# 托福阅读能力提升训练：passage8

## Passage 8

Iron production was revolutionized in the early eighteenth century when coke was first used instead of charcoal for refining iron ore. Previously the poor quality of the iron had restricted its use in architecture to items such as chains and tie bars for supporting arches, vaults, and walls. With the improvement in refining ore, it was now possible to make cast-iron beams, columns, and girders. During the nineteenth century further advances were made, notably Bessemer's process for converting iron into steel, Which made the material more commercially viable.

Iron was rapidly adopted for the construction of bridges, because its strength was far greater than that of stone or timber, but its use in the architecture of buildings developed more slowly. By 1800 a complete internal iron skeleton for buildings had been developed in industrial architecture replacing traditional timber beams, but it generally remained concealed. Apart from its low cost, the appeal of iron as a building material lay in its strength, its resistance to fire, and its potential to span vast areas. As a result, iron became increasingly popular as a structural material for more traditional styles of architecture during the nineteenth century, but it was invariably concealed.

Significantly, the use of exposed iron occurred mainly in the new building types spawned by the Industrial Revolution: in factories, warehouses, commercial offices, exhibition halls, and railroad stations, where its practical advantages far outweighed its lack of status. Designers of the railroad stations of the new age explored the potential of iron, covering huge areas with spans that surpassed the great vauits of medieval churches and cathedrals. Paxton's Crystal Palace, designed to house the Great Exhibition of 1851, covered an area of 1848 feet by 408 feet in prefabricated units of glass set in iron frames. The Paris Exhibition of 1889 included both the widest span and the greatest height achieved so far with the Halle does Machines, spanning 362 feet, and the Eiffel Tower 1,000 feet high. However, these achievements were mocked by the artistic elite of Paris as expensive and ugly follies. Iron, despite its structural advantages, had little aesthetic status. The use of an exposed iron structure in the more traditional styles of architecture was slower to develop.