Vaults

Rib vaults, groin vaults, and barrel vaults; these are all examples of vaults, each working to beautify structures and to make them stronger. Vault design can be found everywhere around the world, from cathedrals in Russia to mosques in Turkey. Antique vault surfaces have been improved at various times in different ways—with coffers, carvings, plaster decorations, mosaics, and frescoes. The creation of vaults has had a major effect on today's architecture. The making of vaults all began with the desire to try something new.

Throughout history, it's been documented that as buildings became larger, their ceilings were supported by columns. Main rooms were dominated by large support columns, creating a clustered look. People began to wish for spaces that were not only large, but open, and in order to do that, new designs needed to be created. This led to the idea of curved surfaces to help redirect the weight of building materials and that is the basic concept of a vault. After some time people began to wish for even more room and space in their house and buildings.

The vaulting technique of the Etruscans was absorbed by the Romans, who began to develope a great vaulting system in the 1st cent. A.D. The Romans created vaults with perfect rigidity, requiring no support. This way, vaults and domes could easily be constructed over large spaces, producing impressive and complex architectural designs such as amphitheaters, cathedrals and more. A vault was generally made of separate material, such as bricks, tiles, or blocks of stone, shaped or cut so that when assembled they form a tight and stable construction, while nowadays, they are made of steel reinforced concrete. Vaults, simpler to arches were used by Romans then recreated by Muslims to be bigger, stronger, and overall, better. This development lead to different types of vaults.

A number of vaults are used in architecture. Some of the main types are barrel vaults, groin vaults, rib vaults and stalactite vault which were better known as muqarnas. A barrel vault is the simplest form of a vault, and it resembles a cylinder supported by straight walls. The earliest known examples of a barrel vaults were built by the Sumerians, possibly under the ziggurat at Nippur in Babylonia. A groin vault is two barrel vaults that cross each other, so that they make an X. A groin vault can be rounded, as in Romanesque churches, or pointed, as in Gothic churches. Rib vaults are supported by a series of arched diagonal ribs that divide the vault's surface into panels, and the earliest form has been traced to the 8th century Abbasid palace of Ukhaydar in Iraq. Muqarnas don't have a structural function. Muqarnas can be

considered as three dimensional version of the more common two-dimensional Islamic geometric design.

In conclusion, muslims have had a major effect on today's architecture. the Muslims came a long way from rooms filled with support columns. They inherited and further developed an amazing system from the Romans that would be used for many years to come. Nowadays, vaults are still used for support, as well as decoration. The Great Mosque of Cordoba, the Notre Dame d'Orcival, the Bab Mardum mosque; these are all structures created and beautified with different types of vaults, whether it be a rib, groin, or barrel vault. Vaults play a major part in architecture and will not be forgotten anytime soon.