


The Lecture Contains:

-  Linear Perspective in Architecture
-  Linear Perspective in Product Design
-  The Renaissance Inventions and Technology

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Module 8 : The Renaissance Period & Industrial Design in Europe

Lecture 20 : Linear Perspective in Architecture, Linear Perspective in Product Design, The Renaissance Inventions and Technology

Linear Perspective in Architecture

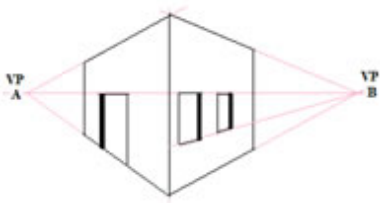
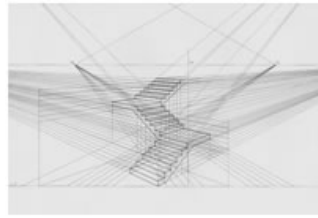


Plate 5A Linear Perspective
(A & B Two Vanishing Point)



5B Stairs (Two Point Perspective)



5C Sistine Chapel(1481-82)

(Source: http://en.wikipedia.org/wiki/Perspective_%28graphical%29 ; February 4, 2013)

Linear Perspective (plate 5A-5B) is one of the dominating inventions of the Classical Greek Civilization. Linear Perspective may be designed from multiple 'vanishing points'. During the Renaissance Period the concept of Linear Perspective helped to conceptualize architectural design and various machine/ product design. In order to conceptualize a product one has to apply the principles of linear perspective. It uses the principle in the following manner-

- Smaller as their distance from the observer increases
- Foreshortened: the size of an object's dimensions along the line of sight is relatively shorter than dimensions across the line of sight

The Sistine Chapel fresco (plate 5C) illustrates the linear perspective with the help of foreground and background object proportion and larger to smaller dimensions as the distance grows. The foreground object and distance object's size reduces proportionately.

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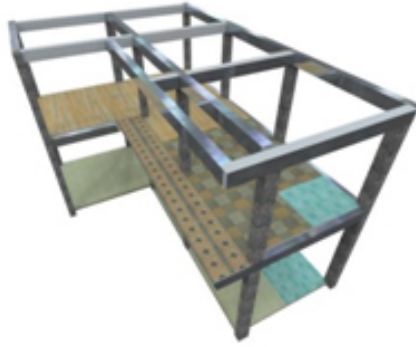
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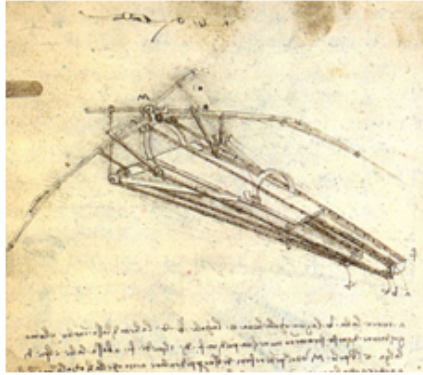
Linear Perspective in Product Design



Plate 6A Vase Design
(Wireframe Drawing)



6B Construction Perspective
(Perspective drawing)



6C Leonardo's Flying Machine , 1488
(Perspective design)

(Source: http://en.wikipedia.org/wiki/Perspective_%28graphical%29 ; February 4, 2013)

The application of Linear Perspective has revolutionized the create concept design of 3D objects ranging from architecture to household objects to machine design. The Vase Design (plate 6A) with the help of 'wireframe' linear perspective has generated a virtual 3D perspective of the object. Similarly a metal structure for grounding heavy machine (plate 6B) is conceived with the help of linear perspective. Leonardo de Vinci's futuristic concept drawings are entirely based on the principles of linear perspective. Leonardo's drawing of a 1488 Flying Machine (plate 6C) has detail concept sketch of the machine based on perspective principle. Thus, perspective drawing helps to conceptualize a 3D object on a 2D surface plane.

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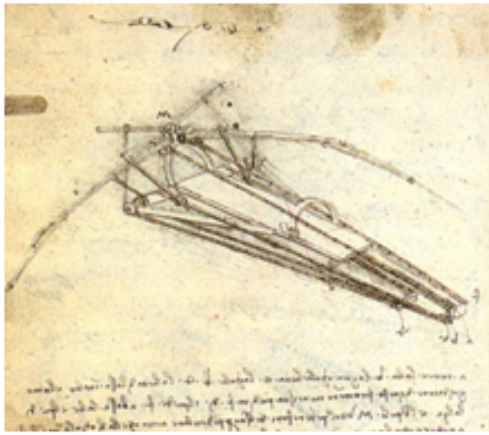
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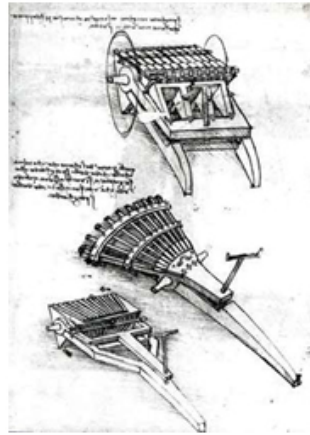
The Renaissance Inventions and Technology

The Renaissance Period (1300 AD- 1600 AD) spanning for three hundred years laid down the foundation for the modern world that has witnessed social, political, cultural and scientific changes. It is a phase in the history of mankind that bridged between the Medieval Dark age and the Modern Period. It marked the rise of European economy and the military power. It had an indirect effect on the culture and social life of Europeans. The scientific inventions and their applications led to the sociocultural changes in Europe. Renaissance Period saw inventions of wide range of products- Submarine, Mechanical Clock, Printing Press, Eyeglasses, Artillery, Match Stick, Wallpaper, Microscope, Compass, Flush-Toilets etc. (Read more: <http://www.buzzle.com/articles/renaissance-inventions.html> ; February 5, 2013)

Leonardo da Vinci made major contribution in cultural, social and industrial design concepts- Artillery Park, Stretching Device for Barrel Spring, Automatic Igniting Device for Firearms Parachute, Flying Machine (1488 AD), Armored Car, Machine for Storming Walls Giant Crossbow, Eight Barrelled Machine Gun, Boat Design, etc.



7A Flying Machine, 1488
(Leonardo da Vinci)



7B Multiple Barrel Gun
(Leonardo)



7C Giant Cross-Bow

(Source: http://en.wikipedia.org/wiki/Leonardo_da_Vinci ; February 5, 2013)

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The Renaissance Period inventions initiated and laid the foundation for the future Industrial Revolution. Many of the conceptual designs are being executed at a later period. The concept of Flying Machine (plate 7A) by Leonardo gives clear idea of its mechanism and structural details. Large numbers of weaponry and war equipment are designed by Leonardo. The dominance of a country dependence upon advanced weapon system that Leonardo conceived. Leonardo's Multi Barrel Gun (plate 7B) concept and Cross-Bow (plate 7C) are clear examples of development of weapon design that is going to dominate the territorial geopolitical scenario in future.



8A Bridge Construction, 1502 (Leonardo)



8B Bridge Model Based on Leonardo's Concept

(Source: http://en.wikipedia.org/wiki/Vejb%C3%B8rn_Sand_Da_Vinci_Project ; February 5, 2013)

The progress and development of a nation depends on sound transportation system on land and on sea. Leonardo's concept of a flyover Bridge Construction (plate 8A & 8B) certainly indicates the future of Industrial Revolution. Thus, the Renaissance Period initiated the Scientific Revolutions from 1450 AD to 1630 AD. Much of the later period Industrial Revolution owes to the revolutionary works done by Renaissance Period.