The Reformation

Reader

Ignatius of Loyola

John Calvin

Martin Luther

Printing press
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The Reformation

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Chapter 1
An Age of Change

Changing Ideas in Europe The world is always changing. Borders grow smaller and bigger. Nations rise and fall. Ideas are accepted and rejected. There has never been an age without change. But at some points in history, things change in especially meaningful or dramatic ways. The 1400s and 1500s were one such age.

Over the course of the 1400s and 1500s, Europeans developed new ways of communicating. They also formed new ideas about science and religion. These changes transformed European life.

Many people helped transform Europe during these centuries of great change. Seven in particular stand out. They came from countries all across Europe—Germany, Switzerland, France, Spain, Poland, and Italy. One was an inventor. Two had studied theology, and two were priests. Two were astronomers. With the exception of the Swiss
Exploration and contact with different cultures brought about huge changes in Europe in the 1400s and 1500s.
and one of the Germans, there is no record that these men ever met each other. In fact, they weren’t all alive at the same time. However, all seven of these great people influenced each other as well as our lives today. By studying their lives and work, we can learn about the changes they helped to trigger.

**The German Inventor**

Johannes Gutenberg (/goo*ten*berg/) created a new technology that would change the way people communicated and, ultimately, the way they thought. Born in Mainz (/mynts/), Germany, about 1400, Gutenberg was trained as a metalworker. In the 1430s he moved to Strasbourg, where he worked cutting gems, making mirrors, and teaching students. Even then, he was probably at work on the invention that would change the world.

By the late 1440s, Gutenberg had returned to Mainz. There he entered into a partnership with two other men.

In medieval times, monks in monasteries copied books by hand because there was no such thing as a printing press.
One was a businessperson. The other was a calligrapher, whose job was hand-copying books.

Until that time, people in Europe reproduced books by copying them by hand. The process was slow and expensive. Imagine how long it would take you to carefully copy the small book you are reading.

In Gutenberg’s time, it might require a professional copyist four or five months of steady work to copy a two-hundred-page text. As a result, only the clergy and the wealthy could afford books. The clergy could depend on monks in monasteries to do the copying required. Wealthy nobles and merchants could afford to pay professional copyists to do the work. At the time, most people did not know how to read, much less own a book.

There was another way to produce copies of a book, but it was too expensive and required painstaking work. Woodcarvers first drew outlines of pictures and words on wood blocks. Next, they followed the outlines to carve out the wood around the letters and images. As a result, the letters and pictures “stood out” on the surface of the block. Then, workers applied ink to each block and pressed the block onto paper.

It was difficult and expensive to make a good printed book this way. Once carved, the words and pictures could not be changed. A single mistake could ruin an entire block. The impressions made on paper were often uneven. Wooden blocks did not last very long and wore down.
People in Europe did not know it, but in East Asia, inventors had developed something called **movable type**. These were small blocks that included a single letter or character. Printers arranged the movable type to create words and sentences. The Chinese created the first movable type out of baked clay in the eleventh century. By the thirteenth century, Korean printers were using metal to make type. However, movable type did not become popular in China or Korea. Chinese is written using a different character for each word. A printer would have needed to create thousands of pieces of type in order to print a single book.

**The Spread of Knowledge**

What Gutenberg did transformed the way in which books were produced in Europe. His invention also changed how people communicated knowledge and opinions. Books—and, therefore, knowledge—became available to many more people.

Gutenberg combined two separate developments to reproduce books quickly and cheaply. One development was movable metal type. The other was the wooden screw-and-lever press.

First, Gutenberg manufactured separate letter stamps out of durable metal. He created molds in the shape of each letter. He then poured molten metal into the molds.
Gutenberg followed a multistep process to create his lead type.

Gutenberg repeated this process several times until he had a large collection of lead type for that letter. Then he went on to the next letter. He had to follow the same steps for each letter of the alphabet, including lowercase and capital letters. He also had to make type for numbers and punctuation marks. And he did this for each size of type: small, medium, and large. All in all, he created thousands of different pieces of type.

1 A “punch” is carved into the shape of a letter.
2 The punch is applied to a bar of soft metal to create a mold.
3 Molten metal is poured into the mold.
4 A piece of type in the shape of a letter is produced.
Working With Movable Type

When the time came to print, the printer took the type pieces, letter by letter, from a case. The printer arranged the letters, numbers, and punctuation marks of each line of text in the correct order, with proper spacing, in a strip of wood called a composing stick. Because the metal pieces of type were reusable and because they could be moved around in any order required, they were called movable type.

Next, the printer locked the lines of type into a rectangular frame. Finally, the printer inked the type in the frame and pressed a sheet of paper against it. The printer could then make many prints of the same page. When printing was done, the printer could take apart the frame and return each piece of type to its place in the type case.

Why did movable type become much more popular in Europe than in East Asia, where it had first been invented? Most European languages use twenty-six letters to create words in their language. Written Chinese, which was used across East Asia, used separate characters for each word. It is much easier to create and use twenty-six different pieces of type than thousands. Movable print transformed book production in Europe in ways that would have been difficult in East Asia.

The Printing Press

Gutenberg’s second great development was using a wooden screw-and-lever press for printing. The press had been used to make paper or wine. It used a lever and a screw to apply pressure to paper pulp or grapes. The German inventor adjusted the press to print words on paper. First, Gutenberg locked the type onto the
press bed. Then, he applied an oil-based ink to the type by hand and fixed a piece of paper on top of the type. He lowered the screw so that its flat wooden surface pressed the paper against the type and transferred the ink to the paper.

Printing a single sheet took Gutenberg and other early printers about two minutes. It had taken much longer to copy a page of text by hand.

About 1455, Gutenberg created the first printed copies of the Bible. These copies became known as the Gutenberg Bible. The few copies that remain are worth millions of dollars each.

Gutenberg’s techniques spread throughout Europe during the next fifty years. By 1500, most European cities had printers’ workshops. Printing changed the way information was gathered, stored, and communicated. It greatly increased the number of copies of books and hugely reduced the number of hours required to produce them. Many more people were able to read greater varieties of books, and readers in various places could view the same texts and images at the same time.

Next you will learn how the work of printers helped spread religious and scientific ideas throughout Europe.
Chapter 2
The Birth of Protestantism

**Bold Statements** It was the eve of All Saints’ Day, October 31, 1517. A short, sturdy man strode toward the Castle Church in the German town of Wittenberg. Under his arm he carried a *notice* for display in a public place. The man had written a series of bold statements on the notice. This notice is now known as the Ninety-five *Theses*.

**The Big Question**
Why was Luther’s religious revolution more successful than earlier reformers’ attempts?

**Vocabulary**
- **notice**, n. a written statement posted for the public to see
- **thesis**, n. an idea or opinion; *theses* is the plural form
Martin Luther and his proposed reforms helped begin the Protestant Reformation.
When he arrived at the church door, the man took the notice from under his arm. Then, he fastened it firmly to the door. Anyone who was interested could see what he had written. He did not know how people would respond to his ideas about the Church, but he was certain that he was right. He could not know that his words would start a movement that would change the Catholic Church and all of Europe. By posting his notice containing opinions critical of the Church, the man had begun what would be known as the Protestant Reformation.

This man was a professor named Martin Luther. He was born about forty years after Johannes Gutenberg created his printing press. Gutenberg’s press would play a big role in the spread of Luther’s ideas.

**The German Theologian**

In 1483, Martin Luther was born to Hans and Margaret Luther in Saxony, in present-day Germany. Martin’s father was a miner who managed to save his money and purchase several mines of his own. Hans Luther was ambitious for his son. He hoped Martin would become a lawyer.
Martin Luther went to school and then to a university. However, at the age of twenty-one he abandoned his studies. Instead, he entered a monastery. Martin Luther’s decision angered his father, but the young man believed that he was answering a call from heaven. He was convinced that he needed to become a monk to save his soul. Two years after he joined the monastery, Luther was ordained as a priest.

Luther fasted, prayed into the night, and confessed his sins frequently. There were times when those around him thought that he was too stern and too serious. But the leaders of the monastery also recognized his great intelligence. In 1508, he was sent to study to become a theologian and four years later became a professor of Bible studies.

While Luther was a student, he was sent on a trip to Rome by his monastery. Rome disappointed him. The lavish palaces of the Church’s cardinals offended him. He was greatly upset by stories he heard about the pope. It seemed like the pope

Vocabulary

ordain, v. to officially make a person a religious leader

theologian, n. an expert on the study of religious ideas

cardinal, n. high-ranking religious leader in the Catholic Church
acted more like a ruler of a kingdom than the leader of the Church. Luther thought that many of the people of Rome, including his fellow priests, had little concern for their religion.

A Teacher and Scholar

Professor Luther soon distinguished himself as a teacher. He lectured on the books of the Bible and published writings on religion.

At the time that Luther began his career as a professor, the Church was not only the provider of spiritual guidance, it was also a large international power that required a great deal of management. The Church, led by the pope, ruled a large part of Italy called the Papal States. The pope had an army, waged wars with other rulers, and made treaties. The Church had its own laws and its own courts to deal with Church-related problems. The Church consulted with bankers for financial advice.

Sometimes the Church’s political role kept it from performing its religious duties. And, because the Church had grown so much, it constantly needed to raise money to support itself and to carry out its spiritual work. The Church raised taxes, just as taxes are raised today. From time to time, the Church looked for other ways to raise money. For a while, the Church required anyone who held an important Church office to pay the pope part of his salary. The Church also raised voluntary donations given occasionally by a repentant sinner after the receipt of an indulgence. An indulgence was a kind of religious pardon from sin or wrongdoing.

Vocabulary

indulgence, n. the removal or reduction of certain punishments for sin, linked to a particular act
Challenging Church Practices

When you studied the Renaissance, you learned about indulgences. The Church taught that sins, or mistakes, could keep people from going to heaven. If people sinned, they asked for forgiveness. A priest forgave them and asked them to do **penance**. This meant they did something to make up for their mistake. The Church also taught that indulgences could release people from part of their penance. But—and this was important—the indulgence would not work unless people also **confessed** their misdeeds to a priest and had been forgiven for having sinned. Sometimes when priests gave indulgences, people in return donated money to the Church. Usually donors were promised a reduction in the number of years their soul would have to spend in **purgatory**.

In 1514, Pope Leo X extended the practice of indulgences across Europe. This increased the Church’s ability to raise money.

**Vocabulary**

**penance**, n. an act, such as praying, done to show regret over some wrongdoing

**confess**, v. to admit having done something wrong

**purgatory**, n. according to Roman Catholicism, a temporary place where the souls of the dead suffer in order to do penance for sins before going to heaven
Luther had studied the Bible. He was convinced that the Church misled people by offering indulgences. He agreed with the Church that God would forgive sins only if people were truly sorry. But Luther thought that receiving donations caused confusion. He believed it gave people the false idea that they could give money in return for God’s forgiveness. God’s forgiveness, he believed, was not something that anyone could buy.

In April 1517, a traveling monk arrived in Wittenberg, where Luther taught. He was a super-salesman. He told people that they could earn indulgences by giving money for rebuilding the pope’s basilica in Rome. He said the indulgences he was offering were very powerful. They could even help people’s dead relatives gain release from purgatory. The monk made his wild claims because he wanted to raise money for the Church. But everything he said went against Church teachings.

Luther was furious. He summarized on a notice his

-Vocabulary-

basilica, n. a type of large Christian church, often built in the shape of a cross

This is the door on which Martin Luther nailed his Ninety-five Theses in Wittenberg. Luther was not the first to attack the practices and teachings of the Catholic Church. In fact, over time the Church had put in place a number of reforms. Now, however, complaints such as Luther’s could reach a wider audience because of the printing press.
ideas about why the Church was wrong to exchange indulgences for donations. His notice listed ninety-five theses for debate by students at the university. The door of Wittenberg’s Castle Church was a kind of bulletin board for university announcements. In October 1517, Luther nailed the notice to the door.

People often nailed notices to the door of this church. But Luther’s notice was very dramatic. He objected to how the Church raised and spent money. He denied that the pope had any power over the souls of the dead. And he charged that offering indulgences actually harmed people by making them think that all they had to do was give money and their sins would be forgiven. These ideas were a real challenge to the authority of the Church.

**Spreading Luther’s Ideas**

Luther’s theses were printed and distributed throughout central Europe. It is not clear what role Luther played in this process, but he surely allowed it to happen. Luther also began to publish leaflets and pamphlets. In them he explained his views on indulgences and other Church practices. Many people read his ideas.

Church authorities were not happy with Luther’s writings. Many thought he was a heretic. Church leaders called Luther to a meeting to discuss and debate his writings. When Luther was told he must take back what he had written, he refused. Luther made it clear that if certain reforms did not happen, then he and his supporters would disobey the Church.

**Vocabulary**

*heretic, n.* a person who does not accept or follow the ideas of a particular religion
During the next three years, Luther continued to print writings calling for reform of the Church. In his writings, Luther began to question the authority of the pope. He also blamed the pope for many of the Church’s problems and attacked some of the Church’s teachings. Luther taught that only some of the Church’s rituals, called **sacraments**, were based on the Bible. He thought that marriage should not be one of the sacraments. He argued his views with other leaders in the Church. Over time, Luther gained the support of many of the German people.

Finally, the pope took strong action. He issued an official document, called a **papal bull**, in which he condemned Luther’s writings and ordered them burned. The pope gave Luther sixty days to take back what he taught or face **excommunication**, or removal from membership in the Church. Luther responded by burning a copy of the papal bull.

**Luther on Trial**

Luther was ordered to appear before an assembly of religious leaders and princes, including the Holy Roman Emperor Charles V. Luther faced a choice: He could say he was wrong or be thrown out of the Church. The assembly, called a diet, was held in the city of Worms. The people in that city were overwhelmingly in favor of Luther.
At the assembly, Luther was shown twenty of the books he had written and was asked if he would **recant** what he had written. Luther refused. “My conscience,” he said, “is captive to the Word of God. I will not recant anything, for to go against **conscience** is neither right nor safe.”

A month later, Charles V agreed that Luther would now be declared an outlaw. Luther fled and hid in the castle of one of his supporters. He remained hidden for almost a year. While in hiding, he translated the entire New Testament of the Bible from the original Greek into German. Now more people could read the Bible.

**Vocabulary**

**recant**, v. to publicly take back something you have said or written

**conscience**, n. a sense or belief a person has that a certain action is right or wrong
Luther’s translation of the Bible was the best and most readable German version.
Unlike earlier reformers, Luther was now outside the Church, but he continued to demand Church reform. Luther believed that certain Church reforms should be in the hands of local regions or communities who understood the problems. This idea appealed to those in positions of power. More local control meant less interference by the Church. Among his supporters were some German princes, and in particular the Duke of Saxony, who took it upon himself to protect Luther. Without the duke’s support, Luther may very well not have survived. Luther’s reforms were put into practice in many areas of Germany and in neighboring countries. This new movement was called Lutheranism.

The Holy Roman Empire responded by first allowing Lutheranism in certain areas in 1526 and then banning it in 1529. The followers of Luther and others who disagreed with Rome protested against the new ban. These protestors became known as Protestants. The reform movement Luther began is called the Protestant Reformation. Today Protestant means a member of one of the churches that separated from the Catholic Church during the Reformation.

Luther continued to preach and write until his death in 1546. He spoke directly to the people in their own language. Many who heard him joined him in creating a new church independent from the Catholic Church. Today, Luther’s followers live in many countries throughout the world. The church they belong to is called the Lutheran Church. It is important to understand though, that when Luther began his protests, he did not intend to start a new church. His original aim was to reform the Catholic Church.
Chapter 3
The Spread of Protestantism

A Second Wave of Religious Reformation Switzerland is southwest of Luther’s Germany. This mountainous country’s geography encouraged independence among its citizens. The rugged Alps made it difficult for others to conquer the Swiss.

In the early 1500s, Switzerland was divided into many smaller territories called cantons. Each canton governed itself. In the late 1200s, a number of cantons formed a confederacy to help protect themselves against enemies.

It was here, in Switzerland, where the second wave of religious reformation took place. In the early 1500s, most of the Swiss bishops were more like feudal lords than spiritual leaders. They often showed greater interest in raising money than in saving souls.
The second wave of religious reform started in Switzerland.
More Religious Reform

What were considered abuses in the Church angered one Swiss citizen in particular, Ulrich Zwingli. Zwingli served as a priest in Zurich, then the leading city in the Swiss Confederation. In 1519, Zwingli began to reform his own congregation. He had become convinced that many practices in the Church had no basis in scripture. Like Luther, he opposed the practice of indulgences. He urged people not to seek them. “Christ alone saves,” he declared.

He also preached against other practices he said were not supported in the Bible. He dismissed the veneration of the saints. He ordered all statues and other forms of religious art be removed from churches. He declared that Christians were not required to fast or go on pilgrimages. Since he could not find authority in the Bible for the use of music in worship services, he removed the organ from his church and banned the singing of hymns. Zwingli won many supporters in Zurich.

Thanks to the help of a supportive Zurich printer, Zwingli’s ideas were spread outside Zurich. Copies of his sermons and other writings reached Germany. There Zwingli’s ideas began to compete with Martin Luther’s.

Vocabulary

- **scripture**, n. religious writings; the Bible
- **veneration**, n. the act of showing honor or deep love or respect
- **saint**, n. a person honored by religious leaders for having lived an especially good and exemplary life
- **pilgrimage**, n. a journey undertaken for religious purpose
- **sermon**, n. a speech on a religious topic given by a religious leader
Luther and Zwingli Meet

The two reformers did not always get along. First, they carried out a pamphlet war. Then, in 1529 they met in person to debate their differences. They agreed on many teachings. Both agreed that religious beliefs and practices should be based solely on what was in the Bible. This differed from the Catholic view, which was that the traditions handed down from the earliest days of the Church were important, too. But the two reformers differed strongly on the role of the Church in people’s lives. At the end of their meeting, Zwingli offered to shake hands with Luther. Luther flatly refused. “I will not let the devil teach me anything in my church,” he later said.

Zwingli returned to Zurich, where he continued to write and preach. His teachings were not supported by some cantons of Switzerland that still followed the Catholic faith. In 1531, five of these cantons mustered an army against Zurich. Zwingli joined the Zurich army as a chaplain. The Swiss reformer was killed in battle. As he lay dying, he is reported to have said, “They may kill the body, but not the soul.”

Despite Zwingli’s death, the spirit of religious reform remained alive in Switzerland. It shifted, however, to another Swiss city, Geneva. In Zurich, German was the common language. In Geneva, located close to France, most people spoke French. It was a

Vocabulary

muster, v. to gather soldiers together
chaplain, n. a religious person who serves a specific group, such as an army or a hospital
The Swiss reformer, Ulrich Zwingli (left), and the French reformer, John Calvin, both influenced the Protestant revolution.

Frenchman who would bring the message of reform to Geneva and ensure its spread to many other parts of Europe.

**The French Scholar**

John Calvin was born in 1509 in northern France. He studied theology and philosophy in Paris and planned to become a priest.

In the middle of his studies, his father sent him to another city, Orleans, to study law. Calvin completed his legal studies, but he never practiced law. While in Orleans, he began to read the writings of religious reformers. He even began to spend time with some of them.

In about 1533, Calvin experienced what he called a “sudden conversion.” Within a year he began to support Protestantism openly.

**Vocabulary**

conversion, n. the act of changing from one religion or belief to another
In Catholic France, people who wanted to reform the Catholic Church were not welcome. So Calvin moved from France to Basel, Switzerland.

**Calvinism**

While in Basel, Calvin wrote a book called *The Institutes of the Christian Religion*. In the *Institutes* Calvin discussed his views on religious belief and practice. The first edition of the *Institutes* was published in Latin. Two years later it was published in French.

One of the most important theological issues of the time was the question of God’s forgiveness of sin or wrongdoing and who would or would not receive salvation. The Catholic Church taught that sinners needed to ask God’s forgiveness for their sins and do penance to receive salvation. Luther said that it was really only God’s forgiveness that was important.

Calvin, however, believed that God chose who received salvation. According to Calvin, God decided who would receive salvation and who would not—and that God made this decision about a person before he or she was even born. This idea is known as **predestination**. Some people, Calvin believed, were predestined to go to heaven; others were not.
Calvin also wrote about the relationship between Church and state. He maintained that the authority of civil rulers is based on God’s word. Lawful civil rulers, he said, acted as “officials and lieutenants of God.” Therefore, he believed that the word or laws of God were above all others.

In 1536, Calvin moved from Basel to Geneva. There, other reformers persuaded him to help turn the wealthy independent city into a center of religious reform.

**A Calvinist Government**

Calvin and other reformers wanted to create a government in Geneva that would put his beliefs into practice. Calvin taught the people of Geneva the beliefs he wrote about in the *Institutes*. He also attempted to make belief in his teachings a requirement for anyone who wanted to remain a citizen of Geneva. Calvin also attempted to control the behavior of the people of Geneva. He restricted activities such as gambling, singing, dancing, and drinking. The reformers wanted good citizens to watch over their fellow citizens’ behavior and report any crimes. Those who continued to behave “badly” would be excommunicated.

At first, Geneva officials rejected Calvin’s system. They exiled him and his fellow reformers. But three years later they called him back. Only Calvin, they decided, could reverse the increase in
“bad” behavior they saw in Geneva. The officials also worried that if he did not return, Catholicism would return to Geneva.

Calvin drew up a new set of rules for Geneva. The new laws were based on the Bible. A group of pastors would decide how to worship, and they would oversee the behavior of every resident of Geneva.

Calvin also started an academy to train ministers. His students traveled throughout Europe and carried his teachings to France, the Netherlands, England, and Scotland. In France and

Vocabulary

**pastor, n.** a Christian leader in charge of a church
England, Calvinism had success, and in the Netherlands and Scotland, Calvinism eventually became the main form of religion.

In Switzerland and the Netherlands, followers of Calvin called themselves the *Reformed Church*. In Scotland, they became known as *Presbyterians*. The name referred to the Church’s form of government, in which *elders*,

By the mid-1500s, different religious groups dominated different countries and regions in Europe. Jewish people also lived in many parts of the continent.
or presbyters, played important roles. Immigrants and merchants from the Netherlands and Scotland helped spread Calvinism to other parts of the world.

**Henry VIII**

In England, Henry VIII rebelled against the Catholic Church for personal—not religious—reasons. Henry's rebellion was not Calvinist or Lutheran. Henry was a Catholic whom the pope had declared “Defender of the Faith” for his opposition to Luther.

Later, though, Henry decided he no longer wanted to be married to his wife Catherine. He asked the pope to **annul** the marriage. The couple had a daughter, Mary, but they did not have a son, which Henry needed as an **heir** to the English throne. Henry wanted the pope to declare that his marriage should not have been allowed because Catherine had once been married to his older brother Arthur. Arthur had died at a young age. When the pope refused to grant the annulment, Henry rebelled. Henry appointed his own Church leaders, who granted him a divorce. Henry then married a woman named Anne Boleyn (/boe*lin/). The Church excommunicated Henry. After all of this, Henry and Anne would have a daughter, Elizabeth, but not a son.
King Henry VIII of England established a new church when the pope refused to allow the annulment of his marriage.
Henry decided to establish the Church of England, with himself as head. The new Church of England, or Anglican Church, broke all ties with Rome. Although Henry had broken with Rome, the new English Church was not as radically Protestant as Calvinist churches.

There were some Englishmen who thought the English Church had not been reformed enough and remained too much like the old Catholic Church. These people, known as Puritans, were heavily influenced by Calvin’s thinking. In the early 1600s, many of these Puritans would sail to New England, in North America.
Chapter 4
A Revolution in Science

Changing Scientific Ideas  While Catholics and Protestants debated religion, scientific ideas were also changing. Gutenberg’s printing press made it possible to quickly spread new information and thinking about the Earth, the heavens, and the human body far and wide.

New scientific ideas and discoveries from this era would bring great changes to our understanding of the world in which we live.

The Big Question
How might scientific discovery have challenged religious belief?
The ancients observed the heavens. They watched what happened in the night sky and tried to make sense of the patterns they saw.
The Polish Astronomer

In 1473, Nicholas Copernicus was born to a leading Polish merchant family. Young Nicholas received an excellent education. He studied first at the University of Krakow, where he became interested in mathematics and astronomy. Then he received further training at two universities in Italy.

By the time he came home to northern Poland, Copernicus had mastered almost all the learning of his day. From his uncle, a bishop, Copernicus received a Church position that paid him an income for the rest of his life. Holding this office required him to become a priest. Copernicus remained a loyal Catholic until his death.

The Church was very interested in problems of astronomy in the 1500s. It had realized that the calendar—designed by Julius Caesar and called the Julian calendar—was inaccurate. Christians were not correctly calculating the date of a major holiday called Easter. Scholars had to study the movements of the sun and planets in order to determine more accurately the length of the year.

Vocabulary

Easter, n, an important Christian holiday celebrating Jesus Christ’s rising from the dead.
Since ancient times, almost everyone had agreed that Earth stood still at the center of the universe. As he worked on this problem, Copernicus grew dissatisfied with the common understanding of the universe.

In the 100s CE, the Greek astronomer Ptolemy (/tol*uh*me/) had used mathematics to describe how the sun, moon, planets, and stars circled Earth. However, Copernicus did not agree with Ptolemy’s view that Earth was immovable. He learned that in ancient times, not all Greeks shared Ptolemy's thinking. Some had theorized that the sun stood at the center of the universe and that Earth, as well as other planets and stars, moved around it. Perhaps, Copernicus thought, these theories could help explain how the heavens appeared to rotate around Earth every year. But there were problems.

It seemed impossible that Earth rotated around the sun—wouldn’t it just spin off into space? Also, the scientific wisdom that Europeans had inherited from ancient Greece was that Earth was solid whereas the heavens were light and fiery. How could something as heavy as Earth be moving?

Some of Copernicus's concerns were related to religion. The Bible said that God had once made the sun stand still. Wasn’t it wrong to say that Earth moved and the sun didn’t? Also, what if Earth turned out to be just one more planet circling the sun? Could Earth still be the center of God’s creation?

These concerns didn’t stop Copernicus. He concluded that Ptolemy was wrong. He decided “to read again the works of all the philosophers” in order to find a better answer.
Copernicus lived after the invention of Gutenberg’s printing press. Because of it, the Polish astronomer was able to examine far more records and references than any astronomer before him. He did not have to travel to distant libraries to read and copy manuscripts written by Islamic and European scholars. Instead, printed texts were available to him in Poland.

The Observations of Copernicus

Copernicus studied the stars and reviewed what others had written about them. He became convinced that it was Earth that moved and that the sun remained still. He also concluded that Earth moved in two ways. First, it spun on its own **axis**, making one full rotation every twenty-four hours. Second, Earth and the other planets revolved around the sun. For Earth, this journey took one year. In Copernicus’s view, then, the sun was the center of its own system within a larger universe.

Although Copernicus came to these conclusions early in the 1500s, he would not publish them until many years later. In the

**Vocabulary**

*axis*, n. an imaginary straight line around which a spinning object rotates
meantime, he gained fame and respect as an astronomer. He even won the favor of the pope, who approved the diagrams and calculations Copernicus used to explain his theories. In 1536, the Polish scientist was given permission to publish his findings.

Although there were attempts to stop Copernicus, in 1543, *On the Revolution of the Heavenly Bodies* was published. Legend says that a copy of the book was brought to Copernicus on the day he died, May 24, 1543.

Copernicus’s work was groundbreaking. But it was just the beginning. His ideas provided a new starting point for astronomers to follow him.

**The Italian Scientist**

Galileo Galilei was born in Pisa, Italy, in 1564, just twenty-one years after Copernicus had died. He became fascinated with mathematics after a visit to the cathedral church in Pisa in 1583. According to legend, he watched a lamp swinging back and forth at the end of a chain. He observed that no matter how far the lamp swung, each swing seemed to take the same amount of time.

Years later, Galileo followed up his observation by carrying out a series of experiments with all sorts of pendulums. He discovered that his observation had been correct. Because of his discovery, he designed an adjustable pendulum that doctors could use to measure the pulses of their patients. Later, this discovery

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**Vocabulary**

- **pendulum**, n. something hung from a fixed point that swings back and forth as a result of gravity
- **pulse**, n. a throbbing feeling caused by the movement of blood in the arteries of the body
provided the basis for the development of the pendulum clock.

Galileo had originally gone to university to study medicine. After a year of study, he began to seriously study mathematics instead. In time, he was invited to teach math at universities, including the University of Padua, where Copernicus had once studied.

Early in his career, Galileo showed great interest in understanding the laws that governed the movement of physical objects in space. He disproved the notion, put forward by the ancient Greek philosopher Aristotle, that objects of different weights fall at different speeds. He did this by dropping two objects of unequal weight from different heights. Galileo used experiment and observation to form his own scientific conclusions.

In 1609, Galileo learned of the recent invention of the telescope. In a short time he had built one of his own. His telescope was much stronger than previous models. Galileo began to use it to study astronomy. He had long been convinced that Copernicus’s theory of how planets revolved around the sun was accurate.
Using his telescope, he confirmed his belief.

Galileo published his observations in 1610, in a book titled *The Starry Messenger*. Opposition came quickly. Many Catholics and Protestants felt threatened by his work. They believed it was contrary to the Bible. Catholic theologians persuaded the Church’s Holy Office to take action against Galileo. The Holy Office was responsible for rooting out heresy in the Church.

In 1616, Galileo was called before the Church’s chief theologian. Galileo was told that the Church had decided to condemn the ideas of Copernicus, on which so much of Galileo’s work was based because they appeared to be at odds with Church teachings. From then on, the writings of Copernicus would be placed on the Index of Forbidden Books. Galileo was told he could not teach that the work of Copernicus was true. He had to teach that the idea that planets revolved around the sun was a theory. Galileo agreed to these terms, knowing that severe penalties, even torture, might follow if he did not. For several years, Galileo worked quietly. He continued his studies without publishing his results. Then,
in 1632 he published the greatest of his astronomical writings, the *Dialogue on the Two Chief Systems of the World—Ptolemaic and Copernican*. It was a thorough defense of the Copernican system. It suggested that the ideas of Copernicus were more than a theory. This made those ideas more dangerous to Church teachings.

Galileo wrote his *Dialogue* in Italian rather than Latin so it could reach a wider audience. The Catholic Church reacted quickly. Although Galileo was now an old man, he was ordered to appear in Rome to be tried for heresy.

**The Church Condemns Galileo**

On June 21, 1633, the Church condemned the *Dialogue*. Galileo was ordered to take back his support for the teachings of Copernicus. After being sentenced to prison, the old scientist was forced to kneel and deny what he believed. Galileo had never stated that the Bible or Church teachings were wrong, but rather there were aspects of the world that were not fully understood. Nevertheless, the Catholic Church felt threatened.

Galileo spent the last eight years of his life under house arrest. He did not publish any books on astronomy. Instead, he wrote about motion and the structure of matter. This provided a basis for modern physics.

In the years following his death in 1642, other scientists continued Galileo’s work. In time, many people accepted the Copernican view of the universe. It’s important to understand that the Catholic
Church was not against scientific research or understanding. At this time in history, the Church, and indeed the Bible, were at the heart of European society. The Church in Rome was driven to protect religious teachings and to hold the Church together as one religious body. Eventually, it too would accept the work of Copernicus and Galileo, and several members of the Church would go on to make their own groundbreaking scientific discoveries.
Chapter 5
Reform Within the Church

Reform Within the Catholic Church Many members of the Catholic Church who did not join the Protestant reformers also disagreed with some of its teachings and practices. They too were upset at the behavior of Church leaders who seemed more interested in the material world than in the spiritual good of their people.

The Big Question
What were the outcomes of the Counter-Reformation?
In Spain, efforts to reform the Catholic Church—including the founding of centers of learning such as the Complutense University—helped limit the spread of Reformation ideas.
Instead of leaving the Church, they decided to try to change the Church from within. They hoped they could change the course of the Church while holding to the Catholic faith.

In fact, long before Martin Luther wrote his Ninety-five Theses, Catholics had been concerned about the failures of the Church and had tried to reform it. In some places, such as Spain, reform came from Church leadership. Officials of the Spanish Church grew alarmed at the fact that many priests were not educated enough to do the work the Church expected of them. They were also concerned about the low standards of behavior in many monasteries. As a result, reform followed. The Church also founded the Complutense University, which became a great center of learning. As a result of this work, Lutheranism and Calvinism never firmly took root in Spain.

Elsewhere, such as in Italy, reform was a grassroots movement. New monastic groups devoted themselves to spreading religion and serving the poor and the sick. The Oratory of Divine Love was founded for that purpose in the same year that Luther posted his theses. The Franciscan Order of the Capuchins (/kah*poo*chinz/) was organized eleven years later. The group’s name came from the capucini, or hoods, the members wore. The Capuchins were devoted to teaching and preaching among the poor and to living simple lives. The Ursulines (/er*suh*linz/), an order of women dedicated to teaching girls and caring for the sick and the poor, began in 1535.

Vocabulary
“grassroots movement,” (phrase) a reform movement beginning with and coming from ordinary people
The Spanish Priest

One of the most effective of the Catholic reformers was Ignatius (/ig*nay*shus/) of Loyola. He was born in 1491 to a noble family in northern Spain. In 1517, the same year Luther posted his theses, Ignatius became a knight for an influential relative. Later in life he admitted that at that time he was interested mostly in going to war and being a successful soldier.

In 1521 his life changed. During a battle his leg was broken by a cannonball, leaving him unable to walk. While he recovered from his wounds, he asked for books, hoping to read tales of knightly heroes and beautiful ladies. But there were only two books available in the castle where he was recovering; a book on the life of Jesus and a book on the lives of saints. The books moved Ignatius deeply. After much thought he decided to change his life and do penance for his misdeeds.

In 1522, Ignatius made a pilgrimage to a shrine dedicated to Mary, the mother of Jesus. There, he hung his sword and dagger near Mary’s statue and became a beggar. For nearly a year he prayed and did penance. He also wrote a little book, called The Spiritual Exercises, as a guide to self-reform. This book would be widely read and followed.

After a pilgrimage to the holy site of Jerusalem, Ignatius became a student. He was in his thirties and was much older than the other
students. He forced himself to sit with the younger students and learn the basics of Latin and other subjects. He studied for more than twelve years, first in Spain and then in Paris.

Following this time period, Ignatius became friends with other like-minded people who shared his strong beliefs and devotion to good works. Because of his strong beliefs and his enthusiasm for sharing them, Ignatius often came under suspicion and was even arrested. He was charged with heresy ten times, and he was sometimes imprisoned, but each time he was found not guilty.

In 1537, Ignatius and most of his companions were ordained priests and began to preach and work with people. Two years later, in Rome, the companions decided to form a group dedicated to serving the pope in whatever way he commanded. In 1540, Pope Paul III approved the new group. They were given the name the

**Vocabulary**

**heresy, n.** ideas that go against the main teachings of a religion
Ignatius founded the Jesuits with the blessing of Pope Paul III.

Society of Jesus. Ignatius was elected their first leader. In time, the members of the society became known as Jesuits (/jezh*yoo*itz/).

**The Jesuits**

For the next fifteen years, Ignatius led the Jesuits as they quickly grew. They devoted themselves to preaching, caring for the needy, educating the young, converting nonbelievers, and fighting against heresy. They ran their society like the military, perhaps because of the military experience Ignatius had had as a young man. Society members accepted strict discipline. They gave their leader the title general, and they obeyed him without question.

**Vocabulary**

*convert*, v. to change from one belief or religion to another
The Jesuits became well-known for their work in education. Ignatius recognized the need for highly educated members of the order, so he established schools to train new members. In time, the value of the Jesuits’ training was widely recognized. Jesuits were asked to take over many universities. By 1600, four out of five Jesuits were teachers. Jesuits were also running hundreds of schools and colleges. Within fifty years they were the most important educators of European Catholics.

**Council of Trent**

Although the Jesuits were leaders in bringing about reform in the Church, they did not do so alone. In fact, the pope who approved their establishment, Pope Paul III, made important contributions of his own. He appointed a group of cardinals to investigate abuses in the Church. He began drastic reforms based on their recommendations. He also demanded that bishops actually live within the community they were supposed to serve. He set up the Roman *Inquisition* to investigate and root out heresy. Most important, he set up the Council of Trent, a meeting of Church leaders, which took place in northern Italy. The Council of Trent sought to examine and clarify the beliefs and practices of the Catholic Church.

The council began meeting in 1545. It did not finish its work until eighteen years and three popes later. The council hoped

**Vocabulary**

*Inquisition*, n. a court of the Catholic Church that sought to discover and punish anyone who believed or practiced things that were against Catholic teachings.
to reunite different Christian groups that had developed. However, the division had grown too great. Instead, the council defended and further explained many of the Catholic teachings Protestants had questioned.

Martin Luther and other reformers argued that the Bible alone was the authority for Church teaching. The council said that Church tradition also provided such authority. And it claimed that the Church alone had the right to interpret the Bible.

Luther held that salvation came from faith alone. The council agreed that faith is necessary for salvation. But it declared that
believers could help ensure salvation through good works and by taking part in Church sacraments.

Luther, Zwingli, Calvin, and other reformers had attacked the practice of indulgences. The council continued to teach that indulgences granted by the Church granted less time in purgatory. But the council did try to correct abuses involved with indulgences. It also warned against superstition in such matters as the worship of the saints.

Like Protestant reformers, Catholic leaders of the Counter-Reformation used printing to spread their message. Printing presses helped Ignatius of Loyola’s *Spiritual Exercises* reach a large audience, just as Luther’s and Calvin’s writings had. Printing presses also allowed the Church to gain greater control over some practices. Printed editions of texts and directions for worship services, for example, were made the same for everyone.

**Forbidden Books**

The Council of Trent tried to control forces that had been released as a result Gutenberg’s invention. Concerned about the accuracy of translating the Bible into different languages, the Catholic Church tried to control the publication of such texts. It established an Index of Forbidden Books. And just as Protestant churches in Protestant regions did, the Catholic Church required writers of religious books to get permission to publish.
The work of people such as Ignatius of Loyola and others helped create a new sense of purpose in the Catholic Church. The work of the Council of Trent helped rid the Church of serious abuses. It emphasized the importance of education, especially the training of its priests and teachers. It confirmed the Church’s basic teachings and established a set of rules and practices throughout the Church. In this way the Church survived the Protestant Reformation.
Glossary

A

annul, v. to officially state that a marriage never existed under the law (31)
astronomer, n. a scientist who studies the stars, the planets, and other features of outer space (2)
axis, n. an imaginary straight line around which a spinning object rotates (38)

B

basilica, n. a type of large Christian church, often built in the shape of a cross (16)

C
calligrapher, n. a person who copies written text by hand in an artistic way (5)
cardinal, n. high-ranking religious leader in the Catholic Church (13)
chaplain, n. a religious person who serves a specific group, such as an army or a hospital (25)
civil, adj. related to the government, not to religious or military organizations (28)
confederacy, n. a group of people, organizations, or countries that join together for a common cause (22)
confess, v. to admit having done something wrong (15)
conscience, n. a sense or belief a person has that a certain action is right or wrong (19)
conversion, n. the act of changing from one religion or belief to another (26)
convert, v. to change from one belief or religion to another (49)
Easter, n. an important Christian holiday celebrating Jesus Christ’s rising from the dead (36)
elder, n. a person who has power and authority based on experience (30)
excommunication, n. a punishment given by a high-ranking religious official saying that a person can no longer be part of the Church (18)

G

“grassroots movement,” (phrase), a reform movement beginning with and coming from ordinary people (46)

H

heir, n. a person who will legally receive the property of someone who dies; the person who will become king or queen after the current king or queen dies or steps down (31)
heresy, n. ideas that go against the main teachings of a religion (48)
heretic, n. a person who does not accept or follow the ideas of a particular religion (17)
indulgence, n. the removal or reduction of certain punishments for sin, linked to a particular act (14)
Inquisition, n. a court of the Catholic Church that sought to discover and punish anyone who believed or practiced things that were against Catholic teachings (50)

M

movable type, n. a system of blocks for individual letters and punctuation marks that can be arranged to print books and other written documents (6)
muster, v. to gather soldiers together (25)

N

notice, n. a written statement posted for the public to see (10)
O
ordain, v. to officially make a person a religious leader (13)

P
papal bull, n. a major and formal written statement from the pope (18)
pastor, n. a Christian leader in charge of a church (29)
penance, n. an act, such as praying, done to show regret over some wrongdoing (15)
pendulum, n. something hung from a fixed point that swings back and forth as a result of gravity (39)
pilgrimage, n. a journey undertaken for religious purpose (24)
predestination, n. the idea that a person's actions and fate are decided ahead of time by God (27)
pulse, n. a throbbing feeling caused by the movement of blood in the arteries of the body (39)
purgatory, n. according to Roman Catholicism, a temporary place where the souls of the dead suffer in order to do penance for sins before going to heaven (15)

R
recant, v. to publicly take back something you have said or written (19)

S
sacrament, n. an important Christian religious ceremony (18)
saint, n. a person honored by religious leaders for having lived an especially good and exemplary life (24)
salvation, n. in Christianity, being saved from the effects of sin (27)
scripture, n. religious writings; the Bible (24)
sermon, n. a speech on a religious topic given by a religious leader (24)
shrine, n. a place considered holy because it is associated with a holy person or event (47)
superstition, n. a false belief in the power of magic, luck, or unseen forces (52)

T
theologian, n. an expert on the study of religious ideas (13)
theology, n. a system of religious beliefs (2)
theorize, v. to come up with an idea explaining some complex event or thought (37)
thesis, n. an idea or opinion; theses is the plural form (10)

V
veneration, n. the act of showing honor or deep love or respect (24)
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