



Major types of arches and vaults.

ity of the population was illiterate; formal education was largely limited to the noble class and the clergy. The international language was Latin, and books were hand copied on vellum or parchment. The preservation and production of books was largely confined to monasteries, where the monks spent time copying and illustrating the books in their collections, which were so valuable that they were chained to the tables where they were read. These illuminated manuscripts were remarkable works of art and helped facilitate the exchange of artistic ideas between northern and southern Europe. Among the many notable examples are the *Book of Kells* (late eighth or early ninth century) and the *Coronation Gospels* (c. 800–810).

Notable from the early medieval period (c. 375–1025) is the art of nomadic Germanic peoples, particularly their metalwork. The metal arts of this time period were abstract, decorative, and geometric and often took the form of small-scale, portable jewelry or ornaments made of bronze, silver, or gold and covered with patterns of jewels. Artifacts from this era also exist from the seafaring culture of the Vikings in Scandinavia. While metalwork was popular with the Germanic peoples, wood was the most important medium to the Vikings, who carved artistic designs and sculptures on their wooden ships. As a result of Viking invasions, the artistic styles of the Vikings eventually merged with those found in Anglo-Saxon England and Celtic Ireland. The resultant style is often termed Hiberno-Saxon.

In later medieval art, the architecture of churches became a dominant art form. Every city, town, and village had a church at its center, and the largest of these are masterpieces of art that often took more than a century to complete. The earliest churches of this period used a Roman arch as the basis of their design, and so the style used is called Romanesque. One famous example is Saint-Sernin in Toulouse, France (c. 1070–1120). Romanesque churches were stone vaulted buildings that often replaced earlier churches that had highly flammable wooden roofs. Romanesque churches are usually formed of a tunnel of arches called a **barrel vault**. A **vault** is an arch-shaped structure that is used as a ceiling or as a support to a roof. Massive walls had to be built to support the heavy stone arches of the Romanesque style. Con-

sequently, window and door openings were usually kept quite small and were often decorated with carvings and relief sculpture.

The Gothic style developed in the first half of the twelfth century and remained popular into the sixteenth century. Though this style was used for some secular buildings, it was largely applied to the construction of churches. One characteristic of the Gothic style was the use of pointed arches, which gave an upward, soaring sense to Gothic interiors. Another important element of the Gothic style was the addition of **ribbed vaults**, a framework of thin stone ribs or arches built under the intersection of the vaulted sections of the ceiling. A key innovation came in the early Gothic period when architects learned that the downward and outward pressure created by the arches of the barrel vault could be counteracted by the use of **flying buttresses**—additional bracing material and arches placed on the exterior of the building. This advance allowed for larger windows, many of which were filled with beautiful stained glass, and higher ceilings. A classic example of a Gothic cathedral is Chartres Cathedral in France (begun c. 1145; rebuilt after 1194). Here the effect of the tall arches and the brightly colored light from the stained-glass windows directs attention heavenward.

## The Renaissance in Southern Europe

Although we often tend to divide historical periods into a series of discreet and separate styles and events, in actuality, history is much more complicated and subtle. The transition from the later medieval period to the Renaissance provides a good example of this, as the styles from this period cannot be neatly identified as either Gothic or Renaissance, but rather involve a mix of the two. The artist most often mentioned in connection with this transitional time period is a Florentine named Giotto di Bondone (1267–1336/37), who is best known for his frescoes. A key advance visible in Giotto's works is his use of a simple perspective, achieved in large part by overlapping and modeling his figures in the round. This technique created the illusion of a stage for his figures, giving the viewer a sense of looking into the event. Giotto's works were different from many Gothic works