Scientific Revolution, Enlightenment, and Mercantilism

Scientific Revolution

Assignment 1

Pg. 460 to 466

**Scientific Advance from Copernicus to Newton**

-the first few advances led to uncertainty

-overtime, scientific thought was seen as a model of the way to think

**Origins of the Scientific Revolution**

-model for scientific thought-the Greeks

-physics-Aristotle

-astronomy-Ptolemy

-medicine-Galen

-the first and most dramatic discoveries were in these fields

-new observations proved the Greeks wrong

-1600’s scientists preferred to make adjustments, not huge changes in the Greek theories

-discovered other ancient Greeks who did not always agree with the most famous—Archimedes

*The Influence of “Magical” Beliefs*

-“magic” seen as a serious intellectual enterprise

-alchemy-idea that matter could be transformed using secret formulas

-astrology-planetary movement could predict natural phenomena

-Neo-Platonism-belief that truth about nature lay in essential but hidden forms

-cabala-system of Jewish thought that the universe was built around magical arrangements of numbers

-Pythagoras-ancient Greek suggested numerical patterns could connect all nature

-ideas were gaining followers

-an interest in new and simple solutions gave scientists the confidence to try new theories and get rid of old ones—paid more attention to math and started and intellectual revolution

*Observations, Experiments, and Instruments*

-2 other influences:

-European fascination with technological innovation

-growing interest in experimentation (medicine)

-inventions made more discovery possible in the 16th and 17th Century

-telescope, vacuum pump, thermometer, barometer, and microscope

-scientists could look at things not as they occurred in nature, but to reveal more information

**The Breakthroughs**

*Vesalius*

-work-*The Structure of the Human Body*

-pointed out errors in Galan (the authority on the body since Ancient Greeks)

-opened a new era of observation and experimentation in the study of the body

*Copernicus*

-Polish priest

-work-*On the Revolutions of Heavenly Spheres*

-Ptolemy’s calculations were too complex

-the solar system was simpler—the sun at the center, the earth circled it

-his calculations convinced many

-Pope Gregory XIII decided to reform the calendar in response-1582

-use of the Julian calendar caused Easter to be later and later

-we use the Gregorian calendar today

*Theories in Conflict*

-the scholarly community argued over Copernicus’s ideas

-leading astronomer Dane Tycho Brahe

-plotted the path of the moon and planets for decades

-came up with a compromise idea between Ptolemy and Copernicus

-others were not ready to discard Galen

**Kepler and Galileo Address the Uncertainties**

-Johannes Kepler (1571-1630)-German

-Galileo Galilei –Italian

-both helped to resolve uncertainties about astronomy

*Kepler and the Laws of Planetary Motion*

-tried to prove the sun centered-heliocentric-theory of Copernicus

-discovered three laws of planetary motion-published in 1609 and 1610

-proved that planet’s orbits are ellipses—regular based on their distance from the sun which determines movements of all planets

-few astronomers accepted it until Newton

*Galileo and a New Physics*

-first to see a connection between motion of planets and motion on earth

-reveled importance of physics to astronomy

-approached his work as a modern scientist

-built a telescope to observe the heavens

-discovered and understood principle of inertia

-used mathematical observation—a smooth ball on a smooth plain will keep moving- factors have to work to stop it (friction)

-demonstrated only mathematical language could explain nature

*A New Astronomy*

-1610 Galileo made the discovery (with a telescope) that Jupiter has satellites and the moon has mountains

-calculated the height of the moon’s mountains and explained its light

-Earth was only part of the universe

-his theories could only be explained if the Earth was moving

*Conflict with the Church*

-Church was struggling with Protestantism—responded by trying to control all questionable views

-Jesuit and Dominican astronomers upheld the Church’s views and referred Galileo to the Inquisition

*The Book and the Trial*

-1616-Inquisition forbade Galileo from teaching his doctrine that the Earth moves

-his friend was elected pope in 1623 so Galileo thought he was safe and wrote *Dialogue on the Two Great World Systems* in 1632 with approval (likely accidental) by the Church

-wrote in Italian, not Latin in an effort to reach a wide audience

-April 1633 brought before the Inquisition for defying the ban on teaching Copernicanism

-abjured his beliefs that the Earth moved (to avoid excommunication)

-remained under house arrest for years

-1638 published *Two New Sciences* in tolerant Holland

*Assurance Spreads*

-discoveries created a new certainty about the physical world

-English doctor William Harvey provided a new understanding of the body and how blood circulates-function of the heart

**The Climax of the Scientific Revolution: Isaac Newton**

-contributions in math, physics, astronomy, and optics

-united physics and astronomy into one system to explain all motion

-transformed math by developing calculus

-established laws of modern physics

-part of the Royal Society of London—prepared his best papers to prove his theories

-other societies were established all over Europe to copy the Royal Society

-in Copernicus’s time scientists worked alone

*The Principia*

-Newton’s work the Mathematical Principles of Natural Philosophy (1687) aka the Principia

-the last widely influential book written in Latin

-Newton proved everything in the book with math and experiments

-solved ancient questions about motion in 3 laws

-without force, motion continues in a straight line

-rate of change in motion is determined by forces acting on it

-action and reaction between two bodies are equal and opposite

-extended laws to the whole universe—govern planets and motion too

*The Influence of Newton*

-his philosophy that the world was stable and orderly was as important as his discoveries

-huge stature and importance

-knighted in England

Scientific Revolution Assignment 2

Pg. 466-472

**The Effects of the Discoveries**

-Scientist’s success of their reasoning encouraged new confidence in human powers

**A New Epistemology**

-Galileo stressed his discoveries were because of independent thinking

-epistemology-theory of how a person obtains and verifies knowledge

-stressed experience, reason, and doubt

-rejected all unsubstantiated authority

-new way to determine what was a physical reality

*Scientific Method*

-process scientists said they followed after developing a hypothesis

-observation

-generalization based on observation

-tests of generalization (experiments)

-used only data from the observations

-the language of science became math

**The Wider Influence of Scientific Thought**

-scientists convinced the educated public that science offered truth in otherwise chaotic world

**Bacon and Descartes**

*Bacon’s View of Science*

-Francis Bacon-greatest science propagandist

-described what science could accomplish for humanity

-New Atlantis-described the ideal society

-vision of science as the savior of the human race

-government should sponsor projects to gather facts about the universe—will result in universal laws that will allow people to improve their lives

-by mid-17th Century his ideas were mainstream

*Descartes and the Principle of Doubt*

-Rene Descartes believed that all knowledge had to be observed and to avoid being deceived by your senses, must have doubt—refused to accept anything without verification

-“I think therefore I am”—thinking verified his existence

-felt our idea of perfection (since we are imperfect) proved the existence of God

*The Discourse on Method*

-major work-*Discourse on Method of Rightly Conducting the Reason and Seeking the Truth in the Sciences* (1637)

-thought is pure and unmistakable—people can only advance the understanding of the world by relying on its operations

-Bacon and Galileo believed in faith and study of nature were separate—Descartes turned it into a wider principle

*The Influence of Descartes*

-not only phenomenon of nature, but all truth had to be investigated according to the scientific method

-contributions to research were theory, not experimental

-distinction between mass and weight

-algebraic notions and method applied to geometry and analytic geometry

-emphasis on doubt undermined the idea of a hieratical universe

**Pascal’s Protest Against the New Science**

-Blaise Pascal-French mathematician and experimenter

-investigated math and games of chance

-researched conic sections—resulted in integral calculus

-discovered barometric pressure

-invented a calculating machine

-stopped researching math and devoted his life to saving his soul in 1654

*The Pensees*

-the Reflections

-written by Pascal

-reveled his religious beliefs and a concern that science was becoming too influential

-did not wanted to end research, wanted people to understand that what scientific research had revealed was limited

-show how high the status of science had risen

**Science Institutionalized**

-many felt that scientific information should be shared

-scientific society in Rome was the first to do this formally

-followed by France—Marian Mersenne started an international network of scientists

*The Royal Society*

-located in Oxford during the English Civil War-1640s

-formed the Invisible College—a group that exchanged information and discussed their work

-included Robert Boyle-a chemist

-in 1660 Boyle and 11 others formed the Royal Society of London for Improving Natural Knowledge

-1662 it was granted a Royal Charter by Charles II

-liked science with political authority

-an indication of the growing presence of central government in all areas of society

-the aim was to gather all knowledge about nature

-served as a headquarters for research

-1665-started *Philosophical Transactions*—first professional scientific journal

*Other Scientific Societies*

-1666-French Royal Academy of Sciences established with the blessing of Louis XIV

-Naples and Berlin had scientific societies by 1770

-membership was limited and highly sought after

-glamor attached to new fields

-by 1660’s science became a model for all thought

*The Wider Appeal of Science*

-people applied science to life

-reverence for science came from the fact that the research answered old questions

-order and harmony appeared in the work of artists and writers

**Arts and Literature**

-old truths challenged and a new sense of assurance emerged

**Unsettling Art**

*Mannerism*

-reaction against idealizing of the Renaissance

-distorted human figures, unnatural colors, startling effects

*El Greco*

-The Greek

-trained in Italy, lived in Spain

-used color, light, and elongated figures to make his distinctive

-after 1600, painters rejected mannerists and the flight from reality

**Unsettling Writers**

*Michel Montaigne*

-created the essay

-inspired the search for self-knowledge

-skepticism—preoccupation with uncertainty

-felt nobody had to be an angel, being good was enough

*Neostoicism*

-a more general approach to morality

-calm acceptance of world and self-knowledge

-Dutch writer-Justus Lipsius—urged kings to be restrained and self-disciplined

*Cervantes*

-Spanish writer

-saw wide gaps between hopes and realities of his day—behavior, religion, social institution

-wrote his satire-Don Quixote

-pointed out brutality and lack of human values in society

*Shakespeare* 1564-1616

-wrote on many topics

-had to produce plays on short notice—used audience reaction to judge his work and make changes

-his attitude toward his era important to history

-shows legality and stability as a value-turbulent times in England

-very patriotic

-people are overtaken by events that they cannot control

-nothing is consistent

Enlightenment

Assignment 1

556-566

**The Enlightenment**

-built on the Scientific Revolution—belief that human behavior and institutions could be studied, ordered, and corrected

-effort to make educated people more rational, tolerant, and virtuous

-capital was Paris

**The Broadening Reverberations of Science**

*Popularization of Science*

-processes of science applied to other areas of life

-resulted in a skeptic attitude toward accepted dogmas

-work of scientists translated into easy to understand reading—Newton and Descartes household names

-Francois-Marie Arouet—Voltaire

-studied Newton

-felt liberal England gave Newton, Bacon, Locke, etc. the freedom to work

-*Philosophical Letters on the English* (1734)-celebrated English toleration and attacked religious bigotry, censorship, and social snobbery of the French

-chemistry-still could not explain fire

-Joseph Priestly (English) isolated oxygen

-Antoine Lavoisier (French)-analyzed air and water—tried to explain combustion

-pseudo science started to appear

-mesmerism—use of magnets and electricity to core ailments

*Natural History*

-science of the earth’s development-zoology, geology, botany

-easy for non-scientists to appreciate it

-G.L. Buffon—keeper of the French Botanical Gardens

-Natural History of the Earth (1749-1778)

-theory of Earth’s development

-used fossils

-did not attack religious versions of creation

-he did not believe in creation

-hinted evolution was possible (did not use the word)

**Beyond Christianity**

-one hallmark of the Enlightenment-erosion of the Bible as a source of revelation

-scientists attempted to fit the new science into ideas about religion

-focus on reverence for God and moral issues

-thinking diminished the authority of religion in society

*Toleration*

-French critic Pierre Bayle-*Critical and Historical Dictionary* (1697)-put religious teachings to the test of reason

-critical of Christianity’s attempts to impose orthodoxy at any cost (Spanish Inquisition)

-advocated complete toleration—any religion or none at all

-moral behavior, not religion matters

-Edict of Toleration—Hapsburg Emperor Joseph II-1781

-allowed Protestants and Jews to worship freely and hold public office in the very Catholic Holy Roman Empire

-attempted to reduce the influence of the Church by closing monasteries

-used money confiscated from monasteries to support medical school at the University of Vienna

*Deism*

-Voltaire was anti-Christian

-his *The Philosophical Dictionary* was published anonymously and burned in many countries

-more blunt then Bayle’s dictionary

-argued that religious superstition bred fanaticism and resulted in bloody massacres like St. Bartholomew’s Day Massacre

-hoped that educated people would abandon Christianity in favor of deism—belief that God created the earth, but after that he left it alone to function by natural laws

-no divine intervention possible

-no damnation or eternal salvation

-to Voltaire, religion was a private matter

**The Philosophes**

-a group of French intellectuals

-saw themselves as leaders of the Enlightenment

-came from aristocracy and the middle class

-extended to other countries

*Intellectual Freedom*

-shared a critical spirit

-the idea that they had to test institutions of society with reason made many turn away from their faith

-invoked the paganism of Ancient Rome—reason not religion ruled

-Edward Gibbon-*The Decline and Fall of the Roman Empire* (1776-1788)

-declared that Christianity had eclipsed a Roman civilization that tried to live according to reason rather than myth

-also laid claim to Newton and modern scientists

*Persecution and Triumph*

-philosophes had to fight against religious traditionalists and censorship all over Europe

-lack of intellectual freedom

-published work in secret and anonymously

-some jailed or exiled

*Pioneering the Social Sciences*

-some were historians—studied society, social institutions, and governments

-sociology and psychology were started

-based on studies proposed reforms to penal system and education

-studied ethics with a utilitarian focus

*Political Liberty*

-*Spirit of Laws* (1748)-Montesquieu-compared government and society

-introduced prospective of relativism-analyzed institutions of government in relation to special customs, climate, religion, and commerce

-argued that no single ideal government existed

-admired the British system—felt that all could learn from it

-Political liberty requires checks on those in power

-liberty can only thrive with a separation of powers—executive, legislative, and judicial

*Liberal Economics*

-believed in laissez- fair capitalism (Adam Smith)-government intervention put undue restraint on the economy

-Physiocrats argued that economic progress depended on freeing agriculture and trade from restriction

-believed that land was the only real source of wealth

-wanted a uniform and fair land tax

-wanted grain trade to operate on supply and demand

**Diderot and the Encyclopedia**

-the Encyclopedia was produced by French philosophes—collection of knowledge on various subjects

-Denis Diderot—published plays, novels, and critical essays on religion

-wrote about the natural man

-2 books were condemned as anti-religious, anti-state, and immoral

-100 days in prison and a public apology 1749

*The Encyclopedia*

-also known as-*Classified Dictionary of Sciences, Arts, and Occupations*

-was an inventory of all fields of knowledge

-28 volumes

-religion was carefully treated as philosophy and history-angered orthodox readers

-science was at its core

-against restrictions on trade and agriculture

-endorsed absolute monarchy if it was efficient and just—concerned about civil rights, freedom of expression, and the rule of law

*The Encyclopedia’s Impact*

-intellectually revolutionary

-French government banned it after the first three volumes in 1759

-Diderot published the rest underground

-eventually published

**Jean-Jacques Rousseau**

-obsessed with the idea of moral freedom—found society very repressive

*Rousseau’s Moral Vision*

-argued morality based in conscience, not reason

-theme of his works of fiction—*Julie or the New Heloise* (1761) and *Emile or Treatise on Education* (1762)

*The Rebel as Cultural Hero*

-fought with church and state—books were banned

-disagreed with philosophes

-by 1770s Voltaire and Diderot had become the establishment—Rousseau spoke for others

*Rousseau’s Concept of Freedom*

-the *Social Contract* published in 1762-did not become famous until after the Revolution

-meant to be a new standard to measure society

-a government that distances itself from individuals over whom it claims authority is not valid

-denied the idea that some people are meant to rule and some are meant to obey (an almost universal idea at the time)

-ideally Rousseau felt individuals should have a role in making the laws they must obey

-idea of the general will-individual interests are less important than general good

-individual have to do what they ought, not what they want

-freedom depends on a political framework involving consent and participation of the governed

Enlightenment

Assignment 2

Pg. 582-586

**Reform and Political Crisis**

-absolutist governments did not get far in granting rights and freedoms

**Enlightened Absolutism in Central and Eastern Europe**

-concept of enlightened monarch invented by German historians critical of the French monarchy

-argued that a strong enlightened ruler was the basis for progress

-Kings who ruled in subject’s interests avoided violent conflict

-Frederick II, they argued, symbolized enlightened monarchs

-Enlightened Monarchs still tried to control their realm and expand territory

-made changes to appear more enlightened

-Catherine the Great (r1762-1796) Russia

-convened the Legislative Commission—body of delegates invited to present grievances, propose reforms, and debate proposals

-little came of it—she sent the delegates home

-Charter of Nobility-strengthened nobility’s corporate status and increase their control over serfs in exchange for loyalty to the crown

*Conceptions of Enlightened Rule in Germany*

-German writers saw the state as a machine and its ruler as its mainspring

-success depended on the enlightened monarch and well trained officials

-German universities trained bureaucrats

-orders came from the monarch who was expected to focus on subject’s welfare

-created a system of rule of law without a constitution or parliament

**Joseph II and the Limits of Absolutism**

-Joseph II co-ruled the Hapsburg Empire with Maria Teresa

-he became the sole ruler after 1780

-promoted reform from above

-maintained his Catholic faith—did not identify with philosophes

-implemented several reforms—freedom of expression, religious toleration, control over the Catholic church and legal reform—all advocated by Enlightenment thinkers

-ended torture and class differences in the application of laws

-reduced royal censorship—Vienna became a center for literature

-Edict on Religious Tolerance for Protestants and Jews

-forced the Catholic Church to modernize (unpopular)

Agrarian Reform

-attempted to change the economic and social position of peasants

-attempt to eradicate serfdom and make Hapsburgs peasants into free people

-eradicated personal servitude and gave peasants the right to marry and move

-cancelled some of the old obligations and made taxes more fair

-opposed by nobles, but he did not ask anyone’s opinion

-later years-elevated the police to an imperial ministry and gave them more power

-reinstated censorship

-died in 1790-his successors reinstated serfdom

**Upheavals in the British Empire**

-George III intent on advancing royal authority

-used Parliament patronage and influence

-Whigs saw him as a threat—enlisted support from outside Parliament

-organizations called for political reform

-laws against political corruption and greater freedom of the press

*Wilkes and Liberty*

-John Wilkes-member of Parliament

-attacked the Prime Minister and implicated the king over the terms of the Treaty of Paris 1763

-arrested for libel-fled to France to avoid prison on porn charges

-elected to Parliament three times-House of Commons refused to seat him

-took his seat in 1774 after protests

-Parliamentary reform supported by many who could not vote—wanted reform, not an overthrow of the system

*Rebellion in America*

-George III and Parliament attempted to pass on the cost of colonial defense to the American colonies

-increased taxes and centralized authority

-rebel leaders appealed to the traditional rights of Englishmen

-Declaration of Independence in 1776

-lack of aristocracy in America allowed for rebellion (unlike Ireland or Netherlands)

-created the most democratic government

-not based on royal power

-participation and consent of male citizens

Mercantilism

Assignment 1

Pg. 528-536

**Demographic and Economic Growth**

-historical demographers—deal with migrations of existing populations

-study birth and death rates, growth and decline of population

-economic historians—analyze macroeconomic trends in production and prices

**A New Demographic Era**

-population levels were constantly changing—cyclical

-Europeans often struggled with subsistence

-succession of poor harvests

-undernourishment made people vulnerable to disease

*Population Growth*

-by 1800, Europe’s population had grown by at least 50%

-18th Century—steady (not cyclical) population growth

-France became the most populated (except for Russia)

*Falling Death Rates*

-death rates falling, not birth rates rising caused larger populations

-improvements in medical science and hygiene

-more stable food supply

-Europeans remained extremely vulnerable to disease

-tuberculosis, typhoid, malaria, dysentery, influenza, typhus, and smallpox

-Except in England, birthrates in most of Europe did not increase in the 17th Century

-later marriage—fewer babies

-in England marriage age was down—more babies

**Profit Inflation: the Movement of Prices**

-Europe’s wealth expanded in the 17th Century

-gradual inflation dominated the time

-reaction to growing population—needs more food, land, goods, and jobs

*The Impact of Inflation*

-inflation was not the same everywhere

-rents rose—shortage of land

-real wages rose only slightly

-drove poor people from countryside to city

-merchants in cities could sell goods for more and pay workers less

**Proto-industrialization**

-agriculture could not ensure economic growth in places with large populations

-needy families could not earn a living

-solution—domestic manufacturing—putting out system

-merchants distributed raw materials (wool/flax) to households

-men and women would spin and weave cloth

*Proto-industrialization*

-name historians give to the economic development before the rise of factories

-amount of materials produced rose in the 17th Century—families devoted more time to production

-consequences:

-people had more money—reinvest in production

-increased demand for products and services

-people were more comfortable with production and cash relationships

-move to the cities

-did not lead to more productivity or technology

**The New Shape of Industry**

-manufacturing of cloth—huge change in England

-major transformation depended on

-development of more efficient tools and machines

-development of new sources of energy

-led to the reorganization of labor and the factory system

-changes came from favorable conditions in England

-legal system regulated property rights

-efficient financial institutions

-markets

-growing consumer demand

-free market doctrines of Adam Smith

**Toward a New Economy**

-economists focused on performance an structure when analyzing economic systems

-performance—measured by output—total or gross of a product produced per individual

-best measure of the economy’s performance

-industrial economics can see sustained growth in per capita production

-structure—all characteristics that support or affect performance

-economic, legal, political institutions

-tax policies

-technology

-demographics

-culture and ideology

-technological innovation requires new inventions and the structure to support them

*Impediments to Economic Innovation*

-small size of most European markets

-markets cut off from each other

-slowed the growth of manufacturing

-limited the movement of capital and labor

-skewed distribution of wealth hurt demand

-luxury goods were produced in very small quantities

-not much demand for other goods

-question of property rights—encourage high rate of return on investment or impede it

-guilds and government regulations impeded progress

-governments allowed and created monopolies

-cultural attitudes—aristocrats saw money that was made (new money) as tainted

*Adam Smith*

-Scottish philosopher wrote—*An Inquiry into the Nature and Causes of the Wealth of Nations*

-money did not constitute wealth—it was the marker of wealth

-wealth came from the added value of manufactured items that came from a combination of wealth and labor

-economic progress requires each individual be allowed to pursue his own self-interests without restriction by guilds, state, or traditions

-natural division of labor should be encouraged at all levels

-high tariffs, guild restrictions, and mercantilist restraints obstructed economic activity

-Laissez-Faire—let individuals freely pursue their own economic interests

-hands off approach

-British business people and factory owners loved it

-1786—free trade agreement between Britain and France—lowered protective tariffs

-guilds started to disappear and lose influence—cotton textiles were outside of guild influence

**Roots of Economic Transformation in England**

-England was the first to develop social structures that supported industrial growth

-many advantages

-fertile and productive land

-balance of resources—coal, iron

-streams to power mills

-proximity to the sea—transport and access to markets

-British built canals—2,600 miles by 1815

-no internal tariffs

-uniform money, weights, measures

-common law

-high standard of living—demand for goods

-primogeniture—younger sons did not inherit land, had to fight work elsewhere

-Calvinists and Quakers (religious dissenters) could not find careers in government—turned to businesses

British Financial Management

-lots of reinvestment is necessary for industrialization

-depends on the skillful management of money

-British had advantages:

-growing banking system

-confidence in paper money

-Bank of England-established in 1694

-responsible for management of British public debt—sold shares to the public to meet obligations, but was helped by the government

-also lent money to the British government

-France had no central bank

-public borrowing drove up interest rates in the private sector

-produced luxury items or very cheap goods

-the British had more standardized products that were high quality

**Cotton: The Beginning of Industrialization**

-18th Century—the demand for cheap goods was growing

-slave labor made raw cotton cheaper than wool or linin

-durable, washable, versatile

-the putting out system had reached its limit—further merchants traveled to find workers the longer it took, harder to control products and workers

*Machines and Factories*

-1730s invention of the fly shuttle allowed for the construction of larger and faster hand looms

-traditional spinning methods slowed up the process—new spinning machines were invented

-Richard Arkwright invented the water frame to twist cotton fibers into thread

-put his machines in large factories and used water power

-father of the factory system

-James Watt perfected the steam engine

-1785 Arkwright switched from water to steam power

-result: lots of yarn that was slow to weave

-1784—Edmund Cartwright designed the power loom, but it was not widely adopted until the 1800s

-revolutionized the production of cloth—moved workers into factories where managers could watch their every move

Mercantilism

Assignment 2

pg. 536 to top of pg. 542

**Innovation and Trade in Agriculture**

-1700 England-80% of English lived off agriculture, by 1800 it was only 40%

-agriculture became much more productive

*Convertible Husbandry*

-repeated harvests of the same crop on the same soil depleted the nutrients in the soil

-could let the field lie fallow (don’t plan anything) every second or third year

-use manure to replace the nitrogen-most peasants could not afford to fee the livestock necessary

-peasants began to plant turnips to feed the livestock and which would provide the manure

-Jethro Tull-British farmer and inventor

-experimented with new farming techniques

-caught on in England and became known as animal husbandry

*Improving Landlords*

-innovative landlords did not let their land lay fallow-put it to use

-tried to improve the soil

-selectively bred animals to create new breeds, producing larger animals

**The Enclosure Movement in Britain**

-the old way to manage land was the open field system-land was held in elongated strips open to all

-had to follow the same routines of cultivation as their neighbors

-decisions about the management of land were made by the village as a whole

-kept the technology of cultivation stuck at that of the Middle Ages

-Enclosing the farms was the only way to create compact farms and use the new methods

-in England-an Act of Parliament allowed large landowners to petition to enclose all the land in a village

-large land owners then could fence in the land and manage it how they wanted

-Enclosing land was expensive, but worth the investment in the long run

-from the 1750s on Parliament passed many acts allowing enclosures

*The Impact of Enclosure*

-deprived the poor of their traditional rights to the common land and left them with small, unprofitable plots

-most often they were forced to sell their land to large landowners and become urban workers

-massive amounts of rural development happened in the wake of the enclosure movement

-led to the domination of rural society by the great landowners worked by tenant farmers who held long leases

-led to the disappearance of peasant type small farmers and pushed people to the city

-first urban, industrial economy

**Serfs and Peasants on the Continent**

-little changed on the continent

-in Eastern Europe, peasants were serfs

*Lords and Serfs in Eastern Europe*

-nobles retained a near monopoly on the ownership of land—peasants were serfs

-could not marry, move away, or trade without the lord’s permission

-ensured that peasants would be available to provide labor that the lord needed

-in return, serfs received access to plots of land (they did not own them)

-much of their time was spent doing unpaid work for their lord

-hours/days based on tradition, not law

-conditions varied across Eastern Europe

-Polish and Russian serfs were pretty much slaves

-the Russian government owned many serfs, and sent them to work in mines and factories

-in Prussia and the Hapsburg Empire, serfs had some rights

*Lords and Peasants in Western Europe*

-serfdom in most places was gone

-peasants were free to buy land if they could afford it—not enough land, and most could not afford it

-most peasants lived under a system of seigneurialism-peasants owed their lords various dues and obligations on their land (even if the peasants owned it)

-fees and charges (percent of crops) a source of income for the lord, and a burden for the peasant

-lords administered justice in criminal and civil matters and had exclusive hunting rights

-lords also owned and profited from wine presses, flour mills, and bread ovens in most cases

-Peasants did not tend to experiment with new farming methods

-Peasants had many obligations—royal taxes, rents, seigniorial dues, tithe to the local church, and interest payments on their debts

-relied on tradition and custom

*Peasant Survival Strategies*

-Peasants had to control enough land to meet obligations and feed themselves

-often peasants owned some land and rented what else they needed

-peasants did not like to see the consolidation of small plots into large farms

-peasants resorted to stealing, poaching, begging, selling their labor, and avoiding taxes to get buy

*The Family Economy*

-women worked in the home—cooking, cleaning, repairing clothing, spinning yarn, and maintaining the hens and chickens and small garden

-men’s work was to care for large animals, plow, and plant

-at harvest time the whole family worked in the field

*The Limits of Agrarian Change on the Continent*

-change came more slowly on the continent then in England-in some places high food prices encourage new farming methods

Mercantilism

Assignment 3

pg. 542 - pg. 551

**Eighteenth Century Empires**

-colonial trade became another driver of economic growth in Britain and France

-plantation economies, reliant on slave labor, provided cotton, sugar, and tobacco

-trading empires were protected by the armies and navies of Britain and France

**Mercantile and Naval Competition**

-after 1715 the Dutch, Portuguese, and Spain were focused on defending their empires, leaving further expansion to the English and the French

*The Decline of the Dutch*

-the United Provinces (aka Dutch Netherlands) had declined in power after the Wars of Louis XIV

-suffered from demographic and political stagnation

-the Dutch economy declined when the British and French both decided to eliminate them as middle men for trade

-high taxes on manufactured goods and high wages in the Netherlands made Dutch goods expensive

-Dutch financial systems kept the Netherlands from being insignificant in Europe’s economy

-shifted away from trading to credit and finance

-first to perfect paper money, stock market, and central bank

-lent money to private bowers and governments

*The British and French Commercial Empires*

-Britain’s only competitor was the France-the only country to maintain a large army and navy

-rivalry took place in four regions-West Indies (sugar producing islands)

-Slave producing West Africa

-North America

-India and other parts of Asia-through powerful trading companies

-the French absolutism fostered a centralized control, while British colonies were more independent from each other

-British colonies were controlled by the crown and Parliament, but also have local assemblies and developed systems of self-government

-both applied mercantilist principles to their colonial trade and created large navies to protect the trade

*Mercantilism*

-mercantilism supported regulation of trade by the state in order to increase the state’s power over other states

-all economic activities of the subjects less important than the needs of the state

-practiced in Britain, France, Prussia, and elsewhere

-advocated a favorable balance of trade measured by the inflow of gold and silver

-assumed that a country’s share of gold/silver can only increase at the expense of other countries

-idea attacked by Adam Smith in 1776

-Colonies could promote a favorable balance of trade by producing raw materials and staple crops for the parent company and by buying the manufactured goods from the mother country

-other countries were to be excluded as much as possible

-countries used taxes, regulations, and prohibitions to exclude other countries

-most of the parties involved became wealthy

-seaborne empires had to be protected—rivals excluded, regulation enforced

-navies were improved and expanded

-required safe ports

**The Profits of Global Commerce**

-colonial markets increased trade tremendously

-West Indies seemed to be ideal colonies-produced sugar, tobacco, indigo, and cotton while did not produce other things and were dependent on manufactured goods from Europe

*Triangular Trade*

-Triangular Trade-trade between the home country and two overseas areas

-many patterns existed

-colonial economies to help mother country (mercantilism)

**Slavery, the Foundation of Empire**

-global trade relied on slavery

-at its height about 88,000 Africans were brought to North America every year

-trading slaves was lucrative and dangerous

-demand was high, and continued to rise

*The Ordeal of Enslavement*

-slaves came from the interior of Africa, using African middlemen

-many slaves died before they left Africa or en-route to the Caribbean in the Middle Passage

-after the 1780s, there were fewer slave ships across the Middle Passage

**Mounting Colonial Conflict**

-population of Britain’s North American colonies was growing

-cities were growing

-population was spreading west

-French settlers were spread thinly over their holdings

*Conflict on the Frontier*

-France establish forts in the Great Lakes region

-France worried that the British would penetrate the Ohio Valley

-British settlers worried the French would cut off their westward expansion

-both sides wanted the American Indians on their side

-1745 started years of unofficial hostility

-Britain took on the expense of their colony’s defense

-in May 1756, Britain and France officially declared war

**The Great War for Empire**

-in Europe called the Seven Years War

-centered on the rivalry between Austria and Prussia, but included Russia, France and Britain

-also a fight for North America between Britain and France—French and Indian War

-started out in a string of defeats for the British

-there were too few French to maintain their victories

-even naval matchup of the 1740s became British superiority in the 1750s

*Pitts Strategy*

-William Pitt became British Prime Minister in 1758-the war was about to turn

-honored the British commitment to Prussia, but placed high priority on defeating the French

-French prepared to invade the British Isles, but were defeated in naval battles in 1759

-after that the British ruled the seas

-with a depleted navy, France could not transport troops and supplies to the colonies

-the British defeated the French at the Battle of Quebec

*The Treaty of Paris*

-war weary Britain did not insist on keeping all of its conquests-gave back several Caribbean Islands

-British held on to Canada (which kept the North American colonies loyal to the British)

-French troops were also excluded from India-proved to be very important

**The British Foothold in India**

*A Decaying Empire*

-by the mid-1700s, the Indian Mughal Empire was in decline

-ethnic strife, dynastic instability, factionalism, greed, incompetence of rulers

-little to do with Europeans

-British and French merchants had prospered on the coasts

-Britain administered its interests in India through the East India Company-a private corporation

-at first neither the British or the French tried to establish colonies in India

-as their competition intensified, both the British and the French began to try to maneuver with force and diplomacy among the native groups

*From Trade to Conquest*

-Robert Clive commanded an army of Indian soldiers working for the British (Sepoys) to oust the French and suppress native opposition to the British

-defeated his opposition at the Battle of Plassey

-British East India Company had unchecked power and no responsibility

-collected taxes, controlled trade, and increased military control

-British men (like Clive) that arrived in India poor, returned to England wealthy

-by 1764 the British had ousted the French from any influence

-Parliament passed the India Act of 1784 which replaced the British East India Company with the British government as the authority in India

-first governor general of India-Lord Cornwallis (surrendered to the Americans at Yorktown)

*The British Raj*

-British rule in India was called the Raj

-to create a class loyal to the Raj Cornwallis turned the rural gentry into landlords-could evict peasants

-highest positions reserved for whites

-British held a monopoly on salt and opium

-salt monopoly extracted money from the Indians

-opium was shipped to China in exchange for tea