******

The Passage

The passage / arcade / galerie was a breeding ground for commercial design culture. It originated in Paris in the early 19th century (Passage du Caire, 1798).

The passage was the favorite venue of the ‘flaneur’ (the loiterer); the idea of “window shopping” started here.

*******

The Birth of the Department Store

- The pioneer was Aristide Boucicaut, who founded Bon Marché (built 1869-72), the first modern department store in Paris.

- Other department stores soon built in other great cities (Berlin, London, New York)
- Venue for selling mass produced goods quickly and effectively.

- A safe place for spending time between home and the city street (for ladies!).

- The Department Store display as an attraction. The tradition of the automata found a new home from mechanized shop windows. Automatic spectacles were enclosed behind
glass, beyond the spectator’s reach to create desire for shopping (“go inside the
department store to buy things you can touch!”).

Picture shows the Christmas spectacle at Macy’s, New York.

- The department store’s window display became a new challenge for the designer.

Picture shows designs by Norman Bel Geddes for Franklin, New York, 1920s.

- Filmmaker David Lynch created “Machines, Abstraction and Women”, shop window
designs for Galeries Lafayette, Paris, September 2009. Check:
http://www.youtube.com/watch?v=4hiQtdcdfs&feature=related

******

“The American System”

American industry became the model for large-scale mass production.

Origins after 1800 in gun manufacture (Eli Whitney, Samuel Colt), then clocks,
agricultural machines, sewing machines, typewriters.

definition: large scale manufacture of standardized products, using powered machine-
tools in a sequence of simplified mechanical operations.

In the USA many new products were invented; in England new ways of producing old
products (fabrics, tableware).

The Secret for success was the efficient use of interchangeable parts.

******

The International Breakthrough of the American Method: the Crystal Palace Exhibition,
London 1851.

Crystal Palace exhibition was the first World’s Fair, held in London, 1851 at Joseph
Paxton’s giant glass house. It was built by using a mass-produced iron grid (also
applied to bridges, the Eiffel Tower!).

American products were considered practical, but less ornamental (“beautiful”? ) than
European ones.

American Method was adopted gradually in all industrialized nations. Its greatest
prophet: Henry Ford (1863-1947): admired and imitated also in the Soviet Union in the
1920s and 1930s.

******
Design debates of the Victorian era: Aesthetes vs. Utilitarians

The Aesthetes rejected new industrial products as tasteless. John Ruskin (1819-1900) believed that the machine is not capable of "reproducing the irregularity and variety, the 'Organic Form' of nature".

Engineers “should not encourage any play of imagination,” they are producers of useful ugliness (Zarah Colburn, 1871).

“Industrial Ornament” was proposed as a compromise.

Critic Henry Cole (1808-82) tried to mediate between the two extremes by saying: “Design has a twofold relation, having in the first place, a strict reference to utility in the thing designed; and, secondarily, to the beautifying or ornamenting that utility.”

******

Defending the workshop model:
William Morris and the Arts and Crafts Movement

Founded by William Morris (1834-96), an idealist and socialist. Advocated a return to workshop-like small scale design production.

Wanted to free natural, organic impulses from the psychic restraints created by mechanization and mechanistic thought.

Morris: “The vast improvements in machinery spread the division of labor by enabling a small group of designers to furnish the pattern to be repeated endlessly by machines watched over by unskilled workers.”

******

Ornamentation, design and the machine

The following questions were raised by the debate:

Is ornamentation necessary?

What purpose does it serve?

Can a machine (mass)produce anything beautiful, on equal level with (human-made) art and design?

How does machine production differ from manual (human) production?

******

“Ornament and Crime”
“The modern ornamentalist is either a cultural laggard or a pathological case. He himself is forced to disown his work after three years. His productions are unbearable to cultured persons now, and will become so to others in a little while.”

Adolf Loos, “Ornament and Crime”, 1908

*******

Modernist pathos: Josef Hoffmann

"As long as our cities, our houses, our rooms, our cupboards, our utensils, our jewellery, as long as our speech and sentiments fail to express in an elegant, beautiful and simple fashion the spirit of our own times, we will continue to be immeasurably far behind our forefathers, and no amount of lies can deceive us about all these weaknesses."

Josef Hoffmann

*******

Defending the machine in design:
Frank Lloyd Wright (1867-1956)

The most famous American architect. As a young man worked in the office of Louis Sullivan who popularized the most famous slogan in design history: “Form Follows Function” (1890s).

"The machine has potential to emancipate the modern mind. By simplifying, it can reveal the true nature of materials.” (Frank Lloyd Wright)

"My god is machinery, and the art of the future will be the expression of the individual artist through the thousand powers of the machine." (Frank Lloyd Wright)

*******

The Origins of the Assembly Line

Division of the work process went back to the 18th century. Conveyor-belt like ‘dis-assembly lines’ were first introduced in the slaughter houses of Cincinnati and Chicago (1860s).

Read more from Siegfried Giedion’s classic Mechanization Taken Command (1948).

*******

Full Mechanization, definition

(1) hierarchy of standardized segmented and subsegmented parts and subparts, all interchangeable
(2) continuous, sequential assembly line

(3) fully ‘Taylorized’ workforce, performing standardized repeated actions

The assembly line was perfected in the car industry. It was pioneered at Henry Ford’s (1863-1947) Highland Park Factory, Detroit, opened in perfected form in 1913.

At Highland Park unskilled or under skilled workers (often immigrants who did not speak English) worked long hours, performing repetitive simple tasks. They were often felt to become parts of the machine themselves.

******

Taylorism

- A scientific theory of work developed by Frederick Winslow Taylor (1856-1915). Others also contributed (Etienne-Jules Marey in France, the ‘Science of Work’ of Frank and Lillian Gilbreth, etc.) Taylor’s main book, The Principles of Scientific Management (1911), influenced Henry Ford.

The Main Principles of Taylorism:

- Develop a "scientific analysis" of every job, including its rules motion, standardized work implements, and most effective working conditions.

- Select workers with the right abilities for the job.

- Train these workers scientifically, based on physical analysis of body functions and motions, to do the job, and give them proper incentives to cooperate with the ‘job science’.

- Support these workers by planning their work and by smoothing the way as they go about their jobs.

******

Chaplin: Modern Times

Taylorism was admired, but also ridiculed and feared. It was accused of turning the worker into an automaton, or a machine part. It was diagnosed to lead to “neurastenia”, a psychological disorder (a state of chronic fatigue without an outlet).

A biting satire of the effects of Taylorism was Charlie Chaplin’s film The Modern Times, 1936.

******

Assembly lines today... How do they differ from their predecessors?
Since the 1950s, factory assembly lines have been ‘fully automated’ with computer-controlled industrial robots.

How does this affect the role of the worker?
Has the worker been liberated or displaced by the machine?

*******

Design and the mechanization of office work

With increasing competition, speed of life and demands for effectiveness, also office workers were “taylorized”.

Beside office buildings, furniture and machines also office workers became ‘objects’ that had to be designed.

The “perfect office workers” were developed and tested scientifically to discover the right movements and work routines.

This was often claimed to profit the office worker (to avoid exhaustion and physical problems caused by monotonous work), but its real motive was to increase effectiveness and to eliminate or at least minimize worker “down time”.

*******

Changes in the ideology of office work were reflected in the design of office furniture.

A series of examples will be discussed.

*******