Theories of evolution in Wells' The Time Machine, Shaw's Back to Methuselah, and Stapledon's Last and First Men

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Theories of evolution in Wells' *The Time Machine*, Shaw's *Back to Methuselah*, and Stapledon's *Last and First Men*

by

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The nineteenth and early-twentieth centuries were a battleground for the evolution controversy, in particular the controversy concerning human evolution. Charles Darwin's publication of *The Origin of Species* in 1859 popularized and put into understandable language but one of the then current theories of evolution. Besides Darwin's theory of random evolution, rival speculations included degenerative evolution (proposed by Puffon), creative evolution (proposed by Lamarck), and purposive or divine evolution (proposed by Erasmus Darwin). The massive documentation presented by Charles Darwin made his conclusions seem irrefutable, and consequently, the word "evolution" has popularly come to mean only the theory he presented. However, in the futurist and utopian literature popular at the end of the nineteenth century, the alternative theories were often used to explore possible futures for the human race, and great interest and concern was shown towards human physical and social evolution. Thus, if only one theory of evolution is assumed in a study of this literature, a comprehension of various reactions to the growing atheism and agnosticism of the day cannot be achieved; and without an understanding of the history of the controversies between nineteenth-century evolutionists themselves, an author's hope or despair for the future of mankind can be, at best, only sketchily seen.

All of these theories hold in common the fact of change, from generation to generation, in human physical characteristics, because basically
the word "evolution" simply means change. . . Organic evolution [is] the theory that plants and animals now living are the modified descendants of somewhat different plants and animals which lived in times past. These ancestors, in their turn, are thought of as being descendants of predecessors which differed from them, and so on, step by step, back to a beginning shrouded in mystery.

The theory of change (or evolution) was not, as is sometimes thought, totally original to the nineteenth century; it was discussed by the early Greeks. Anaximander, Xenophanes, and in particular, Empedocles ("the father of the Evolution idea") were philosophers who contemplated concepts which included the gradual change through generations of the human species, the species' relation to all other life as illustrated through a fossil record, and survival of the fittest. However, these theories were not concretely formulated or documented, and they did not receive widespread credence; it was not until the careful research and documentation of the nineteenth century that the concept of evolution was for the first time regarded as universally credible and challenging or threatening to a paradigm of a religious order and morality.

In the early-nineteenth century, when the carefully researched theories of William Herschel, Pierre-Simon Laplace, and Immanuel Kant (all of whom proposed an evolution of the solar system) and of Charles Lyell, James Hutton, and Georges Cuvier (all of whom proposed geological evolution) became widely accepted, their principles were applied to living organisms, and the controversy over human evolution was joined. In the midst of the major battle between the pro- and anti-evolutionists, sight was usually lost of the equally important but (at the time) seemingly less
colorful skirmishes among evolutionists themselves, especially concerning the creative (or vitalistic) concept of evolution versus the random (or mechanical) concept.

The controversy concerned the four theories presented by Buffon, Lamarck, Erasmus Darwin, and Charles Darwin. The Comte de Buffon's (1707-1788) contribution was a proposal of random, amoral, and gradual change within animal (and by implication, human) species, while Erasmus Darwin (1731-1802) proposed an orderly, purposeful, divinely inspired evolution. While important in their own rights, the greater part of their theories was incorporated by the two theorists who acquired the greatest number of followers, Charles Darwin (random evolution) and his major "competitor," Lamarck (creative evolution).

Buffon was benefactor and friend to the man who became known as the "father" of creative evolution, Jean Baptiste Pierre Antoine de Monet, Chevalier de Lamarck (1744-1829). Lamarck agreed with many of his mentor's theories, but in Philosophie zoologique (1809), he presented some new views. Like Buffon, Lamarck also observed the "design in nature," but felt change (or evolution) was a creative process; evolution was the adaptation of an animal to its environment. Contrary to Buffon's idea that species were "fixed," Lamarck argued that a mutability existed: higher forms of life were evolved from lower. Lamarck was bothered by the apparent amorality of Buffon's natural selection; instead of perceiving variation as random, Lamarck viewed change as a principle of adaptation on the part of an individual organism; changes represented not mere variety but progress. The individual organism was all; the species was secondary.
Life had evolved from simpler forms which, traced far enough, came from "innate matter." Innate matter evolved to life through "mechanical causes," but when feeling and le sentiment interieur were formed, the organism "willed" its own survival, and it is further apparent that all the modifications which it undergoes in its organization and forms, in virtue of the circumstances which influence this being, will propagate themselves by generation ... [and] one may not conclude that any species has really been lost or annihilated.

In an example often cited for this principle, when droughts occurred and a giraffe population grew beyond nature's ability to feed it, lower leaves of branches were stripped, leaving only those higher on the tree uneaten. The "will," "desire," or "need" for the higher leaves was so great that a starving giraffe would stretch its neck to reach them. After many strenuous efforts, the leaves would be attained, and a small fraction of this neck extension would be passed to the giraffe's descendants, who would be better able to reach the leaves and therefore would survive in a time when those with shorter necks would starve to death. This "development hypothesis" came to be known as creative evolution.

In 1844, in an essay unpublished in his lifetime, Charles Darwin first outlined his theory of evolution made famous with the later publication of The Origin of Species:

Yearly more are bred than can survive; the smallest grain in the balance, in the long run, must tell on which death shall fall, and which shall survive. Let this work of selection, on the one hand, and death on the other, go on for a thousand generations; who would pretend to affirm that it would produce no effect?

He presented three major theories. The first theory, random variation,
argued that at conception or birth or soon thereafter, changes appeared in offspring of all organisms. These changes, though usually minor, were completely random and with no purpose. The second theory, struggle for existence, argued that nature did not provide an adequate living for more than a small percent of all young, and life was a continued struggle for survival. The third theory, adaptive (natural) selection, argued that through the pressures for survival, those organisms survived which were best "adapted" (through no effort of their own) by random variation for the struggle; those with less successful adaptations were less capable of competition for existence and they perished.

As the evolution controversy gained momentum in the mid- and late-nineteenth century, most pro-evolutionists grouped themselves into two camps: the creative or vitalist evolutionists beneath the standard of Lamarck, and the random or mechanical evolutionists beneath that of Charles Darwin. As the skirmish became more bitter and the "leaders'" words more a faith than a philosophy, a phenomenon could be observed common to both camps—followers tended to adopt only those portions of their mentor's philosophy they wished to, or were able, to defend. The rest was forgotten or explained away. Reputations were made by elaboration on a few orthodox points, and within a few short years, Lamarckian evolutionists and Darwinian evolutionists were expounding theories that would have astonished Lamarck and did alarm Darwin.

To Darwinists (properly neo-Darwinists) or mechanical evolutionists, natural selection became the only method of evolution (a claim carefully avoided by Darwin himself). The party split in two after the phrase
"natural selection" was replaced by Herbert Spencer's term "survival of the fittest"—some felt the term "fittest" implied superiority while others found implications of a complete random development with no moral judgement attached to mere survival. Darwin's followers, guided by his touchy refusal to admit any debt to earlier pioneers of evolution (including his grandfather, Erasmus Darwin), attacked Lamarck's theory of acquired characteristics, i.e., the view that adaptations made by the organism during its lifetime are inherited, even if only to a small degree, by its progeny. In the previously cited example of the giraffe, the neo-Darwinists claimed that the giraffe did not stretch its neck to survive—only those giraffes with a random variation of a slightly longer neck were able to reach the leaves and thus survive. The giraffe did nothing and had no part in the process. All depended upon a slight and random mutation occurring at conception or birth. The anti-Lamarckian sentiments were carried to an extreme with August Weismann's "scientific" experiments to disprove the inheritance of acquired characteristics. He cut off the tails of laboratory rats and triumphantly announced that the progeny were born with tails. He felt that Lamarck would have been upheld only if the rats were born tailless. He carried the experiment through several generations, and alas for neo-Lamarckians in the popular opinion, the rats all were born with tails.

Followers of Lamarck felt that Darwin's theories had removed any sign of a creator from the universe. (Few admitted to another fear stronger than that of losing God—a fear of losing belief in the "natural" superiority of man.) Lamarck advocated progression as well as evolution, and many
vitalists (believers in, if not God, a moral purpose or force behind the universe) enlisted in the cause of creative evolution. A disgruntled neo-Darwinian, the novelist Samuel Butler, felt something was missing in the mechanical process described by Darwin and joined with the followers of Lamarck. He took Lamarck's theories and added more of his own. After the publication of *Life and Habit* (1878), *Evolution, Old and New* (1879), *Unconscious Memory* (1880), and *Luck, or Cunning?* (1887), creative evolution came to include three of Butler's theories. The first was unity of parents and offspring—few people object to viewing a baby and the old man he becomes as the same individual, but since a child is really formed from part of the parents' cells, he is a continuation of that parent, as that parent is of its parents, *ad infinitum*. The human race is a continuous entity, and it is as easy to believe that a father who is a skilled piano player can pass a small portion of his skill to his offspring as it is to believe that a man who has learned to play the piano as a child retains some of this skill even into old age. The second theory proposed that memory is as much retained from youth to old age as it is inherited. The third theory concerned habit—those skills the most thoroughly learned become subconscious memory; the master piano player rarely concentrates upon elementary finger exercises. As the musician concentrates most on more recently acquired skills, and since the human race from beginning to present is one entity (in different stages of development), the skills acquired first by the race are those the most "instinctive" and subconscious (e.g., breathing), and those acquired later by the human organism are more difficult and conscious (e.g., speaking). Instinct is merely
inherited acquired memory, the product of conscious efforts for early man (or the organisms preceding man in evolution—fetal development illustrates prehuman evolution) which have become more practiced and more subconscious than those developed fairly recently (i.e., since the civilization of man). In evolution a man wills a change (necessitated by environment); the acquired change or characteristic is passed on to his progeny; and the longer the human species develops the characteristic, the more unconsciously that characteristic is used. To neo-Lamarckians, the organism became all important, and in a claim never made by Lamarck, the "will" could become a conscious effort of an organism to change. The neo-Lamarckians' reply to Weismann's rat experiments was that characteristics acquired in the life of one animal were passed on to progeny only if that organism consciously or unconsciously perceived that the characteristic was essential for survival and evolutionary progression. (In a time of plenty instead of drought, the giraffe with the elongated neck would not pass on the trait; there would be no need or advantage in it.) They labeled Weismann and other practitioners of vivisection as sadists.

In essence, the main difference between neo-Lamarckians and neo-Darwinists at the turn of the century was in the moment of, and the purpose for, a change; the neo-Lamarckians proposed a conscious change during the organism's life and the neo-Darwinists a random, "will-less" change at conception or birth. Proponents of either theory stubbornly defended their own faith and denied validity to even the smallest point made by their opposition.

Three major post-Darwinian writers, H. G. Wells, George Bernard Shaw,
and Olaf Stapledon, presented important examples of the application of different theories of evolution for the extrapolation of different future and final states of mankind. In *The Time Machine* (1891) Wells reacted against the extremely optimistic utopian literature of his time, adopted the Darwinian evolution theory, and presented a grim picture of the possible relentless degeneration and final extinction of the species. In direct opposition to the Wellsian view, Shaw, in *Back to Methuselah* (1920), presented creative evolution as a new religious belief, as an affirmation of the progressive elevation of the species beyond godhead. Olaf Stapledon, in *Last and First Men* (1930), used a Darwinian scheme of evolution to propose a Shavian existence of "spirit beyond matter." All three authors attempted through their works to actively influence the thoughts and actions of their contemporaries, to influence "minds bewildered about the present and its potentialities," but the optimism or despair of each author was directly derived from the final evolutionary product of the human race he proposed, a product dictated, ultimately, by the theory of evolution to which he subscribed. Wells' ties with the Darwinian evolution limited his ultimate future world to degeneration and entropic decay; Shaw's obsession with creative evolution allowed the ancients of his play to, within limits, manipulate and then discard physical and bodily ties for a vortex of energy; and through a blending of both random and creative schemes of evolution, Stapledon's man developed, even through his own destruction, his physical and mental attributes to a transcendence of both.
WELLS: THE TIME MACHINE

Herbert George Wells was one of the first novelists to explore through science fiction various possible results of nineteenth century social developments and selective breeding practices. He studied biology under Thomas Henry Huxley, and at the time of the publication of The Time Machine in 1895, was a science teacher who occasionally wrote for scientific journals. He felt a hero worship for Huxley and Darwinian evolution, and for him "the cold, scientific star shone untarnished."7

The Time Machine itself is in the form of a scientific experiment. The Time Traveler attempts (for the most part successfully) to remain an impartial observer of the evolution of man and his society. He interferes in the Eloi society only in an effort to regain his stolen time machine. His attractions to the female, Weena, are described rather dispassionately upon his return, and in fact, he remains nameless throughout the book. Theoretically his reactions approximate those of any of his scientifically-minded contemporaries thrust into similar circumstances. His intentions (if not his actions) epitomize those of the perfect neutral scientific observer.

At certain points the Time Traveler reviews his experiences to date and draws inferences from them. As new knowledge is presented, the inferences are updated accordingly. When he first arrives in 802,701 A.D., he views the beautiful Eloi and their graceful "temples" and assumes he is in the new Eden, a time of graceful and leisurely contemplation of the pleasures of the mind. He rapidly alters this conclusion when he realizes
the childish appearance is paralleled by a childlike mentality--

You see I had always anticipated that the people of the year Eight Hundred and Two Thousand odd would be incredibly in front of us in knowledge, art, everything. Then one of them suddenly asked me a question that showed him to be on the intellectual level of one of our five-year-old children.

He comments upon the physical characteristics of the unisex Eloi, theorizing that the changes were a logical occurrence--

for the strength of a man and the softness of a woman, the institution of the family, and the differentiation of occupations are mere militant necessities of an age of physical force (37-38)--

and observing that

We see some beginnings of this even in our own time, and in this future age it was complete (38).

The Time Traveler feels the truth of this conclusion is in its "logical consequence" (39), and discusses his proof in the language of selective breeding applied to human social evolution.

In his continued search for the missing machine he encounters many details anomalous to his previous conclusions—there were no old or infirm Eloi; the Eloi were clothed and shod even though they showed no industrial or creative tendencies; and the people he viewed were incapable of the cunning or strength necessary for the theft of the time machine. With his first view of a Morlock,

gradually, the truth dawned on me; that Man had not remained one species, but had differentiated into two distinct animals: that my graceful children of the Upperworld were not the sole descendants of our generation, but that this bleached, obscene, nocturnal Thing, which had flashed before me, was also heir to all the ages (60-61).

Again he resorts to the language of natural selection to reorder his
theories and finally concludes:

that the gradual widening of the present merely
temporary and social difference between the Capitalist
and the Labourer, was the key to the whole position (63).

The Eloi still held power, "through the survival of an old habit of
service" (74), as rulers over their equally childlike troglodyte cousins.

The Time Traveler again observes evidence of this trend in his own society:

Even now, does not an East-end worker live in such
artificial conditions as practically to be cut off
from the natural surface of the earth? (63)

Still further anomalies occur, and not until his venture underground
and through a deserted museum does he realize the "truth"—

These Eloi were mere fatted cattle, which the ant-like
Morlocks preserved and preyed upon—probably saw to the
breeding of (81).

Even against his instincts he scientifically concedes that

the Under-world being in contact with machinery, which
however perfect, still needs some little thought out-
side habit, had probably retained perforce rather more
initiative, if less of every other human character,
than the Upper (101).

In a rapid trip into the distant future, he observes the earth, and
in one of his first true emotional reactions, he declares that "a horror
of this great darkness came on me" (109). He returns to his contemporaries
in the late-nineteenth century, and agreeing with their assertions that
his "theories" of future human physical and social evolution are undocu-
mented, he leaves to attempt a more scientific proof:

He had a small camera under one arm and a knapsack
under the other. . . . "I only want half an hour," he
said. . . . If you'll stop to lunch I'll prove you this
time travelling up to the hilt, specimen and all (115).
Since, in the early-nineteenth century, geological and astronomical evolution theories were accepted long before those of biological and human evolution, in *The Time Machine*, at each stage of conclusions drawn by the Time Traveler, Wells uses the language of geological and astronomical evolution to back up and lend credence to his pessimistic theories of human and social "devolution." The final products of man's evolution, the Eloi and Morlocks, represent a total and realistic understanding of natural law—that the struggle for existence might end in the defeat of mankind. In an article appearing near the time of the publication of *The Time Machine*, Wells states these ideas in the following fashion:

Adapt or perish, that is and always has been the implacable law of life for all its children. Either the human imagination and the will to live rises to the plain necessity of our cause, and a reascent *Homo sapiens* struggles on to a new, a harder and happier world dominion, or he blunders down the slopes of failure through a series of unhappy phases, in the wake of all the monster reptiles and beasts that have flourished and lorded it on the earth before him, to his ultimate extinction. Either life is just beginning for him, or it is drawing rapidly to its close.
Playwright George Bernard Shaw lacked H. G. Wells' hero worship of Darwin; he described Darwinian evolution as a belief "in hunger, death, stupidity, delusion, chance, and bare survival," a belief "in the universal struggle for hogwash." In the Preface to Back to Methuselah Shaw discussed his views on various evolution theories, stating that

Ever since he [Darwin] set up Circumstantial Selection as the creator and ruler of the universe, the scientific world has been the very citadel of stupidity and cruelty (42), because

"Natural Selection" has no moral significance: it deals with that part of evolution which has no purpose, no intelligence, and might more appropriately be called accidental selection, or better still, Unnatural Selection, since nothing is more unnatural than an accident. If it could be proved that the whole universe had been produced by such Selection, only fools and rascals could bear to live (44).

He strongly objected to the lack of purpose behind Darwin's theory, and in an interview claimed that evolution was a progressive and improving process--

all life is a series of accidents; but when you find most of them pointing all one way you may guess that there is something behind them that is not accidental. 13

In the Preface Shaw stated that Darwin had performed a service to man by freeing him from confining theological structures, but he had performed a disservice by not separating religion and theology; Darwin freed man "from the sludgy residue of temporalities and legends" (58) but at the same time he "destroyed the omnipotence of God" (45).

Since Shaw "had always known that civilization needs a religion as a
matter of life or death (69)," he searched for a belief that would restore
the necessary religion without also restoring a restricting theology. His
solution was creative evolution—the theory of Lamarck as expanded by Sam-
uel Butler. With creative evolution, if man could no longer believe in an
omnipotent God, he could believe in the "will;" if he could no longer be-
lieve in the benevolent interest of a patriarchal God, he could believe in
the inevitable progression of mankind to the elevation of the gods. In a
letter to Tolstoy, Shaw prophesied that

God does not yet exist; but there is a creative force
constantly struggling to evolve an executive organ of
God-like knowledge and power; that is, to achieve om-
nipotence and omniscience, and every man and woman born
is a fresh attempt to achieve this object. 14

With Back to Methuselah, Shaw considered himself "an iconographer of
the religion of my time" (68); he felt the play clothed the "science of
metabiology" (69) in legends, both biblical and futuristic, which explained
creative evolution in terms believable to the common man.

The play is divided into five sections, each of which deals with a
significant stage of the evolution of mankind. In Part I, In the Beginning,
Shaw seeks to "take the Garden of Eden in hand and weed it properly" (69).
The serpent in this tale of creation is not evil; it is a personification
of the will to progress. Realizing that

I must have something to worship. Something quite
different to myself, like you. There must be some-
thing greater than the snake (76),
it goads Adam and Eve into action to assure the continuance of the human
race. It describes the will which created man:

I remember Lilith, who came before Adam and Eve . . . .
She saw death as you saw it when the fawn fell; and she
knew then that she must find out how to renew herself and cast the skin like me. She had a mighty will: she strove and strove and willed and willed for more moons than there are leaves on all the trees of the garden. Her pangs were terrible: her groans drove sleep from Eden. She said it must never be again: that the burden of renewing life was past bearing: that it was too much for one. And when she cast the skin, lo! there was not one new Lilith but two: one like herself, the other like Adam. (77)

The snake leads the first couple to ideas of death and rebirth, and jolts them from a position of immortal complacency—

Adam. How can I help brooding when the future has become uncertain? Anything is better than uncertainty. Life has become uncertain. Love is uncertain. Have you a word for this new misery?
Adam. Have you a remedy for it?
The Serpent. Yes. Hope. Hope. Hope. (84)

Adam becomes an intellectual force, the seeker of new thoughts and experiences who relies upon the maternal, procreative, practical force of Eve when overcome by fears. With the discovery of birth, the continuance of humanity is assured, and death is willed into existence as a necessary release for the two, who dimly foresee the future of the race:

Man need not always live by bread alone. There is something else. We do not yet know what it is; but some day we shall find out; and then we will live on that alone; and there shall be no more digging nor spinning, nor fighting nor killing. (101)

Part II: The Gospel of the Brothers Barnabas, occurs in the early 1920’s. A biologist and his amateur scientist brother, Conrad and Franklyn Barnabas, announce their theory of death. Since death originally was willed into existence as a necessary release, a man could will himself a longer life if he was convinced of the necessity for the continuance:
They will live three hundred years, not because they would like to, but because the soul deep down in them will know that they must, if the world is to be saved [148]. They propose that in order to live fully and to intelligently advance the race, "the term of human life shall be extended to three hundred years" (132). Even a life of 300 years is short, but in this time a man can come to his full powers and understanding of the creative evolution process—

the old must not desert their posts until the new are ripe for them. They desert them now two hundred years too soon... The Eternal Life persists; only it wears out its bodies and minds and gets new ones... Bodies and minds ever better and better fitted to carry out its eternal pursuit... of omnipotence and omniscience (139).

Part III, **The Thing Happens**, occurs in 2170 A.D. It is discovered that two people who listened to the Barnabas brothers' declaration have extended their lives for an extra 250 years. The two, the Reverend William Haslam and Mrs. Lutestring (the Barnabas brothers' former parlor maid), meet and discuss the reasons for the secrecy surrounding their identities—human jealousy—and ironically give an example from H. G. Wells—

I was old enough to know and fear the ferocious hatred with which human animals, like all other animals, turn upon any unhappy individual who has the misfortune to be unlike themselves in every respect: to be unnatural, as they call it. You will still find, among the tales of that twentieth-century classic, Wells, a story of a race of men who grew twice as big as their fellows... Wells's teaching, on that and other matters, was not lost on me (176-7).

As the counselor, Confucius, explains to several people who have "normal" lifespans, more men must extend their lives to 300 years to realize their full potential:
Your maturity is so late that you never attain to it .... That means that you are potentially the most highly developed race on earth, and would be actually the greatest if you could live long enough to attain to maturity (192).

The awareness of the necessity for long life must be accompanied by new personal and social habits--

You have at last become prudent: you are no longer what you call a sportsman: you are a sensible coward, almost a grown-up man (196).

In Part IV, in 3000 A.D., The Tragedy of an Elderly Gentleman occurs. The tragedy is the inability of the bypassed "shortlivers" to understand the thoughts, actions, and purposes of the longlivers, the precursors of a new breed of Homo sapiens who classify previous history as "dead thought" (207):

your [the shortlivers'] wisdom is only such wisdom as a man can have before he has had experience enough to distinguish his wisdom from his folly, his destiny from his delusions ... (201).

But as longlivers have explained, through longevity a feeling of responsibility for life has evolved, for the life of the individual as well as the life of the species:

it is not the number of years we have behind us, but the number we have before us, that makes us careful and responsible and determined to find out the truth about everything (219).

When the shortliver realizes his own obsolescence, he kindly is killed when the oracle grants him a glimpse of the truth:

Poor shortlived thing! What else could I do for you? (258)

The final and fifth Part, As Far as Thought Can Reach, deals with mankind in 31,020 A.D. Man has physically evolved into a new race; men are "hatched" fully able to speak and reason, and a childhood spent in
pursuit of beauty through art, music, and dance lasts only four years. At the end of this period, the adolescent goes through a period of gradual withdrawal from human society and becomes one of the "ancients." As one emerging ancient explains:

I have not slept at all for weeks past. I have stolen out at night... and wandered about the woods, thinking, thinking, thinking; grasping the world; taking it to pieces; building it up again; devising methods; planning experiments to test the methods; and having a glorious time (264).

Two androids are fashioned by a future Pygmalion, but they are found defective in a lack of the true life force or morality, and are destroyed by two ancients who lecture the "children" on the punishments for irresponsibility:

when the body and the brain, the reasonable soul and human flesh subsisting... stand before you unmasked as mere machinery, and your impulses are shown to be nothing but reflexes, you are filled with horror and loathing (301).

All creative energies and will should be properly channeled--

One does not face the throes of creation for trifles... We who are older use neither glass, mirrors nor works of art [to see our souls]. We have a direct sense of life. When you gain that you will put aside your mirrors and statues, your toys and your dolls (302-3).

The ancients themselves strive to overcome their own defects—"it was to myself I turned as to the final reality. Here, and here alone, I could shape and create" (304)—seeking to transcend their physical existence, to promote the day... when there will be no people, only thought. And that will be life eternal (306).

The race's struggles are viewed by Lilith, and eventual success is foretold:

I am Lilith: I brought life into the whirlpool of force, and compelled my enemy, Matter, to obey a living soul. But
in enslaving Life's enemy. I made him Life's master; for that is the end of all slavery; and now I shall see the slave set free and the enemy reconciled, the whirlpool become all life and no matter. . . . when they attain it they shall become one with me and supersede me (314).
Stapledon's Last and First Men

Perhaps because of the label "Science Fiction," Olaf Stapledon has largely been ignored by critics outside the science fiction field; within the field he has been eulogized but rarely studied in concrete detail—an ironic turn for a professor of philosophy whose serious first work, Last and First Men, was published (1930) in a limited edition six years before he was even aware of the science fiction movement.

Most novelists employing a theory of evolution choose to follow either Darwin or Lamarck; Stapledon presents a curious blend of the two. According to J. O. Bailey, "Stapledon's universe, though driving toward perfection, was largely Darwinian;" however, he utilized the Darwinian principle of random and accidental change to pursue a Lamarckian progression or purpose. In his novel each individual is tied to natural selection but mankind itself is above natural and physical law because, as is explained in Donald Wollheim's The Universe Makers, "Existence is, therefore existence must have meaning beyond any single mortal life." In contrast to The Time Machine, there is in Last and First Men a mystical power transcending material appearances. In contrast to Back to Methuselah, that power is not a distant goal; it exists now, even if presently undetected by man.

The language used in Last and First Men is strictly Darwinian. The story's narrator is seventeen evolutionary stages further in mankind's future:

A being whom you would call a future man has seized the docile but scarcely adequate brain of your contemporary, and is trying to direct its familiar processes for an
alien purpose. Thus a future epoch makes contact with your age. Listen patiently; for we who are the Last Men earnestly desire to communicate with you, who are members of the First Human Species.

The intervening millenia are of necessity sketchily and dispassionately presented:

But I have to present in one book the essence not of centuries but of aeons. Clearly we cannot walk at leisure through such a tract, in which a million terrestrial years are but as a year is to your historians. We must fly.

The narrator, a Last Man, relates no romance or utopia, in which beings . . . live in unmitigated bliss among circumstances perfectly suited to a fixed human nature. I shall not describe any such paradise. Instead, I shall record huge fluctuations of joy and woe, the results of changes not only in man's environment but in his fluid nature. And I must tell how, in my own age, having at last achieved spiritual maturity and the philosophic mind, man is forced by an unexpected crisis to embark on an enterprise both repugnant and desperate.

The Last Man, a man of the eighteenth stage of evolution, states that the two great philosophers of Homo sapiens (First Men) were Socrates and Jesus:

Socrates urged intellectual integrity, [and] Jesus integrity of will. Each, of course, though starting with a different emphasis, involved the other.

The eighteenth man adds, however, that

Unfortunately both these ideals demanded of the human brain a degree of vitality and coherence of which the nervous system of the First Men was never really capable.

The decay or degeneration of the First Men over an 8,000-year period is viewed. Man overcomes disaster and success but never achieves a needed "integrity," and so declines. All social and physical changes are pre-
sented strictly in accordance with Darwinian evolution; even the Second Men appear at first as "sports" or chance mutations. Not until the Third Men deliberately create the great brains, or the Fourth Men, does mankind have any control over the evolution process—before he had just been a vitally interested but powerless observer.

Man continues to remake himself to adapt to necessary changes (such as his emigration to Venus and finally to Neptune), but it is not until the Last Men are formed that a successful fusion of intellectual and manipulative powers is achieved. The Last Men conquer time and are able to view the past and communicate with a First Man who lives five trillion years in their past:

But the cosmic events which we call the Beginning and the End are final only in relation to our ignorance of the events which lie beyond them. We know, and as the racial mind we have apprehended as a clear necessity, that not only space but time also is boundless, though finite. For in a sense time is cyclic. After the End, events unknowable will continue to happen during a period much longer than that which will have passed since the Beginning; but at length there will recur the identical event which was itself also the Beginning (229).

Through the development of a racial consciousness or entity, the Last Men are able to perceive the life behind all matter, even matter formerly considered inanimate:

We cannot say that nowhere save on those rare bodies called planets does life ever occur. For we have evidence that in a few of the younger stars there is life, and even intelligence (231).

Yet just when mankind is reaching towards a merger with this basic life force, a random astronomical accident promises total extinction of the race. The Last Men react towards the coming catastrophe in a variety
of manners from fear to despair, but finally conclude the true purpose of man:

Great are the stars, and man is of no account to them. But man is a fair spirit, whom a star conceived and a star kills. He is greater than those bright blind companies. For though in them there is incalculable potentiality, in him there is achievement, small, but actual. Too soon, seemingly, he comes to his end. But when he is done he will not be nothing, not as though he had never been; for he is eternally a beauty in the eternal form of things.

... It is very good to have been man. And so we may go forward together with laughter in our hearts, and peace, thankful for the past, and for our own courage. For we shall make after all a fair conclusion to this brief music that is man (245-6).
EVOLUTION AS TRANSCENDENCE

To study any of these works is to study the confusion of the authors’ days in the face of the apparent supremacy of science and insignificance of man. Written in a time of emphasis on the physical aspects of life, each work seeks for its future man a transcendence of this materialism and chaos, searches for a basis of faith in man and the future. Each of the three, while projecting the final product of human evolution, expresses the author’s hope in or despair over the value and significance of human life. Through descriptions of theoretical physical, social, biological, and intellectual evolution, the final man is presented, the man whose attributes, accomplishments, failures, and final transcendence or degeneration are dictated by the particular theory of evolution adopted by the author.

A wide range of thought is found concerning physical (geological and astronomical) evolution in these works. In The Time Machine the physical world is sinking into entropic decay. During the age of the Eloi and Morlocks, the tropical weather seems contradictory to entropy, but the Time Traveler explains that

It may be that the sun was hotter, or the earth nearer the sun. It is usual to assume that the sun will go on cooling steadily in the future. But people, unfamiliar with such speculations as those of the younger Darwin, forget that the planets must ultimately fall back one by one into the parent body. As these catastrophes occur, the sun will blaze with renewed energy; and it may be that some inner planet had suffered this fate (56).

Wells and his Time Traveler never miss a chance to attempt to arrive at a complete and careful understanding of Darwinian evolution. All possible
explanations for any phenomenon are considered and the most plausible and scientific theory is adopted; the only subject closed to questioning is the supremacy of Darwinian random evolution. In the far distant future the Time Traveler views the last stages of entropic decay:

At last, one by one, swiftly, one after the other, the white peaks of the distant hills vanished into blackness. The breeze rose to a moaning wind. I saw the black central shadow of the eclipse sweeping towards me. In another moment the pale stars alone were visible. All else was rayless obscurity. The sky was absolutely black (109).

Even the implacable scientist is shaken with this irreversible desolation, and he rapidly leaves "that remote and awful twilight" (110). In *Back to Methuselah*, Shaw is concerned only with escape from the material; there is little evidence of any major geological or astronomical changes between the time of the garden of Eden and the year 31,920 A.D. Stapledon, however, is as vitally concerned with Darwinian evolution and the effect of physical change and natural selection as is Wells. He details (as closely as a rapid trip through 5 trillion years will allow) the changes made in man's environment. First, he cites the deliberate changes:

They gained control of the movement of their planet. Early in their career they were able, with the unlimited energy at their disposal, to direct it into a wider orbit, so that its average climate became more temperate (212).

Next he cites accidental change:

A power unit was seized, and after a bout of insane monkeying with the machinery, the mischief-makers inadvertently got things into such a state that at last the awful djin of physical energy was able to wrench off his fetters and rage over the planet (89).

Then he cites change by other intelligences:
During each invasion the Martians contrived to dispatch a considerable bulk of water to Mars (132).

Finally he cites change by natural accidents:

For it was evident that, if the present acceleration of approach were to be maintained, the moon would enter the critical zone and disintegrate in less than ten million years; and, further, that the fragments would not maintain themselves as a ring, but would soon crash upon the earth. Heat generated by their impact would make the surface of the earth impossible as the home of life (183).

In The Time Machine, the two races of the Eloi and Morlocks have "de-volved" separately from social inequities current in the author's time:

above ground you must have the Haves, pursuing pleasure and comfort and beauty, and below ground the Have-nots, the Workers getting continually adapted to the conditions of their labor (64).

Both races lack a sense of history, and the Eloi are even unaware of the existence of the Morlocks except for a nameless fear of the dark. A true sense of society has been lost along with intelligence--the Eloi band together as do cattle for an unaware, animalistic sense of security. In Back to Methuselah, man experiences an intense period of socialization as a youth; his childhood in four years encompasses an awareness of all civilization achieved in 40,000 years of human existence. Upon adolescence, however, a man begins to realize his future and gradually becomes an ancient, building upon his childhood knowledge with solitary experiments seeking the dissolution of his material existence. Within the three works, only the Last Men of Last and First Men seek socialization, for only through a group sexual union is racial consciousness achieved, and through socialization with the past, the Last Men come to accept their fate and glorify their role.
In *The Time Machine* biological and intellectual evolution are closely related; as mind disappears, the body continues to modify itself to refinements suited to a lifestyle now conducted by rote—the Eloi body is adapted to an existence of frail beauty and the Morlock body to a life of subterranean mechanical cunning. In the age of Shaw's ancients, man looks outwardly the same; only a few inward modifications (hatching of young) have been made. Intellectually, the ancient is no different from a twentieth-century man save that his reasoning ability and certain of his perceptions seem sharper. In *Last and First Men*, a wide range of biological changes are presented, from solitary giant brains to man as a bat-like creature, but intellectually, even the Eighteenth species are still men; like Shaw's ancients, their minds are vastly improved in quantity and capacity, but are no different in quality. (A First man is incapable of recognizing in a Socrates or Jesus the "integrity" which is immediately visible to a Last Man, but both are men in their longing to acquire that integrity.) It is not until their discovery of and development of a reverence for all life, not just human life, that the Last Men transcend even the vortex of energy achieved in *Back to Methuselah*.

A further key to an understanding of these works can be seen in the purposes of the authors. Wells, Shaw, and Stapledon all attempted to influence the thoughts and actions of their contemporaries. In *The Time Machine*, Wells (aptly described as "the young scientist, burning with the drama of science, desiring to reorder the world by scientific means," tried to cut through the incongruities and incompetences presented by non-scientific neo-Darwinists, stating that a close and careful study of the
evolution theory proposed by Charles Darwin (not by later hero-worshipers) irrefutably allowed for degeneration as well as progression of the species. Perhaps the fictional *The Time Machine* is a prophetic warning to man to alter current practices which, if continued unchecked, will inevitably evolve to the Eloi-Morlock society. Wells' son viewed his father as a mythopoet whose work after the age of thirty-six . . . was in contradiction to the essential quality of his vision, which was one of despair.19

Shaw flatly stated that his "natural function as an artist" (68) was to create, or to begin the creation of, a religious myth for modern man:

> I am not, I hope, under more illusion than is humanly inevitable as to the crudity of this my beginning of a Bible for Creative Evolution (70).

His characters sympathetically voice concerns which are supposed to evoke in the audience the archetypal images of religion. Man cannot progress rapidly until he becomes aware of the life force; if *Back to Methuselah* stimulates this awareness,

> It is my hope that a hundred apter and more elegant parables by younger hands will soon leave mine as far behind as the religious pictures of the fifteenth century left behind the first attempts of the early Christians as iconography (70).

Stapledon saw man in the aftermath of World War I as "entering one of the major crises of his career. . . . Nothing can save him but a new vision, and a consequent new order of sanity, or common sense" (9). In the fictional *Last and First Men*, the Eighteenth men warn the First Men and try to influence them in the avoidance of pitfalls. In the absence of the reality of such a warning for the twentieth century, Stapledon presents a disciplined practical theory of the end of human evolution, for
controlled imagination in this sphere can be a very valuable exercise. Today we should welcome, and even study, every serious attempt to envisage the future of our race; not merely in order to grasp the very diverse and often tragic possibilities that confront us, but also that we may familiarize ourselves with the certainty that many of our most cherished ideals would seem puerile to more developed minds. To romance of the far future, then, is to attempt to see the human race in its cosmic setting, and to mould our hearts to entertain new values.

Like Shaw, Stapledon proposes the creation of a myth:

We must achieve neither mere history, nor mere fiction, but myth. A true myth is one which, within the universe of a certain culture (living or dead), expresses richly, and often perhaps tragically, the highest admissions possible within that culture. Some readers, taking my story to be an attempt at prophecy, may deem it unwarrantably pessimistic. But it is not prophecy; it is myth, or an essay in myth.

Likewise, in the final ending of the myth, Stapledon is similar to Wells:

We all desire the future to turn out more happily than I have figured it. In particular we desire our present civilization to advance steadily toward some kind of Utopia. The thought that it may decay and collapse, and that all its spiritual treasure may be lost irrevocably, is repugnant to us. Yet this must be faced as at least a possibility. And this kind of tragedy, the tragedy of a race, must, I think, be admitted in any adequate myth.

All three authors reacted through their works to the post-Darwinian wave of despair over a seemingly random, structureless, purposeless universe where man was just one more insignificant animal reacting to stimuli over which he had no control. In Wells' *The Time Machine*, structure is seen in a careful adherence to Darwinian evolution even when the theory acts against the instincts and emotions of man. But Wells' man is not totally helpless in the universe of random stimuli; if he overcomes certain practices, he can influence the direction of the evolution process even if
he is unable to alter the process itself. In *Back to Methuselah*, the will or life force is all important and invincible. Eventually man will overcome and master his physical self; the route he takes towards this end is itself unimportant. To Stapledon the structure and the purpose are the same:

> we try to regard the whole cosmic adventure as a symphony now in progress, which may or may not some day achieve its just conclusion. Like music, however, the vast biography of the stars is to be judged not in respect of its final moment merely, but in respect of the perfection of its whole form (234).

With a commitment to Darwinian evolution, the men in *The Time Machine* never achieve—or even dream of—transcendence over their material existence. Since the process or structure of evolution is the lifeline in a chaos of disbelief, a rejection of the media through which that process is expressed is inconceivable—only through physical and biological means can this faith be expressed. Faith in *Back to Methuselah* is fixed upon the dissolution of the material. Once the mind matures sufficiently to cast off the body, it becomes a part of a vortex of energy and becomes divine. The mind reaches "towards omnipotence and omniscience—the godling striving to become God." In *Last and First Men* Stapledon’s Last Men seek perception of both their mental and physical natures. Only through a complete acceptance of both does the Eighteenth man transcend his own existence to "hear the music of the spheres" (246).

In conclusion, if the term "evolution" is understood to mean only the theory presented by Charles Darwin, an understanding of these three works would be, at best, very incomplete. In *The Time Machine*, Wells presents Darwinian evolution to refute the blind, optimistic faith of neo-Darwinists.
In a careful study of Darwinian evolution, he presents a final degeneration (or the hinted-at possible salvation) of man which follows completely and mercenarily the implications of natural selection. Shaw's *Back to Methuselah* presents neo-Lamarckian ideas to refute both Darwinism and neo-Darwinism. However, it does not remain faithful to the theory of evolution it voices. It presents creative evolution but ignores the Lamarckian principle of "will" behind all life, not just human life. Shaw's ancients achieve a limited transcendence of the physical but still remain human even as vortices of energy. In *Last and First Men*, Olaf Stapledon takes the most plausible and inspiring parts of the two theories—the methods of Darwinian evolution and the purpose of Lamarckian evolution—and presents a blend of the two which is neither overly optimistic nor pessimistic; he presents a view which answers those pro-evolutionists who found, before *Last and First Men*, only despair and confusion in a strict choice between a material, mechanical theory of evolution and a "spiritual," anti-materialistic theory. Because of their awareness of the importance of all phases of human life (reflected in the blend of Darwinian and Lamarckian evolution presented), only the Last Men transcend both the physical and spiritual conditions of mankind. Stapledon acknowledges the possible extinction of man but unlike Wells or Shaw, denies that the significance of life is tied up in human evolution. Stapledon's *Last Men*, through their attention to physical and mental properties, transcend even their
own humanity; they recognize and achieve unity with the moving principle of life behind all mind as well as all matter, where

the awakened Soul of All [would] have eternal being, and in it each martyred spirit would have beatitude eternally, though unknown to itself in its own temporal mode. . . . Even as individuals, we can regard the impending extinction of mankind as a thing superb though tragic. Strong in the knowledge that the human spirit has already inscribed the cosmos with indestructible beauty, and that inevitably, whether sooner or later, man's career must end, we face this too sudden end with laughter in our hearts, and peace (233).
NOTES


3. To Lamarck this term did not necessarily mean conscious will—it could be equated, in lower animals, with an instinct for survival.


12. George Bernard Shaw, *Back to Methuselah* (Baltimore: Penguin, 1961), p. 33. Subsequent references to this edition will be indicated by page number in the text. (Since this paper is concerned with Shaw's views at the time of composition and not with his thoughts at the end of his life, this Penguin edition, a reprint of the first edition, was chosen rather than the slightly revised text that appears in The Bodley Head edition of Bernard Shaw: *Collected Plays With Their Prefaces.*)


17. Shaw's neglect of change might simply stem from his recognition of the impracticalities of staging such change in the production of the play.


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