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**ДОБРО ПОЖАЛОВАТЬ
В МИР АРХИТЕКТУРЫ**

Сборник текстов на английском языке

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для студентов 1 курса архитектурно-строительных специальностей

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BOLSHOI THEATRE

Widely considered as one of the most beautiful performance houses in the world, the Bolshoi Theatre stands as a testament to the enduring nature of the Russian character. For more than two hundred years through monarchies, revolution, totalitarianism, socialism, and war the Bolshoi has been a symbol of the grand character of the Russian spirit expressed in architecture, dance, and opera.

More than an instrument to stir the love of the arts, the Bolshoi Theatre is very nearly a musical instrument itself. The auditorium is trimmed in wood and its acoustics is arranged to magnify and amplify sounds from the stage. It is among the most acoustically perfect houses in the world.

Outside, the façade has been restored after a bomb hit it in 1941 during the Second World War. It features the figure of Apollo and his quadriga (chariot) over a structure resembling the Parthenon. Although it looks impressive from the front, the Theatre is in need of renovation after putting on 300 performances a year for 150 years.

The ten-year project is being overseen by UNESCO in cooperation with the government of the Russian Federation. It is financed through donations from governments, corporations, and individual benefactors.

The first phase involves the construction of a building next door on Teatralnaya Square. That building will be a sister theater to the Bolshoi with a stage that the Bolshoi will perform on during phase two – when the original theater will be renovated.

Once complete, the complex will include both theaters, an administration building, rehearsal halls, a greenhouse, a building to house the Bolshoi Theatre Club, a museum, conference hall, and workshop buildings.

- 1776 – The Bolshoi Theatre is established by Prince Peter Urusov.
- 1781 – The original building by Christian Rosberg and M. Medox is erected.
- 1805 – The building is destroyed by fire.
- 1825 – The second building is erected by Osip Bove at a cost of R 2,000,000.00.
- 1953 – The building is destroyed in a three-day fire.
- 1955 – The third building is erected. It is designed by Albert Kavos based on the design by Osip Bove.
- 1902 – Due to settling of the foundation, the walls of the auditorium shift, wedging the exit doors of two sections closed, trapping the audience inside.

SAINT BASIL'S CATHEDRAL

Saint Basil's Cathedral is the most recognizable symbol of Russia. Its colorful onion domes are instantly recognizable around the world as emblems of Moscow and the Russian Orthodox Church. The church is actually the Cathedral of the Protection of the Mother of God, known as "Theotokos" or "Bogoroditsa" in the Orthodox Church.

But it is mostly known as Saint Basil's Cathedral, named after the man who roamed the streets of Moscow trying to win converts during the reign of Ivan the Terrible (Tsar Ivan IV or Ivan Grozny). In spite of the brutal Russian winters and unforgiving summers, he many times conducted his crusade naked.

It is the domes that make this, and other Russian Orthodox architecture unique. Saint Basil's has a total of ten towers with domes. The largest is at the center of the cathedral known as the Church of the Feast of the Pokhrov.

There are four more, each topping a church, located on a cardinal point, north, south, east, and west. Then an additional four at the northeast, southeast, northwest, and southwest points. Each of these eight churches represents an important historical event in Russian history. Then there is one that does not stand on a rose point. It was built in 1555 and is located over the grave of Saint Basil. It became part of the Cathedral in 1588.

The cathedral may have been designed by Russian architects Posnik and Barma. But the early records are confusing, and they may be a single person. There is also a legend that the cathedral was designed by an Italian architect who was blinded so he could never create a more beautiful building. The root of this legend may lie in the fact that between 1475 and 1510 Italian architects were employed to restore the Kremlin and two of its churches.

In some ways, it is amazing that the cathedral has survived as long as it has. Two of the world's most ruthless leaders – Napoleon and Stalin – tried to destroy it. Napoleon tried to burn it down with little success. Stalin wanted to have it razed so his military parades would have more room. Another Moscow legend has it that the demolition was stopped by an architect who threatened to slit his own throat on the cathedral steps in protest.

CATHEDRAL OF SAINT MICHAEL THE ARCHANGEL

If there's one thing the Russians excel at it's religious architecture. Across the country thousands of churches abandoned under Soviet rule are now being restored. There are a few, however, that escaped decay because they were thought to be of special value to the people. One of them is the Cathedral of Saint Michel the Archangel – one of three cathedrals in or near the Kremlin, and one of two actually on Kremlin grounds.

Like most other Russian Orthodox churches it features the special onion domes topped by gilded crosses that are commonplace. But this wasn't built by a Russian. Italian architect Alevio Novi was charged with rebuilding the great cathedral in Cathedral Square, also known as the "City of God."

Moscow was to become the Third Rome, after Constantinople and, of course, the original Rome. Though at a casual glance it appears authentic Russian, his design is Italian Renaissance at its fundamentals even though he was required to make it palatable to Byzantine tastes. Inside, the tomb of Ivan the Terrible and dozens of other members of the Russian Royal family line the walls.

THE HOUSES OF PARLIAMENT

Built by Charles Barry and August Pugin in flamboyant neo-Gothic style between 1837 and 1860, the Houses of Parliament provide chambers, lobbies and offices for politicians, linked by some two miles (3.2 km) of passages. In the House of Commons, the Speaker presides over debates, the Government and Opposition facing each other over the dispatch boxes, with Ministers on the front benches. Bills are passed from here to the House of Lords, where some are amended.

The Houses of Parliament are often referred to as the Palace of Westminster, having been constructed on the site of the home of monarchs from Edward I to Henry VIII. The old palace

was destroyed in a calamitous fire in 1834, leaving only the medieval Westminster Hall, the cloister and undercroft of St Stephen's Chapel, and the Jewel Tower built by Edward III in 1366 for his treasures. Westminster Hall, scene of many extravagant royal celebrations including coronation banquets, is dominated by a massive hammer – beam angel roof.

The much-photographed Big Ben in St Stephen's Tower is actually the name of the huge 13 1/2-ton bell that strikes the hours. Old pennies are used to adjust the clock's mechanism, helping it to keep in perfect time. The minute hands on each of the four dials are as high as a double-decker bus.

BIG BEN

For tourists, photographers, residents, and even terrorists, this is the symbol of London. Big Ben is one of London's best-known landmarks, and looks most spectacular at night when the clock faces are illuminated. You even know when parliament is in session, because a light shines above the clock face.

The four dials of the clock are 23 feet square, the minute hand is 14 feet long and the figures are 2 feet high. Minutely regulated with a stack of coins placed on the huge pendulum, Big Ben is an excellent timekeeper, which has rarely stopped.

Officially called the Clock Tower, millions of people around the world know it as "Big Ben." In truth, Big Ben is the name of the bell inside the clock, not the tower. But trying to convince people of that is akin to trying to stop a train with your car: it's possible, but not worth the effort.

Not a building on its own, the 320-foot Clock Tower is one of two towers flanking England's Houses of Parliament. It was built after a fire in 1834 destroyed most of the existing structure. That inferno was caused by the burning of an abacus that was used for bookkeeping. The fire got out of control and took most of the building with it. Charles Barry was the winner of a competition to design the new center of government. He went with a Renaissance style, and married it with Neo-Gothic details by Augustus Pugin, including the towers.

Inside the tower is Big Ben – a 13-ton bell that sounds the hours as time passes. There is no firm documentation on how the bell got its name. Some think it was named after boxer Ben Caunt. Others believe it was named after Sir Benjamin Hall, a rather hefty gentleman who was a commissioner in Westminster.

This bell came originally from the old Palace of Westminster, it was given to the Dean of St. Paul's by William III. Before returning to Westminster to hang in its present home, it was refashioned in White chapel in 1858. The BBC first broadcast the chimes on the 31st December 1923 – there is a microphone in the turret connected to Broadcasting House.

During the second world war in 1941, an incendiary bomb destroyed the Commons chamber of the Houses of Parliament, but the clock tower remained intact and Big Ben continued to keep time and strike away the hours, its unique sound was broadcast to the nation and around the world, a welcome reassurance of hope to all who heard it.

There are even cells within the clock tower where Members of Parliament can be imprisoned for a breach of parliamentary privilege, though this is rare; the last recorded case was in 1880.

The tower is not open to the general public, but those with a "special interest" may arrange a visit to the top of the Clock Tower through their local (UK) MP.

Either way, it is the quintessential London experience to emerge from the Underground, walk along the Thames on a foggy Sunday morning and hear Big Ben toll. If you're not in London, it can still be heard frequently on the radio via the BBC World Service on AM in Europe, and satellite and short-wave elsewhere.

- 1949 – Big Ben's time falls behind by 4½ minutes when a flock of birds perches on the minute hand.
- 1962 – Big Ben sounds the New Year ten minutes late because of a buildup of heavy snow on its hands.
- 20 March 2004 – Protestors scale Big Ben and unfurl a banner protesting war.

10 DOWNING STREET

The modest façade of this building does not reveal the power behind its legendary black door. This is the home of the Prime Minister of the United Kingdom. It is from this place that, for hundreds of years, power has radiated throughout the kingdom.

Though the portal appears modest, it conceals a much more complicated building inside. Number 10 is connected to another building, which used to be a standalone mansion. The Downing Street location gets its name from Sir George Downing, a civil servant who built the street on the site of the demolished Axe Brewery. It has been abandoned since the early 16th century. When that building was leveled, it became a residential zone.

The earliest record of a home on the spot is from 1581. But the history goes back much farther than that. In the ninth century, the area was known as the Isle of Thorns. By the 11th century, King Canute had a palace constructed in the area. Subsequent rulers expanded their royal dwellings, and the area became commonly known as the seat of government. The last palace in this neighborhood was Whitehall, which burned down in 1698.

However, it wasn't until 1732 that King George II designated Number 10 the official residence of the First Lord of the Treasury, who is also the Prime Minister. The first Prime Minister to live here was Sir Robert Walpole; the last private citizen to live here was a Mister Chicken who left in 1735.

The mailbox outside reads, "First Lord of the Treasury." Technically speaking, it is his official residence. But since the Prime Minister is also the First Lord of the Treasury, it is the de facto Prime Minister's residence. The building is made of yellow bricks. These were blackened by decades of exposure to sooty London air. They were cleaned in the 1960's, and painted black because the public couldn't cope with the yellow color. It is said that the front door of the building can only be opened from the inside.

- 1500 – The Axe Brewery is abandoned and the land redeveloped.
- 1581 – First record of a residential home in this location.
- 1698 – Whitehall Palace burns down.
- 1732 – The building is designated the official home of the Prime Minister.
- 1732 – Number 10 is linked to a larger mansion to create a single building.
- 1735 – Mister Chicken moves out. The first British Prime Minister moves in.
- 1894 – Electric lights are installed.
- 1960 – Renovated to prevent collapse. The façade was preserved, but everything else gutted and rebuilt.
- 7 February 1991 – The building is attacked by a mortar launched from a nearby van by Irish terrorists. The bomb landed in the backyard and blew out the windows.

- 1993 – The first computer cables are installed.

TRAFALGAR SQUARE

A large open square surrounded by wonderful buildings including the National Gallery, the National Portrait Gallery, and the building used as the fictional home of "Universal Exports" – James Bond's cover company in all the 007 films.

On a lazy Sunday morning great clouds of pigeons gather to pick up scraps from passersby. Admiral Nelson surveys London from his perch 145 feet above the city. This monument was erected in 1843 to honor his victories abroad. At the base of the monument are four sculptures depicting his battles in Egypt, Denmark, Cape Saint Vincent, and Trafalgar, where he died in 1805. After the battle he was placed in a barrel of alcohol and shipped back to England for burial. That's where we get the expression "pickled" referring to a drunken person.

It's also the root of the more obscure phrase "Tapping the Admiral," describing the process of getting drunk. Nevertheless, the four images were cast from cannons brought back to England after his triumphs in far-off lands. Trafalgar Square is also where the national Christmas tree is put up each year. It is an annual gift from Norway to thank England for taking in their royal family during the Second World War.

WESTMINSTER ABBEY

One of the "must see" sights in London, Westminster Abbey is known the world over. What is unknown however is just how old it is. The first church on the site is believed to have been constructed around the year 700. There are records of a church existing there as early as 1040 when Edward the Confessor was crowned.

The abbey has its own gift shop, and you can make your own brass rubbings in another section. But be sure to watch your belongings while you do. Thieves have been known to make off with purses and bags belonging to people engrossed in their art. Also be warned that no photography is allowed inside, and it is still an active place of worship. So if a service is ongoing, please be respectful.

WESTMINSTER ABBEY AND THE COSMATI PAVEMENTS IN POLITICS

Many books on pavements and floor tiles consider technology or geometry without covering the reasons as to how or why they came into being. Perhaps they do not have the unique history that the Westminster Abbey pavements do. This paper brings the reasons behind the construction of the pavements and brings them to life with the struggle they went through in the context of the politics of the times.

The thirteenth century was a time when the politics of church and state were in high turmoil. In 1215 King John had been forced by the Barons to sign Magna Carta. Henry III reigned from 1216 and was in the similar position of not being an absolute monarch, despite his belief that he was ruling with the divine right of kings, perhaps not helped by his being only nine when he ascended the throne. This was the century when the mother of parliaments was in its infancy.

Moreover, Henry has his own agenda for the rebuilding of Westminster Abbey, aligning himself with the icon of St Edward the Confessor. There had been civil war and the king was

subject to the authority of the Baronial Council, although their hold varied in severity, this restricted his ability to obtain money for his work on the Abbey. One can only marvel that so much was achieved, not least the construction of something as complex as the Great Pavement.

Comparing that time with today's secular society, it is hard to see how a saint can be such a force in defining how such work could be carried out. But Henry saw St Edward as "a saint of mighty power," supporting him in this life and standing ready to guide him to the next. One might say Henry was more concerned with his soul than his role in life and to this end claimed St Edward as his own and hence spent a considerable effort in reconstructing the Abbey.

In today's world of political spin (especially in the United Kingdom) one could be forgiven for thinking that it had been invented recently with the advent of mass communication. The baronial council was manipulating the king so that he was forced to beg them to carry out his wishes rather than he commanded them. David Carpenter makes it clear that today's politicians could learn a lot from history. So while Henry was claiming Edward for himself, they made sure they got a piece of the action. Edward the Confessor would protect the kingdom as well as the king and the members of the council were not averse to making sure their presence was noted. So their armorial shields are placed in the wall arcades of the aisles flanking the liturgical choir.

The timetable for reconstruction was not just driven by money, there were symbolic reasons too. Edward's shrine had been moved once before defining his greatest feast day on 13 October, which was a Sunday in 1163. Henry freed himself to a large extent from the control of the baronial council by 1263. He now had a target date for the translation of the shrine – 13 October 1269, which was also a Sunday. Such symmetry and calculated days might seem coincidental, but David Carpenter provides evidence that there was a great deal of credence placed on this.

Apart from this date setting the agenda, Henry was getting old and was concerned for his salvation. He was also hoping for help from Edward the Confessor with the disorder in the kingdom and his financial difficulties (added to which, he wanted to send his son Edward on a crusade).

So 1269 was to be the greatest event of his reign and he knew he was "meant" to live that long. The reconstruction work was completed, including the pavement in 1268, but the event itself did not go off well. Quarrels broke out during the ceremony and the bishops did not form a procession behind the body of Edward the Confessor. This carried on afterwards, so while Henry may have gained some prestige, the remaining three years of his reign were not smooth.

THE CONTEXT AND FABRIC OF THE WESTMINSTER ABBEY SANCTUARY PAVEMENT

Richard Foster's book on the pavement [1991] was the one that first interested me in the subject. It makes a companion book for these papers, explaining the reasons why the pavement was built and providing a great more detail on the structure and symbolism of it. This paper extends the book. In its description, he prefers the term *opus sectile* rather than *Cosmati*, seeing the former as a broader term and contrasting it with the technique of mosaic, where the pieces are the same size.

He fills in the background on the why and how *Cosmati* work came to Westminster rather than the adopting the local technique of glazed tiling described above. The largest stretch of undisturbed *Cosmati* pavement is in the crypt of Anagni cathedral. Richard de Ware arrived at Anagni in 1260 for papal confirmation as the new abbot of Westminster. The *Cosmati* work

there had been completed around 1230 and he was obviously impressed enough to bring back workmen and marble at his own expense to Westminster. The master was probably Petrus Oderisius who created Pope Clement IV's tomb in Santa Maria in Gradi.

Having established this, he goes on to support Christopher Norton's ideas of the tradition of using opus sectile work for shrines and then gives a brief discussion of the geometry.

When I met him after the conference and asked him about the geometry of the pavement he was shy of discussing it, perhaps seeing me as the type of "sacred geometer" that gives the study of such a geometry a bad name. I still do not see that there has been enough study of the geometric detail of the Great Pavement and the quincunx design on and around Edward the Confessor's tomb related to the wider use of such designs in Cosmati work.

The middle part of his paper is concerned with the identification of the materials. It is set in Purbeck marble as described in Christopher Norton's paper. There are various other stones brought from Italy. Identification of many of the materials has been helped by a set of marble samples collected by the Roman lawyer Faustino Corsi that he gathered and catalogued from the decorative marbles in Rome in 1825. Corsi's collection of 1000 samples is now in the University Museum in Oxford.

As well as cut stone there are smaller amounts of opaque and transparent glasses. The analysis of the opaque ones shows the closest match (with a high sodium and low potassium content) is found to be with enamels at Limoges. The transparent ones (with high potassium and low sodium) are typical of northwestern Europe. This again shows the wide international communication taking place at this time.

The Great Pavement is unique in having an inscription. Richard Foster only goes into this briefly since his book on the pavement [1991] details it at length. This is also the best place to go for the cosmological significance of the pavement as whole. He is concerned here with the chemical analysis of the remaining letters and shows that they were probably cast at the same Royal Foundry that cast steelyard weights, the standards issued to merchants by the crown.

The latter part of the paper is a chronology of the various restorations it has undergone in past 750 years. It is remarkable that so much has survived. (The next paper, by Nicholas Durnan brings this up to date.) There are over 50 notes and references.

THE CONDITION AND CONSERVATION OF THE COSMATI PAVEMENTS AT WESTMINSTER ABBEY

In 1997–98 Nicholas Durnan directed a survey, practical trials and remedial work on the pavements. The Great Pavement was particularly difficult to assess since you need to look down from the triforium to see it as a whole but down on your knees to get close enough to appreciate the intricate detail and workmanship.

In the Great Pavement, the team was able to identify different geological material. Some dating from around 1268 as described by Richard Foster. Another two groups were from 1660–62 repairs and some late seventeenth/early eighteenth century ones and then the 1867–68 works by Gilbert Scott, which could be differentiated by mechanical cutting. Mortar varies from original hard opus signinum (with Roman Brick dust) with later soft lime mortar and Scott's Portland cement.

For Edward the Confessor's shrine area, much 1268 material is present with later repairs and some early twentieth-century, poorly worked, reconstruction.

The condition of the pavement was remarkable considering its date. It was very dirty (especially from the covering carpet) with some discolouring of the mortar. Although there are parts

missing, most of the stones are still original but some are more durable than others. There was no rising dampness, but condensation has played a part in some places. The shrine area was similarly dirty, but the protection of the sawdust, linoleum and wood covering of the 1930s had not caused any deterioration of the floor. Previous cementing and dirt detracted from showing the full beauty and there were thousands of pieces missing.

Causes of decay in both cases showed condensation is the worst enemy with failure of the mortar having meant loss of the inscription and some pieces of stone and glass. In the shrine, some rising damp and condensation is causing the Purbeck marble to decay.

Trial cleaning and repairs was undertaken in 1998 including fixing loose small pieces with wax protection of stone and lime mortar surfaces. This included estimating the cost of long-term repairs. A measured drawing was made, a copy of which is in a folding plate at the end of the book together with another of a photograph. Conservation was supported by photography as well as copious documentation.

BUCKINGHAM PALACE

It was George IV's idea to turn Buckingham House, his parents' home, into an imposing residence fit for the king of England. In the face of much criticism, John Nash undertook the remodelling and extension at vast public expense, and it all took so long that neither George IV nor his brother William IV ever lived there. Queen Victoria, however, loved Buckingham Palace (even though many of the 1,000 windows would not open, doors were ill-fitting, lavatories were unventilated and bells did not ring!). Edward Blore finally finished it satisfactorily in 1847.

Many of the State rooms are sumptuously grand, notably the White Drawing Room, the domed Music Room with its 18 columns of deep blue scagliola, and the State Dining Room decorated in vivid crimson. The Royal Family occupies relatively few of the 600 rooms, many of which provide offices and accommodation for members of the Royal Household.

Nearly every morning London's most popular ceremony, The Changing of the Guard, takes place on the forecourt, much to the delight of the assembled crowd.

The Queen's Gallery, showing art treasures from the Royal Collection, is open to the public. Further down Buckingham Palace Road is the Royal Mews, where The Queen's Horses and Carriages can be seen mid-week.

WELLINGTON ARCH

Intended as a monument to the first Duke of Wellington, you'd never know it looking at the monument today. When it was erected in the early 1800s, the arch was topped by a massive statue of Sir Arthur Wellsley riding a horse created by Matthew Cotes. A trio of indignities later, and this could be a monument to anyone.

The first came in 1882 when the monument was moved to Hyde Park Corner. Previously it had been a ceremonial entrance to Buckingham Palace. The second insult came in 1912, when the Wellsley statue was taken down and replaced by a quadriga by Adrian Jones, similar to ones in cities like Berlin, and Saint Paul, Minnesota.

A third insult followed in the 1960-s when traffic was routed around the arch, leaving it stranded on an island. Because of its location on Constitution Hill, and the lack of a Wellsley statue, many people think it's proper name is Constitution Arch. Inside the arch are exhibits, and access to a balcony which provides views of nearby London landmarks.

THAMES TIDAL BARRIER

It looks like a stunning piece of architectural art, but its purpose is deathly serious. For centuries London lived in a delicate balance with the River Thames. The river brought food, transportation, communication, and commerce to the city. But occasionally the river would exact a toll from the city, overflowing its banks and taking lives and property in return. One of those floods came in 1953.

Three hundred people lost their lives downstream from the city, and thousands of acres of productive farmland were rendered useless by the salt water. London's response was seemingly simple – a wall separating London from the ravenous sea. But the simple idea was complicated to implement.

The Tidal Barrier had to open and close quickly. It had to permit significant water flow in both directions to keep the ecological balance. And it had to allow ships to pass without encumbrance. The result is a line of ten gates that can be raised and lowered at will. Underneath each of the barrier's stainless steel domes is a machine much like a construction crane.

When it moves its arms, a massive horizontal drum rotates. This drum had a large notch in the center of it. When the arms are extended, the drum rotates so the notch faces up, allowing ships and water to pass through it. When the arm retracts, the drum turns on its axis and the un-notched side of the drum rises out of the water, blocking the river.

Of course, all that water has to go somewhere, so the banks of the Thames have been raised for 50 miles to protect people downstream from being inundated. More importantly, even when a serious threat is predicted, the gates are closed slowly. Closing the barrier at its maximum rate would create a wave in the river that could do more damage. There are four main gates at the center of the river. Each is 200-foot / 61 meters long. Those are flanked by a pair of 102-foot / 31 meter gates. And on each end are two more gates, which allow water, but not ships to pass.

- 1972 – The government is given the authority to construct a tidal barrier.
- 1974 – Construction begins.
- 1982 – Construction is completed.
- 1983 – The barrier is successfully used for the first time.
- 1984 – The ceremonial opening of the tidal barrier.

ELY CATHEDRAL

In 673 St Etheldreda, Queen of Northumbria, founded a monastery in the centre of the Fens, on the Isle of Ely where she was Abbess until her death in 679. Some 44 years later, in 1081, work on the present building was begun, under the guidance of Abbott Simeon. It was completed in 1189 and the Cathedral now stands as a remarkable example of Romanesque architecture.

Undoubtedly, the most outstanding feature of the Cathedral is the Octagon, built to replace the Norman tower, which collapsed in 1322. The scale, engineering skill and sheer beauty are breathtaking and we can only marvel at the vision of Alan Walsingham in designing such a piece of architecture.

The 14th Century Lady Chapel with its intricate stone carvings is the largest in England. And there is the Prior's Door, the painted Nave ceiling, Bishop West's Chantry Chapel and St Ovin's Cross – the only piece of stonework of Saxon origin in the Cathedral.

The Cathedral is set within the walls of the Benedictine Monastery, and a walk round the College will reveal that Ely has the largest collection of medieval domestic architecture in England. The Porta was the original entrance to the Monastery and Prior Crauden's Chapel is situated nearby. Powchers Hall, the Old Barn, The Almonry and all the other Medieval buildings still stand to remind us of a community who lived and worshipped together, and of the skill and craftsmanship of those who built them over 600 years ago.

BRITISH LIBRARY

The British are rabid collectors of information, artifacts, and antiquities. Many of the world's most important museums are on their island. They've been cataloging civilization longer than many countries have been in existence. So, why then, is something with a title as prestigious as "The British Library" in a building so modern? Because it used to be little more than a reading room in the British Museum.

This building was erected in 1998 after more than 20 years of planning, bickering, and partisan shenanigans. Before this building was erected, the millions of books in the collection were scattered around the city in other libraries. Getting them all together in one place is a boon to readers and researchers, but was long delayed by design changes and cost overruns.

The end result is a reddish-brown building that has not yet earned a soft spot in the public's heart. It looks something like one of the mills that used to line the banks of rivers all over Britain, churning out textiles two centuries ago. But now the product is knowledge, and the warehouse of information this building contains is enough to educate generations of eager learners.

- The British Library has 300 kilometers of shelves for underground storage.
- The original cost estimate was £150,000,000.00.

ALEXANDRA PALACE

Built as "The People's Palace," Alexandra Palace rests on a hilltop amid 196 acres of land outside London. Though the grounds were originally 300 acres, it is still a showplace, and a getaway. A recreation zone, and an exhibition space. It started in 1873 as a place where people from the city could go to get away from it all.

Thousands of people flooded the facility when it opened. But the fun didn't last long. Just 16 days after it opened, the place burned to the ground. Within two years it was open again, entertaining generations of people.

It has an indoor ice-skating rink, a conservatory with a glass roof, banquet facilities, parks, playgrounds, and more. Its most important footnote in history, however, is the fact that this was the first television home of the British Broadcasting Company.

In 1936, the BBC made its first television broadcast from the tower next to the palace. It remained the center of activity until the 1950s, but to this day the tower still carries four television channels, and six radio stations. The tower's height is 220 feet, but the building is over 300 feet above sea level, making this an important transmission point. And as an entertainment and concert venue, the BBC thoughtfully built a concrete ramp that a televi-

sion camera could be wheeled down in order to provide live broadcasts of events at the Palace.

- 1873 – Alexandra Palace opens.
- 1873 – Alexandra Palace burns to the ground.
- 1875 – Alexandra Palace is re-built.
- 1936 – The BBC's first public television transmissions originate from the Alexandra Palace.
- 10 July 1980 – The Palace burns. Nearly half of the building is destroyed.
- 17 March 1988 – The Palace reopens.

PETERBOROUGH CATHEDRAL

Peterborough Cathedral was founded in 655 by the Mercian nobleman, Paeda, destroyed by the Danes in 870, reconstructed in 972 and then burnt down by mistake in 1116. The present Cathedral, started in 1118, took more than 120 years to build and was consecrated in 1238 by Bishop Robert Grosseteste of Lincoln. It is a superb example of Romanesque architecture. The West front built in the early 13th century is unique in Christendom.

The Cathedral suffered badly at the hands of Cromwell's soldiers in 1643. As a result the interior of the Cathedral is uncluttered with monuments and light streams in through clear glass, creating an air of space and purity. Much work has been done in recent years including the restoration of the beautiful Nave ceiling, one of the most important examples of this kind of medieval art in Europe. Queen Katharine of Aragon is buried at the Cathedral.

The Cathedral is still the seat of the Bishop of Peterborough, as it has been since the Diocese was created in 1541. Worship, enhanced and supported by a long choral tradition, still takes place every day. The Cathedral is used for many functions including exhibitions, concerts and school outings. There is a permanent exhibition depicting the life of the Cathedral and the daily life of a Benedictine monk.

THE BRITISH MUSEUM

As stated elsewhere, the British are ravenous collectors and catalogers of civilization.

They have gone to the ends of the Earth in search of artifacts to document the extent of the Empire, and the limits of human imagination. It all comes together here.

The British Museum is perhaps the most important institution of its kind. From Rome to the Far East, from the Americas to the Pacific Rim, the objects are all here. While some museums have humble beginnings, this one did not. Its creation was spurred by a massive private donation in the 1730-s of over 71,000 exhibits to the government. These were combined with another collection that the government held, creating a critical mass necessitating a building of its own.

Montagu House was bought for this purpose in 1754. Less than 50 years later, the collection outgrew its home, so an addition was built. This was known as the Townley Gallery, and was built between 1804 and 1808. But if you look for it today, you won't see it. It was leveled in 1842, and the Smirke Building erected in its place. It was a few years later that the British Museum's architecture got out of hand.

Already a collection of Victorian, French, and Greek Revival styles, its one unifying force was the central plaza from which visitors could grasp the scale of the building. This was compromised when the Reading Room was completed in 1857. While it is understandable that the

museum needed space for expansion, there comes a point at which architecture goes from layout to labyrinth.

The Reading Room was soon followed by the White Wing, King Edward VII Galleries, and the special gallery designed to hold the Elgin Marbles. Construction on the Elgin Marbles gallery ended in 1939, but World War II took its toll. There wasn't the money or incentive to build any more large expansions. In fact, fixing the bomb damage prevented the Elgin Marbles gallery from opening until 1962. The first new wing in 40 years opened in 1980. Unfortunately, it was called "The New Wing" and completely fails to honor any worthy Britons.

Then, at the turn of the millennium, something interesting happens. The British Museum would recover from the violation caused by Reading Room. The Reading Room had removed a wonderful public space. It was the architect Lord Norman Foster who would restore it. The British Library was given its own museum, and the Reading Room was pared back to its essentials.

Then over the entire area, which was formerly a great courtyard, was erected a delicate glass dome, and the Great Court was created. Strictly speaking, it's more of a roof than a dome, but it arches gracefully over the floor below, and converges on the copper roof of the Reading Room as if it was one dome resting upon another. It is a spectacular sight, but does not interfere with the appreciation of the rest of the building's architecture.

At the time of its completion, the Great Court was the largest covered public square in Europe. The Great Court cost L 100,000,000.00. The roof of the Great Court weighs 793 metric tons.

- 1676 – Montagu House is built.
- 1686 – Montagu House is damaged by fire.
- 1754 – Montagu House is purchased to house the British Museum.
- 1804 – 1808 – The Townley Gallery, designed by George Saunders, is built.
- 1842 – 1846 – The Townley Gallery is demolished.
- 1852 – The Townley Gallery is replaced by the Smirke Building, designed by Sir Robert Smirke.
- 1854 – 1857 – The Reading Room is built. It is designed by Sydney Smirke, younger brother of Robert Smirke.
- 1882 – 1885 – The White Wing is constructed. It is designed by Sir John Taylor.
- 1907 – 1914 – King Edward VII's Galleries are built, designed by Sir John Burnet.
- 1931 – 1939 – A gallery is built to house the Elgin Marbles.
- 1962 – The gallery housing the Elgin Marbles opens.
- 1975 – 1978 – The New Wing is built. It is designed by Sir Colin Saint John Wilson.
- 1980 – The New Wing opens.
- 1998 – 2000 – The Queen Elizabeth II Great Court is built. It is designed by Lord Norman Foster.
- 7 December 2000 – The Great Court officially opens.

HADRIAN'S WALL

This was the Roman Empire's version of the Great Wall of China. It worked well, and was used for 288 years. When it was built, Britain was an outer province of Rome and vulnerable to attack because of its distance from the heart of power and might. Much like the Chinese, Rome sought to keep "barbarians" from the north at bay.

The wall was designed to run 99-miles along the British coast to Bowness-on-Solway, and east to Wallsend-on-Tyne. The same way towns today spring up along freeways, settlements mushroomed along the route of the wall as entrepreneurs sought to take care of the needs of the Roman soldiers manning the ramparts. Not all of it was built.

Reflecting the Roman leanings toward regimen and uniformity the wall was built in a very methodical pattern. The wall was at least eight-feet wide, at least 12 feet high, and lined with a culvert. There were fortifications every mile, and two guard towers evenly spaced between. All of these measures are in Roman feet, not the feet we know today.

- 1987 the wall became one of UNESCO's World Heritage sites.

TOWER OF LONDON

A lot less than most people imagine. While The Tower is one of the most important buildings in the history of England, it is not much taller than a four-storey house. But the real treasures are inside, where the Crown Jewels are kept, including The Star of Africa, which at 530 carats is the largest diamond in the world.

The jewels are the highlight of the visit, and to keep the throngs of people moving along, a people mover has been installed. The Tower has a long and bloody history, illustrated in detail by the Royal Armory, which holds 40,000 artifacts from armor to iron maidens. This is where Henry VI was killed in 1471, where two of Henry VIII's wives were executed (Anne Boleyn and Catherine Howard) and where Lady Jane Grey and Robert Devereux, the Earl of Sussex, met similar fates. The Tower of London has been guarded by a detail of Beefeaters since 1485.

- The Tower of London is considered one of the most haunted places in Britain.
- The ghost of Thomas A. Becket first appeared during construction of the Traitor's Gate in the 13-th century. A priest saw him striking the gate with a crucifix, causing it to collapse.
- It is said that the headless ghost of Anne Boleyn walks the corridors of the White Tower.
- The ghost of Anne Boleyn has also been seen moving from the Queen's House to the Chapel of Saint Peter ad Vincula. Once at the chapel, she reportedly moves down the aisle to her grave under the altar.
- It is said that the ghost of Catherine Howard screams for help in the corridor in front of the room where she was kept before being executed.
- Ghosts have been seen reenacting the death of the Countess of Salisbury. The spirits relive the time when she refused to put her head on the chopping block like a common traitor and was chased around the tower grounds by the executioner chopping bits out of her with his axe. Specifically, she was hewn to death.
- The ghosts of 12-year-old King Edward V and his 9-year-old brother Richard Duke of York have also been seen in the Bloody Tower wearing white gowns.
- The ghost of 16-year-old Lady Jane Grey has been seen on the battlements on the anniversary of her husband's beheading.
- Phantom funeral carriages have been seen on the grounds.
- A phantom squad of soldiers has been seen marching on the grounds.

- The ghost of a woman in mourning garments (possibly a "gray lady") has been seen. There is a black void where her face should be.
- Unknown foggy apparitions have been seen on the battlements.
- It is unknown what haunts the Salt Tower, but it must be pretty bad since some say dogs refuse to enter.
- The ghost of Sir Walter Raleigh haunts the Queen's House near where he was imprisoned.
- There are always ravens at the Tower. They are cared for by the Beefeaters. It is believed that if the ravens ever leave the tower, England will perish.

TOWER BRIDGE

Tourists usually think this is the "London Bridge" from the children's song, but it isn't. That is further upriver, and a lot less interesting looking. This is the Tower Bridge, so called because it is adjacent to the Tower of London.

It is actually a drawbridge, but the decks are rarely raised these days, as most heavy shipping happens downstream. It is interesting to keep an eye on the river when you visit. The Thames is given to wild swings in tide. Dinghies that are tied to buoys and floating 20 feet from shore may be resting on the muddy bottom of the river by the time you're done with the tour.

BLACKPOOL TOWER

Blackpool is widely considered the epitome of the classical seaside resort. In this establishment we see glimpses of Coney Island in New York, Navy Pier in Chicago, Atlantic City in New Jersey, and the pre-1900 Galveston Island in Texas.

The most visible part of the Blackpool experience is the tower. It was conceived as an answer to the Eiffel Tower in Paris and in its sheltering arms a number of amusement attractions sprang up so it could continue to make money in bad weather.

The tower was intended to copy Paris' famous landmark, and was even supposed to originally be called "Blackpool Eiffel Tower." Though it's not as tall as the Eiffel Tower, it appears more sturdy. That's because it is subject to the battering of storms that roll in off the sea.

There is a time capsule in the cornerstone of the Blackpool Tower. It contains a record with the voice of the man who laid the cornerstone along with newspapers and other period items. There used to be a very small zoo, which included a lion. There is still a ballroom in the tower.

The tower was built on the same site as an aquarium. The tanks were built into the tower's design. Like the CN Tower in Toronto, the Blackpool Tower has a "walk of faith." Parts of the floor are made from clear material that you can walk over while looking down.

MILLENNIUM DOME

One of the most admired and hated buildings of the late 20-th century, the Millennium Dome's lofty goals were also its downfall. It is one of 200 projects in the United Kingdom

created to mark the turn of the millennium. Altogether it was a £2,000,000,000.00 investment.

The dome featured such exhibits as a walk-through body and a huge model of a beating heart. Critics called it "crass" and overly politically correct. The dome is a showcase of the best Britain has to offer the world. Unfortunately, not enough of the world is interested in what Britain has to offer to make the venture profitable.

As of February, 2001 it was expected to attract 5,000,000 visitors a year; less than half the number needed to make the venture profitable, but still more than any other British tourist attraction. Initial admission was pegged at £20, a price some considered prohibitive for ordinary people, but one that the Millennium Commission decided was necessary to build the structure without taxpayer money.

Even before the Millennium Dome opened the usual politicians chided the project as a boondoggle. But the chorus of naysayers was joined by a list of rather rational people who also smelled doom for the dome. It didn't long to prove them right.

12 to 17 million people were expected each year. The reality was far different. The dome fell hundreds of millions of pounds short of its goal in short order. Dome defenders say it brought a measure of prosperity to a bleak swath of land along the Thames. To be sure, the project created 2,000 construction jobs plus thousands more to keep the affair running.

It also cleaned up and put to use 300 acres of contaminated real estate and brought billions of tourist dollars south of the city. But its long-term impact has yet to be felt, and its merits still debatable. In time we shall see if the Millennium Dome finally becomes a proud addition to the London cityscape, or a faded memory of boondoggles past.

- The fabric of the dome is designed to last 25 years.
- October 1998 – The New Millennium Experience Company raises a public furor when it tries to trademark the London skyline. They withdraw their application.
- 31 December 1999 – The Millennium Dome opens to the public.
- 4 March 2000 – Damien Nash becomes the 1,000,000th dome visitor.
- May 2000 – The Dome gets a £29,000,000.00 loan from the National Lottery to continue running.
- July 2000 – An analysis by Price Waterhouse Coopers concludes the Dome is financially insolvent.
- September 2000 – The Dome gets a £49,000,000.00 loan from the National Lottery to continue running.
- November 2000 – A government report slams the dome's operators as too inexperienced to run such a massive operation, and places the blame on NMEC's inability to control expenses.
- December 31, 2000 – A crowd of 37,000 people attend the dome's closing celebration, which is followed by a massive 12-hour rave on the grounds of the complex.
- 2001 – The British government tries to sell the dome. One consortium wanted to turn it into a business park.
- 18 December 2001 – The dome lives! Virgin Radio reports that England's Millennium Dome will be turned into an entertainment and sports venue. The British government came to an agreement with a multinational group of investors to lease the structure until the year 3000.
- 26 May 2002 – BBC Radio Five is reporting that the British government is considering a plan to give the Millennium Dome away to a private company for free. In return, the government would get a share of the operating profits.

- 26 May 2002 – Ten minutes later – News Direct 97.3 reports the BBC Radio Five report is wrong.

GREYFRIARS TOWER

There's not much left of the place the Greyfriars once called home. Most of it was torn down long ago. But the tower remains, and is a symbol of pride for the people of King's Lynn and the surrounding area. The tower was part of a large friary -- one of several in the area.

At one time King's Lynn was the third largest port in the country, making it an important center of trade and transportation, and there were four different orders of monks based here. Today only the Greyfriars' tower stands tall – not because they were more venerated than the others, but because of its location – it helps mariners find their way. The other 60 or so friaries were not so lucky. Just three remain in all of England.

- The Greyfriars got their name because of the color of their clothes.
- 1230 – The Greyfriars establish a friary at what was then known as Bishop's Lynn.
- 1538 – The friary is torn down by Henry VIII's soldiers.
- 1911 – The gardens surrounding the tower are laid out for the coronation of King George V.
- 2003 – The Greyfriars Tower is entered in a television contest where historic landmarks compete for millions of pounds in restoration money. It does not win.

ANCIENT SCAFFOLD

This piece of anti-architecture is important because it no longer exists. It is a plaque in a walkway near Tower Bridge. The inscription reads, "Site of ancient scaffold. Here the Earl of Kilmarnock and Lord Balmerino suffered 18th August 1746." This is the site of the last public hanging in London. It was the last because at the time hangings had become spectator sports, and bleachers had to be erected to accommodate the crowds. When the moment for this double execution came, the audience leaned forward en masse, causing the risers to collapse, killing a number of people in the audience.

CANADA SQUARE

While ordinary in appearance, this was the tallest office building in Europe at the time this photo was taken. The building's signature is a 130-foot stainless steel pyramid cap weighing 11 tons. Canada Square managed to rise in spite of overwhelming odds.

The Canadian company that commissioned it went bankrupt, bomb threats closed the observation deck, and a real IRA bomb attack shattered the lower floors. It exists as a symbol of the area's rebirth.

In 1981 the region consisted of block after block of abandoned industrial sites. The government set up the London Dockland Development Corporation to revitalize the area. It offered incentives for new construction and reuse of urban land. The Docklands got its own automated rail system (Docklands Light Railway), and businesses began moving back in.

Some of them high-profile newspapers like the Daily Telegraph. One Canada Square is now the jewel in the Corporation's crown. It was sold in 1995 to new owners (A Canadian-Saudi

joint venture) who have kept the building alive, and continued breathing life into the local economy. Once just an industrial wasteland, the Canary Wharf and Isle of Dogs Docklands are becoming fashionable once again.

CENTER STREET BRIDGE

The most important natural feature in Calgary is the Bow River. That makes any bridge that crosses it the most important man-made feature. The original Centre Street Bridge was built in 1906 by A.J. McArther. He needed the bridge in order to sell the land he owned on the other side, which eventually became known as Crescent Heights.

Six years later in 1912 the city bought the bridge for CAN\$1,300.00 and gave it some much-needed repairs. These could only be enjoyed for a short time because the Bow River flooded in 1915 wiping out the bridge. Two city officials and a pedestrian were on the Centre Street Bridge when it collapsed. Only the pedestrian was killed.

The bridge you see today is the replacement that opened in 1916. Its most striking features are the four stone lions that guard its approaches. These lions were created by James Thompson, a city worker who was formerly a Scottish mason. They were designed to match the lions at the base of the Admiral Nelson monument at Trafalgar Square in London. But instead of being made of brass like their counterparts in England, the ones in Calgary are concrete.

They rest on top of concrete kiosks each containing an image of the English rose, an Irish shamrock, the Scottish thistle, and of course the Canadian maple leaf. It is partly because of these beloved sentries that the bridge was named a "Historic Resource" in 1993.

AYA SOFYA CAMI'I

Being built in the turbulent crossroad that is Istanbul (then Constantinople), the Aya Sofya has seen good and bad times. As noted in the chronology, there have been three basilicas built on this site, all bearing the Haghia Sophia name. Two were destroyed by fire. The one that stands now is thanks to Emperor Justin who ordered all of the provinces of his empire to send their best artisans and artifacts to Constantinople to build this great church.

It is because of that call that the building contains artifacts from as far away as Greece and Egypt as integral parts of its design. Though it has been thus far safe from fire, the Haghia Sophia has been battered by earthquakes. The most serious damage happened just two weeks after it was dedicated.

The eastern part of the great dome collapsed, and much of the rest of that side of the building was heavily damaged. By then, the principal architects had both died, so it was left to Isidorus the Younger, nephew of Isidorus of Miletus, to reconstruct what his uncle had built. Even though the building was extensively reinforced, some refused to enter after the quake, fearing for their lives.

Others believed that since the entire church didn't collapse, it was proof that God was watching over them. The Haghia Sophia served as a Greek Orthodox cathedral until 1204 when it became Roman Catholic under the Venetian empire. In 1261, it was once again returned to the control of the Greek Orthodox Church, but not for long. In 1453, when the Ottoman Empire

conquered Constantinople and renamed it Istanbul, Süleyman the Magnificent turned the basilica into a mosque, added minarets, and renamed it the Aya Sofya Cami'i.

Even though it wasn't one of their own creations, we can thank the Ottoman sultans for keeping the structure in good repair. It is said they considered it one of the most beautiful mosques in their empire, and felt it was a source of great pride. That's not to say that there weren't some modifications.

Part of the conversion from Christianity to Islam involved plastering over or painting away many of the Byzantine Christian icons, symbols, and other decorations. These were rediscovered during a renovation in the 1840-s. The architects restored the symbols to their original splendor, then covered them up for safekeeping.

They were discovered once again in the 20th century, and in 1964 made their first public appearance in more than five centuries. For almost five hundred years people worshiped under its domes, vaults, and arches. Then in 1932 it was closed and by 1934 had become a museum. Today visitors are most taken by its dome.

At one hundred feet across it is an incredible sight. But this spectacle is made even more grand by the presence of 40 huge windows around it. The effect isn't so much of a dome, but a cupola of incredible proportions. So incredible are the proportions of this church that it was the largest in the world for nearly one thousand years until Saint Peter's Basilica was built.

- 360 – Original building completed.
- 404 – Destroyed by fire during riots.
- 415 – Second building, known as the Theodosian Church, completed.
- 532 – Destroyed during the Nika Revolt.
- 537 – Third building erected. Also known as the Justinian Church.
- The mosque has the largest dome of the ancient world. It is 100 feet in diameter and 180 feet high.
- More than four acres of gold leaf line the inside of the building.
- The building's main chamber is 250 feet long and 230 feet wide.
- The buttresses surrounding the building were added after the 537-th earthquake.
- The remains of the Theodosian Church are visible near the museum entrance. They were discovered by a German archeologist in 1935. According to legend, Saint Gregory the Miracle Worker's powers to heal live on in one of the building's pillars. It had to be encased in brass to protect it from the faithful, who have made a hole in the metal and worn a hole into the stone.

ASTRONOMICAL CLOCK

Rarely is a timepiece worthy of such attention. But as in the case of Big Ben, the Astronomical Clock is an amazing piece of machinery that has become part of the collective soul of the community. Sound like an overstatement? Consider the fact that when it was rebuilt in 1490 by a man named Hanuš, the city council ordered him blinded so he could never create a better timepiece.

It sounds like an urban legend, but life was rough in the 15-th century, especially for people skilled with their hands and their minds. The mentality of the age is reflected in the fact that the sun on the clock's face rotates around the Earth, and not the other way around.

The numbers on the clock face are both Roman and Medieval Arabic, which is purer and related to trigonometry much more closely than the rounded figures we used today.

The day also begins with sunset instead of midnight, consistent with Old Bohemian standards. Since the clock is outside, unless there's an eclipse you already have a pretty good idea if it's day or night, but the clock still uses colors to symbolize the passage of day and night.

The clock also shows the sun and moon moving through the different constellations. All of this is amazing in a 600-year-old timepiece, but the real show is still to come. At the top of each hour, the clock puts on a show. On the right, a skeleton representing death turns over an hour-glass held in one hand. With the other hand he pulls a rope and the doors over the main clock face open revealing a procession of mechanical apostles led by Saint Paul. A rooster crows and the figure of a Turk (representing lust), a figure representing Vanity, and a moneylender (representing greed) animate. It's been a crowd pleaser since the 15th century.

HYPOGEUM

This is one of the earliest examples of architecture, and man reshaping the environment to suit his needs. The hypogeum is a series of underground caves and chambers with vaulted ceilings. They are one of several labyrinths carved by members of a "cult of the dead," and the remains of over 7,000 people have been found inside one of the burial chambers.

The Bronze Age (~4000 – ~3000 BC) catacombs were discovered by modern man between 1899 and 1902 when workers constructing homes surrounding a British naval base broke through one of the chambers. They were filled with water, dirt, or both and had to be cleaned out. Today the hypogeum is in remarkable condition, and an air conditioning system has recently been installed to help preserve the site. Also a drainage system has been added to keep water from seeping into the walls causing further damage.

- 1913 – The hypogeum is first opened to the public.
- 1992 – The hypogeum is closed to the public.
- 2000 – The hypogeum is reopened to the public after extensive conservation and preservation work.

KRUJË CITADEL

This is one of the oldest structures in Albania, built between 500 and 600 after the city of Albanopolis was abandoned. It is also the site of one of the greatest war victories in Eastern Europe. It was here that Gjergj Kastriot went from warrior to military legend. He was better known as "Skënder-beg," a name given to him by his teachers at the military academy he attended.

In 1450 Sultan Murad II of the Ottoman Empire began a campaign to defeat the Albanian army, unified under Skënderbeg. 100,000 Ottoman soldiers marched on Krujë citadel, defended by just 17,500 men. Those men were able to hold out through the summer partly by might, and partly by superior intelligence. One night Skënderbeg let a flock of goats out of the citadel through a secret passage. The goats had candles on their horns. The Turks were fooled from a distance into thinking this was the Albanian army fleeing.

They went to attack, while the real army snuck up behind them and pounded. By fall, the Ottoman army decided it didn't want to spend the winter in the Albanian highlands, and re-

treated having lost 20,000 in battle. The victory was momentous and Skënderbeg managed to defend the castle from the Turks for another 25 years until his death in 1468.

He was succeeded by Lek Dugagjin who successfully defended the citadel until 16 June 1478. The force of Sultan Mehmet finally overwhelmed the Albanians, and the area fell to the Turkey. The Ottoman Empire fortified the castle, its walls, and its 11 towers to fend off revolt. But they could not fend off the forces of nature.

139 years later in 1617 a massive earthquake shook the area. The castle was badly damaged. It was never to rise again. By 1832 power in the region had shifted from military might to diplomatic prowess. The castles of the region were abandoned and power was concentrated in the central bureaucracy, and the castles left in ruins so they could not be used in an uprising.

In 1982 a museum was built inside the citadel. Its name, Museum of Gjergj Kastriot Skënderbeg, pays homage to the castle's great defender. Inside there are exhibits chronicling the many battles the castle survived, and a 182-square-meter mural depicting the strategies used by the warrior. There are also replicas of Skënderbeg's armor. The originals are in a museum in Vienna, Austria.

MACHU PICCU

This is one of the sites where you can get a real glimpse of pre-Columbian South America. It was hidden from Western eyes until 1911 when Professor Hiram Bingham of Yale University was taken there by a local resident. He was seeking the fabled "lost city of the Incas" and for many years it was believed that Machu Piccu is that city.

Later archaeological evidence has proved otherwise. In reality, Machu Piccu is one of a series of fortress towns along a footpath. It may also have been home to a palace. Why this city in the sky was abandoned is uncertain. One theory holds that the water supply was inadequate for such a large population. Visiting requires a certain amount of physical strength, as the location is 7,710 feet above sea level.

The many terraces are connected by pathways, and sometimes by foot- and handholds carved into the rock like ladders. Much of the trip can be made by railway, but the last 1,640 vertical feet must be walked over the course of several days up steps, through tunnels, and across bridges.

- 1983 – Named a UNESCO World Heritage site.
- August 1997 – A forest fire damages Machu Piccu's famed Inca Bridge.
- August 1999 – Preservationists are outraged by a plan to build a cable car lift to bring tourists to Machu Piccu.
- 2000 – Fears of erosion caused the number of visitors to be limited.
- September 2000 – A huge sundial known as the "Hitching Post of the Sun" is damaged during filming of a beer commercial. The crane, which fell on the sun clock, was specifically prohibited by the National Institute of Culture.
- March 2001 – Japanese geologists warn that Machu Piccu could be destroyed by a landslide. It is moving about six inches per year.
- 14 October 2002 – Archaeologists have found a new Incan tomb at Machu Picchu. It contains the graves of three people and a number of objects they were buried with. The tomb is considered the best-preserved one of its kind.
- 18 March 2003 – The New York Times reports that Machu Piccu may not be the lost city of the Incas, after all. The article details information from a new traveling exhibit on Machu

Piccu that shows the massive complex in the clouds was nothing more than a retreat for the emperor – the Incan equivalent of Schloß Schönbrunn in Vienna. The determination was made by examining skeletal remains, Spanish legal documents, and artifacts shipped by the original explorers to Yale University, and subsequently put into storage without much interest.

PETRONAS TOWERS

It's not often that a single building becomes a status symbol for an entire nation. The Eiffel Tower in France; The Empire State Building in the United States; and now the Petronas Towers in Malaysia.

The twin tower rose on the Pacific Rim at a time when Asia's economy was booming. The Malaysian national oil company (Peroliam Nasional) needed new quarters to house its expanding operation. What they ended up doing is creating an icon. The towers have been featured in films, television, books, and even video games and are recognized for their distinctive style.

A pair of slender shafts rises above the city. They are slick in appearance because of the glass curtain walls, but still have a pleasant tactile appearance because of the scalloping of the shafts to create high-rent views. Joining the two towers is a sky bridge at the 41st and 42nd floors. It stretches 192 feet across the gap to link the two buildings from 558 feet above ground.

It is, unfortunately, supported by a truss structure, rather than something more evocative of the rest of the building. The Petronas Towers footprint is an eight-sided star with rounded nodules – a common symbol in Asian and Islamic religions. And it's a fitting redemption for a piece of land that was once a racetrack.

In a building of this scale, moving people around is a major challenge. The designers came up with an interesting way of addressing the problem. At the main entrances, people who are going to even-numbered floors can simply board an elevator. People going to odd-numbered floors must ride an escalator one floor up to board the second level of the very same elevators. This way a single elevator car can serve two floors simultaneously.

- At the time of its completion, this was considered by some to be the tallest building in the world. The debate over that status was made moot in 2003 when it was surpassed by Taipei 101.
- The Petronas Towers have 32,000 windows.
- 12 September 2001 – The Petronas Towers are evacuated because of a bomb threat a day after the terrorist attacks on the World Trade Center in New York.

SHAHYAD TOWER

Though the history of Tehran stretches back more than 2,300 years, the Shahyad Tower has managed to become the symbol of Iran's capitol city in just a few decades. The arch rises from Azadi Square mirroring the Elburz (Alborz) mountain range just north of the city. Though not as wondrous as the snowy peaks of Mount Damavand, it is a 148-foot tall masterpiece of cut marble that marks the entrance to this historic city.

TAJ MAHAL

When it comes to architectural magnificence, the Taj Mahal has yet to be surpassed. No skyscraper, bridge, cathedral, or other work of man has ever equaled the beauty and elegance of this famed monument.

The Taj Mahal is a mausoleum built at the request of Emperor Shah Jahan (d.1666; formerly Prince Khurram, formerly Shahab-ud-din) to hold the body of his wife Mumtaz Mahal (Arjumand Banu Begam before she was married.) The building is constructed entirely of white marble, and was once set far away from the main city, though suburban encroachment is becoming more noticeable.

It is this combination of factors that helps give the Taj Mahal some of its mystique. There are no nearby structures to interfere with the play of light. At dawn it turns pink, infusing itself with the colors of the rising sun. At sunset its shadows dance in a bath of blood red fire. At night, especially during a full moon, the building seems to glow from some inner blue flame. And when there's a low fog from the Jamuna (Yamuna) River, the entire affair can appear as a mirage floating on a cloud.

In reality, the building sits on a base of marble 186 feet by 186 feet. The corners of this square are cut off, forming an unequal octagon. Its dome is 213 feet high, and is surrounded by four smaller domes. The minarets are 162 and half feet tall. The Taj Mahal is amazing in its design. The most recognizable geometric element is the use of symmetry; and replicating forms are abundant.

Seen from the front, the central portico is flanked by half-sized reproductions of itself. These are then flanked by another set of angled porticos. Placing the smaller elements on the outside helps give the illusion that the building is much larger than it actually is, and that the sides are trailing far off into the distance.

The technique is called "forced perspective" and has been used in a number of buildings, including the Cinderella Castle at Walt Disney World in Florida, USA. Inside, the entire affair is decorated with designs made from precious gems. Some are flower patterns, others are Islamic script.

The tomb itself is protected by a marble screen more than six feet tall. This was originally made of gold, but replaced with marble to dissuade vandals. In keeping with Islamic tradition, the bodies are lying north to south with their faces turned toward Mecca. As amazing as the Taj Mahal is, it is only one part of a much larger complex.

There is also a mosque, a guesthouse, two formal gardens flanking a reflecting pool, and other buildings behind an immense detached gateway. The gardens illustrate a detailed knowledge of hydrology. Throughout the gardens is a system of gravity-powered fountains. Ordinarily, running a pipe with a number of holes in it would result in each subsequent fountain having a smaller and smaller plume.

The designers got around this limitation by building bulbs into the pipes under the fountains. These bulbs fill with water before the fountain can spring, and help provide uniform water pressure along their entire length. Nine hundred feet from the tomb is the main gateway. It is 100 feet high, 150 feet wide, and made of red sandstone. Its main feature is the massive central arch, but also worth noting are the flanking octagonal towers and the marble copula at the top of the gate.

The door is made from eight different metals and studded with a number of knobs. Like the interior of the mausoleum, the gateway features white marble inlaid with precious gems. There are inscriptions from the Koran in black marble, which form an optical illusion.

They get larger as they get higher, giving the impression that they are a constant size. This is the opposite of the forced perspective trick noted above. The Taj Mahal's mosque is again made of red sandstone. The floor has been textured so that it appears to be velvet red in the shade. Black marble has been used to designate the locations of 539 prayer carpets. The building's most interesting feature may be a piece of white marble polished so it reflects the image of the Taj Mahal. The mosque has a twin on the other side of the Taj Mahal. It is known as the Rest House, the Guest House, the Naqqar Khana, or sometimes the Jawab ("Answer"). Unlike the mosque, it faces away from Mecca, so it is never used for prayers.

At one time it was believed the Taj Mahal was designed by French silversmith Austin de Bordeaux, or Geronimo Veroneo of Italy. Both of these theories were later proven wrong.

The Taj Mahal contains marble from Rajasthan, jade and crystal from central Asia, turquoise from Tibet, amber from Burma, lapis lazuli from Afghanistan, chrysolite from Egypt, and shells, coral, and mother-of-pearl from the Indian Ocean.

June 2001 – It's renovation time at the Taj Mahal. The Taj Group of Hotels and the Archaeological Survey of India will fund updated landscaping and tourist facilities, architectural repairs, and the construction of a freeway from Delhi to Agra. The project should take 15 months to complete.

4 January 2002 – Security has been beefed up at the Taj Mahal. The government says it has received information that an extremist group plans to blow up the landmark. The group says it's not true, and the government is using terrorism as an excuse to crack down on dissidents.

BANK OF CHINA HONG KONG

A star among stars, the Bank of China building represents its host city in a number of ways. It is unmistakably modern, blending well with the urban metropolis that has sprouted on the South China Sea.

It climbs 1,209 feet into the sky in a dazzling spectacle of blue glass and white framing. Although surrounded by dozens of other skyscrapers, this tower stands out among them all as a landmark in Hong Kong's skyline. The building, however, is uniquely Chinese.

Standing among the glass and steel reeds of its neighbors, this building takes the bamboo forest allegory one step further. It is actually constructed in a shape that resembles the stalks of bamboo pushing skyward with a strong central shaft and flanking columns. The building's structural form also defers to Chinese tradition, hiding portions of the exterior cross braces to create diamonds rather than x-shapes in the sky. The cross is considered a symbol of bad luck in Chinese culture, and this could be detrimental to the building's occupancy rate even in modern, overcrowded Hong Kong.

TEMPLE OF HEAVEN

This amazing complex is a perfect fusion of art and architecture. It was the most impressive imperial temple of the Ming and Qing dynasties in China. The temple is actually made from three separate parts.

The northernmost part is the Hall of Players for an Abundant Harvest (Qiuian Dian). This building is over 110 feet tall and 100 feet in diameter. Originally, its three roofs were blue, yel-

low, and green. But in 1751 renovation, they were all made blue -- to symbolize the color of the sky, and make a political statement about the unification of the country.

The second section is known as the Huangquiongyu – a small circular building that used to house the Tablets of Heaven and the bodies of deceased emperors. The final part is the Altar of Heaven. There are also a number of smaller service buildings including the Zhai Gong, which was used by the emperor before a sacrifice. Those sacrificial animals lived within the temple complex, which is surrounded by a four-mile-long wall.

The temple exists to pray to the Heaven (Air), that considered the dominant one of the four elements (Earth, air, fire, water) and it decided whether fortune would smile upon you or not. Originally, the temple was nothing more than a square mound and a circular mound built on orders from Emperor Zhu Yuan-zhong and used for sacrifices to earth and heaven.

These functions were consolidated into the Great Sacrifice Hall in 1377. The ancient Chinese are well known for their mathematical prowess, which they expressed through their architecture. The number nine (9) has special significance because it is the highest single-digit number, and was used to represent both the sky and the Emperor. The uppermost terrace of the Temple of Heaven is 90 zhang in diameter, which is 3 (heaven) x 30. The second terrace is 150 zhang, representing 5 (man) x 30. And the bottom terrace is 210 zhang, or 7 (earth) x 30. The number of flagstones in the terraces is all multiples of nine, as are the balustrades surrounding the terraces.

TEMPLE OF LA SAGRADA FAMILIA

Barcelona's favorite son left his mark in a number of places around the city, but this magnificent soaring landmark is his masterpiece. With it, Gaudí asks God to forgive the sins of and have mercy on the people of the region. Whether it worked, only Gaudí knows. He died in 1926, before it was completed. But the work continues with a non-profit organization taking up his burden and filling in the shell that was left when Gaudi, himself, left the Earth.

The actual history of the cathedral precedes Gaudi's interest. The concept of a new cathedral in Barcelona arose in the 1850s. By 1866, the Associació Espiritual de Devots de Sant Josep was founded to make the dream a reality. A few years later, the land was bought and work began under the direction of the cathedral's first architect, Francesc del Villar.

He didn't stay on long. Del Villar had trouble with local city officials and resigned his post, letting Gaudí take over. He had a bigger, better plan for the cathedral and convinced the organizers of the project to let him make substantial changes to the original design.

The cathedral is terribly complicated, filled with more symbolism than can be documented here. The outside is divided into a number of façades, each representing a portion of the life of Jesus Christ. The outside, as a whole, is meant to represent the Catholic Church and is festooned with statues of the Apostles, the saints, and the Virgin Mary. Each of the 12 bell towers represents an apostle. Jesus will be represented by a 170-meter dome topped with a glittering cross, illuminated during the day by sunlight reflecting off the ever-Gaudíesque mosaics, and at night by spotlights. Inside represents Jerusalem, and features some unique arch work.

Gaudí took the common structural element of the arch, necessary in all such cathedrals, and removed extraneous materials, leaving only the load-bearing arc. The effect is deliberate: A forest of stone trees rises to spread their branches and protect the faithful inside. Gaudí stopped work on his new vision in 1926 when he was killed by a streetcar. By then, political turmoil was in the wind, and the face of Spain was changing.

The Spanish Civil War started, and by 1936 Gaudí's workshop was in flames. Rioters destroyed the models he used to build what was there so far. The project was stalled. It was next up to Francesc Quintana to get the cathedral moving again. He rebuilt the burned-out crypt and reorganized construction. With Puig Boada and Lluís Bonet Garí at his side, the three moved full steam ahead in the 1950-s. By the mid-1970-s they managed to complete the Passion façade and its bell towers. This was, perhaps, the easiest of the tasks. Since it portrays the suffering and death of Jesus, it contains the least amount of ornamentation in order to convey a sense of grief.

- 1866 – Associació Espiritual de Devots de Sant Josep is founded with the task of building a new cathedral for Barcelona.
- 1881 – The land is acquired.
- 1882 – Bishop Urquinaona lays the foundation stone.
- 1926 – Gaudí is hit by a streetcar and dies.
- 1936 – Gaudí's workshop burns.
- 1940 – Francesc Quintana takes over as architect.

TOKYO METROPOLITAN GOVERNMENT OFFICE COMPLEX

Looking more like the home of a global corporate giant than the local city council, this office complex reflects the modern Asian architectural sensibility. In some ways it even mirrors the famed Petronas Towers in Malaysia.

In addition to its twin 48-storey spires, the Tokyo Government building is also the tallest in its city, as the Petronas Towers are the tallest in Malaysia. The building's towering height is the result of Japan's late 20-th century economic boom when land values soared and it seemed like the money would never stop flowing.

Tokyo wanted to demonstrate a measure of autonomy, and building its own grand city hall away from the Japanese government offices was the first step. The new complex pays homage to its heritage and its people through its granite façade which is covered in a geometric pattern the architect says was inspired by traditional Japanese homes.

Inspiration for the towers is said to come from the churches of Germany, and its great plaza is a distant cousin to the Campo in Siena. It is this plaza that separates the politicians from the workers. The towers house offices for the 13,000 workers in the city's various departments. The city council meets in a separate building on the other side of the public square enclosed with a portico.

TOKYO TOWER

A modern echo of Japan's ancient Mount Fuji, the Tokyo Tower stands as one of the great cultural and architectural landmarks of Asia. In structure, it resembles the Eiffel Tower of

France, but this one is slightly larger – 1,092 feet compared with 1,056 for the Eiffel Tower. This makes it the tallest freestanding steel structure in the world.

However, it is comparatively light – just about 4,000 tons compared with 7,000 tons for the Eiffel Tower. When it opened, it was illuminated by 696 light bulbs. In 1989 these were replaced by 164 floodlights that change color – orange in autumn, winter, and spring; and white in summer.

While all this may be aesthetically pleasing to the throngs that visit the main observatory at 150 meters, or the special observatory at 250 meters, the tower's main function is as a communications station. It is home to more than a dozen radio and television antennae along with earthquake detectors, traffic cameras, and meteorological equipment. Much like the CN Tower in Toronto and other great towers, there are several unrelated entertainment options at its base. In this case, an aquarium and a wax museum along with the standard fare of restaurants and gift shops.

- 3,700,000 people visit the Tokyo Tower every year (2000 estimate).
- The symbolic 100,000,000th visitor arrived in 1989.
- It takes 28,000 liters of paint to paint the Tokyo Tower.

TOWER OF PISA

Unlike many great buildings of the time, the Tower of Pisa does not serve a practical purpose. Rather, it was constructed as a boastful statement to Pisa's nemesis, Florence. At the time, the two were the modern equivalent of today's "superpowers" and ruled much of the world through their control of the sea. The two were also bitter rivals, fighting for supremacy. In fact, construction of the tower was interrupted because of wars in 1178 with Florence, 1185 with Florence again, and in 1284 with Genoa.

It was during one of these breaks in construction that the tower's infamous tilt was discovered. It was only three storeys tall at the time, but rather than abandon the project, construction continued until the tower reached its full height of 58.36 meters when measured from its foundation, or just 55 meters when measured from the ground.

It was at this early stage, too, that the tower first served its intended purpose – the ringing of bells. Documents have survived that show that a bell was first placed at the top in 1198. When construction continued, it was replaced by seven bells at the top in 1350. There are two theories about why the tower leans.

The most popular reason is because of the unstable soil beneath. It's of 14,700 metric tons of gray San Giuliano limestone is simply too much weight for the ground to hold. The local soil is mostly marshy clay and the tower exerts a force of 497 kPa on it. But some historians don't think the lean was an accident. They believe it is an intentional architectural design that produced the tilt.

However, recent measurements and analysis of the soil have put this school of thought in doubt. Over the centuries there have been a number of attempts to straighten out the tower. One try in 1934, concrete was pumped underneath the tower. Another in 1838 involved excavating the earth and drying out the ground the tower rests on. Recently, a pair of suspenders were attached to lead weights and slung over the tower, which helped a bit.

Architecturally, the building is summed up thusly by its official web site: "The six arcades, the base on which they are placed and the belfry above them subdivide the Tower into eight

segments, known as orders. The interior order is animated by a band of blind arches placed on half columns. Underneath the arches are lozenged rhomboid decorations inlaid with coloured marbles, each containing a rosette in relief at the centre.

The wall facing is interrupted by narrow round-arched lancet windows and, to the west, by the only door framed by an architrave. Above the architrave a falcate arch with a carved archivolt rests upon two capitals in continuation of the piers, forming an aedicule containing a fourteenth-century bust of the Madonna and Child.

At the sides of the portal there are friezes with decorations showing animals and imaginary beasts. These, alongside a singular representation of ships, accompany the epigraph, which commemorates the foundation of the building. The cylindrical belfry which concludes the building, of a smaller diameter than the floors below, bears an external decoration composed of closed and pierced lunettes, which rest alternately on pedestals and columns, whereby under every pedestal (bearing two closed lunettes) there is a door, while the single pierced lunettes supported on columns are lengthened to form windows. The belfry is reached via a narrow spiral stair, and in turn allows access to the summit of the tower by way of a stair cut into the wall."

- Construction began 9 August 1173.
- It is said that Berta of Bernardo was the impetus behind the tower. Legend has it that when she died on 5 January, 1172 in her will she left 60 coins to pay for the first building blocks of the tower.
- There are 293 steps to the sixth arcade.
- 1998 – The tower's lean is measured at 13 feet – considered a dangerous pitch. Excavation work begins to correct some of the tilt.
- May 2001 – Engineers have begun removing two pairs of steel suspenders intended to take some of the lean out of the Leaning Tower of Pisa. The cables were attached in 1998 just in case something bad happened during excavation work underneath the tower. The digging is intended to adjust the tilt of the Leaning Tower, which had to be closed to the public because it was becoming dangerous.
- January 2001 – The Tower now leans 11 feet, eight inches.
- June 2001 – Engineers have finished tinkering with the Leaning Tower of Pisa. After years of work they managed to straighten it enough to make it safe for tourists.
- 15 December 2001 – A month late, the tower re-opens to tourists.

PIAZZA DEL CAMPIDGOLIO

Everyone wants their place to look nice when company comes over. When you're the Pope, and your place is Rome, you don't hire a maid to spruce things up – you get Michelangelo.

In 1536 Emperor Charles V announced he was going to visit the city. Pope Paul III Farnese needed to make a good impression, so he hired the famed artist to give the square a facelift. Michelangelo designed a geometric pattern to be made from paving stones, and came up with the new facades for the surrounding buildings.

Look for the statue of a man on a horse. It survived because people thought it was the Christian Emperor Constantine. It is actually the Pagan Marcus Aurelius. Michelangelo was so taken by the quality of the sculpting that he allowed it to remain in the renovated

plaza. The one in the Piazza del Campidoglio is actually a copy. The original is safe and sound in the Capitol Museum. If you see it turning gold, start praying. Legend has it that the statue's gold will return at the end of the world.

EIFFEL TOWER

Undoubtedly, one of the great monuments of the world, the Eiffel Tower escaped demolition shortly after it opened. Built for the 1889 International Exposition – the equivalent of today's World's Fair – the tower was erected to mark the 100th anniversary of the French Revolution and straddled the main entrance to the fair.

While the Eiffel Tower has welcomed 32,250,297 people to L'exposition de Paris, Parisians did not welcome the tower at first. This icon sparked protests, and much grumbling among the people of the time who felt it was dangerous, ugly, and did not reflect their city's culture.

In an attempt to appease the opponents, the space between the tower's four legs is filled in by ornate arches. In spite of their appearance, these massive spans serve no practical function. They are strictly ornamental and do not help support the structure, which was the first object built to withstand the forces of the wind as well as gravity.

Only now, more than one hundred years later, can we see the tower in context. It has aged gracefully and no longer stands in stark contrast to the ornate architecture that has survived in modern Paris. Once the exposition was over, plans were made to dismantle the Eiffel Tower. The monument that brought howls of displeasure because it represented that which was modern, new, and very un-Parisian, was actually saved by technological advances.

Engineers realized that the structure would make a perfect broadcasting tower. Even today, a television mast stands at the top of the Eiffel Tower, bringing its overall height to 1,056 feet. The potential destruction of the tower became the basis for one of the greatest con jobs in history.

Several companies were fleeced for millions of dollars by a man who convinced them he was working for the French government and took bribes in order to sway the nonexistent demolition contract their way. The tower gets its name from Gustave Eiffel, the man who designed the monument, and also did the girder work for the Statue of Liberty now in New York harbor.

Looking at its open frame, it comes as no surprise that Eiffel was a bridge engineer when he entered the competition along with 100 other people to design this lasting monument to French culture. It was his knowledge of trusses and spans that allowed the tower to reach a maximum height with minimal construction. In fact, it took just two years for it to reach its pre-television height of 984 feet.

In spite of this height, the Eiffel Tower has just four floors. All are served by specially designed elevators that, instead of running up a vertical track, move along a curve dictated by the tower's sloping form. Reaching the top-level presents visitors with a visual delight – a 40-mile view of Paris and its environs sprawled out in a spider web pattern inconceivable from the ground.

The Tower is made of 12,000 pieces of pre-formed steel put together like a big puzzle. There are 7,000,000 rivets holding the tower together. It was the first tower tall enough that it had to be designed to counter the effects of wind. The passenger elevators run along the same tracks that the construction cranes used during assembly. A piece of iron from the Eiffel Tower is sealed in a time capsule at the top of the John Hancock building in Chicago.

- June 2001 – A 38-year-old Frenchman has parachuted off of the Eiffel Tower because his friends bet him he wouldn't do it. The man went in with a group of tourists and hid until af-

ter closing time. He jumped from the 940-foot level and was arrested as soon as he touched ground.

- 22 July 2003 – A fire breaks out in an equipment room at the top of the tower. 8,000 tourists are evacuated and the monument closed while smoke billows into the Paris sky. The blaze is caused by overheated cables. The smoke is enhanced by a fresh coat of paint on the tower.

CHATEAU CHENONCEAU

The Chateau Chenonceau, near the small village of Chenonceau, in the Indre-et-Loire département of the Loire Valley in France, was built on the site of an old mill on the River Cher. The original castle was torched by Royal troops at the beginning of the 15-th century. An attempt to rebuild it was made by Pierre Marques, but he went bankrupt leaving behind little more than a pile of rubble.

Subsequently, the castle was purchased by Thomas Bohier, Chamberlain for King Charles VIII of France who built an entirely new residence beginning in 1521. Eventually, the chateau was seized by King François I for unpaid debts to the Crown, and after François' death, King Henri II offered the chateau as a gift to his mistress, Diane de Poitiers who became fervently attached to the chateau and its view along the river.

She would have the arched bridge constructed, joining the chateau to its opposite bank. She then oversaw the planting of extensive flower and vegetable gardens along with a variety of fruit trees. Set along the banks of the river, but buttressed from flooding by stone terraces, the exquisite gardens were laid out in four triangles.

After King Henri died, his widow, the strong-willed Catherine de Medici, had Diane de Poitiers removed to the Chateau Chaumont. Queen Catherine made it her own favorite residence, adding a series of gardens as well. As Regent of France, Catherine would spend a fortune on the chateau and on spectacular nighttime parties. In 1560, the first ever fireworks display seen in France took place during the celebrations marking the ascension to the throne of Catherine's son François II.

On Catherine's death the chateau went to her daughter-in-law, Louise de Lorraine, wife of King Henri III. At Chenonceau Louise was told of her husband's assassination and she fell into a state of depression, spending the remainder of her days wandering aimlessly along the chateau's vast corridors dressed in mourning clothes amidst somber black tapestries stitched with skull and crossbones.

Another mistress took over in 1624, when Gabrielle d'Estrée, the favourite of King Henri IV, inhabited the castle. After that, Chenonceau was abandoned to a forlorn darkness for more than a hundred years until a wealthy noble bought it in 1732. George Sand's grandmother, Madame Dupin, saved it from destruction during the French Revolution. She was able to preserve it from being destroyed by the Revolutionary Guard because it was essential to travel and commerce being the only bridge across the river for many miles.

In 1864, Daniel Wilson, a Scotsman who had made a fortune installing gaslights throughout Paris, bought the chateau for his daughter. In the tradition of Catherine de Medici, she would spend a fortune on elaborate parties to such an extent that her finances were depleted and the chateau was seized and sold to an American.

In 1913, the Menier family, famous for their chocolates, bought the chateau and still owns it to this day. During World War I the gallery was used as a hospital ward; during the Second War it was a means of escaping from the Nazi occupied Vichy zone on one side of the River Cher to

the free zone on the opposite bank. An architectural mixture of late Gothic and early Renaissance, Chateau Chenonceau and its gardens are open to the public. Other than the Royal Palace of Versailles, Chenonceau is the most visited chateau in France.

UNITED STATES CAPITOL

Copied dozens of times in smaller state capitols across the country, the U.S. Capitol is the real thing. Inside this 19th century neoclassical complex the Senate and the House of Representatives create the laws that govern the nation. Like many other buildings in Washington, DC – and in capitals around the world – the U.S. Capitol is based on ancient Greek and Roman designs.

The south wing of the building contains the chambers of the House of Representatives. The north wing is home to the Senate. They meet at the Rotunda, under a grand dome, famed for its odd acoustics and less so for its 108 windows. The dome is 180 feet three inches tall and 96 feet wide on the inside. On the outside, it is topped by the Statue of Freedom. Beneath the dome is the National Statuary Hall, which contains some of the nation's most important paintings and sculptures of significant historic figures. Above, the dome is decorated with a fresco called "The Apotheosis of Washington" by Constantino Brumidi.

Before this was an open area for public gathering and formal ceremonies, it once served as the chamber of the House. Before then, it was just a wooden passageway. Construction of the capitol was perpetually behind schedule, and no part of the building was completed before it was occupied by various government offices. By 1813 there was a north wing and a south wing, but not much else except the aforementioned wooden passageway. The architect at the time left town proclaiming the capitol "a most magnificent ruin."

The British thought it needed to be ruined a little more, and tried to burn the place down in 1814. Damage was sufficient that congress had to relocate to a hotel, and then a temporary building now known as the "Old Brick Capitol." This wasn't the first catastrophe to befall the building. In 1898 a gas explosion and fire ripped through the north wing.

The Capitol sits 88 feet above the Potomac River level on 120.2 acres of land formerly part of the state of Maryland. Daniel Carroll of Duddington was paid £25 an acre for the land. Before it was Maryland, the District of Columbia was part of the territory of the Manahoacs and Monacans sub tribes of the Algonquin Indians.

The Capitol building has been through a number of architects for a number of reasons. Politics, money, and the simple passage of time caused many men's great ambitions and dreams to come into vogue then fade as political fortunes changed. The first major expansion of the capitol was planned in 1850 because the addition of new states meant new senators, representatives, and their staffs.

Thomas U. Walter was charged with the project, and he undertook the task of expanding the north and south wings and replacing the original 1824 wood and copper dome with one made of cast iron. This dome had the advantage of being fireproof, but the disadvantage of weighing 8,909,200 pounds. It is supported by 5,214,000 pounds of masonry on top of the Rotunda walls. The wood from the old dome was burned to power steam derricks to lift the new dome. The new dome had to be redesigned when the Statue of Freedom arrived from Rome. Instead of being 16 feet nine inches tall, it was 19 feet six inches tall. The platform it sits on had to be widened and the overall dome height reduced from 300 feet to 287 feet.

Walter's workload increased further in 1851 when a fire gutted the portion of the building housing the Library of Congress. Other difficulties also stood in his way. The building's original sandstone had deteriorated significantly. So for his restoration, he went with marble from Maryland and Massachusetts.

The ghost of a worker killed when he fell from the dome while building the Capitol has been reported floating around the rotunda carrying a tray of tools.

The ghost of a worker sealed alive into the walls of the Capitol has been reported in the Senate chamber.

On one occasion, a guard reported that the statues in the rotunda came to life and moved around the room. The sighting of the spirit of a black cat in the basement has been known to precede national tragedies like assassinations and stock market crashes. The same thing is said of a spirit cat in the basement of the White House. It is unknown if this is the same phantom, or a confusion of the tales. The ghost of a soldier has been seen in the rotunda. He salutes, then vanishes.

- The cornerstone of the Capitol was laid 18 September 1793 by President George Washington.

- Running water was installed in 1832.
- Gaslights were installed in the 1840s.
- Electric lights were installed in the 1880s.
- The first elevator was installed in 1874.
- The ceilings of the House and Senate chambers are stainless steel covered with plaster.
- Before there was a capitol in Washington, DC, congress met in Philadelphia, Pennsylvania; Baltimore, Maryland; Lancaster, Pennsylvania; York, Pennsylvania; Princeton, New Jersey; Annapolis, Maryland; Trenton, New Jersey; and New York.

- During the Civil War, the Capitol building was used as a military barracks, a hospital, and a bakery.

- The capitol is 751 feet high, four inches long and 350 feet wide.
- It is 288 feet tall.
- There are 540 rooms with 658 windows and 850 doorways.
- During renovation in the 1980s more than 30 layers of paint had to be removed.
- Flags have flown over the eastern and western fronts of the building 24 hours a day since World War I.

- The Capitol grounds were designed by Frederick Law Olmsted, who also designed New York's Central Park.

- There are more than one hundred types of plants on the Capitol grounds.
- More than 30 states have sent ceremonial trees to be planted there.
- 7,837 plants were planted in the first major organization of the Capitol grounds. Many were stolen, vandalized, or eaten by roaming cattle.

- 1969 – Guards are posted at the capitol for the first time.
- June 2001 – A 140-year-old mystery has been solved. William D. Mohr has managed to decode the journal of Captain Montgomery C. Meigs, an Army engineer who chronicled the political battles behind the construction and expansion of the U.S. Capitol. Meigs kept his notes in Pitman shorthand, which fell out of favor not long after. Until now modern scholars have been unable to read the notes because there is no one left who can read Pitman shorthand. Mohr's translation will be published by the Government Printing office.

- 11 September 2001 – The Capitol is closed to the public when terrorists attack the Pentagon.
- 15 October 2001 – Tours of the capitol are suspended after an anthrax-laden letter shows up in a Senator's office. Several people are infected.
- 8 December 2001 – Tours of the U.S. Capitol have resumed. They were suspended in September 2001 after the terrorist attacks on New York and the Pentagon, but the House and Senate Galleries remained open. Security has been tightened and only guided tours are permitted. Gone are the days when a long-haired teen with a backpack and a disc camera could wander the halls for hours and marvel at the institution, as the Glass Steel and Stone editor did in his youth. Among the items that are verboten: backpacks along with cans, bottles, and any kind of sprays from mace to Redi-Whip to fix-a-flat.
- 27 December 2001 – In a show of sympathy and solidarity, the United States Congress plans to convene in New York City in 2001. The last congressional held in New York was from 1789 to 1790 when New York was still the capital of the nation. It's the first time congress has left the Capitol in Washington, DC since the British burned it down during the War of 1812.
- 21 March 2003 – Tours of the U.S. Capitol are suspended because of the war in Iraq.
- 25 April 2003 – Tours of the U.S. Capitol resume.

HILTON AMERICAS-HOUSTON

This building is the central pivot in a plan to bring new life to the east side of downtown. Previously, the area was little more than one surface parking lot after another. With the expansion of the convention center, and the construction of the downtown basketball and hockey arena, this new hotel was a must.

It is actually physically linked with the convention center via two skywalks, and is across the street from the arena. It is a rare punctuation in the neighborhood skyline, which previously ended with the Houston Center several blocks away. There has been little debate over the look of this hotel.

While some projects like the Calpine Center and 1500 Louisiana became the center of furious discussion, the Hilton Americas-Houston, with its bland appearance and wicker-basket facade, managed to slide under the aesthetic radar. That may be because it was caught up in a political spider web. The city has needed this hotel for decades. Large conventions wouldn't consider the Bayou City without it, and because of that, millions of convention dollars went elsewhere.

For 30 years, people tried to get it built, but with so much greed swirling around the chambers at City Hall, it seemed like every politician wanted a piece of the pie. In fact, several were caught on videotape during an FBI sting taking a bribe in connection with the hotel. Councilmen Ben Reyes, John Castillo, John Peavy Junior, and Michael Yarbrough, and Port Commissioner Berri Maldonado were indicted. Reyes and Maldonado were convicted.

- The hotel has 1,200 rooms. The hotel has 62 suites.
- The hotel has two Presidential suites.
- The hotel has two ballrooms, and 30 meeting rooms.
- At the time of its opening, the hotel had the largest ballroom in Houston – 40,000 square feet.

- 1998 – City councilman Ben Reyes, and Port Commissioner Betti Maldonado are convicted of bribery and conspiracy for taking bribes from an undercover FBI agent in order to sway their vote on the hotel contract. Reyes gets nine years in a Georgia prison. Maldonado does four-and-a-half at a lockup in Fort Worth.

- 21 December 1999 – The city chooses a location for the hotel.
- 28 July 2001 – Groundbreaking.
- 1 September 2001 – Construction begins.
- 17 February 2003 – Topping out.
- 4 December 2003 – The hotel opens one month late.

JONES HALL

It takes quite a large donation to get your name on a performing arts center. The Jones family should ask for their money back. The exquisite work done inside by the Houston Symphony and others is masked in a bland, featureless shell. It's easy to see what the architect intended: stately columns and graceful curves – a cylinder inside a cube. But what actually happened was something less. Is it a fallout shelter? Is it a loading dock? Is it the underside of a freeway bridge? No. But it is falling apart.

In August of 2001, large chunks of the façade started crashing to the ground. The reason? The hinges that attach the travertine to the building rusted through. These days a safety scaffolding surrounds the building in yet another lifeless collar, while clamps near the roof keep the stonework from killing anyone below. In spite of its outward flaws, the interior is quite well done. A grand curved staircase with balconies is the main feature, guiding patrons to their seats. Inside the theater, 800 hexagons are affixed to the ceiling. They can be moved up and down individually to change the acoustics of the hall. The walls are lined in teak, and the seats with red velvet.

- 2 August 2001 – Three 100 pound chunks of the Jones Hall facade come crashing to the ground. The hinges that attach them to the building had corroded. Scaffolding goes up to protect pedestrians, and the facade is repaired over the next few years. 900 tiles are replaced, 10,000 extra fasteners are added, and the entire building is coated with a waterproofing chemical.

- 6 November 2002 – In the wee hours of the morning a worker plummets to his death from a scaffold in the attic. He was removing asbestos from the building. The accident happened at 2:00am because the workers had to do the removal overnight so the musicians would not be disturbed.

- May 2003 – Another stone panel leaps from the facade and tries to smash itself to bits on the sidewalk below. It is saved by a safety net erected during the renovation to replace 899 of its friends.

LONGHORN PECAN

Nature has a remarkable way of healing the scars inflicted by man if she's just left alone for a while. Witness Buffalo Bayou downtown. It's still too polluted to eat any fish from the waterway, but there are fish there. Many fish. Big fish. As well as alligators, migratory shorebirds, and some of the biggest, scariest turtles in Texas.

All this is possible because man has turned his back on the waterway he damaged and focused his attention elsewhere. The same is true for the Longhorn Pecan. It is the descendant of a great stand of pecan trees between the coastal plain and the Katy Prairie. That same stand of trees produced the "Peaceful Pecan"- a tree famous because in its shade in 1837 the Cherokee Indians and President Sam Houston signed a treaty back when Houston was the capital of Texas. Today the tree stands alone with man having built round, above, and below it.

"Longhorn" isn't a species of pecan tree. The name comes from the Longhorn Café. The tree is firmly lodged in the restaurant's back patio, its roots covered by bricks, surrounded by the Lancaster Hotel and the Calpine Center. It was the construction of that tower that gave the tree its 15 minutes of fame. Previously, it was hemmed in by the Rice Rittenhouse parking garage, so the only people who knew this historic tree was left in downtown were the people at the Longhorn.

When the parking garage came down to make way for the Calpine Center, people outside saw it and started asking questions. They marveled at the way the brave tree seems to defy the smog, the cramped conditions, and all the other insults thrown at it. It wouldn't be accurate to say it thrives, but it at least survives. Most of the foliage is gathered at the top as the tree stretches skyward in search of natural light.

Thanks to Hines, the people who developed the Calpine tower, the tree may finally get a chance to experience some lateral growth. Construction workers carefully placed scaffolding and other protections around the tree during construction, and now that the tower is done, the tree is a little less cramped. The tower also helps with sunlight. The Calpine Center's windows reflect natural light that was previously absorbed by the concrete parking decks. But at 32-stories, the Calpine Center is much taller than the former parking garage, and will keep the precious morning sun to itself. By now the Longhorn Pecan is estimated to be about 60-years-old. That means it will end its natural life cycle in about a decade. If you have the chance, try to see this piece of natural history before it dies.

- November 2001 – Longhorn Pecan placed on the Harris County Tree Registry.

HEALTH SCIENCE CENTER AT HOUSTON SCHOOL OF NURSING

This structure is an attempt by architects and engineers to produce a building that is both useful and low-impact. The philosophy is appropriate in two ways. First, it is a college-owned building, and college students are more likely to be environmentally conscious. And secondly, because it is part of the Texas Medical Center, an entity that exists to preserve life, not to pave it over.

The designers of the building are using a number of interesting techniques to limit its impact. Among them: the use of ash waste from a coal-fired electric power plant instead of cement, the use of recycled aluminum. Instead of cutting down new trees, the wood will come from trees found at the bottom of the Mississippi River. Bricks – from a demolished building in San Antonio, Texas.

The building is designed to last at least 100 years and to be adaptable to changing needs. Taking these extra steps means an extra expense. For this building, it was about two percent, or \$US 1,140,000.00. In time, it is believed this cost will be recouped through lower energy and maintenance costs. This building could mark the start of an important trend for the area. The

University of Texas has pledged to model future buildings on the sustainability of this one. We will see if other organizations choose to follow UT's example.

- 12 September 2001 – Groundbreaking.
- 20 March 2003 – Topping out ceremony is held.
- 12 April 2003 – The American Institute of Architects awards the University of Texas at Houston a citation for promoting green buildings.
- The building previously on this plot of land was the Graduate School of Biological Science.

WEDGE INTERNATIONAL TOWER

This is one of the most easily recognized buildings in the Houston skyline. It is also the least known. An ugly brown pack of pilings by day, the structure's true beauty is only revealed at night when its unique geometry is outlined in green neon. It is then that you can see it is formed to resemble four distinct towers, each of a different height. There are two setbacks on each side of the building, dividing it into three distinct zones. The lowest zone runs from the ground floor through the 13th level. This is the parking garage. The second level runs up to the 28th floor, and consists of offices. The final stage runs to the 43rd floor, where the 43rd Restaurant and Lounge is located.

It is a place where businessmen wine and dine their clients safe from the tourists on the streets below. The other half of this city block is a surface parking lot. Wedge has promised since at least 1998 that it is ready to erect a new 30-storey skyscraper called 1401 Louisiana on this property. The company says publicly that it won't begin construction until a substantial portion of it is pre-leased.

Strangely, a number of other skyscrapers have been built in this time, and none appear to have the same problem leasing space. To be fair, however, the skyscraper plan for that parking lot has been on the drawing board since at least 1987 – long before Wedge became involved with the property.

- November 1995 – The green lights are turned on for the first time. Residents of the Houston House apartment building complain.

- April 1995 – Name of tower changed from 1415 Louisiana to Wedge International Tower.

- October 1994 – Wedge International buys the tower for between \$25,000,000.00 and \$45,000,000.00.

- August 1993 – A fire sweeps through part of the tower. Some people have to walk down 42 flights of stairs to safety. The blaze is caused by an electrical fault.

HARRIS COUNTRY CRIMINAL JUSTICE CENTER

This is the largest structure yet completed in the County's "Courthouse Square" project. It's an attempt to relieve the overcrowding at the area's current facilities caused by the explosion in the number of attorneys, lawsuits, police officers, sheriff's deputies, and... well... criminals that come with an increasing population.

Good intentions aren't always rewarded, and that's the case with this building. It was open for only a matter of months when Tropical Storm Allison struck in June 2001 flooding it and

shutting down the brand new building for almost a year. It seems that when it was built, all of the critical electrical, telephone, and other equipment was put in the basement.

Not a wise move when you consider that the building is just steps away from the notoriously eager waters of Buffalo Bayou. But that wasn't the only design flaw. People unfamiliar with the building tend to be late for court because there aren't enough public elevators. It can take up to 20 minutes to travel just a few flights. That's not to say that there aren't enough elevators. There are plenty. But each judge has his own private elevator for "security" reasons.

That's little consolation to those being fined or held in contempt because they were waiting in line for an elevator. To make things easier, the stairwells were opened so people could move between floors that way. But that was a violation of the fire code, so the doors were shut once again.

- June 2001 – Tropical Storm Allison hits Houston, flooding the brand new building and closing it. 37 courts of law had to squeeze into the eight-storey courthouse down the street.
- July 2001 – \$19,000,000.00 worth of repairs begin on the washed out courthouse.
- April 25 – May 3, 2002 – Employees move back into the now repaired building.

RELIANT STADIUM

One of the most important architectural pieces since the downtown baseball park, Reliant Stadium is another key piece of the rebirth of Houston. But while Minute Maid Park concentrated on turning a sports venue into an intimate experience, Reliant Stadium went the other way. It had no choice. This thing is big. 1,900,000 square feet. The playing field alone covers 97,000 square feet. The seating can be arranged to accommodate 72,000 fans, plus those watching from the 221 luxury boxes.

But perhaps the most dramatic demonstration of its scale is from the air. Flying above Reliant Stadium you can see how it easily dwarfs the Astrodome, and could very easily swallow what was once one of the world's architectural wonders.

Another way Reliant Stadium differs from Minute Maid Park is that it is a multi-purpose facility. It will be used for professional football, Rodeo Houston, concerts, track-and-field events, and conventions. At the time of its opening, it was estimated that Reliant Stadium and Reliant Park would host more than 400 events each year. The thing the creators were most excited about is the roof.

It is the first retractable roof in the National Football League. Some say it's the world's first football stadium with a retractable roof, but that is more marketing hype than fact. The roof moves on a steel "super truss" 960 feet long, and up to 75 feet wide. It is made of fabric, which lets light in so the grass doesn't die – a lesson its small neighbor learned the hard way.

In Reliant Stadium, it's not just the playing field that is green. What used to be a uniformly concrete parking lot is being peppered with 2,200 trees. The trees will provide shade for walkways and other areas. There will also be grass, and water features that double as flood control measures. The playing field is natural grass growing in 8 × 8 foot metal trays. The roof is 500 × 385 feet. It takes 10 to 12 minutes to open or close the roof. The roof is made of translucent fiberglass fabric coated with Teflon. It allows light through, even when it is closed. There are 11 elevators, 20 escalators, 4 stairwells, and 4 pedestrian ramps. It took 17,274 tons of steel to build Reliant Stadium. It

took 160,000 cubic yards of concrete to build Reliant Stadium. 423 tons of bolts hold the stadium together.

- It took more than 1,065 daily workers to assemble the stadium.
- The stadium contains 17,274 tons of structural steel.
- The stadium contains 160,000 cubic yards of concrete.
- The stadium skin is 50 % glass.
- It takes 10 to 12 minutes to open the roof. Reliant Stadium can seat between 69,560 and 72,000 spectators.
- The roof is 265 feet off the playing field.
- When configured for football, the playing field has 97,000 square feet of grass.
- The roof opening is 500 feet long, and 385 feet wide.
- There are 14 press boxes with 240 workstations.
- There are two scoreboards. Each is 42 feet tall and 275 feet wide.
- The video portion of the scoreboards is 24 feet tall and 96.5 feet wide.
- There are 11 elevators.
- There are 20 escalators.
- There are four stairways accessible to the public.
- 9 March 2001 – Groundbreaking for the new stadium.
- 1 October 2001 – The stadium is officially topped off.
- 24 June 2002 – The Houston Chronicle reports that the stadium's price tag will increase from \$367,000,000.00 to \$449,000,000.00 to cover the cost of extra restrooms, more parking, landscaping, and additional concession areas.
- 13 August 2002 – KHOU Television (channels 11 and 31) reports that the stadium failed the flush test. Scores of children were enlisted to simultaneously flush all of the toilets in the stadium to test the plumbing. One part backed up, filling some areas of the stadium with water several inches deep. It is believed that construction debris caused a clog in the system.
- 16 August 2002 – During the official ribbon cutting ceremony, an unceremonious thunderstorm erupted. Water gushed through the retractable roof because the bladder system that fills in the gaps when the roof is closed hadn't been installed yet.
- 18 August 2002 – The public is invited to tour the stadium for free.
- 25 January 2003 – The first concert is held in Reliant Stadium. The acoustics are so bad that many people call location radio stations asking how to get their money back. Newspapers and television stations also lead with the story. Reliant officials promise it will get better.
- February 2003 – For the first time the Houston Livestock Show and Rodeo is held in Reliant Stadium.

CATHEDRAL OF SAINT PAUL

The Cathedral of Saint Paul is a massive structure on a bluff overlooking the Mississippi river. Though some have described its proportions as "awkward" this is the karmic center of the city of Saint Paul.

The cathedral is big enough to support six chapels, each one dedicated to a saint representing the different ethnic groups that first settled in the area. For the French Canadians, Saint John the Baptist; for the Italians, Saint Anthony; for the Irish, Saint Patrick; the Slavs get Saints

Cyril and Methodius, and the Germans Saint Boniface. The missionaries to the area get their own – Saint Therese of Lisieux.

The cathedral is made from regional materials: for example, travertine from Mankato, and granite from Saint Cloud. Of particular interest are the stunning rose windows, which, though recessed, still offer inspiring viewing in the right light.

- 1987 – The single bell the cathedral was originally constructed with was replaced by five louder bronze bells from France.
- 2001 – The Cathedral undergoes a major renovation.

TIME WARNER CENTER

Orientation is everything when it comes to this building. Its two towers are massed at the rear of the complex, with a lower structure known as the "podium" in front that engages the street-level observer and directs his gaze upward. The combination gives the illusion of a mountain.

At the same time, the towers mass is felt by the observer because of their angles, embracing the viewer allowing them to become overwhelmed by the building's presence. The construction of such a huge complex was necessitated by what was the largest media merger of its time.

By the late 1990's, America Online had shed its Quantum Link heritage and become the leading Internet provider in the United States. It leveraged its power to buy the Time Warner media company, known for its magazines, cable television stations, and movies. At the time it was heralded as the wave of the future, and the logical place to consolidate all that power was New York City.

Times Square was already undergoing a massive revitalization, so AOL needed another place to stake its claim. It chose Columbus Circle, which had become run down, but not so notorious as Times Square. The AOL Time Warner Center was intended to spark the rebirth of the area, the way the Renaissance Center helped downtown Detroit.

To make that happen, the area needed a critical mass of businesses. So the complex includes a luxury hotel, luxury condominiums, shops, restaurants, and a concert hall. Following the lead of broadcast television networks NBC, and CBS, AOL Time Warner's cable network CNN built a studio at street level so people can see in and viewers at home can see out.

In a sense, this building represents the AOL Time Warner Company coming full-circle. AOL got its start by transmitting games over telephone lines into Atari 2600 machines in the 1980's. The symbol of Atari was the Fuji. Now AOL has constructed a massive edifice with similar properties as the Fuji that gave AOL its start.

- The complex is designed to allow cellular telephones to work anywhere, including inside the elevators.
- There is a special communication system inside the complex that allows police and fire-fighters to communicate in an emergency.
- The foundation of the complex is 434 feet deep.
- The north end of the podium is 315 feet tall (20 storeys).
- The south end of the podium is 349 feet tall (24 storeys).
- The complex incorporates One Central Park, a group of 198 luxury condominiums.

- At the time of the building's completion, the four penthouses were sold for between US\$25 and US\$35,000,000.00.
- This was the site of the 26-storey New York Coliseum, which was demolished in 2000.
- 27 February 2003 – A topping-out ceremony is held for the podium of the AOL Time Warner Center.
- 9 April 2003 – A dozen firefighters are hurt when flames swept through several floors of the as-yet-unfinished tower. The cause is believed to be a space heater, or a portable device used to dry concrete. The New York Times reports there have been a number of unfortunate incidents at the tower, including two deaths, three OSHA fines, and a number of falls.
- 11 July 2003 – It is announced that a British man is paying record US \$45,000,000.00 for one of the ten penthouses at the still-not-quite-finished AOL Time Warner Center in Manhattan. The 12,600-square-foot penthouse is two-storeys tall and will have 25-foot-tall glass walls wrapping all the way around, giving spectacular views. The terrace also goes all the way around and has views rivaled only by the observation deck at the Empire State Building.
- 6 April 2003 – Mayor Bloomberg temporarily halts construction at the building after a man is grazed by a 22-inch piece of metal that fell off the building.

DOWNTOWN AQUARIUM

The people of Houston are easily divided into two camps: those who make things happen, and those who scoff at progress and do nothing. Fortunately, toward the end of the last millennium, the man behind the Landry's theme restaurant chain had an idea. He decided to get on board the downtown renovation bandwagon and be a pioneer, rather than one of rabble sitting in the back of the school bus throwing spitballs.

The notion of a Downtown Aquarium was born. But where to put it? Along Buffalo Bayou was a natural choice, but so many sites are completely unsuitable due to access problems, parking constraints, or just because they are in really scary neighborhoods. In the end, an unlikely choice was picked – in the shadow of, and underneath the Pierce Elevated highway. Even aquarium supporters thought that was a strange location.

It's a dark, musty corner of town. Even the Hobby Center turned its back on it. But Aquarium backers pressed on, and managed to convince the city to part with not only Fire Station Number One, but also the old Central Water Works building. The fire station wasn't merely gutted; it was stripped all the way down to its steel skeleton, and completely re-built.

The water works building was outfitted with a massive tank with a tunnel running through it. By the time it was finished, the Downtown Aquarium was a marvel of blue neon. A fantasy to rival the intentions of Disney, and a microcosm of good, clean family fun in the heart of the city.

By the time it opened, the location no longer seemed strange. In fact, the Aquarium's neon seemed to form a symbolic link with the neon of the Hard Rock Café, and other venues of Bayou Place, just across the water. Now those who lined up to throw stones at the project are lining up to get in, dragged along by their children to the city's aquatic novelty, and dragging those suburban dollars back downtown.

- The Aquarium has 500,000 gallons of water.
- Smallest fish at the Aquarium: the tetra, weighing 2 ounces.
- Largest fish at the Aquarium: the sand tiger, weighing 300 pounds.
- At the time that it opened, the Aquarium housed 7,000 fish.

- 15 February 2003 – The Aquarium opens with a gala featuring local and national celebrities. A representative from Houston Architecture Info was initially invited, then a few days later removed from the guest list. We weren't high profile enough for this event.

1000 MAIN STREET

This building was one of the more anticipated projects to develop on Main Street in the early 21st century. For years, local businesses, civic groups, and politicians had been promising that Main Street was going to be the place where Houston comes together, and the city's most vibrant activity would be.

It wasn't until 2003 that pledge started to become fulfilled by a string of bars and nightclubs with short life spans. Metro's rail project helped further, but a new 36-storey tower was just the example big banks and real estate companies need to give them the confidence to take a chance.

The 1000 Main building symbolizes the area's rebirth and was a cornerstone for the downtown renaissance. The hope was, "if you build it – they will come." Metro's first light rail line is part of the overall development of the building. A pedestrian plaza and "Super stop" help create an intermodal transportation center, and link to the city's tunnel system.

The 1000 Main building has a tunnel linking to the Foley's store across the street. Even though the tunnel between Foley's and the Foley's parking garage is the oldest in the city, it was isolated from the rest of the tunnel system until this building was erected. It was the first significant addition to the tunnel system in years.

In form, the building resembles three tall slabs fashioned together. The left and right flanks feature a grid of concrete over black glass. The center shaft appears to be blue reflective glass. And the top of the building is crowned with lights that change color and pattern in the night sky. Also of note at the massive color-changing panels that slide up the first few storeys of the building – a visual delight for pedestrians.

The building has a 10-level 1,566-space parking garage. On top of the garage is a two-storey trading floor for Reliant Resources. On top of the trading floor are 24 storeys of offices.

BISHOP CASTLE

There is an adage that states, "If you want something done right, you have to do it yourself." The Bishop's castle is an admirable example of that thinking. Started in 1969 by Jim Bishop, the castle is a bit of architectural fantasy snug against the San Isabel National Forest in the mountains of Colorado.

The land was destined to become a castle long before Mr. Bishop knew it, himself. But his neighbors could see it. He started the project intending to erect a cottage with the abundant local stone. As that stone was laid around a large water tank, people started to joke that it looked like the Bishop home beneath a castle turret. It was several years before Mr. Bishop would see it, too. But once he did, his focus was attenuated – he was going to build a fairy tale castle on the land he loved. His ideas are so strongly rooted and so well thought out that there are no blueprints or plans. The king of this castle simply visualizes what he wants the next segment to look like, and then goes to work bending iron, felling trees, cutting rock and laying mortar.

Decades of work have yielded surprising results. The castle is replete with arches, decorated with intricate ironwork, and sports a bell tower, a steeple, and stained glass windows. There is even a dragon on the premises. Its scales are stainless steel scrap from a local hospital, and it

breathes fire from a hot air balloon burner. But the work of one man's hands cannot complete the project. The great castles of Europe were built by hundreds or thousands of people over the course of many years. In order for Jim to compete, and see his work finished in his lifetime, a group of volunteers has been allowed to build ancillary structures like the castle walls, and the gate.

BISHOP'S PALACE

The Bishop's Palace seems to fit in better with the secular mansions of Galveston's Broadway much better than Sacred Heart Church across the street it is actually associated with. There are two reasons for this.

First, the Bishop's Palace matched the architecture of the original Sacred Heart Church, which was swept away in the Great Storm. And secondly, the Bishop's Palace was originally a private residence known as the Gresham House. It was built for Walter Gresham, a politician-turned-lobbyist during the mansion-building boom of the late-1800s. He had it made of Texas limestone accented with gray granite, pink granite, and red sandstone.

This, combined with steel framing, helped it weather the Storm when so many thousands of other buildings were swept into the Gulf of Mexico. In 1923 it was purchased by the Catholic Diocese of Galveston to become the official residence of the bishop. But only one ever lived there. Reverend Christopher Byrne stayed there until his death in 1950. In 1963, the Catholic Church opened it to the public, making it the first of the Galveston mansions to be turned into a museum.

ROEBLING SUSPENSION BRIDGE

Roebing Suspension Bridge, built in 1867, is one of the earliest suspension bridges in the country. A known prototype of the Brooklyn Bridge and designed by the bridge's namesake John A. Roebling, the bridge spans the Ohio River, connecting downtown Cincinnati to downtown Covington, Kentucky. The sandstone bridge was a main thoroughfare from getting from the south to the north and was a key factor for former-slave migration into the north.

At the time of its completion, this was the longest suspension bridge in the world.

When the bridge opened, a toll was collected on the Ohio side. The money went to the State of Kentucky to help pay off its debt.

- December 1866 – The Bridge opens to pedestrians.
- January 1867 – The Bridge opens to vehicle traffic.
- 1896 – The bridge's color is changed from brown to blue. Some time later, it is changed again to green.
- 1953 – The bridge is purchased by the State of Kentucky for \$ 4,230,000.00.
- 1963 – The tollbooths are removed, and the bridge becomes free to transit.
- 1975 – The bridge is added to the National Register of Historic Places.
- 1980 – The bridge's color is changed back to blue.
- 1984 – Decorative lights are added to the suspension cables.
- 2005 – The bridge's color is changed to beige.

THE BERNARDIN

Though the pre-construction advertisements promised this would be a "distinctive" building, it is not. At least on the outside. It is very reminiscent of a dozen other Near North Side apartment blocks with its beige shaft rising from a base, which contains a mix of retail, and a parking garage topped with a sun deck.

Though the building promotes itself as a "boutique" apartment block that usually implies high style and low profile. Unfortunately, this building drew some unwanted attention early on. It is named for Joseph Cardinal Bernardin, the late Cardinal of the Archdiocese of Chicago. He died of cancer several years before this building was erected. At first, hackles were raised because it was thought the developer did not ask the diocese for permission to use Bardardin's name. And the building's proximity to Holy Name Cathedral only drew more attention to the commercialization of a man who won the Presidential Medal of Freedom.

That said it would be incorrect to argue that the Catholic Church doesn't capitalize on deceased religious leaders. But it later turned out that the developer, a devoted Catholic, did consult someone in the diocese, and that person got approval from the late Cardinal's sister, forcing the diocese to back down from its previous posture.

WORLD TRADE CENTER

The World Trade Center is a collection of buildings in lower Manhattan. Towers number one and two (the "Twin Towers") were considered the tallest in the world by some people. It depends on how you define "tallest." Including the antenna, tower number one was 521 meters tall. However, including the antenna may also bring building-less antennae and towers into the running, which really mucks things up. The center was constructed on the site of the old Hudson and Manhattan rail terminal. The original plan called for a single 150-storey tower, but this design was abandoned as impractical.

The twin towers were unusual in that the outer cladding of the building actually carried the load for the structure. Each floor was suspended from the external walls, rather than the other way around, which is common in most skyscrapers where internal pillars provide the strength, and the walls merely keep the wind out. While intended to provide strength while maximizing office space, this actually proved to be a lifesaving innovation.

When each tower was hit by hijacked jumbo jets in 2001 the planes punched holes in the side and did extensive damage inside. But the buildings stayed standing for some time. It was actually the heat from the fire that caused the buildings to collapse. The jets were fully loaded with fuel for transcontinental flight, providing a massive amount of fuel to feed the fire. When the heat inside exceeded 1,500 degrees Fahrenheit the steel holding the floors to the walls weakened, causing each floor to collapse onto the one below. The result was the buildings imploded upon them, rather than fell over knocking over countless other buildings in a literal domino effect.