



## What Is Architecture?

The term architecture has often been used to define anything from temples and houses to bridges and towers. It has evolved over time to become a favorite, but flexible, term to describe computer system networks and even genetic research models, but ultimately, architecture has always and will forever evoke one important idea: a sense of awe.

The simplest definition of architecture exists as the art and science of designing and erecting buildings. Unfortunately this definition does not dig deep enough to properly convey the scope of what architecture was, is, or could be today. Though a careful examination of its history, styles, and purpose, it is the aim of this chapter to explore architecture as a timeless display of our built environment and to examine the principles of form and space and how it is fundamentally organized to achieve a sense of transcendence from the existing world.

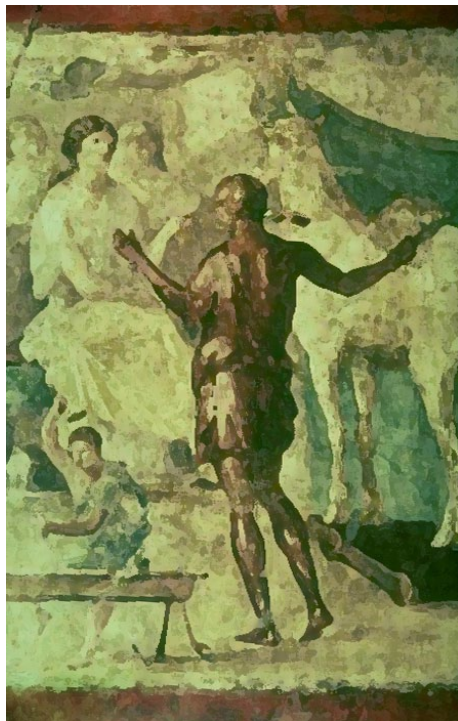


*The Pantheon, Rome; David Robert Donatucci*



*The Pantheon Oculus, Rome; David Robert Donatucci*

Entering the Pantheon in Rome is an incredible experience. From the moment one sees this building in the urban fabric, it becomes clear that humans are capable of spectacular achievements. The erecting of stone pillars and the careful assembly of brick are a wonder to behold when approaching this ancient structure, but the real magic happens when you enter the temple. As your eyes grow accustomed to the change in light, one sees the richness of the marble floor and the articulation of the walls that enclose the space. Looking up reveals the ordered pattern of a coffered ceiling that meets at the top of the dome where a circular oculus allows the brilliant sunshine to stream in and illuminate the scene with a dramatic play of shadows and light. The atmosphere is one of profound joy, realizing that for a split second you have been transported to another world. This is architecture.



*Daedalus; David Robert Donatucci*

“...architecture, at its essence, strives to inspire, illuminate, and embrace civilization...”

It is easy to believe that architecture is simply a building or a construction of wood, metal, stone, or glass, but it is truly much more than that. Often we limit our scope when defining architecture to houses, office buildings, churches, and theaters. We seldom expand our understanding of this discipline to include monuments, piazzas, bridges, towers, tunnels, parks, or entire cities. Even today in a world of technological advances, it becomes difficult to appreciate the architectural validity of ancient forgotten places that grace Hollywood films or the incredible details of an entire new universe depicted in present day video games.

Whether it is a result of incredible craftsmanship, an intriguing display of technological ingenuity, or a profound arrangement of form and space, architecture, at its essence, strives to inspire, illuminate, and embrace civilization through an act of dwelling like a house, a procession of ceremony like a church, or a space of ritual like a theater.



*Daedalus; David Robert Donatucci*

The term architecture can be broken down into two parts: “arche” and “techne.” Arche stems from the Greek term meaning origin or the first principles of the world that underlies all of reality or appearances, and techne derives from Greek as craftsmanship, or the fashioning of art. While this might seem difficult to grasp, it can be more easily understood as the simple act of identifying a spot on the earth (origin) and artistically building upon it (craftsmanship).

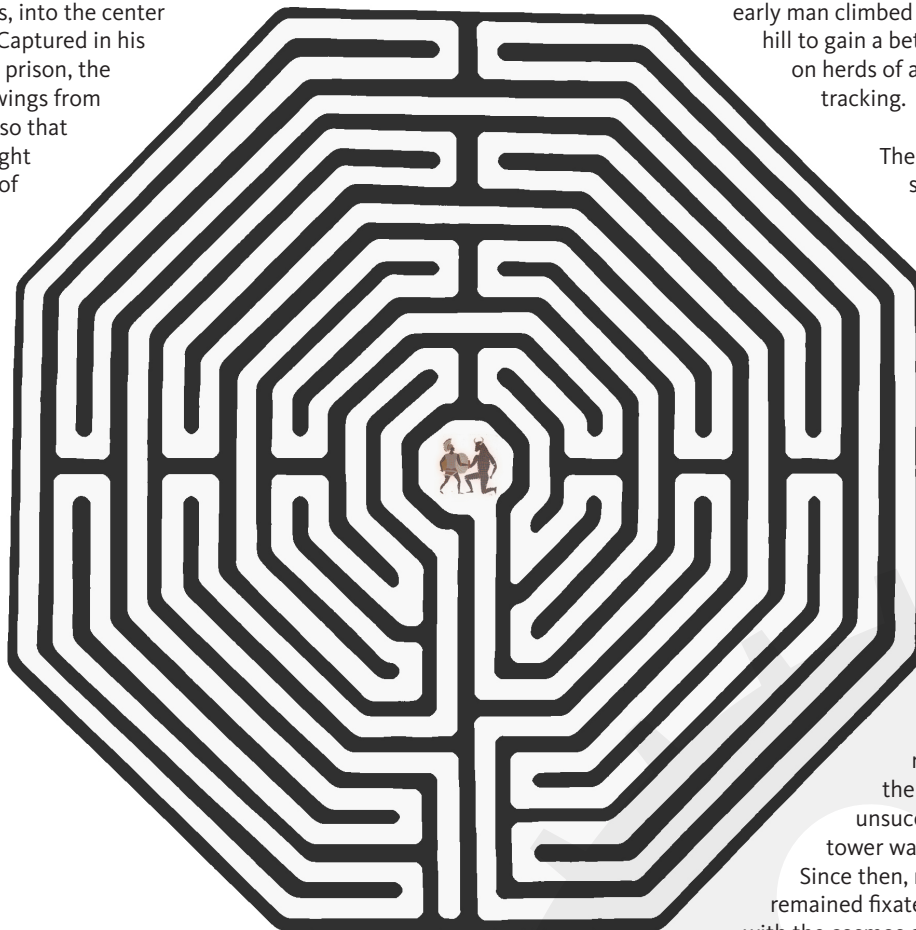


In Greek mythology the first architect was Daedalus. He was a master craftsman and inventor from Athens. He invented the axe and plumb line, and along with Talos, his nephew, he brought about such architectural wonders as the saw and the compass. He was commissioned by King Minos of Crete to design and build one of the first true expressions of architecture, the Labyrinth. Essentially a maze, this construction spread across the land and was created to house the Minotaur, a half-man half-bull creature that fed upon the Athenian slaves of the king. Eventually the hero Theseus came to Crete in an attempt to slay the beast within the maze. The king's daughter, Ariadne, fell in love with Theseus and asked Daedalus for his help in keeping her new lover safe on his quest to kill the abomination. Daedalus gave her a flaxen thread for Theseus to tie to the door of the Labyrinth as he entered so that he could find his way out after destroying the monster. The hero succeeded and fled Crete with his new bride. The king was so enraged that he threw Daedalus and his son, Icarus, into the center of the Labyrinth. Captured in his own architectural prison, the inventor crafted wings from feathers and wax so that he and his son might fly out of the top of the maze.

This famous tale illustrates some of the fundamental ideas of architecture. The act of building upon the earth to establish a place and a path is a constant theme. The labyrinth is conveniently both of these, but more importantly, it helps us to identify ideas such as center, enclosure, walls, halls, doorway, and ceiling, which are all elements of the architect's language. It also presents ideas of narrative and drama that we find in film or video games. The environment sets the scene and establishes mood, atmosphere, and even gameplay to those who choose to see it. You only need to look at Pac Man to see that the story of Daedalus is alive and well.

Architecture is often understood by many as drawings and floor plans, but it also involves thinking in a more three dimensional sense. The notion of flying out of the labyrinth is a common one among architects. It identifies our need to reach for the heavens in an act of defiance to the earth upon which we live. This desire started when early man climbed a tree or scaled a hill to gain a better vantage point on herds of animals they were tracking.

The idea of erecting structures has become a need throughout the world. It can be recalled through the earliest of bible scriptures as in the story of the tower of Babel from the Book of Genesis. Nimrod the master builder attempted to create a tower that could reach heaven, but the operation was unsuccessful and the tower was never completed. Since then, mankind has remained fixated with connecting with the cosmos and defying gravity.



*Labyrinth; David Robert Donatucci*

## Historical and Geographic Outline

Architecture began at the dawn of time when mankind first used a cave to dwell and assembled around a fire or forged a path through the forest and marked the taken route. It continued to evolve as prehistoric peoples bridged rivers by pushing over dead trees or dug deep pits to store food from the hunt. The real advances in architecture came with civilization, when humans evolved more intelligently and began to worship the earth and sky. Along with tribal rituals came the need to change the surrounding environment so that it could support primitive ceremonies of sacrifice, worship, and burial or social activities of dance and storytelling.

“The arrangement of stones on Salisbury plain suggests one of the earliest understandings of the cosmos...”

As civilizations sprung up across the globe, architecture evolved. Examples of some of the earliest prehistoric structures include the pyramids of Egypt, the ziggurats of South America, and Stonehenge in what is now the United Kingdom. These structures were more than sculptures in the landscape: they had a purpose. The pyramids were elaborate burial mounds that sought a connection to the stars in the heavens. The ziggurats were complex stages for human sacrifice. The arrangement of stones on Salisbury plain suggests one of the earliest understandings of the cosmos in that it marks the winter and summer solstice, and hence, identified the seasons for even more ritual.

### Ancient Egypt

The Egyptians gave the world an impressive collection of temples by way of burial tombs that dot the Nile and grace the Valley of the Kings. Their civilization dates as far back as 3000 BC and introduced epic ways to build and an elaborate sense of ceremony and ritual.



*Pyramids; David Robert Donatucci*

## South America

The Mesoamerican civilizations (c. 250 AD to 900 AD) offered elaborate celebrations of sacrifice and sport that can be gleaned from the architecture that these South American cultures left behind. The spectacle of bloody human sacrifices would be seen in empires to come.



*Ziggurat; David Robert Donatucci*



## Classical Era

With the development of the Greeks and Romans came the European age of antiquity (c. 500 B.C.). Until now architecture was utilitarian and symbolic. The Greeks pushed the discipline further with the use of new materials such as wood and marble in sophisticated post-and-beam construction evident in such wonders as the Parthenon. Their mastery of the roof, truss, and column are well expressed in the various buildings of the Acropolis. Meanwhile, the Romans introduced the world to brick and concrete by way of such marvels as the arch and vault and soon after perfected the engineering of domes and bridges by the 1st Century A.D.

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Coliseum; David Robert Donatucci

## Middle Ages

The Middle Ages (500-1500 A.D.) gave way to epic scale construction and saw the rise of cathedrals and basilicas across the European landscape. It was a time of religious expansion, and each town and city was determined to prove its divine worth. The church became the central defining element of urban centers and replaced the temples of pagan worship. As the structures grew higher, so too did the technology of the time. The invention of the gothic buttress gave way to taller cathedrals in France, England, and Germany. Stained glass provided a glimmering sunlit canvas to biblical tales and the celebration of saints. Although the plague had wiped out much of Europe, architecture was beautiful.

## The Renaissance

The Renaissance that spanned roughly the 14th to the 17th century is often viewed as the bridge between the Middle Ages and the Modern Era. It came about as a cultural movement away from classical sources and trusted in the individual as the intellectual center of the world rather than some divine spirituality. Art and architecture was transformed under such masters as Leonardo Da Vinci and Michelangelo. The church and temples now gave rise to palaces and schools. Structures were now for the bettering of humanity on earth and less about the afterlife.



Florence; David Robert Donatucci



## The Industrial Revolution

The onset of the Industrial Revolution during the 18th and 19th centuries marked a critical turning point in human society and architecture. The arrival of steam power transformed Great Britain, and soon the rest of Europe followed. Almost every aspect of daily life was influenced in some way when manual labor and animal-based economies moved into steam-powered transportation and machine-based production. Factories and train stations now took center stage as the architecture of the day involved projects for mass distribution of people and products. Bridges and canals sprung up to meet the demand for a steam-driven marketplace. Industry allowed for more variety and availability in materials. Cast iron was one such material, and it found its place in a number of magnificent structures, including London's Crystal Palace and one of the most recognizable structures, the Eiffel Tower in Paris.

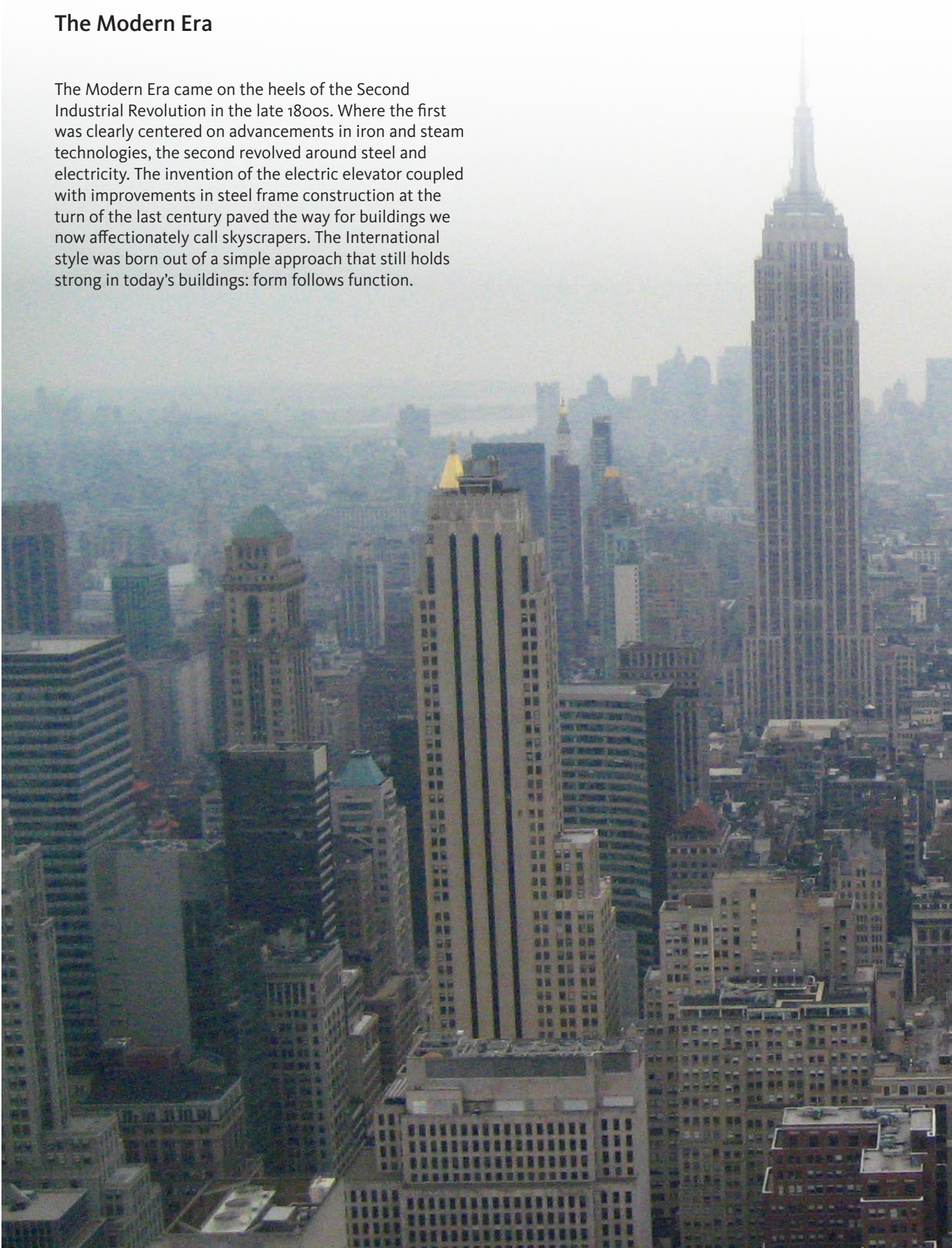


*Eiffel Tower; David Robert Donatucci*



## The Modern Era

The Modern Era came on the heels of the Second Industrial Revolution in the late 1800s. Where the first was clearly centered on advancements in iron and steam technologies, the second revolved around steel and electricity. The invention of the electric elevator coupled with improvements in steel frame construction at the turn of the last century paved the way for buildings we now affectionately call skyscrapers. The International style was born out of a simple approach that still holds strong in today's buildings: form follows function.

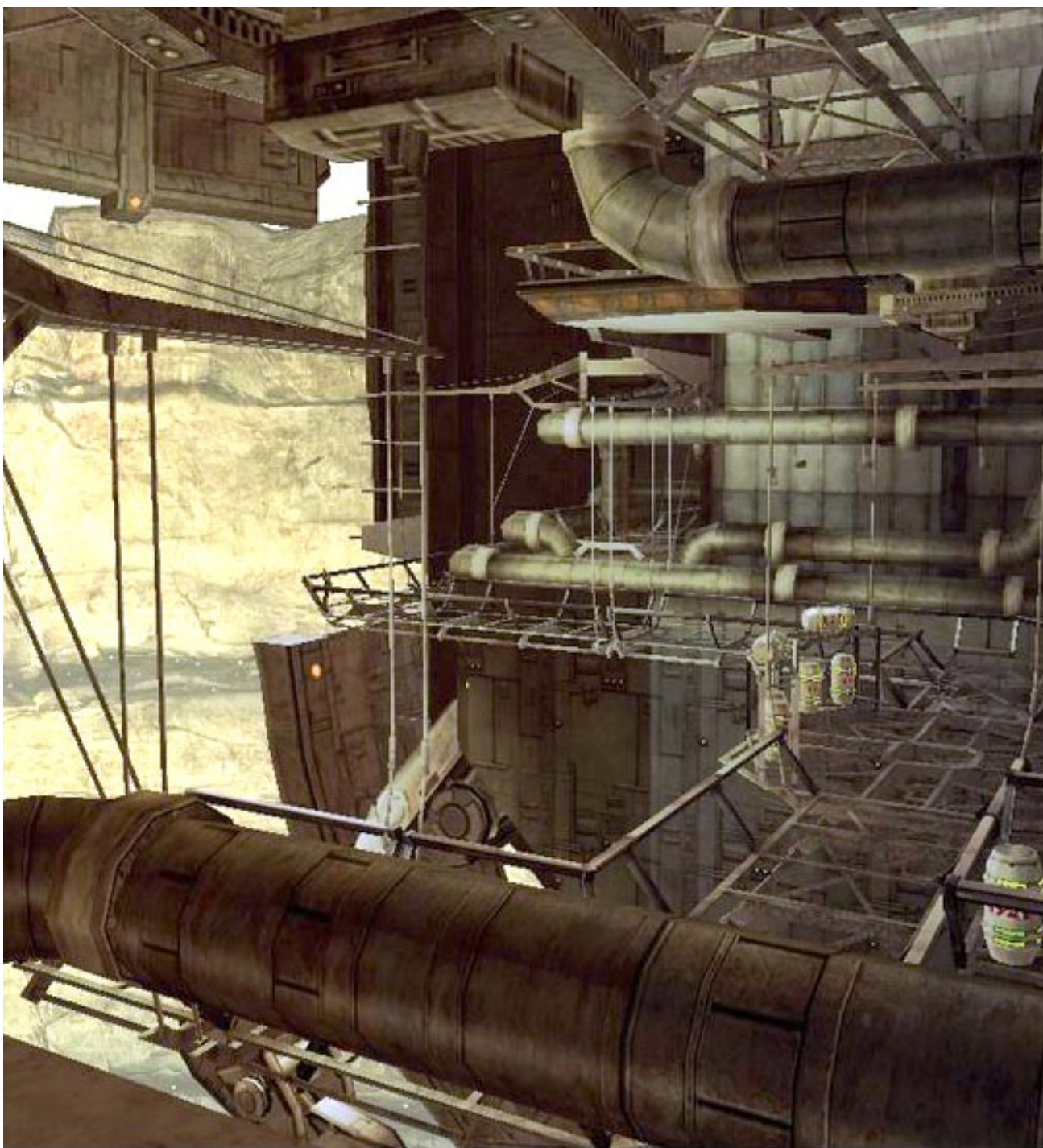


New York City; David Robert Donatucci



The future looks bright for architecture in the current Digital Age. Computers and multimedia today expand the imagination. Air travel and space exploration have brought about incredible superstructures, and tourism has prompted entire manmade islands and even underwater habitats. But perhaps the most incredible opportunities for architectural expression lie in the digital stages of Hollywood and the virtual space of video games.

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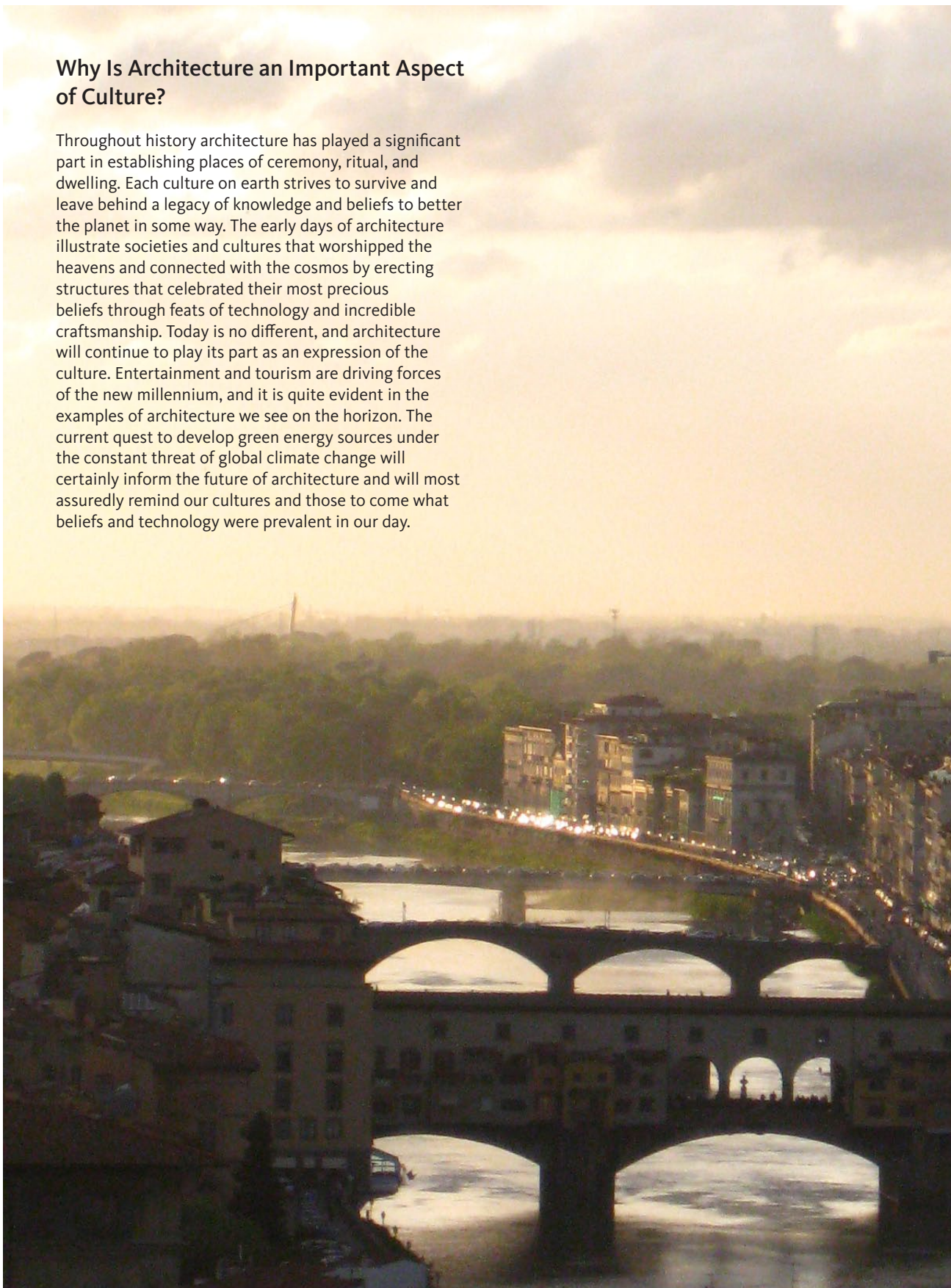


*Sci Fi World; David Robert Donatucci*



## Why Is Architecture an Important Aspect of Culture?

Throughout history architecture has played a significant part in establishing places of ceremony, ritual, and dwelling. Each culture on earth strives to survive and leave behind a legacy of knowledge and beliefs to better the planet in some way. The early days of architecture illustrate societies and cultures that worshipped the heavens and connected with the cosmos by erecting structures that celebrated their most precious beliefs through feats of technology and incredible craftsmanship. Today is no different, and architecture will continue to play its part as an expression of the culture. Entertainment and tourism are driving forces of the new millennium, and it is quite evident in the examples of architecture we see on the horizon. The current quest to develop green energy sources under the constant threat of global climate change will certainly inform the future of architecture and will most assuredly remind our cultures and those to come what beliefs and technology were prevalent in our day.



Ponte Vecchio; David Robert Donatucci