# THOMAS HENRY HUXLEY AND THE PROBLEMS OF THE RELATION BETWEEN NATURE, EVOLUTION, AND ETHICS

by

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## Abstract

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The purpose of this paper is to trace the development of the ethical and scientific philosophies of Thomas Henry Huxley (1825-1895). Most studies of Huxley's life have tended to ignore this problem, either because the authors concerned did not realize that development had occurred, or because they were interested in other aspects of his life. I have relied primarily upon Huxley's essays and personal letters as my main source material. By studying his correspondence and essays in chronological order, I have been able to discover much evidence that his ethical and scientific views underwent several transitions.

The first chapter of this study provides a brief sketch of the development of science - mostly in England - in the eighteenth and the first half of the nineteenth centuries. Emphasis is placed on geology and biology, because it was in these fields that the groundwork was laid for the Origin of Species. One can detect a gravitation away from the traditional faith in the Bible as the final authority in science, to one in which the scientists independently form their own hypotheses based on empirical evidence. The popularity of science increases enormously among all strata of society - especially in the first half of the nineteenth century - and there is a corresponding weakening of religious convictions, particularly where traditional Christian beliefs

sought to replace the worship of God with the worship of humanity, and to put science in the place of religion. Huxley could not imagine a more pathetic object of worship the positivists could have than man.

One conclusion of this study is that Huxley - although he was the most outstanding defender of Darwin's evolutionary hypothesis - was opposed to practically every system that applied the concepts of biological evolution to man as a social being. In effect, he was thoroughly saturated with the Christian ethic, although he rejected all Christian dogma. Even though he was the champion of science and Darwinian evolution, his basic evangelical-style moral code would not permit him to subscribe to Social-Darwinism or the replacement of religion with the worship positivists had for science and man. The main conclusion of this study is that Huxley's ethical and scientific views were not static throughout his life; they went through several phases. It seems certain, however, that Huxley never found a philosophy that was deeply satisfying. At the end of his life, he could only recommend what Voltaire's Candide had said; "il faut cultiver notre jardin": the profundities of life are beyond our comprehension; all we can do is work at our respective vocations and accept what life brings our way.

seemed to conflict with the new scientific hypotheses. It was also in the first half of the nineteenth century that the idea of evolution became familiar to most people. Robert Chamber's Vestiges of Creation (1845) was the most famous pre-Darwinian evolutionary hypotheses, but few people would subscribe to its argument.

The second chapter is concerned mainly with Huxley's early scientific and moral positions. He appears to be a kind of deist who was firmly convinced that nature manifested the qualities of absolute justice, and punished offenders against its laws, very much like the God of the Old Testament. There was, therefore, no need for religion; all one needed to know was the laws of nature - if one abided by them, one could expect a reasonably happy life. Any transgression against these rules would be swiftly and severely punished by nature itself. In effect, Huxley had the moral intensity of a staunch evangelical, but he substituted the Christian concept of God with an idea of nature that had most of the attributes of a stern and just deity.

The third chapter attempts to demonstrate that, as Huxley became famous as a scientist, his writings and speeches took on pronounced materialistic and mechanistic qualities. He defended Darwin's Origin more strongly than any other individual, and soon became known as "Darwin's Bulldog". As a scientist, he spoke in strictly empirical terms; he saw no reason to believe in consciousness or free will, because all things are constituted simply of matter and force.

In effect, man - like all other organisms - is simply a machine. However, a glaring contradiction existed between his views as a moralist and his views as a scientist. How can one believe in the absolute justice of the natural order, and how can one exhort one's fellow-man to follow the basic christian concept of morality, when one considers man to be a mechanism devoid of free will?

The evolutionary philosophy of Herbert Spencer is the subject of the fourth chapter. The most popular philosopher of the nineteenth century, Spencer was the father of Social-Darwinism. He was the first to apply the principles of biological evolution to social relationships. If society is to function according to the laws of nature - which is to say, according to the principles of evolution - free competition must reign in all aspects of life. No government must protect the poor, weak, and sickly; such people must necessarily perish in the struggle for existence.

The powerful influence of Spencer on Huxley is traced in the fifth chapter. Spencer convinced Huxley that the principles of the struggle for existence and the survival of the fittest were the underlying factors in the natural world. Huxley could no longer maintain that nature was just and basically benevolent, since struggle, pain, and death were the essential qualities of life for most creatures. But Huxley would not subscribe to Spencer's Social-Darwinism. To Huxley, evolution was just an explanation of how

organisms have developed to their present state. The principles of biological evolution must not be applied to man. Charity and mutual co-operation are the rules that humanity should abide by, not the law of the jungle. A protracted public conflict ensued between Spencer and Huxley over this question of individualism *versus* co-operation, or Social-Darwinism *versus* the Christian ethic. Huxley also came to the point where he realized that he could not advocate absolute materialism and ethical conduct at the same time. He therefore acknowledged that consciousness and free will are beyond the capacity of science to fathom. In effect, he no longer viewed man in terms of mechanism, but as a free moral agent.

In chapter six, I trace Huxley's continuing war on Herbert Spencer and Social-Darwinists in general. Huxley also appears as the enemy of the eugenicists and the positivists. The eugenicists, under the leadership of Francis Galton and Karl Pearson, appeared to Huxley to be nothing more than stock breeders of humanity, who would require a dictatorial government to implement their system. Galton wanted to bypass the supposed evolutionary progress of man by interbreeding the best human stock, and thereby producing more perfect humans in a short period of time. The weak, sickly, and mentally inferior people would be discouraged from reproducing. Huxley considered the positivists to be almost as repulsive. Following the teachings of Comte, they

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## Introduction

It is a curious thing that Thomas Henry Huxley - one of the most famous intellects of the nineteenth century - has been almost totally ignored insofar as the development of his ethical ideas is concerned. Indeed, Gertrude Himmelfarb's Darwin and the Darwinian Revolution is the only work which demonstrates to any extent that Huxley's concepts of ethics and their relation to nature underwent any transformations at all. Her analysis of the problem is brilliant and penetrating, but she has devoted only about six pages to it. Although she demonstrated that Huxley's philosophy had undergone change, she did not enquire as to why this metamorphosis had taken place. I have therefore set myself the task of seeking out some possible reasons for Huxley's change of heart.

The function of intellectual history is, in my opinion, to illustrate how ideas emerge from, and are shaped by, particular historical circumstances. With this in mind, it became apparent to me during the course of my research that Herbert Spencer - the famous exponent of one form of Social-Darwinism - had exerted a powerful influence on Thomas Huxley. Gertrude Himmelfarb realized this, but she did not examine the nature of the relationship between the ideas of these two Victorian giants. The purpose of this paper is to demonstrate the extent to which Spencer was responsible for the development of Huxley's thought.

Limitations of length prevent me from dealing with all aspects of Huxley's intellectual life - his personal war against orthodox Christianity being a notable omission. I have therefore limited myself to a study of some of the British schools of thought which applied Darwin's principles of evolution to social theory. Although there were many varieties of evolutionists in the nineteenth century, I have concentrated mainly on the ideas of Herbert Spencer, the English positivists, and the English eugenicists. I have placed particular emphasis on the social philosophy of Spencer as it related to Huxley.

Most people tend to think of Thomas Huxley as "Darwin's Bulldog" since it was he who led the fight against the opponents of the Darwinian theory of evolution. And indeed he was the most ferocious, tenacious, and brilliant apostle of Darwin. However, this paper attempts to show that Huxley regarded evolution solely as an explanation of the history of the natural order; he refused to accept any application of biological evolution to ethical or social theory. In fact, he was very much a traditional Victorian, who believed firmly in the Christian ethic, although he could not accept Christian theology.

Thomas Henry Huxley is not a man who can be easily labelled as a member of one particular school of thought. This is at once challenging and frustrating to the student of his ideas. The person who tries to analyse his thinking

may frequently be confused and frustrated when he realizes that there are all too many glaring contradictions in Huxley's writings. Indeed, no one can hope to understand him unless and until he sees that Huxley the moral philosopher speaks very differently from Huxley the scientist. Huxley the moralist demands that humanity adhere to the moral precepts of the Christian ethic, while Huxley the scientist is not willing to acknowledge that man is endowed with free will. One should hardly be surprised, then, that Jacques Barzun in Darwin, Marx, Wagner considers Huxley to be a crass materialist who believes men to be no more than machines, and, on the other hand, Gertrude Himmelfarb says that Huxley is closer to the orthodox theologians of his time than to the advocates of mechanistic and deterministic philosophy. In my opinion, both Barzun and Himmelfarb are correct to a certain extent. But the dichotomy in Huxley's thinking did not last throughout his entire life. In his later years he became aware that his ideas were not consistent, and he attempted to formulate a unified picture of science and ethics.

Huxley seems to represent many of the philosophical battles that were raging in nineteenth century Britain. He was very much caught up in the intellectual and moral delemmas of the time, and perhaps it is this situation that makes him such a fascinating subject. It is my hope that this paper will exhibit some of the richness of his mind, and present it within the general framework of the nineteenth century.

# Chapter I

## The Cultural Background To The "Origin Of Species"

Like all revolutions, whether political or intellectual, the Darwinian revolution had its beginnings many years prior to the publication of the Origin of Species (1859). It is the purpose of this chapter to trace briefly the intellectual foundations of evolutionary movements in the nineteenth century. Emphasis is placed on eighteenth and early nineteenth century science because it was mainly the scientific thinkers who broke the path for Darwin's work. However, the general public would not have been prepared to accept Darwin's ideas if they themselves had not been affected by religious scepticism and empiricism: these social antecedents to Darwinism will also be briefly discussed.

In the eighteenth century, British science was not outstanding for its contributions to the corpus of empirical knowledge. This is not to say that no research had been carried on, but rather that the members of the scientific community were chiefly concerned with substantiating the ideas of Newton. In essence, they aimed at showing God's handiwork and purpose as manifested in nature. Divine Providence occupied the central position in their thoughts. The natural philosophers, by examining the physical universe, hoped to discover the laws that God had established for the smooth running of the cosmos. Their task was not an easy one; they looked for immutable laws of nature, but

at the same time they were eager to demonstrate that the Deity was the supreme engineer of it all:

> ...the difficulty... appears to be one of religion (in a crude sense) in science rather than one of religion versus science. The most embarrassing obstacles faced by the new sciences were cast up by the curious providential materialism of the scientists themselves and of those who relied upon them to show that the materials of a material universe exhibit the sort of necessity which results from control instead of the sort which springs from self-sufficiency. The work of the scientists supported a providentialist view which managed to be at the same time mundane and supernatural - mundane as to appearances and supernatural as to inferences.[1]

William Paley (1743-1805) made the classic statement of the providentialist interpretation of nature in his treatise, Natural Theology, or Evidences of the Existence and Attributes of the Deity collected from the Appearances of Nature (1802). Paley was educated at Cambridge, where he became a teacher from 1766 to 1776. Ordained in 1767, he divided his time between religious and scientific pursuits. He maintained that man behaves morally and co-operates on a social basis only because of a faith in future rewards and punishments. Thus, it is the function of science to prove that God exists and that man should therefore obey His laws. Paley supported the famous "argument from design" which states that one can prove the existence of God by merely observing that the universe shows evidence of design, purpose, and benevolence. The natural order is so arranged as to promote the happiness and welfare of all creatures, and especially of humanity. However, he says

that perfect happiness is not possible on earth because of the action of such agencies as the Malthusian Law, and class. Nonetheless, the individual must accept his station in life in order to inherit eternal bliss.[2]

It was in the new science of geology that people like Paley would be questioned and ultimately refuted. In the providentialist view of nature, the universe was seen as a balanced machine which has remained essentially unchanged since creation. However, geologists began to study the history of nature as seen in rock strata; they demonstrated that nature was not static, but rather, a process. The issue of God's involvement thus became more difficult since the scientists had to provide "... a demonstration of how nature was governed and not simply of how it was balanced."[3]

And yet, in the period roughly between 1790 and 1820, the science of geology was becoming more specialized and was emerging from natural history as an independent study. Also, physical science in general was showing less interest in being a handmaiden to theology. The best representative of this growing empirical trend was James Hutton (1726-97), a Scottish geologist. He had been a medical student at Paris and Leyden, but his interest turned to agriculture, chemistry, and then to geology. His Theory of the Earth (1795) was the first synthesis of the geological knowledge then available that was not based on contemporary theological opinion.[4] Through observation and the collection of raw data, he was led to the conclusion that many eons of time had

passed in the history of the earth prior to the creation of man. He reasoned that natural forces must have taken a vast span of time to shape the earth into its present form, denying that providentially ordained catastrophies had moulded the earth's crust during the six days of the Genesis account of creation. His book was the first to oppose the scriptures on geological grounds. Although he could provide no scientific proof of divine creation, he believed in it, and, like most of his contemporaries, he thought that the universe had been created for the enjoyment of man:

> What a comfort to man, for whom that system (the universe)5 was contrived, as the only living being on earth who can perceive it; what a comfort, I say, to think that the Author of our existence has given such evident marks of His good will towards man, in this progressive state of his understanding! What greater security can be desired for the continuance of our intellectual existence, - an existence which rises infinitely above that of the mere animal, conducted by reason for the purpose of life alone.6

However, at about the same time that Hutton was writing his Theory of the Earth, the Biblical literalists became aware that science was beginning to menace the authority of Holy Writ. This is made abundantly clear in even a cursory examination of the life of Erasmus Darwin (1731-1802) - the grandfather of Charles Darwin - who believed that natural organisms developed or evolved into their present condition. In short, he was one of the early exponents of evolution, although it was a very vague concept at that time and did not have the flavour of atheism.[7]

Erasmus Darwin focussed his mind on a fantastic number and variety of subjects, such as animal camouflage, the origin and development of life, rocket motors, sexual love, submarines, and even water-closets! He was also the most skilled and famous English physician of his day.[8] Erasmus published three works in which evolutionism was expressed: The Botanic Garden (1791), Zoomia (1796), and The Temple of Nature (1803). These poems are expositions of some of the scientific theories of the time, composed in the style that Lucretius used. The following extract from The Temple of Nature illustrates his attraction to evolutionism:

> Hence without parents by spontaneous birth,
> Rise the first specks of animated earth.
> Organic life beneath the shoreless waves
> Was born and nurs'd in the ocean's pearly caves;
> First, forms minute, unseen by spheric glass,
> Move on the mud or pierce the watery mass;
> These, as successive generations bloom,
> New powers acquire and larger limbs assume;
> Whence countless groups of vegetation spring,[9]
> And breathing realms of fin and feet and wing.

Until about 1793, his writings met with almost unanimous praise, but after that date reaction set in from the advocates of Biblical literalism. What had happened in fact was that Erasmus Darwin, a man of the Enlightenment, was no longer acceptable in a society where large groups of people were turning to Methodism and Evangelicalism. Like other scholars of the Enlightenment, Darwin was respectful of religious tradition, even though his faith was weak in the sense that he rejected many of the doctrines that orthodox Christians believed in. He knew that

many of his ideas contradicted the scriptures, but he preferred not to draw attention to the fact:

> The Enlightened gentleman said nice things about both tradition and innovation without admitting their contradictions. That was (and is) tact.[10]

Prior to the Evangelical revival, the reviewers of Darwin's poems were well aware of their novelty and lack of conformity to the Bible, but they simply passed over these aspects without comment. They did not feel that traditional religion was endangered by an evolutionism that had no evidence in its favour.[11] However, it was not just growing fundamentalism that opposed Erasmus Darwin and others like him; the Tories, reacting to the French Revolution, insisted upon upholding England's traditional beliefs, even if it meant smothering freedom of expression in scientific matters. Thus, Darwin found himself under a cloud of disapproval. He was a rationalist and a deist who denied that the Bible had any supernatural authority; the fact that he did believe in God as Creator was not enough to avoid the condemnation of the Evangelicals.

John Playfair (1748-1819), a Scottish physicist and mathematics teacher at the University of Edinburgh, was one of the strongest advocates of Hutton's theory. Even though he was a clergyman, he did much to divorce science from the Bible. He attacked the scriptural literalism that many of his fellow scholars adhered to, and asserted that Hutton's thesis was superior because it revealed the divine plan of God's universe and explained its development

in scientific terms. Playfair wished to confine science to the study of physical phenomena without searching for divine causes in all natural events. By restricting science, or geology, to the study of present natural forms, he escaped much theological odium; he steered clear of speculations concerning the evolution of living things. To him, the Bible was a spiritual and a moral guide, not an exposition of physical science. It was not necessary to know how the universe came into existence to appreciate God's power and wisdom.[12]

Playfair tried to mollify his theological opponents by conceding that man was only six thousand years old. However, this position was full of difficulties; if the world is millions of years old, and man only a few thousand, how can one maintain that the earth was created for man's enjoyment? After all, countless plants and animals must have lived and died before man was created. As one historian has commented, "...the means were out of proportion to the end".[13] Hutton and Playfair, like Newton, had discovered some of the general laws of the universe and used God as merely a first cause to set the cosmos in motion. They did not seem to realize that, if this concept were found to be unnecessary, their systems could very well become purely mechanistic descriptions of nature.

By 1820, the members of the scientific community had reached the stage where almost all accepted the idea that the earth was much older than the Old Testament seemed to

indicate. However, they still believed in the Deluge and the recent creation of man, and they continued to maintain that the function of science was to prove the existence of God by discovering evidence of purpose and design.[14]

William Buckland (1784-1856), a teacher of minerology and geology at Oxford, was England's most outstanding geologist between 1820 and 1830. Seeking to synthesize all of the schools of thought in his field, he formed and led what is known as the Catastrophist group, who maintained that the earth had undergone violent and large-scale upheavals like earthquakes, volcanic eruptions and floods. He supported the idea of divine creation, but, based on the study of fossils, he perceived that many species of plants and animals had been completely destroyed since creation. He was able to justify this seeming destructiveness on the part of the Creator by explaining that "... indications of the power, wisdom, and goodness of the divinity would be demonstrated from the evidences of design in his works, and particularly from the happy dispensation of coal, iron and limestone by which the Omnipotent Architect, or Divine Engineer, had assured the manufacturing primacy to his British Creation".[15]

Charles Lyell (1797-1875), in his Principles of Geology (1830), opposed the Catastrophism of Buckland and reasserted Hutton's older uniformitarian idea that the earth has been shaped by basically the same forces as are operating

today, over a vast period of time; very gradual change is the essence of this theory. Lyell's book influenced Charles Darwin more than any other single work; he took a copy of it with him on the Beagle voyage.[16] Lyell maintained that the study of paleontology was the most effective way of piecing together the history of living creatures, and because of his emphasis on this science, "...the problem of the origin of different types of living creatures and their adaptation to their environments, as well as the problem of the extinction of certain species, and the distribution of those still extant were in the forefront of attention among geologists".[17] After the publication of Darwin's Origin of Species in 1859, the supporters of Lyell who were still alive generally became evolutionists, while those who advocated the Catastrophism of Buckland tended to follow Wilberforce, the champion of orthodoxy.[18]

The preceeding is a brief sketch of the primary importance of geology in paving the way for evolutionism. It is now necessary to turn to the contributions of eighteenth and early nineteenth century biology. It is in this period that theories of evolution gained a foothold in England and on the Continent. But the idea of evolutionary development is far older than that. Thales, a Greek, maintained that life had its origins in the seas, and one of his contemporaries, Anaximander (611 B.C.-547 B.C.), was of the opinion that man had evolved gradually from the fish.

A fellow philosopher, Anaximenes, postulated that all organisms had their origins in primordial slime. Empedocles (495 B.C.-435 B.C.) was the first to construct a comprehensive theory of evolution; life, he maintained, developed by stages, and plants came into being prior to animals. These developing organisms tended toward greater and greater perfection. Those plants or animals that were not able to cope with their environments perished. This evolutionary hypothesis remained popular among the Greeks until they came under the influence of Christianity.

But even in the Middle Ages evolutionism was not discredited totally. Both Augustine and Aquinas realized that some form of development was necessary to account for the existence of the various human races. The idea of evolution "...could only be avoided by making either the unpleasant assumption that only the whites were descended from him (Adam),[19] or the unsupported speculation that Adam was white and Eve black - their offspring, like those of Miss Starkey in the limerick, being 'one black, one white and two khaki'".[20] During the Renaissance, Francis Bacon was aware that variations occured in plants and animals, and he thought that such changes could give rise to new species. Gottfried Leibniz extended Bacon's view by claiming that all creatures developed from primitive organisms, including man; he also suggested that animals change as their environments do, and that this evolutionary process is endless.[21]

A major problem for eighteenth century biologists was to establish a definition of species; nineteenth century biologists were confronted with the task of showing how one species can mutate into another. Charles Linnaeus (1707-78) adopted the definition that John Ray had worked out in 1686 - only those varieties which could be crossed belonged to the same species. But the French biologist, Jean Lamarck (1744-1829), was the first to take the revolutionary step in his Philosophie Zoologique (1809) of suggesting that "...there was a common bond of descent between the present types of individuals and formerly extant ones, and that a definition of species must include a genealogical factor as well as the factors of resemblance and capacity to reproduce".[22] Lamarck stressed that God could just as well have created all organisms through the process of evolution as through instantaneous creation. He said that organisms evolve by adapting themselves to their changing environments, and by passing these new characteristics on to their descendants. Lamarck even went so far as to suggest that man had developed from the lower primates, but such an idea was most distasteful to the majority of scientists well on into the nineteenth century.

Many of Darwin's contemporaries thought that the Origin of Species was in the tradition of Lamarck, and therefore degrading to man. But Darwin had nothing but contempt for the Frenchman, and resented anybody's equating their views.

The only theme the two systems had in common, Darwin maintained, was that both dealt with the development of living things, and the consequent appearance of new species. Although Lamarck's theory had considerable merit - in spite of Darwin's protests to the contrary - the Frenchman used many unfortunate examples in attempting to prove it. The erroneous nature of much of his evidence led many of his contemporaries to believe that the entire theory was fallacious:

> It proved not too difficult to ignore the man who explained the webbed feet of birds as due to their being attracted to swampy ground by hunger, to their then making efforts to swim, thus spreading their toes, and stretching the skin between them. ...it proved not difficult to ignore the man who explained the origin of the horns in ruminant animals by the efforts they have made to butt their heads together in periods of anger, and thus giving rise to a secretion of matter upon their forehead.[23]

The first Englishman who sought to popularize the Lamarckian concept of evolution was Robert Chambers, the publisher of Chambers' Journal and Chambers' Encyclopaedia for the People besides a number of works on British history, literature, and biology. In 1844 he published a book called The Vestiges of Creation. Chambers, who tried to remain anonymous, was not a scientist, but rather, an interested layman. The Vestiges was so provocative that, by 1860, it had gone through eleven editions and had sold twenty-four thousand copies.[24] His was the strongest scientific argument for evolution since Lamarck. Chambers had attempted to bring together existing nineteenth century

scientific knowledge and to place it in "...a universe in which law had replaced miracle and the ruling principle was everlasting, forward-moving change".[25] His thesis is built upon the concept of progress and a belief that the evolutionary advance from lower to higher forms was the way in which God had brought all present organic entities into being. In effect, law had replaced God; He was no longer an agency in nature; He had simply set the machinery in motion. Not only were orthodox Christians generally offended by Chambers' book, but so too were the scientists. Darwin saw both truth and falsehoods in it, but Thomas Huxley and Herbert Spencer were repelled by it. Huxley considered the work to be utterly unscientific and the product of an ignorant mind. Spencer, for his part, rejected the arguments of the Vestiges in toto.[26] The opinions of other men of science were very much the same:

> ...it was the concept of natural law that irritated some of them. The Vestiges based its 'law of development' on what it took to be the principle of uniformitarianism: the higher orders arising out of the lower because of their inherent proclivity to advance, an impulse implanted in them by God as part of his cosmic arrangement for the natural functioning of the universe.[27]

Lamarck had suggested similar ideas earlier, but he was a foreigner; Chambers was British and his fellow countrymen paid more attention to him. Robert Chambers had exposed most Englishmen to the idea of evolution, and this served to dissipate much prejudice that would have made Darwin's position all the more difficult when the Origin was

published.

The great majority of the people of England at this time saw the Vestiges as an attack on the Biblical account of creation, and they were therefore unwilling to subscribe to its thesis. Nevertheless, the book became popular reading soon after it was released. It was attacked from the pulpit and scorned in the press by people eager to demonstrate their own supposed superiority in scientific matters. Since the book was discussed in the home and in the church, almost everyone was at least vaguely familiar with its contents, even if they had not read it themselves. Because the Vestiges had been published anonymously, many readers were occupied in scrutinizing the news papers for evidence as to who wrote it. Charles Darwin was a suspect, but he was not sure whether that was a compliment or an insult. Henry Sedgwick - the famous geologist and Dean of Westminster - expressed the opinion that the book had been composed by a woman, partly because the work had such a handsome cover, and partly because its contents were so irrational.[28] The crux of the matter seems to have been that scientists were looking for empirical evidence that the Deity exists, but all the while they were on the brink of the materialistic position which accepts material data, but discards the idea that it is evidence of God's handiwork. A. W. Benn, in Modern England (1878), attacked the prevailing notion that Chamber's book was nothing but a pseudo-scientific curiosity that lacked any real merit:

> Hardly any advance has since been made on Chamber's general arguments, which at the time they appeared would have been accepted as convincing, but for theological truculence and scientific timidity. And Chambers himself only gave unity to thoughts already in wide circulation.... The considerations that now recommend evolution to popular audiences are no other than those urged in the Vestiges.29

Robert Chambers was not the only advocate of evolutionary ideas in pre-Darwinian England. Herbert Spencer was a confirmed Lamarckian evolutionist before the Vestiges, but he popularized the application of evolution to society rather than the biological theory itself. As subeditor of the Economist, Spencer had come to know G. H. Lewes, the prominent positivist writer. The two men were very much interested in evolutionism, and, in 1852, Spencer wrote "The Development Hypothesis" for Lewes' paper, The Leader. This article, and another called "Theory of Population" - which appeared in the same year in the Westminster Review - were his first public statements relating to his evolutionary philosophy. The latter essay is of particular importance because it is the first expression of what was later to be known as Social-Darwinism; it is in this paper that he coined the phrase "survival of the fittest":

> For as those prematurely carried off must, in the average of cases, be those in whom the power of self-preservation is the least, it unavoidably follows, that those left behind to continue the race must be those in whom the power of self-preservation is the greatest - must be the select of their generation. So that, whether the dangers of existence be of the kind produced by excess of fertility, or any other kind, it is clear, that by the ceaseless exercise of the faculties needed to contend with them, and by the death of all men who fail to contend with

> them successfully, there is ensured a constant progress towards a higher degree of skill, intelligence and self-regulation....[30]

However, Herbert Spencer did not become the most influential philosopher of the nineteenth century until after the appearance of the Origin; he then had the weight of some scientific evidence to strengthen his arguments. But this is the subject of another chapter.

Science, and particularly geology, was not the exclusive domain of the professional scientists in the first half of the nineteenth century. One of the most interesting aspects of the period is the degree of interest that people from all walks of life manifested in geology. Indeed, it has been suggested that popular involvement in amateur geology was the most powerful single factor that paved the way for the acceptance of Darwin's theory.[31] Popular magazines of the day were full of first-class scientific articles, many of which were concerned with geological topics; even books for children were published to acquaint that new generation with the basic principles of geology.[32] Commenting on the 1840's, Harriet Martineau said that middle class Englishmen purchased five expensive copies of works on geology to any one copy of the most popular novels; and this was the period when Dickens was very much in vogue.[33] In collecting fossils, ordinary people felt that they were making a contribution to the corpus of scientific knowledge, and they were. Sometimes the geological fever was intense:

> One famous doctor and amateur fossil collector, Gideon Mantell, became so absorbed in his hobby that he turned his home into a museum, drove out his wife and children and finally abandoned his medical practice. Sir Roderick Murchison started on his career leading to the presidency of the Royal Society when his enterprizing wife, herself an enthusiastic minerologist and shell collector, determined to wean her husband away from fox hunting to more worthy pursuits: he was persuaded to take up geology with Sir Humphry Davy, who assured him that nothing more was required than a 'quick and clear eye' of the sportsman.[34]

Fossil hunting presented a good reason to make an excursion into the country and to thereby engage in healthful exercise. Men and women of all classes participated, since no great intelligence was required to collect rocks. Science in general became "...a passion which, by the beginning of the decade (1850)[35] had afflicted every class and institution in society".[36] It is not surprising, then, that many of these science enthusiasts would be willing to lend Darwin a sympathetic ear in 1859.

The growing influence of evolutionary ideas is marked in some of the poets of this period; Tennyson is a good example. He was an evolutionist prior to 1859 and a great poet of scientific ideas. Thomas Huxley thought that Tennyson was the only living poet who really understood science. His poem "In Memoriam" (1850) contains an exposition of the evolutionary idea, for, "...not only was 'nature red in tooth and claw' a far more dramatic and deliberate image than the prosaic formulations found elsewhere; it was also distinguishable from them in being regarded as part of the evolutionary process itself...."[37] He was one of the

first to see that science and theology were growing more and more apart; the concept of God must keep up with empirical knowledge. Nature was in many ways cruel, but God was guiding evolution toward man's ultimate good.[38] Nonetheless, human existence became

> ...a mysterious and melancholy thing, a brief struggle for consciousness against overwhelming and irrational forces. Mankind appeared as an incidental and fortuitous episode in the age-long history of the stars.[39]

Perhaps a word should be said about the condition of the Christian faith in England during this period. As Raymond Chapman has so well phrased it, "If any reading of Victorian literature arrives at some reference to religion, it may equally soon arrive at the subject of religious doubt".[40] And the growing influence of evolutionary concepts tended to intensify this doubting. T. S. Eliot's comments on the nature of Tennyson's poetry may equally be applied to Victorian religious sentiment - belief was weak, but doubting was intense.[41] Scientific knowledge was becoming more specialized, and churchmen could not keep up with it; neither could they reconcile theology with science. This trend brought about "...a disaster, leading as it did to a divorce between faith and other forms of human activity and thought".[42]

The Victorian age is not noted for the intensity of its religious enthusiasm, although many people did attempt to retain their traditional beliefs and at the same time to reconcile them with the current scientific theories.

But it was usually the religious doctrines that were required to jibe with the scientific speculations. The doubts expressed in "In Memoriam", it has been suggested, were as representative of the Victorian frame of mind as the glass house at the Great Exhibition.[43] Perhaps the poem was a best-seller because it stated so well the crisis of faith that many thoughtful people were undergoing as they gravitated uncomfortably away from religion. But religious doubt, according to Tennyson, is almost a faith in itself:

> There lives more faith in honest doubt,
> Believe me, than in half the creeds.[44]

James Froude, the English historian, never forgot the shattering changes that took place in the 1840's:

> All round us, the intellectual lightships had broken from their moorings, and it was then a new and trying experience. The present generation which has grown up in an open spiritual ocean, which has got used to it and has learned to swim for itself, will never know what it was to find the lights all drifting, the compass all awry, and nothing left to steer by except the stars.[45]

It seems quite clear that many Englishmen, by the middle of the nineteenth century, were well prepared for a work of the nature of Darwin's Origin of Species. The men of science paved the way for it, and the intellectual climate of the nation was such that the book would not come as a great shock. Darwin seemed to have stirred up all of the doubts of his generation in such a thorough manner that they had to devise a new philosophy to replace the old:

What the Origin did was to focus and stimulate the nihilist passions of men. Dramatically and urgently, it confronted them with a situation that could no longer be evaded, a situation brought about not by any one scientific discovery, nor even by science as a whole, but by an antecedent condition of religious and philosophical turmoil. The Origin was not so much the cause as the occasion of the upsurge of these passions.46

## Chapter II

## The Early Development Of Thomas Huxley; The Moral And Metaphysical Aspect

Thomas Henry Huxley was born in the little town of Ealing - which is now part of London - on the fourth of May, 1825; he was the seventh of eight children. His father, who was a somewhat incompetent schoolmaster, always had difficulty in providing financial security for the family.[1] Even though Huxley's father was a master at Ealing School, the young boy had only a few years of formal education. The headmaster of the school was Dr. Nicholas, a former student at Wadham College, Oxford. When he died in 1834, the school closed its doors, and Huxley's father decided to move back to his native Coventry with the family and become a banker. Thomas Huxley never regretted having to leave school because, as he wrote later, "... the people who were set over us cared about as much for our intellectual and moral welfare as if they were baby-farmers".[2] But the young boy was an avid reader, and when he was fifteen years of age, he began to keep a notebook of his thoughts. The things he wrote in it clearly indicate that he was an early student of philosophy, and illustrate the kinds of thinkers who influenced him.

One of the earliest entries in this little journal - which is about the only source of information concerning his childhood - is dated September 29, 1840; in it he gives an account of a philosophical discussion that he

had engaged in with a family guest:

> Had a long argument with Mr. May on the nature of the soul and the difference between it and matter. I maintained that it could not be proved that matter is essentially - as to its base - different from soul. Mr. M. wittily said that soul was the perspiration of matter. We cannot find the absolute basis of matter: we only know it by its properties; neither know we the soul in any other way. Cogito ergo sum is the only thing that we can certainly know.[3]

He discovered these ideas mainly by reading weighty books like William Hamilton's Philosophy of the Unconditioned (1829), the main thesis of which is "...everything which we can know about the outer world is nothing else than contents of consciousness and that therefore consciousness is the sole trustworthy voucher for the existence of external things".[4] Hamilton's ideas, which derived from Kant, gave Hamilton a stronger faith in God, but they helped to lead Huxley and Spencer into agnosticism.

Huxley's parents were both Anglicans, and brought their children up in that faith; but as time went by, Thomas revolted against the traditional teachings of the Church. As he listened to the fundamentalist sermons of the local vicar, he began to see the God of the Bible - particularly as described in the Old Testament - as a cruel monster. At this stage in his life, however, he believed in God, and it was the function of philosophy, in his opinion, to explain Him:

> Philosophy can bake no bread, but it can prove for us God, freedom, and immortality. Which, now, is more practical, Philosophy or Economy?[5]

And the young Thomas did attempt a definition of God and the natural order:

> Let us suppose that an Eon - a something with no quality but that of existence - this Eon endued with all the intelligence, mental qualities, and that in the highest degree - is God. This combination of intelligence with existence we may suppose to have existed from eternity. At the creation we may suppose that a portion of the Eon was separated from the intelligence, and it was ordained - it became a natural law - that it should have the properties of gravitation, etc. - that is, that it should give to man the ideas of these properties. The Eon in this state is matter in the abstract. Matter, then, is Eon in the simplest form in which it posesses qualities appreciable by the senses. Out of this matter... was made all things that are.[6]

Carlyle was about this time becoming well known, especially for his Sartor Resartus, and Huxley was much impressed by the sense of duty that permeated Carlyle's writings. From him, Huxley acquired a deep sense of religion without the theological trappings. Realizing that some of Carlyle's ideas derived from German sources, Huxley began to study the German language, which was not widely known in England at this time. He was so determined to master the language that he carried a German dictionary to parties![7]

It was the problem of morality that would plague Huxley for the duration of his life: how can one justify moral behavior without either the authority of religion or scientific law? Filled with ideas of "...the sanctity of human nature...and ...a deep sense of responsibility",[8] Huxley was resolved to tackle the problem. He could not decide whether ethics was a metaphysical question or an

objective one, but he seemed to be leaning in the direction that moral conduct was subject to scientific analysis. One biographer of Huxley has stated flatly that, "As far as metaphysics and ethics were concerned, the mind of Thomas Huxley was fixed about 1840, long before he was twenty".[9] Most of his other biographers have also taken the position that his philosophy remained essentially unchanged throughout his life. Nonetheless, a careful study of his letters and essays demonstrates that there is considerable reason to doubt this conclusion.

Since two of Huxley's sisters had married medical doctors, it is not surprising that he decided to enter this profession himself. In 1841 he became apprenticed to his brother-in-law, Dr. Scott, in London; when he was seventeen, he won a scholarship that enabled him to study at Charing Cross Hospital Medical School. He was a hard-working student to say the least; he took practically no time off for relaxation. His room at the hospital became known among his fellow students as "the sign of the Head and Microscope" because, late into the night, his shadow was always seen bending over his microscope in intense study. One of the more traumatic days of Huxley's life as a medical man happened when one of his doctor friends took him to a post-mortem dissection of a cadaver. The shock of seeing a naked body being dismembered was too much for his constitution, and he experienced some sort of emotional upheaval that stayed with him for the rest

of his days. He believed that he had been infected by being near the body, and until his dying days he underwent "...bouts of hypochondria and bilious indigestion".[10] However, this upsetting incident did not prevent him from attending other dissections. One might also mention that he did much work among the wretched poor of the London slums, and he never lost a sense of deep sympathy for those unfortunate people. By the time he was twenty years of age, Huxley had finished his medical studies and had received his M. B. from London University with honours, and even won the gold medal in anatomy and physiology.

In 1846, Huxley was appointed assistant surgeon aboard H. M. S. Rattlesnake, which had been commissioned to embark on a three-year round the world surveying voyage. Besides carrying out his medical duties, he was required to function as a naturalist as well. This trip represents the foundation of his reputation as a naturalist. He spent most of his time studying the hydroza, or jellyfish: his meticulous observations were recorded in notebooks, and, on the basis of his notes and drawings, he wrote a number of zoological papers. He sent many of these works home to England where they were published in various scientific journals.[11] When his ship visited Australia in 1847, Huxley became engaged to Nellie Heathorn. However, it was not until eight years later that Huxley had earned enough money to marry her.

On his return to England, Huxley was bitterly saddened

to find that there were no jobs available to him in the field of natural science. The only money he made came from his commission in the Navy. But on the basis of his research from the Rattlesnake voyage, he was made a Fellow of the Royal Society in 1851. The following year he was given the Society's gold medal for research - but still no paying scientific job. In 1853 he was elected a member of the Council of the Society, and the following year he was given his first position in the field of science with a reasonable salary: he became Professor of Natural History and Paleontology in the Royal School of Mines, and Curator of Fossils in the Museum of Practical Geology in London.

At this period in his life, Huxley made some very important friendships, most notably with John Tyndall - who was a young physicist of future fame - and also with Hooker, the great botanist. Because Huxley believed that science should be of benefit to all mankind, including the common folk, he embarked on a series of people's lectures in 1855, aimed chiefly at the working men of London. He was aided in this project by other professors, each of them delivering a series of lectures. In a few months, more than six hundred people were attending any given class. Huxley also instructed at the Working Men's College, founded by F. D. Maurice. Both Huxley and Tyndall became candidates in 1853 for professorships at the University of Toronto, but because of their lack of personal contacts in the University

they were not accepted.

Although Thomas Huxley was an excellent scientist, he was not the kind who was totally wrapped up in technical matters. He was well aware of the philosophical implications that frequently arise from scientific work. For instance, as a naturalist he was of the opinion that there is "...a certain proportion of pain and evil inseparably woven up in the life of the very worms..."[12], to say nothing of human pain. Pain was seen by him to be part of the natural order, and he resented "...those weakly amiable theories of the divine government, which would have us believe pain to be an oversight and a mistake, to be corrected by and by".[13] He had expressed the above ideas in a popular lecture, and a friend of his, Dr. Dyster, objected to such a glum approach to suffering. Huxley wrote to the doctor and explained his position:

> My intention...was by no means to express my satisfaction at the worms being as badly off as ourselves, but to show that pain being everywhere is inevitable, and therefore like all other inevitable things to be borne.... I doubt, or at least I have no confidence in, the doctrine of ultimate happiness, and I am more inclined to look the opposite possibility fully in the face, and if that also be inevitable, make up my mind to bear it also.
>
> You will tell me there are better consolations than Stoicism; that may be, but I do not possess them, and I have found my "grin and bear it" philosophy stand (sic) me in such good stead in my course through oceans of disgust and chagrin, that I should be loth to give it up.[14]

But it would be a mistake to think that Huxley had no faith in some sort of God, even though his skepticism is strong. For example, he detested the emotionalism of the

Scottish Presbyterians, but he also wrote, "I respect piety, and I have some after my own fashion".[15] With reference to radical fundamentalists, he asserted that he "...never yet found in people thoroughly embued with that pietism, the same notions of honour and straightforwardness that obtain among men of the world".[16] In 1857, Huxley's first child, a boy, was born, and for the occasion he composed the following poem. It shows that he did adhere to a faith in God, although it was vague, to be sure:

> Wilt thou shape a noble life? Then cast
> No backward glances to the past.
> And what if something still be lost?
> Act as new-born in all thou dost.
> What each day wills, that shalt thou ask;
> Each day will tell its proper task;
> What others do, that shalt thou prize,
> In thine own work thy guerdon lies.
> This above all: hate none. The rest -
> Leave it to God. He knoweth best.[17]

Just below this poem in his journal, four years later, he made the following entry after his son had died from a fever:

> My boy is gone, but in a higher and a better sense than was in my mind when I wrote four years ago what stands above - I feel that my fancy has been fulfilled. I say heartily and without bitterness - Amen, so let it be.[18]

When Darwin published his Origin of Species in 1859, Huxley immediately lent him his full support. The Darwin-Huxley relationship will be dealt with in the next chapter; it is only necessary at this juncture to point out that Huxley's ethics were not altered by his adherence to the theory of evolution. As for Darwin, he was never greatly

troubled about the relation between evolution by natural selection and its philosophical implications. He lost his faith in Christianity early in life, but nonetheless got along very well with his pious wife. It was probably due to his unwillingness to offend his wife that he never made public pronouncements on religious matters. When Karl Marx offered to dedicate Das Kapital to Darwin, he refused on the grounds that it would disappoint his family if he were associated with such an atheistic book.[19]

The first utterance on religious matters that Huxley made after the appearance of the Origin was in a lecture to working men called "Objects of Interest in the Collection of Fossils". In the lecture, Huxley was anything but empirical:

> I have said that our faith in the results of the right working of the human mind rests on no mere testimony. But there is One that bears witness to it, and He the Highest.... Donati's Comet lately blazing in the heavens above us at its appointed time...and hundreds of other like cases which I might cite, are to my mind so many signs and wonders, whereby the Divine Governor signifies his approbation of the trust of poor and weak humanity, in the guide which he has given it. True science and true religion are twin sisters, and the separation of either from the other is sure to prove the death of both. Science prospers exactly in proportion as it is religious; and religion flourishes in exact proportion to the scientific depth and firmness of its bases.[20]

In effect, God guides humanity through the examples of His creation. But Huxley, because of his scientific rectitude, could not, or would not, commit himself to such doctrines as original sin or immortality - "I see no reason for

believing in it, but...I have no means of disproving it"[21]. Indeed, his primary object in life was "...to teach my aspirations to conform themselves to fact, not to try to make facts harmonize with my aspirations"[22]. And science is the sole depository of all truth because it

> ...seems to me to teach in the highest and strongest manner the great truth which is embodied in the Christian conception of entire surrender to the will of God. Sit down before fact as a little child, be prepared to give up every preconcieved notion, follow humbly wherever and to whatever abysses nature leads, or you shall learn nothing. I have only begun to learn content and peace of mind since I have resolved at all risks to do this.[23]

The person to whom Huxley wrote the above lines was Charles Kingsley, a clergyman, writer, and amateur naturalist. Huxley always enjoyed philosophical exchanges with Kingsley, and the latter seems to have acted as a kind of mental catalyst that stimulated Huxley to express his religious views. On the basis of his own experiments with domesticated plants and animals, Kingsley had come to disbelieve in the immutability of species. He did not find it contradictory to believe in evolution and be an Anglican clergyman at the same time because one does not have to believe in a series of special acts of creation to retain a faith in the omnipotence of God. Evolution, he maintained, could very well be the process by which the Creator brought all things into existence.

As for Huxley, his ethics rested upon a firm faith in the absolute justice of the natural order. This was not an empirical philosophy, but rather a deistic one. As one

historian has so well put it, Huxley "...strove for clarity without God, and attained something like God without clarity".[24] When Huxley's son died, Charles Kingsley wrote him a letter in which he offered the consolations of religion. This elicited Huxley's view of nature and man's relation to it: the theism is obvious, and characteristic of his thinking up to about 1871:

> I am no optimist, but I have the firmest belief that the Divine Government (if we may use such a phrase to express the sum of the "customs of matter") is wholly just. The more I know intimately ofthe lives of other men (to say nothing of my own) the more obvious it is to me that the wicked does not flourish nor is the righteous punished. But for this to be clear we must bear in mind what almost all forget, that the rewards of life are contingent upon obedience to the whole law - physical as well as moral - and that moral obedience will not atone for physical sin, or <u>vice versa</u>. The ledger of the Almighty is strictly kept, and every one of us has the balance of his operations paid over to him at the end of every minute of his existence. And it is to be recollected in view of the apparent discrepency between men's acts and their rewards that Nature is juster than we. She takes into account what a man brings with him into the world, which human justice cannot do. If I, born a bloodthirsty and savage brute, inherit those qualities from others, kill you, my fellow-men will very justly hang me, but I shall not be visited with the horrible remorse which would be my real punishment, my nature being higher, I had done the same thing.
>
> The absolute justice of the system of things is as clear to me as any scientific fact. The gravitation of sin to sorrow is as certain as that of the earth to the sun, and more so - for experimental proof of the fact is within reach of us all - nay, is before us all in our own lives, if we had but eyes to see it.[25]

Huxley's view of nature and ethics was not peculiar to him alone; it was shared by Eliot, Hardy, and Meredith. Not believing in punishment after death, they adhered

to it on earth. Eliot maintained that the development of history revealed moral truths, so religion is superfluous and useless. Nature, or natural law, punishes the moral or physical trespasser. The principle that governs the universe is the "...undeviating law in the material and moral world...that invariability of sequence which is still perversely ignored in our social organization, our ethics, and our religion".[26] But it is difficult to give weight to an ethical system unless there is some authority to back it up; Huxley sought this authority not just in natural law, but in a kind of deity who operated through natural law. In essence, he was trying to enforce the Christian ethic without making use of theology. Nature, then, was given the attributes of absolute justice and swift punishment. Perhaps Huxley at this stage was characteristic of many Victorians whose faith had withered but who still clung to the Evangelical moral code. The Evangelical movement of the Church of England was the most important factor in shaping Victorian ethical attitudes. And, as odd as it may seem, this high morality was most obvious in the agnostics of the 1880's like Huxley: "Agnostics in a sense, were a new Nonconformist sect".[27]

Huxley maintained his faith in the justness of nature until Herbert Spencer and others convinced him that the struggle for existence and the survival of the fittest were at the root of all reality. Huxley then saw that a nature full of cruelty is no foundation upon which to

build a system of ethics. But that problem will be dealt with in due course. Suffice it to say that he was "... morally earnest, as devoted to practical virtue, as suspicious of elaborate theological dogma as the most pious evangelical".[28]

He was even much concerned about the welfare of "... that great and powerful instrument for good or evil..."[29] the Church of England. Huxley believed that the Church, if it did not revise many of its ideas, would be shattered by the onslaught of science. He was particularly disgusted with clerical leaders like Wilberforce, who were unwilling to concede one inch of ground to scientists. In all honesty, however, if the Church had reformed its doctrines to suit Huxley, it would have ceased to be truly Christian. He knew that many people considered him to be an atheist and an infidel, and he considered them to be justified in doing so. To him, God, or "...the great unknown underlying the phenomena of the universe..."[30] was not a fatherly being. On the contrary, even though the "...governance... of the universe is rigorously just and substantially kind ..."[31] there is no personal relationship between the governor and humanity. At one point, he compared life to a game of cards, the rules of which are the laws of nature; the person who understands and plays by these rules is rewarded with a reasonably happy life.[32]

It was not until 1869 that Huxley felt compelled to define his philosophical position with any degree of

accuracy. At that time, James Knowles - the editor of the Contemporary Review - proposed that a Metaphysical Society be formed in order that the best minds of the most diverse views could come together to discuss questions like "what is death", "the theory of the soul", and "the ethics of belief". The Society would thus be able to make clear to the public and the parties concerned the opinions of the various elements of British intellectual life. Huxley relates that, prior to his participation in this group, he was not sure what he should be called; all he knew was that he was a "freethinker". Everyone in the Society was an "ist" of one sort or another, but Huxley found himself a "...man without a rag of a label to cover himself with".[33] He compared himself to the historical fox who

> ...after leaving the trap in which his tail remained,...presented himself to his normally elongated companions. So I took thought and invented what I conceived to be the appropriate title of "agnostic". It came into my head as suggestively antithetic to the "gnostic" of Church history, who professed to know so much about the very things of which I was ignorant; and took the earliest opportunity of parading to our Society, to show that I, too, had a tail, like the other foxes. To my great satisfaction, the term took....34

One cannot help but feel, though, that Huxley used his agnosticism as a philosophical vehicle whereby he could escape committing himself on difficult issues. To avoid taking a stand on a particularly uncomfortable point, he simply assumed the agnostic position of ignorance, which avoids the question but resolves nothing. Houston Peterson

has provided an excellent description of what Huxley's attitude implied:

> Agnosticism began, not as a philosophy in Huxley's mind, but as a labour-saving device, a social technique for avoiding wasteful or over-subtle discussions, while science hurried along its triumphant course. It did not solve fundamental philosophical issues, but dismissed them for more pressing and what seemed to be more important problems. To speak somewhat cynically, agnosticism was a white flag which Huxley and his small company carried as they walked through the country of orthodoxy and placed dynamite under offensive buildings. It was a temporary makeshift in a busy age and could not be satisfactory to scientific or religious minds which had time for criticism.35

As far as Lenin was concerned, Huxley's agnosticism was no more than a fig leaf that he used to cover his atheistic nakedness.[36] Shortly before Charles Darwin died, he was paid a visit by Edward Aveling, Karl Marx's son-in-law. Aveling was distressed that Darwin, like Huxley, used the term "agnostic" rather than "atheist" to define his religious position. To Aveling, "'Atheist' is only 'Agnostic' writ aggressive, and 'Agnostic' is only 'Atheist' writ respectable".[37]

We have now traced Huxley's metaphysical and ethical development up to 1871. At this point, his outlook changes after a conflict, or at least a brief skirmish, with Herbert Spencer. However, let us retrace our steps for a moment and survey the period of Huxley's work as a scientist up to about 1871. As far as chronology and continuity is concerned, this may seem to be awkward, but it is nonetheless useful to study the development of his scientific thought

without having to break our concentration to deal with other matters. As has been said previously, Huxley the moralist and Huxley the scientist are very different; to jumble them together would only be confusing.

## Chapter III

## The Early Development Of Thomas Huxley; The Scientific Aspect

In order to place Huxley effectively within the general context of European scientific activity in the nineteenth century, a brief sketch of the development of that discipline is desireable. The nineteenth century in Europe is the point at which the physical sciences reached maturity, and the word "scientist" came to be widely used. Men of science progressed from the status of amateur experimenters to professionals of great prestige. And as scientific knowledge increased, they became specialists in their own particular fields.

The nineteenth century was also an era in which broad and far-reaching theories were postulated. Darwin's theory of evolution by natural selection is an outstanding example, as is Hermann von Helmholtz's principle of the conservation of energy, first formulated in 1847. Besides these two great ideas, there also emerged the atomic theory of matter, the germ theory of disease, the field theory of forces, and the cell theory of organism. Unlike the amateurs of the seventeenth and eighteenth centuries, the scientists of the nineteenth century tended to come from the middle and lower classes. Because they usually had little money of their own, they had to support themselves by their scientific work, and industry was growing aware of the value of such people. The Royal College of

Chemistry and the Royal School of Mines were founded by the state to encourage the practical application of science to human needs, especially in industry.[1]

In the last few decades of the eighteenth century and the first few of the nineteenth, scientific societies began to spring up in the new industrial areas like Bristol, Newcastle, Manchester, Birmingham, and Leeds. The purpose of these societies was to apply scientific knowledge to the needs of factories, mines, and mills. The Manchester Literary and Philosophical Society, for example, offered a gold medal to encourage such practical research.[2]

There was also a growth in the specialized scientific societies, most notably in the British Association for the Advancement of Science, founded in 1831. This institution was patterned after the Gesellschaft Deutscher Naturforscher und Arzte, which was created in Germany in 1822. These societies met annually in different cities in their respective countries. A new president was elected each year, and, in the case of the German organization, no one could become a member unless he had published a paper based on independent research. The French followed the Germans and the English when they founded the Congres Scientifique de France in 1833.

Robert Waring Darwin was a Fellow of the Royal Society and a country physician. He married Susannah Wedgwood - a daughter of the famous Josiah Wedgwood - and from this marriage emerged Charles Darwin (1809-82). No account of

the life of Thomas Huxley would be complete without introducing Darwin and sketching their relationship.

Charles Darwin had a rather chequered career before he became well established as a naturalist. He had studied medicine at Edinburgh, and theology at Cambridge, but, finding both fields of little interest, he abandoned them before he was far advanced. His only enduring interest since childhood had been natural science, and it was this inclination which led him to join H. M. S. Beagle as a naturalist on its famous voyage around the world which lasted from 1831 to 1836. As a keen observer of natural phenomena, the young naturalist soon noticed that the various species of animals which he studied were especially adapted to their own environments. On the Galapagos Islands, for example, he observed that , although the animals there were obviously related to those of the South American continent, they were different in many respects. Also, these creatures showed peculiar differences from one island to another; each species seemed to be adapted to the environment of the island upon which it lived. Darwin resolved to make an investigation of this mystery, and since he had inherited enough money to live comfortably, he was able to devote most of his time to his work.

Malthus' theory of population was central to Darwin's emerging concept of evolution - if living beings tend to multiply beyond the limits of subsistence, a struggle for existence must necessarily result. Therefore, those

organisms that are well adapted to their environments will live on, whereas those that are not adapted will be doomed to extinction. Since all offspring are different from their parents - if only in a minute degree - the best adapted variations go on to propagate their kind, while the less fortunate mutations or variations die out. This theory of evolution by natural selection represented twenty years of concentrated work on the part of Darwin.

Huxley met Darwin soon after his return from the Rattlesnake voyage. During the trip, Huxley had sent some of his research papers to Darwin, who was well known among British naturalists. Although Huxley did not know the details of Darwin's Origin manuscript, one can see from his letters, as early as December 5, 1858, that Huxley rejoiced at the prospect of learning about Darwin's theory in full. Darwin's manuscript at that time was almost completed. Referring to the Origin, Huxley expressed confidence that "...in natural history, as in everything else, when the English mind fully determines to work a thing out, it will do it better than any other".[3] Evolutionism, of course, had been a topic of wide circulation prior to the Origin; but, like most Englishmen, Huxley was not impressed by the ideas. He was happy to remain in "...the fertile fields of ascertainable fact".[4]

Before Darwin had made public his theory of evolution by natural selection, Huxley had been in an intellectual quandary: he could not accept the theory of divine crea-

creation, but, on the other hand, there was no convincing theory of evolution to turn to. Consequently, he was "... inclined to say to both Mosaists and Evolutionists, 'a plague on both your houses!'".[5] However, Darwin was convinced that if he could persuade Huxley to support his evolutionary hypothesis, the Origin would stand a very good chance of being accepted by both scientists and the general public. By 1859, Huxley had a great reputation as a scientist; at thirty-four years of age, he had published seventy scholarly papers.[6] He was recognized as England's foremost physiologist, his renoun having been established at a meeting of the British Association in 1857. At this meeting, Richard Owen, the most famous English anatomist of the time, came under attack from Huxley. Owen had long maintained that the skulls of apes are more primitive in structure than those of men. He believed that the structure of animals could only be understood by referring to the concept of "archetypes", which meant that organisms were designed or created according to a pattern or idea in the mind of God. This is a kind of Platonism in which things are a concrete manifestation of the Idea. Thus, the idea is anterior to the thing, and mind is anterior to matter.

Huxley's approach was exactly the opposite: our knowledge of animal structure must be based on the study of concrete specimens. In effect, the thing or object comes first, and type or idea is based on real objects.[7] Owen's argument seemed to refute any idea of evolution; after all,

should not man's morphology be similar to the higher apes if evolution is a fact? At the meeting of the Association, Huxley challenged Owen by asserting that the differences between human and some ape skulls was very slight, and he used anatomical data to illustrate his arguments. In the opinion of most scientists, Owen had been soundly refuted, and Huxley assumed the preeminence in anatomy that had once belonged to Owen.

On the eighteenth of June, 1858, Charles Darwin received a copy of Alfred Russel Wallace's paper on his independently worked out theory of evolution. Wallace was a British naturalist, working in Malaya at the time. Darwin was shocked; Wallace's theory was identical to his own! As Darwin himself wrote,

> I never saw a more striking coincidence. If Wallace had my manuscript sketch written out in 1842, he could not have made a better short abstract! Even his terms now stand as heads of my chapters.8

Darwin had worked on his hypothesis for twenty years, but it seemed that his claims to originality were severely threatened. As a compromise, Lyell suggested that Wallace and Darwin publish their papers at the same time, and the two naturalists agreed to this proposal. Thus, on July 1, 1858, the two papers were read jointly at the Linnean Society under the general title, "On the Tendency of Species to Form Varieties; and on the Perpetuation of Varieties and Species by Natural Means of Selection". According to Gertrude Himmelfarb, these revolutionary papers

did not evoke a response from the audience of naturalists, and historians have been at a loss to explain why. Perhaps because the papers had been sponsored by the great botanist, Lyell, no one in the Society dared speak out against it, but that is only conjecture.[9] Another historian, Paul B. Sears, saw the momentous meeting differently:

> Imagine two giant firecrackers suddenly exploded in a roomful of peaceful knitters in rocking chairs ....You will have some measure of the effect produced by the reading of Darwin's paper, along with that of Wallace's, at the Linnean Society on the memorable 1st of July, 1859.[10]

In the first place, Mr. Sears' date of the meeting is erroneous; it should be 1858. Also, Himmelfarb's account appears to be the more accurate one: she refers to Gage's History of the Linnean Society, page 58, where Thomas Bell, the President of the Society, summed up the events of 1858 by writing, "The year which has passed...has not, indeed, been marked by any of those striking discoveries which at once revolutionize, so to speak, the department of science on which they bear".[11]

As we have seen, it was Lyell who arranged for the first presentation of Darwin's work to a professional group; he was also responsible for putting it in the hands of the general public. John Murray, the publisher of the revised edition of Darwin's Voyage of the Beagle, was prevailed upon by Lyell to undertake the publication of the Origin of Species. An amateur geologist himself, Murray did not think that the thesis of the Origin was either scientifically valid or commercially profitable. Indeed,

he believed that Darwin's ideas were "...as absurd as though one should contemplate a fruitful union between a poker and a rabbit".[12] As subsequent events show, the book sold moderately well, but it was by no means a smashing success. However, the influence of the book was by no means proportional to the number of copies sold.

Darwin knew that his theory was not assured of being accepted on its own merits; it had to be supported by prominent scientists. He expressed his anxiety in a letter to Hooker written on October 23, 1859:

> I remember thinking, above a year ago, that if ever I lived to see Lyell, yourself and Huxley come round, partly by my book, and partly by their own reflections, I should feel that the subject is safe, and all the world might rail, but that ultimately the theory of Natural Selection... would prevail. Nothing will ever convince me that three such men, with so much diversified knowledge, and so well accustomed to search for truth, could err greatly.[13]

Lyell, however, was not convinced of the veracity of Darwin's evolutionism, and that was typical of the scientists in general. But because Lyell's figure loomed so large in scientific circles, Darwin thought that it was essential that he be converted to natural selection. Lyell had supported the publishing of the Origin because he thought that the ideas contained therein deserved to be aired; but, clinging to the concept that God had created all species separately, he could not support a materialistic evolution. Hooker, on the other hand, was an almost immediate convert; he was the first to apply the new theory

to a scientific problem - namely, the plants of Australia.

Thomas Huxley was by far the most ardent supporter of Darwin's thesis. As a self-styled prophet of science, he proclaimed the advent of a new Augustan age in British science. He asserted that evolutionism was the wave of the future, and if one wished to be a part of this great reformation, one had to join Darwin's ranks. While Lyell and Hooker were uneasy about upsetting their contemporaries, Huxley was preaching the radical theory with evangelical fervour. Being highly resentful of the inferior social status of scientists as compared to clergymen, he was determined to change the imbalance: one of his prime goals vis a vis the clerics was to get his heels "...into their mouths and scr-r-unch it round"![14] He employed not only his heels, but also his pen in furthering the Darwinian cause. One month after the Origin was published, he wrote a review of it for Macmillan's Magazine called "Time and Life". But more important than that, by a series of fortuitous events, he was able to write a review of the book for the Times. The staff writer who was supposed to have written the review felt that his lack of scientific acumen made his opinions of little value. Someone then suggested that they ask Huxley to perform the task. Thus it came about that "Darwin's Bulldog" was able to sound the evolutionary trumpet in the most influential newspaper in England.

After thoroughly studying the Origin, Huxley was by no means convinced that evolution had been proven; he did

think, however, that it was a working hypothesis, and that scientists should proceed to test its validity. He realized that one could not prove that God, or the "unknown cause", had not created the universe, but "...philosophy has prospered exactly as it has disgarded such possibilities, and has endeavoured to resolve every event by ordinary reasoning"[15]. He saw the only hope of explaining life as lying in the mystery of evolution:

> I by no means suppose that the transmutation hypothesis is proven or anything like it. But I view it as a powerful instrument of research. Follow it out, and it will lead us somewhere; while the other notion (special creation)[16] is like all the mod- [17] ifications of "final causation", a barren virgin.

Even if the theory turned out to be completely erroneous, he saw it at least as a step forward in knowledge. But Darwin was annoyed that Huxley should point out weaknesses in his hypothesis. Darwin maintained that natural selection produces mutations gradually, over long periods of time: Huxley considered this to be a mistake. After all, natural selection could just as well cause rapid changes, which would account for many gaps that existed between species in the fossil record. In effect, he thought that the theory could be used to account for "...transmutation without transition"[18].

The Origin was not at first widely read by regular browsers in the book shops because of its highly technical contents. It was not as popular as the Vestiges had been; most of the copies of the first edition were purchased by

scientists and theologians.[19] Huxley realized that all supporters of evolution would have to do battle with the army of orthodoxy once the contents of the Origin became known to the public. He warned Darwin to be prepared for "... considerable abuse and misrepresentation...from curs which will bark and yelp".[20] 1860 was the year in which the acceptance of Darwin's book would be brought about largely because of Huxley's efforts. There was a good possibility that the forces of orthodoxy might successfully ridicule Darwin, and thus severely inhibit its acceptance by both scientists and laymen; after all, this is what had happened to Chambers' Vestiges some sixteen years before. History records that the crucial period for Darwin's book was the 1860 meeting of the Royal Society at Oxford. Bishop Wilberforce - usually called "Soapy Sam" by his contemporaries, and "Samivel" by Huxley - attended this meeting with the intention of discrediting Darwin.

Having achieved a considerable degree of competence in mathematics, and being a friend of many scientific notables, he fancied that he was an expert in scientific matters himself, and he was also "...a ready, fluent orator, never at a loss for words or put off by a loss of facts".[21] It has been suggested that one of Wilberforce's motives for attacking Darwin was that he wished to be on friendly terms with the court and low-church party: he had suffered much clerical disapproval after his brother and brother-in-law went over to the Catholic Church. Even

though he was eventually bested in the battle against the evolutionists, his confrontation with them brought about his desired ends in relation to his career.

At the Oxford meeting, Charles Darwin was the only prominent evolutionist to be absent. As was usual on such trying occasions, he protested that his digestion was broken down due to nervous strain. Wilberforce was scheduled to speak towards the end of the meeting, but Huxley - because he was tired and wished to return home to his ill wife - decided to leave the meeting. But Chambers, the author of the Vestiges, prevailed upon him to remain. The hall in which the audience had gathered was packed by seven hundred people. The discussion period toward the end of the series of lectures on Darwin's theory was the real focus of attention because it was the point at which the various parties would have a chance to debate the Darwinian hypothesis. An economist began the debate by attempting to refute Darwin on religious grounds, as did a clergyman who spoke after him. Unfortunately for these two gentlemen, they were shouted down by a large group of raucous undergraduates. But the students demonstrated their impartiality when they hooted at a man who arose to defend Darwin. Attempting to present a mathematical demonstration of the theory of natural selection, he "...had the misfortune to accompany his blackboard diagram with the explanation, 'Let this point A be man, and let that point B be the mawnkey'",[22] whereupon the vociferous undergraduates took up the chant,

"mawnkey!": needless to say, the mathematician's speech did little to aid the Darwinian cause.

Wilberforce was by far the most formidable opponent that the apostles of Darwin would have to face. A master of wit and sarcasm, he easily came up with expressions like "...our unsuspected cousinship with the mushrooms..." and "...is it credible that all favourable varieties of turnips are tending to become men...?[23] Owen, England's most outstanding anatomist, next to Huxley, had been coaching Wilberforce in the assault on Darwin. Long before 1859, Owen had been toying with the idea of evolution, and he was very close to Darwin's position. However, he was too afraid to advocate publicly such a theory:

> ...typical of Owen's polemical strategy was the simultaneous attack from front and rear: not only were his opponents mischievously deluded in their beliefs, but they were also deluded in thinking them original, since they had been anticipated by Owen himself. As Pascal had wagered with God, so Owen did with history. Either history would prove his enemies wrong, or, if right, Owen could claim priority. Later, when Darwinism seemed to be winning out, Owen was to become more extortionist in his claims...."[24]

Using ridicule as a stick with which to beat Darwin before the great audience at Oxford, Wilberforce entertained the spectators with a recitation of the more fanciful theories of Charles'Darwin's grandfather, Erasmus. Wilberforce then sought to prove that Charles and Erasmus had the same mentality by pointing out that they both used the expression "it is not impossible"! This was topped off by selected readings from a poem designed to ridicule Erasmus.

Not only was Charles Darwin made out to be a secret atheist, but he was also accused of being unpatriotic, because the theory of evolution originated in a foreign country.[25] Turning to Huxley, who was seated near the Bishop, Wilberforce asked him if it was through his grandmother or his grandfather that he had descended from a monkey! Huxley, who was a competent speaker himself, got up in his turn and replied to Wilberforce:

> I asserted - and I repeat - that a man has no reason to be ashamed of having an ape for his grandfather. If there were an ancestor whom I should feel shame in recalling, it would rather be a man, a man of restless and versatile intellect, who, not content with an equivocal success in his own sphere of activity, plunges into scientific questions with which he had no real acquaintance, only to obscure them by an aimless rhetoric, and distract the attention of his hearers from the real point at issue by eloquent digressions and skilled appeals to religious prejudice.[26]

The audience's reaction to Huxley's words was explosive:

> Bishops, however great the provocation, were not often treated so disrespectfully, and the excitement was tremendous. One lady fainted and had to be carried out, while undergraduates leaped from their seats and shouted. Other speakers followed adding confusion to the uproar. An Oxford don disputed the theory of development by pointing out that Homer, the greatest of the poets, had lived three thousand years ago and his like had not been seen since. Sir John Lubbock defended it against some of the frauds used against it: he told of a specimen of wheat that had been sent to him as having come from an Egyptian mummy, ostensibly demonstrating that wheat had not changed since the time of the Pharaohs; upon examination the wheat proved to be made of French chocolate. Admiral Fitz Roy got up to describe how he had often expostulated with his old comrade of the Beagle (Darwin)27;;lifting an immense Bible over his head, he solemnly implored the audience to believe God rather than

> man. Hooker, unable longer to contain himself...declared that Wilberforforce could never have read the Origin nor have been familiar with the rudiments of botany.... His was the last word. Wilberforce did not reply and the meeting was dissolved.28

The rhetorical defeat of Bishop Wilberforce convinced Huxley that he himself had considerable powers as a public speaker. Prior to this time, he had never really enjoyed lecturing, and he subsequently made an effort to improve his speaking style.[29] Even after Wilberforce was rebuked by Huxley, the road that the advocates of evolution had to follow was not an easy one: their enemies were numerous and powerful. The Darwinians laboured under the disadvantage that they had no strong leadership. Their efforts to defend Darwin were not sufficiently co-ordinated to ensure the maximum degree of effectiveness. Darwin - who would seem to have been the most logical leader - was too nervous to take command: he withdrew from all public controversies over his work. Huxley, for his part, was too independent to be a leader, and he was too involved in his private war against the establishment to direct assaults with his fellow evolutionists.

Professor Sedgwick, an old and prominent scientist, seems to have been the leader of the anti-Darwinian element. Since he was a staunch Anglican, there was much in the Origin that he could not tolerate. Writing to Darwin in 1859, Sedgwick showed his displeasure:

> There is a moral or metaphysical part of nature as well as a physical. A man who denies this is deep in the mire of folly. 'Tis the crown and glory

> of organic science that it does through final cause link material and moral;.... You have ignored this link; and, if I do not mistake your meaning, you have done your best in one or two pregnant cases to break it. Were it possible (which, thank God, it is not) to break it, humanity, in my mind, would suffer a damage that might brutalize it, and sink the human race into a lower grade of degradation than any into which it has fallen since written records tell us its history. 30

Darwin replied that he had written the book in all honesty and after much labour; he could only write the truth as he saw it. But Sedgwick's criticisms of Darwin were not limited to private correspondence. Encouraged by the Archbishop of London, the Professor wrote a scathing attack on the author of the Origin in the Spectator. That article was anonymous, but Sedgwick came out in the open in a lecture to the Cambridge Philosophical Society in May of 1860; in it he tried to slur Darwin's morals and professional ability. To the Professor's chagrin, John Henslow - Darwin's former teacher and Hooker's father-in-law - was present at the gathering. A prominent scientist himself, Henslow expressed his disgust with this attempt at character assassination, and he publicly rebuked Sedgwick, who promptly moderated his tone.

Within a year after the Origin was published, there were few Englishmen who were not familiar with the basics of the theory of evolution by natural selection. Perhaps it was more frequently condemned than defended, but it was certainly a main topic of conversation at most dinner tables. It seems that young people - who were not set in their ways - were the earliest converts. This was particularly true of

students. In fact, the acceptance of Darwinian evolution by the young became a major characteristic of the generation gap of the time.[31]

At this stage in his life, Huxley thought about evolution in much the same terms that Spencer did: man's relation to the ape is not something to be regretted because, if the human species has advanced this far, there must be hope for further advances. Like Spencer, he saw the struggle for existence as being the mechanism whereby species mutate and development occurs:

> Who...has duly reflected upon all the consequences of that marvellous struggle for existence which is daily and hourly going on among living beings. Not only does every animal live at the expense of some other animal or plant, but the very plants are at war.... The individuals of a species are like the crew of a foundering ship, and none but good swimmers have a chance of reaching land.[32]

Like many of his fellow Victorians, Huxley believed in the idea of human progress, which meant a faith in "...the steady, cumulative, and inevitable expansion of human awareness and power - material, intellectual, spiritual".[33] At the root of this faith in progress was the belief that science was capable of perfecting man and his environment. Truly, one of the hallmarks of the Victorian period is the accumulation of vast amounts of scientific data. Darwin's theory of evolution seemed to confirm the belief in necessary progress; advancement pervaded the world of plants and animals, as well as that of man. This faith is stated firmly towards the end of Darwin's Origin:

> As all living forms of life are the lineal descendants of those which lived long before the Cambrian epoch, we may feel certain that the ordinary succession by generation has never been broken, and that no cataclysm has desolated the whole world. Hence, we may look with some confidence to a secure future of equally unappreciable length. And as natural selection works solely for the good of each being, all corporal and mental environment will tend to progress towards perfection.[34]

In later years, Huxley would repudiate both the notion that evolution is necessarily progressive,,and the idea that the struggle for existence is "marvellous". At this time (1859) however, he was enthusiastic about the concept of evolutionary progress. Nevertheless, he still did not think that evolution was a proven fact: he adopted an attitude that Goethe called Thatige Skepsis, the "...doubt which so loves truth that it neither dares rest in doubting, nor extinguish itself by unjustified belief....".[35]

Now let us examine the contradiction that exists between Huxley's ethical and scientific speculations. As a scientist he was definitely in the camp of the materialists, right up until the late 1880's. We shall soon see that he thought all living organisms, including man, were "...nothing but extremely complex bundles of forces held in a mass of matter, as the complex forces of a magnet are held in the steel by its coercive force".[36] In short, he did not attribute the characteristic of free will to humans, which is a position that diametrically opposes his moral thinking: how can anyone speak in terms of ethics if people are mechanistic in their behavior? Jacques Barzun seems to have summed up the whole Darwinian controversy when he wrote

that the battle over the Origin was not just a war between empirical science and Christian theology, but rather, it was "...a dispute between the believers in consciousness and the believers in mechanical action; the believers in purpose and the believers in pure chance".[37] In reducing all life to the level of matter in motion, Huxley was being absolutely mechanistic.

This materialistic attitude was common to a number of Huxley's associates, but he was always irritated when anyone actually called him a materialist; he thought that his agnosticism was beyond such labels. He simply suspended judgement when it came to considering what matter is or what elements comprise existence. But Huxley's good friend, John Tyndall (1820-93), did not mind the materialist label at all. Appointed professor of natural philosophy in the Royal Institution in 1853, he concentrated his attention on physics. Tyndall called his philosophy "scientific materialism", but it is interesting to note that his attitude towards matter and mind was considerably less mechanistic than Huxley's. In an address to the British Association called, "Scope and Limit of Scientific Materialism", Tyndall maintained that there is some sort of connection between the chemistry of the brain and mental processes, but he denied that anyone is justified in trying to explain how they are related. He admitted that the brain, like all other organisms, had had its origins in the non-organic material of the universe, but he did not

regard matter as being something dead: all matter, even stones, contains within itself the potentiality for life and mental phenomena. In essence, "...scientific materialism demanded a revision of the concept of matter as something dead and opposed to biological and mental life".[38] It is quite clear that Huxley's concept of matter was that it is dead. Tyndall considered mental phenomena to be a mystery beyond the capacity of science to explain. Huxley eventually arrived at a similar conclusion, but until late in his life, he believed that Tyndall was mistaken.

In an essay called "The Origin of Species", written in 1860, Huxley stated that living organisms and non-living things are subject to the same natural laws; thus, "... living bodies should obey the same great laws as other matter - nor, throughout nature, is there a law of wider application than this, that a body impelled by two forces takes the direction of their resultant".[39] Indeed, the whole cosmos represents "Harmonious order governing eternally continuous progress - the web and woof of matter and force interweaving by slow degrees....".[40] By 1864, Huxley had reconsidered the issue of evolution and its relation to progress; he admitted that all developing organisms need not necessarily be heading toward increased perfection. Not only might an organism remain unchanged for any length of time, but it might just as easily retrogress and become less adapted to its environment than it formerly was.[41]

Huxley's materialistic tendencies are the most clear

in his lecture "On the Physical Basis of Life", delivered in Edinburgh in 1868. He maintained that there was no essential difference between the flower that a girl wears in her hair and the girl herself: all organisms are basically the same due to "...a unity of power or faculty, a unity of form, and a unity of substantial composition".[42] All intellectual activity, including will, are simply the result of body functions: "Speech, gesture, and every other form of human action are, in the long run, resolvable into muscular contraction, and muscular contraction is but a transitory change in the relative positions of the parts of the muscle".[43] He went on to say that the gravitation of thinkers towards materialism and determinism was a good thing and inevitable, because one cannot prove that any given phenomenon is not the result of material or physical cause. Human reason is powerless to demonstrate that any action or thought is truly spontaneous. In reality, "...matter and spirit are but names for the imaginary substrata of groups of phenomena".[44] The advancement of science depends on the reduction of all things in the universe to "... materialistic formulae and symbols..."[45] and this is a good thing because it equates thought with the other occurrences in nature, and thereby opens up the workings of the mind to the physical sciences. Nobody must attempt to obstruct the advancement of this scientific proceedure, not even the Church:

Extinguished theologians lie about the cradle of

> every science as the strangled snakes beside that of Hercules; and history records that whenever science and orthodoxy have been fairly opposed, the latter has has been forced to retire from the lists....[46]

Throughout his life, Huxley tended to shy away from unpleasant philosophical discussions. We have seen that he committed himself to the materialistic position, but in the same essay, "On the Physical Basis of Life", he was unwilling to draw any metaphysical conclusions from his mechanistic concept of man. He was willing to bow to the precepts of Victorian decency rather than face up to the fact that he had described man as a machine:

> Permit me to enforce this most wise advice. Why trouble ourselves about matters of which, however important they may be, we do know nothing? We live in a world which is full of misery and ignorance, and the plain duty of each and all of us is to try to make the little corner he can influence somewhat less miserable and somewhat less ignorant than it was before he entered it. To do this effectually it is necessary to be fully possessed of only two beliefs: the first, that the order of Nature is ascertainable to our faculties to an extent which is practically unlimited; the second, that our volition counts for something as a condition of the course of events.[47]

But it was the dominant materialistic theme of this lecture that shocked his Edinburgh audience; it had "... sent a ghastly shiver down the spines of orthodoxy and made sober liberals feel like the winners of a football match".[48] Huxley seemed to be both advocating and rejecting materialism, but the element of determinism was strong while the acknowledgement that "...our volition counts for something..." is not much of a concession to idealists.[49]

Between 1860 and 1870, Huxley produced no less than fifty technical papers. One of his most famous works of the period was the Manual of Comparative Anatomy of Vertebrate Animals which contained his latest research in that area. His Elementary Lessons in Physiology (1866) was the first English language text on the subject, and it became the most widely used biological textbook in England. Also, in 1870 he was elected President of the Royal Society.[50]

In 1861, Huxley wrote a letter to Herbert Spencer in which he described Tyndall's faith in the ability of the sciences to master all human problems and explain all phenomena. Referring to Tyndal, Huxley said that "...a favourite problem of his is - Given the molecular forces in a mutton chop, deduce Hamlet or Faust therefrom".[51] Huxley could hardly have intended that he be taken seriously, but the underlying suggestion of the quip could be applied to both men. By 1870, Huxley's mechanical view of nature was taking on more pronounced characteristics. He realized that scientists were increasingly taking the position that all vital phenomena are purely mechanical, and he favoured the idea. This means, in essence, that "...the human body, like all living bodies, is a machine, all the operations of which will, sooner or later, be explained on physical principles".[52] He also firmly believed that the ultimate goal of the physical sciences would eventually be arrived at, namely, "...a mechanical equivalent of consciousness, just as we arrived at a mechanical

equivalent of heat".[53] Materialism was a most desireable goal to aim at, and he identified himself with that movement:

> I am prepared to go with the materialists wherever the true persuit of the path of Descartes may lead them; and I am glad, on all occasions, to declare my belief that their fearless development of the materialistic aspect of these matters has had an immense, and a most beneficial, influence upon physiology. Nay, more, when they go farther than I think they are entitled to do - when they introduce Calvinism into science and declare that man is nothing but a machine, I do not see any harm in their doctrines, so long as they admit ... that it is a machine capable of adjusting itself within certain limits.[54]

The 1874 meeting of the British Association in Belfast provides an example of the position at which Huxley and many of his fellow scientists had arrived. Tyndall read a paper entitled "The Past History of the Universe as deduced from Astronomy and Physics". His main thesis was that the cooling of the planets would automatically produce living organisms. He also made the point that religion was useful in cultivating worthy sentiments, but it should never interfere with science. Religion is emotionalism, and nothing more: "It would appear that only a very honourable courtesy prevented him from saying quite plainly that religion was a necessary 'make-believe', a sort of mental drug, and that each generation will need a different prescription according to the nature of its mental complaints".[55] The conventional citizens of Belfast were naturally outraged by this piece of atheistic speculation, and Huxley

further inflamed them by reading a paper called "The Theory that Animals are Automata, and its History". Huxley claimed that, as Decartes had said long ago, all animals, along with man, are mere pieces of clock-work. Consciousness has no part in animal make-up. At the same time, he denied that he was neither a materialist, a determinist, nor an atheist. The confused people of Belfast did not know what to make of him![56]

Provocative speeches like the one above helped to make Huxley one of the most famous scientific spokesmen of the western world. In 1876, he was invited by Mr. Gilman - the first President of Johns Hopkins University in Baltimore - to come to America. Huxley's subsequent seven-week stay in the United States can only be described as a triumphal procession. He was visited by admiring Americans wherever he went, and he had innumerable requests to give lectures. Huxley also paid an important visit to Professor March at Yale, where he was shown an enormous collection of American fossils. From these fossils, Huxley was able to trace the first "lineage series" of animal bones (in this case, the horse); it was the first series of fossil remains that could be considered to be a demonstration of evolutionary development. As Huxley was aboard ship on his way back to England, a storm of controversy broke out concerning his visit. Many conservative American Christians were irritated because Huxley had been allowed to deliver the inaugural lecture at Johns Hopkins. And worse still, the ceremonies

had not been opened with prayer. The university, which counted on public support for finances, suffered financially because of Huxley's participation. At any rate, he had said nothing about religion in his address.

At this point, we have traced the ethical and scientific positions of Huxley up to about 1871. The contradiction between these two views is obvious. One might well wonder why such a state of affairs could have existed in a person who posessed no mean intellect. However, if one reflects upon the sources in which his ethical and scientific views are found, some clues may be discovered. For instance, his moral opinions derive mainly from his personal letters. In this correspondence, he appears to be a kind of deist who sees the natural order as being roughly equal to the God of the Old Testament; the universe is absolutely just, and all trespasses are quickly and severely punished through natural law. On the other hand, one finds his philosophy of science mostly in his essays, which, it is important to bear in mind, were usually delivered as public addresses. As we have seen, there is a strong strain of materialism in them. If one realizes that Huxley was one of the most prominent scientists of the nineteenth century, one can perhaps better understand the dichotomy in his thoughts. As a defender of the scientific method in general, and Darwinian evolution in particular, he had to be very careful about adhering to the principles of objective research as opposed to metaphysical speculation. Perhaps, in his

efforts to subdue religious opposition to Darwin, he resorted, at least rhetorically, to the extremes of materialism. By couching Darwinism in strictly empirical terms, he may have sought to exclude religious points of view from the debate over the Origin.

Huxley's popularity was by no means confined to the well educated classes. As early as 1861, he had a large and enthusiastic following among the working men of London. Huxley's influence over them may be guaged by a quip he made to Lyell; "...by next Friday evening they will all be convinced that they are monkeys".[57] He expended a great deal of time and energy on his public courses. Indeed, he became "...an institution at very nearly every scientific lecture hall in London, as well as a frequent sensation in the provinces".[58] Both men and women were his pupils; he taught ladies basic courses in physiology, and spoke to mechanics about the anatomy of crayfish, dogs, and oysters: "Rarely in modern times has one man disseminated so many facts and ideas, and spread so much intellectual excitement, among so many people".[59]

Huxley's style, both in speach and in the written word, was based on the literature of the Old Testament. He copied the refined clarity of the ancient prophets, thereby being able to communicate easily with the common folk, who were familiar with the language of the Bible. Popular education at that time was restricted largely to the Sunday Schools, and, therefore, to scripture reading.[60]

## Chapter IV

## The Philosophy Of Herbert Spencer

John Herman Randall has described intellectual revolutions as happening in three stages. The first stage involves the appearance of a new idea that is propagated by a group of its supporters. In the case of Darwinism, both Darwin and Huxley belong in this category. The second phase of the revolution is a period of reaction against the new idea by the upholders of tradition. However, this reaction is usually too weak and too late to effectively stamp out the new idea, as was apparent in the Darwinian revolution. In the final stage,

> ...there has appeared a third group, the adjusters - the compromisers and mediators - who interpret the new idea in the light of the traditional notions with which men are already familiar. They take it as really confirming in a new way the older and familiar ideas.[1]

Among this group of adjusters were Herbert Spencer, Auguste Comte, and Karl Marx. All of them agreed that philosophy must rest on a scientific foundation, and all of them looked to science to supplant traditional religion. Or perhaps it would be more accurate to say that they had made science a new faith in its own right. To them, the concept of evolution was "...a new and up-to-date Providence working for the salvation of men".[2] These thinkers adapted Darwinism to ideas which had existed for some time prior to the Origin. There were few fields that did not feel the impact of Darwin, because he had

> ...rendered evolution inescapable as a fact, comprehensible as a process, all-embracing as a concept. After Darwin it became necessary to think of the phenomenal world in terms of process, not merely in terms of mechanisms, and eventually to grasp that the whole of reality is a single process of evolution.3

It was Spencer, more than anyone else, who popularized evolution, not just in England, but throughout the whole civilized world. It has been suggested that, if one could take a poll of the views of educated Englishmen of the 1870's concerning who was the greatest philosopher of their times, most of them would have said Herbert Spencer. He was considered by many to be the Spinoza of the nineteenth century, because he had produced a new world outlook. His works were even printed in Japanese and Iroquois. When he died in 1903, it is reported that the Italian Chamber of Deputies adjourned in his honour.[4] He was one of the few philosophers who enjoyed world-wide fame in his own lifetime.[5]

Spencer was born on April 27, 1820 in the town of Derby. At the age of sixteen, he became a school master in the same town, but after a few months of teaching, he abandoned his post to become an engineer for the Birmingham and Gloucester Railway. Construction on the line was finished in 1841, whereupon he was discharged. He went to London in 1843 to make a literary career for himself, becoming sub-editor of the Economist in 1848. As a member of the newspaper staff, he became acquainted with Huxley, Tyndall, Eliot, and G. H. Lewes. Having been brought up

during the anti-outdoors relief and anti-corn-law agitation, he was much influenced by the gospel of individualism and laissez-faire economics. Also, he had been an evolutionist of the Lamarckian school long before Darwin published the Origin. His evolutionism was also influenced by Von Baer, the German biologist who demonstrated that embryoes grew into increasingly complex organisms as they got older. Spencer generalized this tendency toward complexity into a general law of nature: all organisms had developed from primitive protoplasm into complex creatures, and, on the social plane, man has evolved from tribal cultures into industrial and democratic ones.[6] His monumental work, the Synthetic Philosophy, consisted of ten volumes, and was written between 1860 and 1896. Its major aim was to synthesize all existing scientific knowledge into one great system - the only effort of its kind in the nineteenth century.

Spencer's first book, Social Statics, appeared in 1851, when he was thirty years old. The ideas expressed in this work were the basis of his whole philosophy, and did not change materially for the rest of his life.[7] He expounds the idea that people develop gradually into social units, and that societies adapt themselves over a long period of time to the individuals who comprise them. The only individuals who survive are those who adapt themselves to the social structure, and the only societies that survive are those that are adapted to their

environments. Eventually, man as a social being will develop a completely harmonious relationship with his fellows. Ultimately, complete adaptation will be attained, and the state will wither away because man will be living in perfect accord. Like Marx, Spencer maintained that no stage in the evolution of society can be skipped; development must occur gradually. The state must not interfere in order to control the more brutal characteristics that man has inherited from his animal ancestors, except in very limited ways. Social harmony must be learned through experience, not education or state regulation:

> ...Spencer remained loyal, even after the publication of the Origin of Species, to his original Lamarckian view of evolution, and therefore saw in society, as in all other organisms, a "self-adjusting principle", a capacity for adaptive metamorphosis. In view of this capacity social evolution is predominantly progressive.8

The main difference between Spencer and those who came before him was that he believed that society is an organism, and can thus be studied like any other living thing. Society obeys all of the laws that pertain to any biological entity:

> Only an extremely ingenious man could have discovered so many parallels between social structure and social function on the one hand, and physical structure and physical function on the other. And only a supremely irrational man could have taken the matter to such lengths. Sometimes, it must be confessed, Spencer's comparisons are more than strained.9

Like the positivists, Spencer felt that metaphenomenal things, or non-empirical questions, were outside the scope

of both science and philosophy. On that basis, then, what is the difference between philosophy and science? The function of philosophy is to take in all the specialized knowledge of the sciences and unify them in a general system. Philosophy, then, generalizes about the conclusions arrived at by the particular sciences and formulates universal truths.[10] Like Comte, Spencer was of the opinion that there are three stages in social development. The first is primitive society where social types are not distinct. Then there is the militaristic stage where the community is based on physical force. The third stage is the present commercial and industrial one where laissez-faire predominates in all facets of social life. In effect, "...he faithfully reflected the ideals of the...century, its liberalism and individualism, its dizzy progress, its illusion of freedom, its boundless faith in knowledge, and its religious indifference".[11]

Malthus' law of population was at the root of his social theory. He was at first baffled why the primary instinct of reproduction should interfere with the process of adaptation; over-population among humans is always inevitable, but how could one say that it works to the advantage of the species? Spencer finally came to the conclusion that the Malthusian law was a positive good since man, under the pressure of providing for the needs of the increasing population, must devise new means of survival. Thus, he reasons, competition stimulates the growth of

brain-power: the struggle for existence, caused by an excess of population, will only alow to survive those with the greatest intelligence, because clever people will always win out over the duller ones.[12] To Spencer, intra-specific competition was the mechanism of progress, not social co-operation.

In Spencer's mind, evolution and progress were the same thing. He attempted to use evolution to give the Victorian faith in progress a scientific foundation. Darwin himself had the same kind of evolutionary optimism.[13] Both Darwin and Spencer seem to have suggested that, since man is infinitely variable, he must also be infinitely perfectable. This faith in progress was almost a religious doctrine to many Englishmen of the time, and Spencer's giving expression to it would help to account for his great popularity. Some people held the fatalistic opinion that progress was bound to happen, no matter what individuals did or did not do; others maintained that advancement would come only through conscious effort. But most believed in some doctrine of increased perfection.[14]

Spencer's Synthetic Philosophy contains the first attempt to explain human psychology in evolutionary terms. Like Mill, he claimed that knowledge derives from experience, but Spencer was different when he said that there are two kinds of experience - that which individuals have, and that which the race as a whole has:

Organized in the brain by a process of gradual

> deposition and accretion, this experience constitutes an inheritance transmitted through successive generations and receiving fresh contributions from each in its turn. It is thus, and by no transcendental process, that what we rightly call innate principles and truths are acquired, their persistence and stability being a guarentee for their objective validity.15

Like Huxley, Spencer did not feel that free will really existed. To account for consciousness, he introduces a curious kind of pantheism; he explains that consciousness is "... a specialized and individualized form of that Infinite and Eternal Energy which transcends both our knowledge and our imagination; and that at death its elements lapse into the Infinite and Eternal Energy whence they were derived"[16] However, the consensus of opinion among historians seems to be that Spencer's pantheism was "...only a decoration of the facade, intended to give to the structure an appearance less repellent to religious minds".[17] After reading Social Statics, Spencer's own father was astonished that Herbert, who was always making agnostic noises, reflected deistic ideas in the book. Spencer replied that,

> ...the usual expressions were as good as any others. Some words signify the ultimate essence, or principle or cause of things, I was obliged to use, and thinking the current ones as good as any others, I thought best to use them rather than cause needless opposition.18

It is truly astonishing to realize how little research Spencer did before writing his Synthetic Philosophy. As one historian has put it, "No modern thinker has read so little to write so much".[19] His Psychology was based on a cursory scanning of Mansel's Prologomena Logicae, and most of the

data for his Biology derives from Carpenter's Principles of Comparative Physiology. Also, he "...produced a treatise on sociology without reading Comte and a treatise on ethics without apparently reading anybody".[20] His lack of scholarship was matched by his none-too-likable personality:

> Pedantic and ponderous, arrogantly sure of the correctness of his own opinions and unable to talk except on large topics, brusque, uncompromising and somewhat eccentric, Spencer cannot have been an easy or a charming companion. His sense of humour was elementary, being chiefly excited by what he calls "droll mistakes" in his printers' proofs. He was morbidly sensitive about anything which seemed to reflect on his originality as a thinker....[21]

Spencer also made a practice of stopping up his ears with plugs whenever a conversation dealt with a topic that he considered to be unpleasant.[22]

The thesis of the system contained in the Synthetic Philosophy is really a fraud, because Spencer tried to give it the appearance of being inductive, whereas in reality it was deductive, having been "...based upon Spencer's prejudices and bolstered up by a mass of selected, and not always very carefully selected, evidence".[23] In Huxley's opinion, Spencer's idea of a tragedy was a deduction killed by a fact.[24] William Irvine has identified clearly the basis of Spencer's philosophy:

> Spencer's theory was his own experience generalized for ordinary mortals, plus biological laissez-faire - an impossible idealism modified by an even more impossible realism. Skillful, well-informed tutors like his father were to lovingly educe from common-place little boys an original genius like Herbert's own for abstract reasoning and encyclopedic knowledge which might lead eventually to a

> million pounds or a synthetic philosophy. On the other hand, they were not to teach too lofty an idealism, lest little boys be unfitted for the aboriginal struggle which civilized life actually is.25

The rugged individualism of Spencer's Synthetic Philosophy is evident in the man himself. Due to the fact that recognition had not been extended to him in his early years, he refused to accept societies' medals and diplomas once his reputation was established. The only scholarly society to which he would belong was the Athenaeum Club. He was offered a chance to occupy the chair of mental philosophy and logic at University College, London, but he declined. He also refused to become a member of the Royal Society, and few things repelled him more than awards extended to him by the government. He only wished to do what he had always done - to write and just live on the money earned from his works.

It is easy to be critical of the Synthetic Philosophy: any work of such enormous magnitude is bound to contain many errors. Today, Spencer's volumes are seldom read, even by professional philosophers. The explanation for this seems to be that he was so much the mouth-piece of his age that, when the Victorian period passed, his reputation died with it. He was so much a man of the nineteenth century that his ideas are irrelevant to people of the twentieth century.[26] Nonetheless, one cannot help but have some degree of admiration for the man who undertook so gigantic a task as the writing of the Synthetic Philosophy.

## Chapter V

### The Influence Of Herbert Spencer On Thomas Huxley

It would not be unreasonable to say that Huxley, more than any other individual in the nineteenth century, struggled with the problem of the relationship of evolution to ethics. There is not a great deal of information on the personal friendship of Huxley and Spencer, but it seems quite clear that from 1852 - when the two men first met - until 1871, Huxley was in full accord with most of Spencer's philosophy. Spencer, writing to his father in 1856, shows that this was so:

> Huxley has lately been reading the latter portion of the Psychology, "a propos" of his lectures. He says "there are grand ideas in it". I value his approval more than that of anyone; as he is always so critical and skeptical, and so chary of his praise.1

And in 1860, after having read Spencer's First Principles, Huxley wrote,

> It seems as if all the thoughts in what you have written were my own, and yet I am conscious of the enormous difference your presentation of them makes in my intellectual state. One is thought in the state of hemp yarn, and the other in the state of rope. Work away, then, excellent rope-maker, and make us more ropes to hold on against the devil and the parsons.2

Ironically, Spencer the rope-maker was fashioning cords that would eventually choke Huxley. In reply to the above letter, Spencer wrote,

> I was, as you may suppose, immensely gratified to have from you so decided an expression of approval. coming from you, who are so critical and skeptical, it took me somewhat by surprise....3

We have now arrived at an important juncture in Thomas Huxley's life. Prior to 1871, he used nature as the foundation for his ethical ideal: nature was absolutely just and tolerated no violations of her moral or physical laws. But after 1871, his idea of the natural order changed; it was seen to be impersonal and amoral - neither good nor bad - but simply a machine. And one can even detect a hint or two that nature is more wicked than just. A study of his letters and essays reveals that, between 1872 and 1876, he had little to say about philosophical matters. The reasons for this seem to have been a prolonged illness and intensive involvement in his scientific work. However, the important point is that when he does begin again to indulge in metaphysical speculation in 1876, his concept of nature continues to be that it is amoral. How, then, can one account for this?

Only one writer appears to have noticed that some transformation took place. This was Oma Stanley, who said that the main cause of the change was Mill's essay "Nature" which was published in 1874: Stanley dates the change at this point. The essay depicts nature as being cruel and full of pain. Stanley admits that there is actually no evidence whatsoever in Huxley's writings to prove that he had ever read the essay; but it is probable that he had, since he was very well read. Stanley perceived that Huxley's view of nature changed from what he termed a Romantic and a

colorful one to a scientific or objective one.[4] His suggestions, without doubt, have a great deal of merit, but there is at least one other possible cause, which is supported by evidence.

That cause is the philosophy of Herbert Spencer. As we have seen, Spencer was the champion of laissez-faire and struggle for existence principles in society. In 1871 he presented these views in an article called "The Social Organism": he compared the body politic to the body physical. Just as the cells within a body make war on one another, so too must society be established on a purely competitive basis. The function of government must be restricted to a purely police function, in the interests of individualism. Spencer said that the struggle for existence and the survival of the fittest was the underlying principle of the universe. Therefore, government has no right to upset the natural functioning of free competition by creating institutions designed to protect the weak and unfit. Man must not interfere with the laws of nature! This means that public education must be done away with because schools care for children rather than make them compete in real life with their fellow creatures.

Now, there were two things that Huxley really cared about: one was the advancement of science, and the other was the welfare of his fellow-man.[5] He saw education as being the best tool for improving the human lot. Because of this concern, he worked long and hard for education

reform, and his contributions in this area were considerable. In 1851 - the year of the Great Exhibition - the Prince Consort and Lyon Playfair proposed that a new centre for science be built in South Kensington, a suburb of London. In spite of much opposition, Huxley had the School of Mines moved to the new site; many people in the School did not think it convenient to move the institution from Jermyn Street to the remote suburb. Huxley was also in favour of joining the Royal College of Chemistry in Oxford Street with the School of Mines, and he worked for this end as a member of the Duke of Devonshire's Commission on Scientific Instruction and the Advancement of Science. In 1841, the Commission decided to amalgamate the two schools and to move them to South Kensington as the School of Science. Huxley then began to work toward setting up scientific training in elementary education, which was then totally lacking. When the Education Act of 1870 required the formation of an elementary school system, he decided to get further involved in education reform; he successfully ran as a candidate for the London School Board.

It is hardly surprising that so public spirited a man should become angry over Spencer's idea that the weak and unfortunate must be trampled under foot in the great process of evolution. So Huxley retaliated against his friend in 1871 in an essay called "Administrative Nihilism", He described the position of Spencer and his followers thusly:

According to their views, not a shilling of public

> money must be bestowed upon a public park or pleasure-ground; not a sixpence upon the relief of starvation, or the cure of disease. Those who hold these views support them by two lines of argument. They enforce them deductively by arguing from an assumed axiom, that the State has no right to do anything but protect its subjects from aggression. The State is simply a policeman, and its duty is neither more nor less than to prevent robbery and murder and enforce contracts. It is not to promote good, nor even to do anything to prevent evil, except by the enforcement of penalties upon those who have been guilty of obvious and tangible assaults upon purses or persons. And, according to this view, the proper form of government is neither a monarchy, an aristocracy, nor a democracy, but an "astynomocracy" or police government. On the other hand, these views are supported a posteriori, by an induction from observation, which professes to show that whatever is done by a Government beyond these negative limits, is not only sure to be done badly, but to be done much worse than private enterprise would have done the same thing. [6]

Huxley goes on to say that one cannot base social laws upon the principles of the function of natural organisms. And this is a most important point: as an evolutionist, he could not deny that the struggle for existence is an important aspect of the natural process. How, then, could he continue to maintain, as he had previously, that nature is absolutely just if bloodshed, suffering, and agony are essential facets of nature? Spencer seems to have brought Huxley to a realization that nature lives by brutality, and this was what probably caused him to review his ideas on the relation between evolution and ethics. "Administrative Nihilism" represents, on a small scale, the great clashes that Spencer and Huxley would have over this issue at a later date. It is not pure speculation to suggest that it was Spencer, more than anyone else, who changed Huxley's

mind. As Huxley has said, the crux of the matter is this: "If individuality has no play, society does not advance; if individuality breaks out of all bounds, society perishes".[7] In short, the struggle for existence which reigns in the world of plants and animals is not applicable, ethically, to man.

By 1876, the concept of the justness of the natural order seems to give way to the idea that there is much undeserved suffering in it:

> ...men sin, and the consequences of their sins affect endless generations of their progeny. Men are tempted, men are punished for the sins of others without merit or demerit of their own own....[8]

Writing to Darwin, Huxley said that he himself was similar to orthodox Christians in the sense that he believed the world to be no pleasure-garden. If there is a God, he continues, there is no evidence in nature to show that He is benevolent; if He were, He would not have created pain and sorrow. However, there is no reason to believe that hatefulness or malevolence are His traits, because of "...the large measure of content and happiness that falls to our lot".[9] Huxley was neither an optimist nor a pessimist, but it is evident that he no longer believed that nature shows a suitable example for ethical behavior. Also, there is a tendency in his writings to focus attention on the uglier aspects of life, and this characteristic became more pronounced as he got older. In a letter to a good friend, John Skelton, Huxley's gloomy attitude is evident:

> ...there is amazingly little evidence of "reverential care for unoffending creation" in the arrangements of nature, that I can discover. If our ears were sharp enough to hear all the cries of pain that are uttered in the earth by men and beasts, we should be deafened by one continuous scream![10]

And yet he refused to condemn the natural order, because he felt that there was still much beauty and pleasure in life. The only conclusion to which he came was that life was a puzzle that one can never understand.[11]

By 1884, it becomes clear that, even though Huxley and Spencer were still decidedly friendly toward one another, their intellectual paths were taking increasingly divergent courses. Writing to a friend, Huxley described his relationship with Spencer:

> Mr. Spencer is a very admirable writer, and I set great store by his works. But we are very old friends, and he has endured me as a sort of "devil's-advocate" for thirty-odd years. He thinks that if I can pick no holes in what he says he is safe. But I pick a great many holes, and we agree to differ.[12]

By 1888, Huxley could no longer tolerate Spencer's doctrine of evolution as applied to society. As far as he was concerned, Spencer was causing a great deal of harm, and had to be refuted.[13]

Accordingly, Huxley wrote the essay "Struggle for Existence in Human Society" in 1888. In it he lashed out at several philosophies. His first target was the Leibnitzian idea that this is the best of all possible worlds. He said that these optimists have merely created God in their own image, and endowed Him with their own mode of

thinking. They believe that the Almighty must have found it necessary to create pain and suffering because if any other course had been open to Him, He would have taken it. Huxley went on to point out that such a concept of nature is inconsistent with the facts; there is much pleasure in the world, but there is also much pain, and no God can be totally benevolent if He permits such pain. In effect, the natural order is neither good nor bad, because "...the goodness of the right hand which helps the deer, and the wickedness of the left hand which eggs on the wolf will neutralize one another; and the course of nature will appear to be neither moral nor immoral, but non-moral".[14]

Huxley goes on to attack the evolutionist concept of nature in which the struggle for existence is seen as a positive good since it leads to greater and greater progress. Thus, all the suffering in the universe is justified because it will lead to ultimate happiness. Huxley scoffed at this idea because evolution is not necessarily a process leading to increased adaptation or perfection. Indeed, it can be a downhill development in which organisms become less adapted to their environments, with extinction as its ultimate end.

Huxley also described the moralists' view of nature in which the animal world is seen to be no better than a gladiators' show. In the arena of nature, the animals are "...fairly well treated, and set to fight - whereby the strongest, the swiftest, and the cunningest live to fight

another day".[15] Both Gertrude Himmelfarb and Cyril Bibby, when referring to this essay, have suggested that the above moralists' position was that of Huxley. But that does not appear to be the case, and proof of it can be found in the very next paragraph of the essay:

> But the old Babylonian wisely symbolized Nature by their great goddess Istar, who combined the attributes of Aphrodite with those of Ares. Her terrible aspect is not to be ignored or covered up with shams; but it is not the only one. If the optimism of Leibnitz is a foolish though pleasant dream, the pessimism of Schopenhauer is a nightmare, the more foolish because of its hideousness. Error which is not pleasant is surely the worst form of wrong.[16]

He went on to say that this is neither the best nor the worst of all possible worlds. In fact, the vast majority of mankind have much more pleasure than pain, and only a coward would lament the condition of the average man.

Huxley then hurled a philosophical dart at Spencer by stating that society, being created by man, is not really a part of nature; the chief difference between the natural order and society is that the latter has a particular moral purpose. Nature is living by the struggle for existene, but social man strives to set limits to this competition. In fact, the whole concept of social order rests on a striving after peace, and not on unlimited competition among the individuals of a community. The most perfect societies are those in which personal competition is minimal. The most effective way to bring peace into the world is to control population so that man would not be forced to compete for the necessities of life.

We have now covered the period up to 1888, and it is hoped that Spencer's influence on Huxley has been made apparent. It would be useful at this point to backtrack a few years and analyse his scientific speculations. We shall see that, as in his ethical thinking, his ideas about science and its relation to man also underwent a change. As late as 1874, he was still very much a materialist as far as consciousness and free will are concerned. That year, he wrote the essay "On the Hypothesis that Animals are Automata, and its History", in which he maintained that all states of consciousness, or all thought, are merely the result of molecular changes in the brain. In substance, his position was that

> ...the argumentation which applies to the brutes holds equally good of men; and, therefore, that all states of consciousness in us, as in them, are immediately caused by molecular changes of the brain-substance. ...there is no proof that any state of consciousness is the cause of change in the motion of the matter of the organism.17

Men, in reality, are just machines and there is therefore no place for free will in this system; "...the feeling we call volition is not the cause of a voluntary act, but the symbol of that state of the brain which is the immediate cause of that act".[18]

However, in November of 1886, W. S. Lilley wrote an article called "Materialism and Morality" in which he not unjustly accused Huxley of being a crass materialist, and therefore a man who could not believe in morality. Perhaps it was this attack that forced Huxley to reconsider his

position. He replied to Lilley in an essay called "Science and Morals" in which one is immediately struck by the about-face that he made concerning the human mind. In the first place, Huxley maintained that even though the logical methods of science can be applied to all natural phenomena, it does not necessarily follow that all provinces of learning or speculation lie within the realm of the physical sciences. He goes on to say that the essence of materialism is the proposition that there is nothing in the universe but matter and force, but he could not accept that view because "...there is a third thing in the universe, to wit, consciousness, which, in the hardness of my heart or head, I cannot see to be matter or force....".[19] Huxley was not keen on limiting the scope of scientific investigation, but he firmly stated that the mental processes were beyond the power of science to comprehend. How different this is from his former position of confidence that science would arrive at a mechanical equivalent for the functions of the mind.

What conclusions, then, can we come to at this point? In the first place, we have seen that Huxley no longer looked to nature as the arbiter of morals - the universe is amoral and impersonal. Also, we have seen how he came to the conclusion that the mind is not a machine, but rather something special, beyond our ability to comprehend. We shall now continue to trace his further conflicts with some more Social-Darwinists and other groups.

## Chapter VI

## Thomas Huxley And His Relation To The Social-Darwinists, Positivists, And Eugenicists

Thomas Huxley's fight against the Social-Darwinists became even more intense in the 1890's than it had been before. One exponent of radical individualism at this time was Auberon Herbert, a good friend of Herbert Spencer. The similarities in these two men's philosophies is apparent in a letter which Spencer wrote to Herbert in 1893. In this letter, Spencer encouraged Herbert to write an article called "Experience does not Make Fools Wise" in which he could attack the current demands for a living wage and work for the unemployed. Spencer suggested that his friend might demonstrate how all attempts to relieve poverty and unemployment had failed.[1] Herbert planned to publish a newspaper called Free Life which would be dedicated to the promotion of individualism. Spencer gave his full support to this project, although he had little faith that it would be very effective:

> I am myself almost hopeless of any good to be done. The drift of things is so overwhelmingly in the other direction, and the stream will, I believe, continue to increase in volume and velocity, simply because political power is now in the hands of those whose 'apparent' interest is to get as much as possible done by public agency....[2]

But even if a man like Herbert had little hope of being accepted by society in general, it seems that Huxley viewed him as a threat to civilized life. In his essay "Government: Anarchy or Regimentation", he smote Herbert's laissez-faire

principles. Huxley denounced Herbert's idea (also held by Spencer) that the public should not be taxed, but rather, the government should rely on public subscription. He also condemned the idea that all public health provisions and public education should be eliminated. In effect, Huxley levelled the same criticisms at Herbert as he had at Spencer; "Absolute eithics, in Mr. Herbert's opinion, refuses to acknowledge the right of any government except the government of the individual by himself".[3]

Closely related to the Social-Darwinists of the nineteenth century were the eugenicists; Sir Franics Galton (1822-1911) was the founder of the science of eugenics. Galton, a cousin of Darwin, had little formal schooling; he began to study medicine at Birmingham General Hospital at the age of sixteen, but soon gave it up in favour of mathematics at Cambridge. An avid traveller and explorer, he took a trip up the Nile to Khartoum in 1845, and spent two years journeying through South-West Africa. He was commissioned to set up an anthropometric laboratory in South Kensington, where he devised new instruments for measuring human proportions. He was also the first to discover that individuals can be identified by their fingerprints.[4] Unlike Darwin, Galton believed that heredity rather than environment, was the most important factor in determining adaptation: he did not wish to leave evolution in the hands of nature, but rather, to control the quality of human offspring. Progress in human development could

only be assured through the science of eugenics:

> The needs of centralization, communication, and culture, call for more brains and mental stamina than the average of our race possess. We are in crying want for a greater fund of ability in all stations of life; for neither the classes of statesmen, philosophers, artisans, nor labourers are up to the modern complexity of their several profession.5

The task of eugenics was to encourage the production of good stock and to wipe out inferior human births. Galton's ideas were not widely accepted until August Weismann, a German biologist, refuted the Lamarckian idea that offspring inherit the characteristics which their parents had acquired during their lifetimes. Thus, in the late 1880's Galton's philosophy of population control received a wider audience.[6]

If the supremacy of England was to be ensured, Galton reasoned, it was of prime importance to make sure that the strong, healthy, and intelligent members of society should produce children, while the weak, sickly, and dull-witted should be discouraged from reproducing. To ensure the national efficiency of future generations, he advocated the formation of societies on the local level which would promote pride in the best stock and implement eugenic concepts. Galton was of the opinion that eugenics should be introduced to society as a new religion which would captivate the national conscience. Indeed eugenics had "...strong claims to become an orthodox religious tenet of the future, for Eugenics co-operates with the workings of Nature by securing that humanity shall be represented by the fittest race".[7] And the process was to be speeded up by the compilation of a

kind of "Who's Who" of the eugenically fit so that the best stock could be matched. Galton supported the policy of giving financial aid to the poor, but they must be discouraged from reproducing by all possible means. To him, the upper classes were the strongest, healthiest, and most intelligent, so they should be the parents.

Galton's work was continued by his young friend, Karl Pearson (1857-1936). Pearson had been much influenced by William K. Clifford, a professor of applied mathematics at University College, London. Pearson adopted some of Clifford's ideas, such as the concept of the "tribal self": there is no such thing as an individual, because all men are members of a tribe by virtue of natural instinct. All men must submit to whatever behavior promotes the general welfare of the tribe. In Darwinian terms, the survival of the fittest tribe is of prime importance. Pearson, as shall be seen, applied this tribal concept to nations. Even though most of Pearson's work was done after Huxley's death, it would still be pertinent to observe one of the directions that science was taking in the 1890's when he was still alive. In 1892, Pearson published a book called <u>The Grammar of Science</u> in which he suggested that since everything in the universe is reducible to matter and force, there is nothing within human experience that scientists will not be able to explain. And utilizing another of Clifford's ideas, he maintained that there is only one god, and that is humanity: the function of science is to serve that deity.

In this scientifically structured society, there would be no place for the philosopher:

> The poet is a valued member of the community, for he is known to be a poet.... The metaphysician is a poet, often a very great one, but unfortunately he is not known to be a poet, because he strives to clothe his poetry in the language of reason, and hence it follows that he is liable to be a dangerous member of the community.8

Pearson lumped together the concepts of evolution, eugenics, and socialism, ending up with a very curious philosophy. Evolution, he reasoned, would eventually lead every man to the position where he would subordinate himself to the welfare of society, or socialism, due to fact that he would become entirely adapted to his enviroment and his fellows. And during this process, eugenics would be employed to improve the human race. His scheme also provided for the emancipation of women, free choice of employment, freedom of thought and free love.[9]

Rudolf Virchow, the leader of the anti-Darwinists in Germany, had been afraid that someone like Pearson would appear as a consequence of the spread of evolutionary ideas. Speaking in 1877, he asked his audience to picture to themselves:

> ...the theory of descent as it already exists in the brain of a socialist.... At all times, this theory, if it is logically carried out to the end, has an uncommonly suspicious aspect.10

Darwin, on his part, was amazed that the Germans had somehow related natural selection to socialism.[11] Huxley could not understand how Virchow had managed to conjure up such a "dread image"; he could see no threat in a socialistic

evolutionist.[12] However, Pearson had been studying in Germany at the same time that Vichow gave his warning, and Pearson was to prove to be exactly what Virchow feared. Pearson combined Darwin's concept of natural selection with the socialism of Marx and Lasalle to create his own brand of Social-Darwinism. Veneration of the State was important to him; legistative action or police coerion would be used against "...the immoral and anti-social minority..."[13] who would not co-operate. Liberal-minded thinkers in England were particularly shocked when Pearson demanded that "Socialists have to inculcate that spirit which would give offenders against the State short shrift and the nearest lamppost".[14]

Herbert Spencer's concept of social evolution was founded upon the principle that individuals should be permitted to compete with one another, but Pearson's philosophy was different; he maintained that competition among individuals was unacceptable - it should be applied only to the struggle among tribes, races, and nations. Darwin, although he emphatically opposed slavery, was not above thinking in racial terms. Writing to a friend in 1881, he had this to say about the relative worth of the various races of [illegible] of mankind:

> I could show fight on natural selection having done and doing more for the progress of civilization than you seem inclined to admit. Remember what risk the nations of Europe ran, not so many centuries ago of being overwhelmed by the Turks, and how ridiculous such an idea is now! The more civilized so-called Caucasian races have beaten the Turks hollow in the struggle for existence Looking to the world at no very distant date,

> what an endless number of the lower races will have been eliminated by the higher civilized races throughout the world.15

At first, the individualism of most Englishmen tended to militate against the acceptance of Pearson's ideas, but by the end of the nineteenth century, his philosophy was seen by many as a justification of imperialism and enjoyed wider support.

To Pearson, the best method of ensuring the racial predominance of England was to encourage human reproduction and to control the quality of the offspring through eugenic methods. In 1885, he delivered a lecture called "The Woman's Question" in which he stated that the most highly reproductive nations are those which dominate the world. Therefore, "...strongly developed sexual instincts may accordingly be a condition for race permanence".[16] It follows that the function of socialism is not to improve the environment, but to perfect the race.

Benjamin Kidd (1858-1916), the English sociologist, was Pearson's greatest enemy. In Kidd's opinion, natural selection in society favours the growth of emotional rather than intellectual powers. Since religion is a major manifestation of emotionalism, the religious nations tend to prevail over the less religious ones. Thus, religion leads to and tends to encourage morality to a much greater degree than science ever can. The growth of feeling, rather than reason, will lead to progress. As far as Kidd was concerned, Pearson was largely responsible for the racism that grew in Europe prior

to World War One; Social-Darwinism was a dangerous belief that appealed to "...the half-informed pagan mind of our civilization".[17] Karl Pearson was seen to be the arch-fiend of the whole movement - a man who was basically pagan, and who spoke with voice of Nietzsche's superman.

Unlike Huxley, Darwin thought that the production of superior humans through eugenic methods was a good idea. However, he thought that such a project would be doomed to failure because few people would co-operate in the plan. Late in his life, Huxley took up arms against the eugenic philosophies of Galton and Pearson. Huxley saw that, in order to carry out any eugenic plan on the national level, it would be necessary to have a person or persons to administer it. He maintained that society was incapable of producing such omniscient people: the pigeons, Huxley wryly comments, are to be their own pigeon breeders! Not only would the eugenic overseers have to have preternatural intelligence, but they would also have to be ruthless in order to make people comply with their breeding schemes. And what characteristics would the eugenicist look for as being desireable in a person, and how will they be able to tell what any particular offspring will grow up to be? In reality, "...I doubt whether even the keenest judge of character, if he had before him a hundred boys and girls under fourteen, could pick out, with the least chance of success, those who should be kept...and those who should be chloroformed....".[18] In essence, a person does not show

himself to be good or bad until he has grown up and faced some of the problems of life. The ability to cope with existence cannot be bred into people, it has to be learned through experience and education. To Huxley, the eugenics movement was just one of several pseudo-scientific perversions, but also one which should be rejected by all right-thinking people.

We have briefly sketched the ideas of the English Social-Darwinists and Huxley's reaction to them. But there is yet another school of thought in nineteenth century England which was not essentially evolutionary, but which had much influence on society in general. That element was the positivists. It was they, more than any other group, who tended to make a religion out of science. Though professional philosophers usually rejected positivism, it was widely supported by many scientists, literary people, and philanthropists who saw Comte's system as a new religion that would ultimately solve all human problems. Even though the London Positivist Society was established in 1867, and a positivist temple set up in Chapel Street in 1870, the movement

> ...gained little or nothing in spite of - or because of - the real enthusiasm and missionary propagandist zeal of its adherents. Comte's teaching was taken over as dogma, and the Positivists never got beyond swearing by the words and dicta of the master.19

To the positivists, Darwin was a hero because he seemed to have proven Comte's evolutionary theory of society and

history. Comte maintained that society and knowledge have passed through three stages. In the first, man interpreted natural phenomena in terms of religion - he tended to think of thunder, for instance, as god or spirit. The second stage was reached when humanity began to think in abstract terms instead of in terms of spirits, and that was the metaphysical period. The last phase, which is our own time, is the positivist period in which all phenomena are given a purely scientific explanation. As far as the positivists were concerned, Darwin's theory of evolution by natural selection represented a great step forward because it seemed to promise a scientific explanation of man himself.[20]

Leslie Stephen, one of the most prominent English positivists, believed that Darwin had proven Comte's theory of social and intellectual development. Stephen had been a clergyman, but under the influence of J. S. Mill, Darwin, and Spencer, he renounced his vocation in 1875. An outstanding scholar, he wrote the History of English Thought in the Eighteenth Century (1876) and The English Utilitarians (1900). In The Science of Ethics (1882) he expounded his concept of morality. Like Spencer, he attempted to make the theory of evolution the basis of ethics. Moral behavior is that which furthers the welfare of society, and morality has evolved through man's history by the process of natural selection: the patterns of conduct that help the social organism are retained, while those that do not work for the betterment of society are rejected. Therefore, the survival

of the fittest applies just as well to ethical evolution as to biological evolution. In Essays on Freethinking and Plainspeaking Stephen maintained that religious emotion was a good thing because it gives cohesion to society. Like Huxley, the only thing he venerated was morality itself; he "...believed in God, but spelled the word with a small 'g' and two 'o's'".[21] For Stephen and Huxley alike, morality was their religion. But unlike Huxley, Stephen stated that the struggle for existence and the survival of the fittest in society would result in the survival of the morally best.

G. H. Lewes, a follower of both Comte and Spencer, was convinced that positivism was the culminating peak of all preceeding philosophical thought. As joint-editor of the radical and rationalist newspaper, The Leader, he had published some of the writings of Spencer and Huxley prior to the appearance of the Origin, and had helped to pave the way for Darwin's ideas.[22] Another champion of positivism in England was Harriet Martineau; she made the first English translation of Comte's Cours de Philosophie Positive. Even J. S. Mill, who was not a positivist himself, regarded Comte as one of the great seminal minds of Europe. In his August Comte and Positivism, Mill revealed that he had accepted the main principles of positivism, but he rejected the positivist cult as a whole, as well as the stiff hierarchical authoritarianism of the system.[23]

The guiding light of the positivist movement in England was Richard Congreve (1818-99). In 1849 and 1854 he had

visited Comte and was much impressed with him. He was so impressed, in fact, that he gave up his post as Fellow and Tutor at Wadham College, Oxford in order to devote all of his time to establishing positivism in England. In 1878, Congreve split from the French positivists because he did not appreciate being directed from Paris. He also wanted to turn the movement into a church, while the French and many English positivists wanted it to remain fairly loose in doctrine and structure. This difference of opinion resulted in a division between the two English factions, but the aims and activities of these two groups remained essentially the same.[24] In 1916 they were once more officially united.

As far as Huxley was concerned, positivism was a farce, having no scientific merit whatsoever, and, in 1869, he launched an attack on Congreve. Huxley scoffed at the positivists' claim that they had reorganized knowledge with God having no place in it: in reality, they had turned Comte into a "gigantic fetish".[25] Huxley was also amused that the followers of Comte's teachings believed that they had done away with the need for political organization: actually, they produced "...a minutely defined social organization, which, if it ever came into practice, would exert a despotic authority such as no sultan has rivalled, and no Puritan Presbytery, in its palmiest days, could hope to excell".[26] In the final analysis, the positivists had simply taken over the kind of structure that the Catholic Church has, with Comte as Saint Peter, and various other of his

desciples as saints; "Comte's ideal, as stated by himself, is Catholic organization without Catholic doctrine, or, in other words, Catholicism minus Christianity".[27]

Comte repelled Huxley for other reasons too, one of them being that positivists professed to be scientific when Comte really knew nothing about science. In a letter to Kingsley, Huxley revealed that his contempt went even deeper, because of "...a feeling of sheer disgust...for the man who could treat a noble-hearted woman who had saved his life and his reason, as Comte treated his wife".[28] In the same letter, Huxley stated that "Comte in his later days was an apostate from his own creed; his 'nouveau grand Etre supreme' being as big a fetish as ever nigger first made and then worshipped".[29] Huxley considered the worship of humanity, which was the essence of positivism, to be totally repulsive and a reversion to the pagan practice of deifying people. Humanity is no fit object of worship because "...the worship of a God who needs forgiveness and help,,and deserves pity every hour of his existence, is no better than that of any other voluntary selected fetish".[30]

As we have seen, Thomas Huxley was bitterly opposed to all of the major philosophical schools that tried to incorporate science and evolutionism into their systems. Even though he was of major importance in the Darwinian revolution, he seems to have objected to all philosophical extensions of the theory of evolution. In a letter to W. A. Ball, a fellow scientist, Huxley showed his increasing

disenchantment with humanity in general:

> I know of no study which is so unutterably saddening as that of the evolution of humanity.... Out of the darkness of prehistoric ages man emerges with the marks of his lowly origins upon him. He attains a certain degree of physical comfort, and develops a more or less workable theory of life...and then, for thousands and thousands of years, struggles, with varying fortunes, attended by infinite wickedness, bloodshed, and misery, to maintain himself at this point against the greed and the ambition of his fellow-men.31

In another letter of 1890, five years before his death, he was still very much a stoic; life could be much better, but it could also be much worse. Huxley could see no moral purpose in nature, but man, much to his credit, had invented morality.[32] He wanted to see a study of ethics made in order to discover what motivates man to behave as he does. This science of Eubiotics should be able to tell us how humans would conduct themselves if they were motivated by a desire for moderate well-being. However,

> 'Moderate well-being' may be no more the worthiest end of life than wealth. But if it is the best to be had in this queer world - it may be worth trying for.33

In 1892 he was still much worried about those thinkers who were applying evolution to ethics. He said that there can be no such thing as the "ethics of evolution" because, in the struggle for existence, the physically and mentally superior creatures survive, and not necessarily the morally best. In effect, the struggle that humans undergo to stay alive is not conducive to the preservation of virtue and ethical uprightness.[34] Huxley goes on to say that he is very

much akin to the best orthodox theologians because he thinks that there is much truth in the doctrines of original sin, predestination, and the basic depravity of mankind. But he was even more committed to some basic Christian doctrines than that; he was convinced of "...the primacy of Satan in this world, and the essential vileness of matter, of a malevolent Demiurgus subordinate to a benevolent Almighty, who has only lately revealed himself...."[35]

In 1893, two years before his death, Huxley composed his last major essay - "Evolution and Ethics". In it he made the strongest attack upon Spencer and the ethics of evolution. It caused a break in the personal friendship of the two men, but only for a short period of time. In this essay Huxley repeats his former position that morality cannot be based on the law of the jungle, but he also realized that the ancient problem of evil and the foundations of morality were still unsolved. In the following quotation we can see how radically his view of nature and its relation to ethics had changed over the years. One must bear in mind that, prior to 1871, he saw the natural order to be perfectly just:

> If there is a generalization from the facts of human life which has the assent of all thoughtful men in every age and country, it is that the violator of ethical rules constantly escapes the punishment which he deserves; that the wicked flourish like a green bay tree, while the righteous begs his bread; that the sins of the fathers are visited upon the children; that, in the realm of nature, ignorance is punished just as severely as wilful wrong; and that thousands upon thousands of innocent beings suffer for the crime, or the

unintentional trespass, of one.[36]

Not only is nature unacceptable as a moral example, but it is "...the headquarters of the enemy of ethical nature".[37] Discarding the detached scientific attitude that the cosmos is neither moral nor immoral, Huxley stated flatly that "...the cosmos works through the lower nature of man, not for righteousness, but against it".[38]

Huxley seems to have arrived at the position held by some thinkers even prior to the Origin. Matthew Arnold, for example, was well aware that nature was not a suitable guide for the conscience:

> Nature is cruel, man is sick of blood;
> Nature is stubborn, man would fain adore;
> Nature is fickle, man hath need of rest.
> Nature forgives no debt, and fears no grave;
> Man must begin, know this, where Nature ends;
> Nature and man can never be fast friends.
> Fool, if thou canst not pass her, rest her slave![39]

As far as Huxley was concerned, Darwin provided scientific proof of the vileness of the natural order. Benjamin Kidd equated Huxley's gloomy view of life as being the same sentiment that the French call la misere - a view of life in which "...the prospect of even, steady, and honest industry is a life of unsuccessful battling with hunger, rounded by a pauper's grave..." which is "...the permanent condition of a large proportion of the masses of the people of our civilization".[40]

To Huxley, the robber and the murderer behave in just as natural a way as the philanthropist, because the criminal follows the principle of the struggle for existence.

And as he had said so many times before, those who survive the struggle are not necessarily the ethically best. Man must pit himself against the evil cosmic process and replace it by moral conduct; this would encourage the preservation of the ethically fittest. Only by combatting the animal in man can we hope to survive in social groups or nations. Huxley's moral code was anything but evolutionary; it was the basic Christian ethic:

> In place of ruthless self-assertion it demands self-restraint; in place of thrusting aside or treading down, all competitors, it requires that the individual shall not merely respect, but shall help his fellows; its influence is directed, not so much to the survival of the fittest, as to the fitting of as many as possible to survive.41

At the end of his life, Huxley had pictured the natural world much as orthodox Christian theology had - it was evil and even demonic. In a letter to a friend written in 1893, Huxley remarked that the text of his "Evolution and Ethics" was "Satan the Prince of this World".[42]

## Conclusion

It is hoped that this essay has presented, in a clear fashion, the relation between Thomas Huxley's ethical philosophy and the intellectual milieu of which he was so large a part. It can be seen that his views on science, evolution, and morals were not static, but rather that they went through several phases as he reacted to the opinions of his contemporaries. Herbert Spencer was a major force in shaping Huxley's thoughts; it was he who showed Huxley where the biological theory of evolution could lead in the hands of some philosophers.

Even though Huxley was "Darwin's Bulldog" and the most well-known champion of Darwin's theory of evolution, it is clear that he opposed almost all contemporary philosophies based on evolutionism. Evolution, to him, was merely a theory that explained how the cosmos came into being. Even though the struggle for existence and the survival of the fittest prevailed in the natural world, man should not be a part of it: man is a moral being, or should be, and therefore must resist all basic sentiments that lead to evil acts. Huxley saw the Social-Darwinists to be enemies of traditional western culture. In effect, he was a staunch evangelical in all but theology. Although he had spent a great deal of time and energy in attacking Christian dogma as the basis of morality, he could not find a suitable replacement for it. In his early years, nature had taken the place of God as the moral force of the universe. But

Herbert Spencer showed him that nature was not so benevolent and just after all. Toward the end of his life, the only authority for morality that Huxley could find was man himself; one must behave like a gentleman simply because it would be dishonourable to do otherwise.

It is curious that historians have tended to ignore the ethical aspects of Huxley's life and work. After all, it was the problem of ethics that made evolutionism so explosive. This was not just a new scientific theory; it threatened the whole framework of traditional belief. Huxley not only realized this, but the situation caused him considerable anguish. As a scientist, he saw evolution as a great step forward in human understanding, but as a moralist he was afraid that Social-Darwinism would destroy age-old customs morals.

One year prior to his death, Huxley was asked who he thought would be regarded by future historians as the man most representative of the nineteenth century - Comte, Darwin, Renan, Pasteur, or Gladstone. Huxley replied that he did not think that any particular individual would be seen to be typical of the century. But he did say that the most outstanding achievements of the age were the scientific ones. The advancement of science had been phenomenal. Many great minds were a part of this movement, but no single person can be seen as being representative of the nineteenth century scientific revolution. But would this important

revolution in science lead to man's ultimate salvation? Huxley probably did not think so: "Science reckons many prophets, but there is not even a promise of a Messiah".[1]

## Footnotes

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