**Unit 7**

**Architecture**

**Objectives**

Students will be able to:

1. Grasp the main idea (that the leaning tower of Pisa has been corrected a little.) and structure of the text (introduction of the topic by information about Pisa tower; development of the idea by illustration; conclusion of the article by a statement);
2. Appreciate how the author develops the idea by contrast;
3. Acquire the key language points and grammatical structures in the text;
4. Participate in a series of reading, listening, speaking and writing activities related to the theme of the unit.

**Suggested Teaching Steps**

Lead-in

Text A

* Detailed Study
* Structure Study

After-reading

Additional Materials

**Lead-in**

**Directions: Please watch the video clip and answer the questions.**

**1. What problems can the vertical dome in Shanghai help to solve?**

Population density; make the best use of the limited land to accommodate as many people as possible; Shanghai is one of the most populous cities of the world, with 24 million people.

**2. What challenges does Shanghai Tower face? How are they soled?**

The taller is the structure, the more it challenges *Mother Nature.* Each summer, a typhoon blasts the city, and Shanghai Tower becomes the target. By twisting the outer skin 120 degrees, the wind safely glides around the tower.

**Text A The Leaning Tower of Pisa**

1. The tower in Pisa, Italy, is famous simply because it leans. It was closed to the public in 1990, after fears that an entire busload of tourists at the top would be enough to make it fall. Eleven years later, the lean has been corrected a little, but not entirely. Although the tower is famous because it leans, it is an outstanding example of Romanesque architecture, and would probably be famous, even if it didn't lean. It stands 187 feet high and until 1990 was leaning over at about a 10-degree angle, the top being 17 feet further over than was originally intended. It was estimated that the lean was increasing by one inch every 20 years.
2. In 1172, a wealthy widow left sixty coins in her will to buy stones to begin the construction of the tower. It is a bell tower to accompany the cathedral that it stands next to. It isn't quite clear who the actual designer was, but construction was begun on August 9, 1173. Due to the fact that the people of Pisa were involved in a lot of wars, with several stops to fight, it took until 1350 to complete the building. The tower is circular, and made up of eight floors of limestone and lime mortar covered on the outside with marble. The outside of each level has columns and arches. There is a staircase of 293 steps leading up from the ground to the eighth floor: the steps are built between an inner wall and the outer walls. The eighth floor contains the bells, seven in all. The first stage was the building of the first three floors; this began in 1173 and stopped in 1178, when Pisa was at war. Construction began again in 1275 under an architect called Giovanni di Simone. He built the next three floors, and again work was halted until 1319. The final two floors were added between 1319 and 1350.

3. Only 5 years after work on the building began, it was leaning noticeably to the North. The lean was first noticed during construction of the third floor. During the building of the next three floors, the lean was corrected by building the floors parallel to the ground, and not level with the leaning building. During this phase the tower started to lean the other way. Now it was leaning to the South. The tower is built on unsuitable ground for such a heavy and tall building. It is only about 6 feet above sea level and built on a riverbed. The underlying ground is made up of layers of sand and clay. The layers are not even and the weight of the building has compressed them. Because the layers are not even, as the ground has compressed, it has sunk more in some places than others.

4. The fact that it took such a long time to build may be the main reason it hasn't fallen. Between the periods of construction, the ground had time to settle and become compacted, making the foundations stronger. Another important factor is the material it is built from; the limestone and lime mortar are able to bend and resist the forces that would make other, more brittle rocks, crack.

5. Several plans have been tried over the years to stop the tower from falling. Some of them have been almost disastrous. In 1934 an Italian engineer drilled 361 holes into the base and filled them with mortar. The tower promptly leaned over some more. In 1993, 650 tons of lead were hung from the North side of the building to try and stop the lean increasing. For a while it worked. In 1995, they decided to try and increase the foundations under the South side of the building. They froze the ground using liquid nitrogen, to stop it moving, and then started to remove stones, so they could insert metal rods. What they didn't know was that the stones they were removing were part of the original foundation of the building. That is the nearest the tower has come to disaster. In one night the lean increased as much as it normally increases in two years. They quickly added another 250 tons of lead and decided to rethink the whole thing.

6. At this point everyone was just about ready to give up. Then a British engineering professor came up with yet another idea. His plan was to remove ground from under the high side, instead of trying to add ground under the low side. In 1999 work began, and was done very slowly, so that the building wouldn't get a sudden shock. At the beginning of June 2001, the work was complete, and the tower had been straightened up by about 16 inches, which returns it to the position it held in 1838. The engineers believe that it is safe for at least another 300 years. So, if they know how, why didn't they just straighten it up all the way? The answer lies in the tower's name. It is the Leaning Tower of Pisa and just wouldn't be the same if it didn't lean! Some of the residents of Pisa say it would be better to let it fall down, rather than to straighten it all the way.

**Detailed Study**

1. **(Para. 1) It was closed to the public in1990, after fears that an entire busload of tourists at the top would be enough to make it fall:** With worries that a large number of tourists standing at the top might make the tower collapse, the tower was closed to the public in 1990.

【译文】由于担心一车的游客站在塔顶就会使它倒塌，该塔于1990年停止对游人开放。

该句的主句为“It was closed to the public in 1990.…."。“after fears….”是介词短语，表明关闭斜塔的原因。“that”引导的从句是“fear”的同位语，说明担心的内容。“that”从句中的主干是“an entire busload of tourists would be enough...”。

“**after**” (*prep.*) here means “because of something that happened earlier”

e.g. I'll never forgive him after what he said.

I'm not surprised he walked out after the way she treated him.

After your letter, I didn't think I'd ever see you again.

**busload *n.*** an amount of people on a bus that is full (一个公共汽车的)载客量

e.g. A busload of tourists came in behind us, maybe twenty Hawaiians in Hawaiian shirts, with cameras and funny hats.

**2) (Para. 1) Although the tower is famous because it leans, it is an outstanding example of Romanesque architecture, and would probably be famous, even if it didn't lean:** Despite the fact that the tower is renowned for leaning. it would probably still be famous if it didn't lean for it is a marvelous example of Romanesque architecture.

【译文】尽管此塔因倾斜而闻名于世，但它也是罗马建筑的杰出典范，即使不倾斜，也可能享誉世界。

**even if:** used to emphasize that although something may happen or may be true, it will not change a situation 即使，即便

e.g. She's going to have problems finding a job even if she gets her A level.

I wouldn't tell you even if I knew.

Even if she survives, she'll never fully recover.

**3) (Para. 1) It stands 187 feet high and until 1990 was leaning over at about a 10-degree angle, the top being 17 feet further over than was originally intended:** It is 187 feet high and was tilting at about a 10-degree angle with the top being 17 feet further over than was planned at the beginning.

【译文】塔高187英尺，1990年时它的倾斜度大约为10度，塔顶偏离了预先设计位置17英尺。

该句中“stand”是系动词，故“187 feet”是表语，而“high”是补语。" the top being 17 feet...”是由现在分词短语“being 17 feet....”构成的独立主格结构。

**stand v.**

(1) have a specified height 高度为

e.g. The trophy stands 3 feet high.

He stands six feet two.

1. be in a certain place, be situated 在某处，位于

e.g. A lamp stood on the table.

Near the railway station stood a hotel.

**4) (Para. 1) It was estimated that the lean was increasing by one inch every 20 years.**

【译文】据估计，比萨塔每20年增加倾斜一英寸。

**increase (sth.) by sth.:** 以……为单位增加

e.g. Food prices increased by 10% in less than a year.

1. **(Para. 2) Due to the fact that the people of Pisa were involved in a lot of wars, with several stops to fight, it took until 1350 to complete the building:** Because many wars were waged involving the people of Pisa, the construction was interrupted; it was not until 1350 that the construction was completed.

【译文】由于比萨人民频受战争侵扰，塔的修建几度中断，直到1350年才竣工。

1. **(Para. 2) There is a stair case of 293 steps leading up from the ground to the eighth floor; the steps are built between an inner wall and the outer walls.**

【译文】从地面到塔的第八层共有293级台阶，台阶建于内墙和外墙之间。

**staircase *n.*** a set of stairs inside a building with its supports and the side parts that you hold on to楼梯

e.g. I hear someone coming down the staircase.

**spiral staircase:** a set of stairs arranged in a circular pattern so that they go around a central point as they get higher 旋转楼梯

**moving staircase:** escalator; a set of moving stairs that take people to different levels in a building 电动扶梯，自动扶梯

1. **(Para. 3) During the building of the next three floors, the lean was corrected by building the floors parallel to the ground and not level with the leaning building:** During the construction of the next three floors, the tilt was partially corrected by building the floors parallel to the ground rather than parallel to the previous floors.

【译文】于是建随后三层时，人们通过建造与地面而非与塔身平行的层面来校正塔的倾斜。

该句的主干是“the lean was corrected by...”。介词短语“by building the floors parallel to the ground”作方式状语，表示纠正塔的倾斜的方式。而“and not level with the leaning building”也是介词短语，省略了介词，补全的形式应为“not by building the floors level with the leaning building”。

**parallel**

***adj.***

1. (of two or more lines) having the same distance between each other at every point平行的

e.g. The road and the canal are parallel to each other.

(2) exactly corresponding, similar 相对应的，相同的

e.g. She and her friends have parallel likes and dislikes.

***n.***

1. person, situation, event, etc. that is exactly similar to another 相似的人或情形

e.g. These ideas have parallels in Freud's thought, too.

(2) (in ~ with sth./sb.) together with and at the same time as sth. else(与……)同时

e.g. The new degree and the existing certificate courses would run in parallel.

**level *adj.***

1. (~with)of the same height, standard, or position on a scale 等高的，同等标准的

e.g. The little girl's head is level with her mother's knees.

The two pictures are not quite level, that one is higher than the other.

(2) having a horizontal surface; flat; not sloping 水平的，平坦的

e.g. Some streets in the city are not level.

**8) (Para. 3) Because the layers are not even, as the ground has compressed, it has sunk more in some places than others:** Because the layers are not equal or level some places would sink deeper than others when the ground has been pressed.

【译文】由于地层分布不均衡，地面受压时，某些地方会沉陷得更厉害。

**even *adj.***

1. smooth, flat, level 平的，平滑(坦)的

e.g. The floor must be completely even before we lay the tiles

He has lovely white, even teeth.

(2) unchanging in quality, regular, steady 均匀的，有规律的，稳定的

e.g. The room is kept at an even temperature.

**compress *v.***

1. to press sth. or make it smaller so that it takes up less space; or to become smaller 挤压，压缩

e.g. Wood shavings and sawdust can be compressed into boards.

He compressed the document and then e-mailed it to me.

1. to write or express sth. using fewer words; to reduce the amount of time that it takes for sth. to happen or be done 缩短，精简

e.g. She compressed two months' work into one.

1. **(Para. 4) Between the periods of construction the ground had time to settle and become compacted, making the foundations stronger:** During the intervals between construction the ground had time to slowly adjust and become compressed, which made the foundations became stronger.

【译文】在建塔的间隙，地面慢慢下陷、压紧，地基由此变得更加坚固。

**foundation *n.*** (usually pl.) of bricks, concrete.etc. forming the solid underground base of a building地(房)基，基础

e.g. The flood displaced the houses from their foundations.

The builders poured a solid foundation of concrete.

The huge lorries shook the foundations of the house.

1. **(Para. 4) Another important factor is the material it is built from; the limestone and lime mortar are able to bend and resist the forces that would make other, more brittle rocks, crack:** Another key element lies in its building material-limestone and lime mortar which are flexible and are able to withstand the forces that might break other less flexible rocks.

【译文】另一重要因素是建塔的材料是石灰石和石灰砂浆，它们能够弯曲并抵抗巨大的外力，不像其他易碎石料，遇外力时会突然断裂。

**brittle *adj.***hard but easily broken; fragile 易碎的，脆弱的

e.g. This material is highly brittle.

The branches were dry and brittle.

**crack *v.*** to break without dividing into separate parts; to break sth.in this way(使)开裂，破裂

e.g. Don't put boiling water in the glass or it will crack.

She fell and cracked a bone in her leg.

1. **(Para. 5) In 1934, an Italian engineer drilled 361 holes into the base and filled them with mortar.**

【译文】1934年，有个意大利建筑师在塔底钻了361个孔，并在其中灌入灰泥。

**drill *v.***

1. to make a hole in sth. using a drill 钻洞，打孔

e.g. The farmers drilled wells for water.

They're drilling a new tunnel under the Thames.

1. to train students sports players etc.by making them repeat the same lesson, exercise, etc. many times 训(操)练

e.g. The teacher drilled the class in pronunciation.

The well-drilled crew managed to rescue most of the passengers.

1. **(Para. 5) They froze the ground using liquid nitrogen, to stop it moving, and then started to remove stones, so they could insert metal rods.**

【译文】他们先用液化氮冷冻地基防止塔身移动，然后将地基中的石块挖出以便插人金属杠。 **freeze *v.***

1. to become hard,or to change from liquid to solid, as a result of extreme cold; to make sth. do this 使冻结，凝固

e.g. The cold weather froze the lake.

The clothes were frozen on the washing-line.

1. to stop moving suddenly because of fear,etc. 惊(吓)呆

e.g. I heard a sound and froze in my tracks.

She froze her noisy children with a single look.

The police officer shouted “Freeze!"and the man dropped the gun.

**insert**

***v.***

1. to put sth. inside or into sth. else 插人

e.g. They inserted a tube in his mouth to help him breathe.

(2) to add sth. to the middle of a document or piece of writing (在文章中)插入，添写

e.g. The book would be improved by inserting another chapter.

***n.*** thing inserted, especially an additional section in a book, newspaper, etc.插入物(尤指书、报等的插页)

e.g. The magazine contains a special insert about holidays abroad.

1. **(Para. 5) That is the nearest the tower has come to disaster:** That was the closest the tower came to being destroyed.

【译文】那是斜塔最危险的一次遭遇，整个塔差一点就毁了。

**come to:** to develop so that a particular situation exists, usually a bad one 发展至

e.g. The doctors will operate if it proves necessary but it may not come to that.

All those years of studying, and in the end it all came to nothing.

1. **(Para. 5) In one night the lean increased as much as it normally increases in two years:** Overnight, the lean grew to an extent which would take two years to reach at the normal rate.

【译文】一夜之间塔身倾斜到按理两年后才会达到的斜度。

**as much as**

1. 多达……，达到……那种程度(表具体数量，后常跟具体数量词)

e.g. In fact it costs me as much as 2,000 dollars, which is my monthly salary.

She trained hard for the race, sometimes running as much as 100 miles a week.

1. 几乎等于，和……差不多(表模糊数量，通常不跟具体数量词)

e.g. I haven't got as much money as I thought.

If you charge as much as that, you will scare away the customers.

**15) (Para. 6) At this point everyone was just about ready to give up. Then a British engineering professor came up with yet another idea.**

【译文】就在大家要放弃时，一位英国工程师又提出了一个建议。

1. **(Para. 6) At the beginning of June 2001,the work was complete, and the tower had been straightened up by about 16 inches, which returns it to the position it held in 1838:** The project was finished at the beginning of June 2001,and the tower has been straightened up by about 16 inches, returning it to the position of 1838.

【译文】2001年6月初，工程竣工时塔体得以矫正约16英寸，恢复到了1838年时的状态。

该句是一个并列句，主句是“the work was complete”和“the tower had been straightened up by...”。第二个主句后跟的介词短语“byabout16 inches”用来说明塔被矫正的程度，“which”引导的非限制性定语从句用来说明这次校正的成功之处。

**straighten *v.***

1. (~out) to become straight. or to make sth. straight or flat 把……弄直，变直

e.g. He straightened the bent strip.

Even though he tried, he couldn't straighten out the rug.

1. (~ up) to make sb. or sth. straight and upright 变(挺)直

e.g. As she straightened up, the ache in her back grew worse.

He managed to straighten up with an air of studied ease and courage.

1. (~ up) to make sth. tidy整(清)理

e.g. I must straighten up this room, my guests are coming.

**hold *v.***keep(oneself/sb./sth.)in the specified position or condition 使……保持在某一位置或某种状况

e.g. We used rolled-up newspapers to hold the windows open.

Remember to hold your head up and keep your back straight.

Lift your head off the floor and hold this position for five seconds.

1. **(Para. 6) So, if they know how why didn't they just straighten it up all the way? The answer lies in the tower's name:** If they know the solution why didn't they straighten it up completely? The key rests with its name.

【译文】可他们要是知道如何矫正斜塔的话，为什么不干脆将它完全竖直呢？答案在于此塔的名字。

**all the way**

1. (to continue an action) until completed; (to go)the whole distance自始至终，一直

e.g. She didn't speak a word to me all the way back home.

The two runners contested the race closely and it was nip and tuck all the way.

1. completely 完全地

e.g. You can feel that the audience is with her all the way.

I'll back you up all the way.

1. **(Para. 6) Some of the residents of Pisa say it would be better to let it fall down, rather than to straighten it all the way:** Some of the citizens of Pisa would rather let it collapse than completely straighten it.

【译文】一些比萨市民认为，与其不断尝试矫正塔身不如任其倒塌。

**Structure Study**

**Summary of the Text**

**Directions: The text can be divided into four parts. Fill in the blanks with appropriate words from the text to complete the main idea of each part.**

|  |  |  |
| --- | --- | --- |
| **Parts** | **Paragraphs** | **Main Ideas** |
| Part 1 | Para. 1 | After being 1) **closed** to the public for 11 years, the famous leaning tower of Pisa — an outstanding example of Romanesque 2) **architecture** has been corrected a little, but not 3) **entirely**. |
| Part 2 | Para. 2 | The construction was begun in 1173 with the money donated by Berta di Bernado to build a bell tower to 4) **accompany** the cathedral, and was completed in 1350 after several stops because of the involvement of a lot of 5) **wars**. |
| Part 3 | Paras. 3 — 4 | Because the tower was built on 6) **unsuitable** ground, it was leaning only 5 years after work on the building began. Luckily, it hasn’t fallen due to the great length of 7) **time** spent on construction and the material it is built from. |
| Part 4 | Paras. 5 — 6 | After several 8) **disastrous** attempts at stopping the tower from 9) **falling**, a British engineering professor came up with another idea-removing ground from under the 10 high side. Finally the tower had been straightened up to some degree. |

**Directions: Decide whether the following statements are true or false according to the text. Write T for true and F for false.**

1) **F** The Leaning Tower of Pisa was deliberately built to lean to win world-wide fame.

2) **T** The construction of the Leaning Tower of Pisa was halted several times because of wars.

3) **T** The Leaning Tower of Pisa started to lean because it was built on an uneven geographical structure made up of sand and clay.

4) **F** People tried three times to correct the leaning of the Pisa Tower from 1934 to 1995, but nothing worked at all.

5) **T** According to the writer, the latest attempt to correct the leaning of the tower from 1999 didn't straighten it up completely because people didn't want it to.

**After-reading**

**Key to Exercises—Vocabulary**

1. 1) noticeably 2) busload 3) parallel 4) residents 5) architect

6) inserting 7) straightening 8) promptly 9) compresses 10) circular

**2.**

1) Germany was at war with most of the countries in the world.

2) The two lines are parallel with each other.

3) Your eyes should be level with the top of the screen.

4) He left his job largely due to the fact that he was homesick.

5) Social reformers sometimes come up with some blue-sky thoughts.

6) My dog walked beside me all the way to the riverside.

**Key to Exercises—Structure**

**1.**

1) It is estimated that the tree is at least 700 years old.

2) It was estimated that the film cost 25 million dollars to make.

3) It was estimated that the cost of repairs was 150 dollars.

4) It is estimated that between 70 and 90 percent of car crimes occur in the daytime.

5) It is estimated that it is about 200 miles long.

6) It was estimated that his income was about $80,000 dollars a year.

**2.**

1. only reflecting the sunlight shining on it
2. the eggs held carefully in her hand
3. Circumstances changed
4. Having considered both the bright side and the dark side
5. All flights being/having been cancelled because of the snowstorm

**Key to Exercises—Cloze**

1. E 2) I 3) F 4) K 5) G

6) D 7) L 8) J 9) N 10) C

**Key to Exercises—Translation**

The Leaning Tower of Pisa is one of the most iconic architectural landmarks in the world. The Romanesque tower of the Pisa Cathedral has been sinking into the ground since its construction, causing it to noticeably lean to one side. Thousands of visitors travel to Pisa every year for a glimpse of the famous structure. Though the Tower had been closed to visitors during the 1990s, successful renovation allowed officials to reopen it in 2001.

**After-reading Activity**

**Activity One: Talking about Pictures**

Directions: Architecture is compared to music in space, which reflects the culture, values and history of a country.When we talk about famous architecture in the world, what images come into your mind? Are they among the following pictures? Talk about the following pictures, and share what you know about them with your classmates.

**Activity Two: Pair Work**

Directions: Beijing, an integral part of China's history for centuries, is renowned for its opulent palaces and temples. But the early 21 st century has witnessed tremendous growth of new building constructions,which brings a mixture of both old and new styles of architecture. But if asked to choose only only one architecture to represent Beijing, which one would you choose? The Forbidden City, the Great Wall, the Birds Nest or the Beijing National Theatre? Discuss with your partner and present your ideas in class.

**Activity Three: Group Work**

Directions: In the 21st century, China is facing the collision and fusion between local and foreign cultures, and that between modernity and tradition. Architecture with its distinctive cultural nature is involuntarily driven along with all the others by this wave.So, do you think modem architecture can exist in harmony with traditional architecture? What should be given priority, the preservation of Chinese traditional architecture or the construction of modem buildings? And why?

**Additional Materials**

**Activity One**

Directions: The pictures below must be familiar to you. They are the most recognizable images of the modern world and the most photographed. Let’s work together to find out their names and locations, as well as the year they were constructed. Feel free to share anything you know about them.

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**Tips:**

Colosseum (Rome), 80AD

Sydney Opera House, 1973

St. Paul’s Cathedral, London, 1708

Leaning Tower of Pisa, 1372

Petronas Tower, Kuala Lumpur, 1996

Taj Mahal, India, 1648

**Activity Two**

Directions: Architecture is the art of telling stories. Sometimes, the story of what happened in that building also becomes part of the building. You might be familiar with the following cartoon. Work with your partner to receive what happened that day.

**Tips:** According to the traditional account, to refute the Aristotelian notion that heavier objects fall faster than light ones, Galileo performed an experiment from the top of the leaning tower of Pisa. He dropped two spheres of different weight and observed that both hit the ground at the same time. Galileo correctly reasoned that when an object falls more slowly, it is due to air resistance.

**Background information**

**1. The Leaning Tower of Pisa**

The Leaning Tower of Pisa, or simply The Tower of Pisa, is the campanile, or freestanding bell tower, of the cathedral of the Italian city of Pisa. It is situated behind the cathedral and is the third oldest structure in Pisa’s Piazza del Duomo (Cathedral Square) after the cathedral and the baptistry. Although intended to stand vertically, the tower began leaning to the southeast soon after the onset of construction in 1173 due to a poorly laid foundation and loose substrate that has allowed the foundation to shift direction. The tower presently leans to the southwest. The height of the tower is 55.86 m (183.27 ft) from the ground on the lowest side and 56.70 m (186.02 ft) on the highest side. The width of the walls at the base is 4.09 m(13.42 ft) and at the top 2.48 m(8.14 ft). Its weight is estimated at 14,500 metric tons. The tower has 296 or 294 steps; the seventh floor has two fewer steps on the north-facing staircase. The tower leans at an angle of 3.97 degrees. This means that the top of the tower is 3.9 meters from where it would stand if the tower were perfectly vertical.

There has been controversy about the real identity of the architect of the Leaning Tower of Pisa. For many years, the design was attributed to Bonanno Pisano, a well-known 12th-century resident artist of Pisa, famous for his bronze casting, particularly in the Pisa Duomo. However recent studies seem to indicate Diotisalvi as the original architect due to the time of construction and affinity with other Diotisalvi works, notably the bell tower of San Nicola (Pisa) and the Baptistery in Pisa. However, he usually signed his works and there is no signature by him in the bell tower, which leads to further speculation.

**2. Romanesque Architecture**

It is the term that is used to describe the architecture of Middle Ages Europe which evolved into the Gothic style beginning in the 12th century. The term “Romanesque”, meaning “descended from Romans”, was used from the early 19th century to describe the style. Combining features of contemporary Western Roman and Byzantine buildings, Romanesque architecture is known by its massive quality, its thick walls, round arches, sturdy piers, groin vaults, large towers and decorative arcading. Each building has clearly defined forms and they are frequently of very regular, symmetrical plan so that the overall appearance is one of simplicity when compared with the Gothic buildings that were to follow. The style can be identified right across Europe, despite regional characteristics and different materials.

**3. Berta di Bernado**

Berta di Bernado was the widow who bequeathed money to the town of Pisa to build a bell tower for the local church. Soon after the construction of the tower began, it began to lean due to the poor soil quality under the foundation. The structure soon became famous as the Leaning Tower of Pisa, and to this day is a canonical example of the physics concept known as center of mass.