

Chapter 16

Modern Thought 1840-1939

Perhaps one of the most influential men of the nineteenth century was the English botanist Charles Darwin (1809-1882). Darwin, known as the “Newton of biology,” introduced the idea of evolution into biology and turned traditional science upside down. Darwin sailed aboard the HMS Beagle as the science officer to the Galapagos Islands where he started to formulate his theories on evolution. Earlier scientists had discussed the idea of evolution but all had failed to show how evolution occurred. Darwin’s research answered that question. Darwin and Alfred Wallace (1823-1913), working independently and almost simultaneously, developed the idea of natural selection.

In *The Origin of Species* (1859), Darwin postulated that all forms of life had evolved from earlier forms of life. In reality, no one species was specially created. He also argued that life was a constant struggle in which all forms of life had to adapt or become extinct. Those that were better adapted survived and passed on the favorable characteristics to their offspring, thus ensuring a survival of the fittest.

In *The Descent of Man* (1871), Darwin applied his theories of evolution to humans – this is what caused the problems! Darwin and his theories have been misunderstood since they were proposed.

Darwin’s mechanistic view of the natural world conflicted with science and religion. His ideas were not readily accepted until the 1920s, by which time the work of the Austrian monk Gregor Mendel (1822-1884) had opened the door to genetics and heredity. Darwin never could explain how variations occurred in species, but Mendel’s work answered those questions.

British philosopher Herbert Spencer (1820-1903) applied Darwin’s theories to all aspects of human nature. He believed that human life, like animal life, faced a series of struggles for survival and as a result the strongest survive. It was Spencer who was responsible for the idea of social Darwinism; an idea that would be used over and over to justify racial superiority. In the nineteenth century, because the white race dominated the globe, it was easy to justify social Darwinism. Another negative aspect was that social Darwinism was also used to justify not helping the poor and the working class. Eventually this theory took on nationalistic as well as religious characteristics – none of which were actually espoused by Darwin himself.

British biologist Thomas Huxley (1825-1895), known as “Darwin’s bulldog,” became one of the most vocal supporters of Darwin’s theories. A critic of social Darwinism, in his work *Evolution and Ethics* (1894), Huxley claimed physical evolution differed from cosmic evolution and as a result social Darwinism really did not cause competition.

In 1835, David Friedrich Strauss (1808-1874) wrote *The Life of Jesus*, which questioned the validity of the Bible. Strauss claimed that Jesus was a myth that had been perpetuated by society to answer social needs. Strauss claimed Jesus was actually an image to which people believe they should strive to attain.

Psychology was also changing, perhaps in response to the irrational world. German philosopher Arthur Schopenhauer (1788-1860) expressed the belief that happiness could only be achieved by withdrawing from the cruel world of conflict and competition. In his *The World as Will and Idea* (1818), he stated that the will to survive is the dominant force in human nature.

The German philosopher Friedrich Nietzsche (1844-1900) believed that the will proved life with meaning. He tried to find the source of people's determination of good and evil, not people's idea of good and evil. During the course of his life he attacked democracy, nationalism, science, and Christianity. In attacking Christianity he claimed "God is dead!" because of its slave morality. Nietzsche believed in the idea of a superman (*übermensch*), free from human rules, who could truly experience life. Nietzsche was searching for a Homeric hero based on Greek ideals. Drawing heavily on Romanticism he appealed to the emotions and questioned rationalism.

German sociologist Max Weber (1864-1920) saw the development of science and bureaucracy as a result of rationalism. Weber contested Marx on many issues of capitalism, especially how people derive their self-image. Contrary to Marx's opinion, Weber believed man earned his self-image from his position in society. In his *The Protestant Ethic and the Spirit of Capitalism* (1905) Weber explained the spirit of capitalism and argued that people strive for success in their work to secure recognition from God. The idea of a Protestant work ethic has been debated and argued since its inception.

Russian physiologist Ivan Pavlov (1849-1936) researched reflexes in dog show that many responses are caused by subconscious stimuli. This field of study was known as behavioralism.

Austrian doctor Sigmund Freud (1856-1939), the founder of psychoanalysis, examined dreams. Freud, like other nineteenth century philosophers, tried to find out what was beneath the social fabric of people's lives. He found that dreams are simply desires that have been avoided during the day. The book, *The Interpretation of Dreams* (1900) documented his research and claimed that human behavior is irrational. Freud, like Nietzsche, found that traditional moral values can repress sexual urges through guilt and neurosis.

Carl Jung (1875-1961) disagreed with Freud over his interpretation of dreams. Jung believed that a person's memories, their collective unconscious" created their psyche.

The fin-de-siècle scientists revealed that man had not learned all there was to learn about the natural world. Scientists, especially in the field of physics, would change the way people looked at things around them. Twenty-first century physicists would evolve a new-world philosophy based on power. These ideas would eventually prove more fantastic and more unbelievable than anything ever imagined; however, they would also prove to be more devastating and deadly than anything man had previously invented. Atomic and nuclear science would shape the course of history for most of the century.

In 1895 German physicist Wilhelm von Roentgen discovered x-rays.

A pair of French physicists working together opened the door to the nuclear age. Marie Curie (1867-1943), who had been working with her husband Pierre Curie (1859-1906), isolated radium in 1910. Although Marie was awarded two Nobel Prizes she was not allowed entry into the French Academy of Science. Working across the English Channel, Sir Ernest Rutherford (1871-1937) discovered the alpha and beta rays in radio active atoms and create the “particle theory.” In 1919 he split the atom.

The German scientist Max Planck (1858-1947) discovered energy is emitted in units called quanta. Planck’s quantum theory of physics challenged the ideas that had existed since Newton. Also, Planck’s research proved that the universe seemed to be ruled by chance and was not mechanically regulated. The belief that society was not predictable caused many to become disillusioned with society. Such disillusionment was only compounded by the inhuman tragedies of World War I.

Yet the work of the Curies and Planck was just the beginning. The German scientist Albert Einstein (1879-1955) theorized that it was not gravity that acted upon an object and space, time and motion are not absolute. Einstein developed the theory of relativity. His equation $E=mc^2$ was the formula for the release of energy from the atom and the means to atomic and nuclear capabilities.

This new physics undermined the traditional, long-held beliefs. No longer were things definite but probable or possible. The irrational had superceded the rational. There can be little wonder that the generation that matured after World War I would be known as the Lost Generation or that another name for the first part of the century is the Age of Anxiety.