The Influence Of Natural Selection

Prior to taking this class and upon hearing the name Charles Darwin, I recall having little personal knowledge of the great naturalist. If asked about, a response would have been a one-word answer such as evolution. There may have been further enunciations about the ongoing debate between his theories vs. the religious views found in The Book of Genesis. Neither that dichotomous relationship nor presenting consilience will be pursued in this essay, although that is a position I once held. Alternatively, the goal of this essay is to discuss how naturalist Charles Darwin and his theories on Natural Selection which permeated the course's literature, swayed personal convictions toward his theories. Presented will be 3 categories of natural selection that I discovered that were of major influence for that adjustment: behavioral, physiological, and genetic. This categorizing became so influential that my personal beliefs themselves relative to humanity's origins via Natural Selection evolved. A fourth category, robotic, will be added toward the end as it pertains to the future of natural selection in its inevitability. It should be noted that Darwin's writings may be interpreted as less than interesting if presented by a less seasoned author, but that is part of what made him as influential as he was. Darwin's fellow naturalist John Burrows would agree and is known to have read Voyage of the Beagle "early on and repeatedly," (Warren 236) which is significant considering Burrows' own naturalistic accomplishments.

It is worthy to start with the words of Ernst Mayr: "Almost every component in modern man's belief system is somehow affected by Darwinian principles" (Mayr Scientific American). Upon an initial read, I had no idea of the magnitude of that statement. As implied above, the subject of Darwin was personally a benign topic. In the same Scientific American essay, Mayr added a set of principles proposed by Darwin, with the first being the most significant: "Darwinism rejects all supernatural phenomena and causations. The theory of evolution by natural selection explains the adaptedness and diversity of the world solely materialistically." Dawkins, in God Delusion, alternatively wondered "who designed the designer?" (121). Teamed with Darwinian theories, Mayr opened the door to a better comprehension of Natural Selection. I will next present the categories.

Behavioral Natural Selection

In Voyage of the Beagle, the chapters other than those Appleman included are where behavioral Natural Selection originally manifests. The following two examples illustrate: In Maldonado, while relating his observations on the cuckoo, Darwin explained how the female lays eggs and deposits them in the nests of different birds. The naturalist explains that cuckoos are more migratory than other birds on the island, and would not have time to properly sit on her eggs: "Hence, we can perceive in the face of the cuckoo pairing several times, and laying her eggs at intervals, the cause of her depositing her eggs in other birds' nests, and leaving them to the care of foster-parents." (Beagle 45). In personifying Natural Selection in a behavioral sense, Darwin appears to suggest that adapting to one's environment is a necessary survival tactic regardless of the behaviors necessary; including abandoning offspring. Darwin also writes about both the Carranchas and the Chimangos and their vulture-like feeding methods. Both have "necrophagous habits," he wrote (47). If researching the differences in survival methods in these three bird species, Mayr would suggest "a diverse population is a necessity for the

proper working of natural selection." (Scientific American). This is comparable to Darwin's theory in Descent where our progenitors overexposed themselves in a geographical sense, and some either died off or evolved accordingly based on the new terrain (qtd. in Appleman 200). The remoteness of Tierra del Fuego, the Cape of Good Hope, and Tasmania were used to clarify. Using this comparison, I began to question my personal convictions relative to humanities origins, as I began to lean toward a Darwinian belief: Early humans, like the lesser creatures, moved according to necessity and survival. This view is both tangible and empirical.

Physiological Natural Selection

When Darwin documented his findings on the Galapagos Archipelago, it revealed my second category of Natural Selection: physiological. Darwin wrote of the varying sizes of finch beaks, noting "the most cureous fact is the perfect gradation in the size of the beaks in the different species of Geospiza, from one as large as that of a hawfinch to that of a chaffinch…" (Beagle 325). Note that Darwin that does not propose reasons for the variance. In a later study, Peter Grant (1973) based conclusions on drought years: "We used partial regression and found that body size and beak depth each correlated positively—and about equally—with survival" (qtd. in Appleman 380). Grant also noted "character displacement" in corelating the differing beak lengths (Darwin's Finches 746).

Other examples falling in the category of physiological Natural Selection are exemplified both in Origin and Descent where Darwin presented more controversial issues in addressing Natural Selection as it pertains to humanities origins. Accordingly, Darwin began to influence me on a more personal level as it conflicted with Genesis premises, admittedly some of which I still held on to during this course. The Becoming Human site presented fossil remains of "Lucy" (Episode 2 Lucy): "Her discovery did indeed open up a major new window in the study of human origins." With some distinct physical differences (i.e., size) Lucy's remains appeared strangely like us; apparently, she was a victim of Natural Selection. It further clarified how and where humanity started: As one species became extinct, another developed. As Darwin's finches required certain beak lengths to survive, it appears that early human like species also required certain physical features of their own to survive. In Origin Darwin wrote "Proportional numbers of inhabitants would almost immediately undergo a change, and some species might become extinct" (qtd. in Appleman 112). Worth remembering and interjecting is Mayr's statement: "Darwinism rejects supernatural phenomena." Too, what I found extremely inspirational is that Darwin, one hundred years prior, almost predicted what would later become hard evidence in Lucy. Piecing together the Lucy episode and Darwin's Natural Selection, further influenced my personal beliefs in solidifying them toward evolutionary Natural Selection. That influence only grew with Descent where Darwin wrote "Man has spread widely over the face of the earth, and must have been exposed during his incessant migration, to the most diversified conditions" (qtd. in Appleman 200). Examples are the Neanderthals (Becoming Human episode 8) who in Darwinian terms, "struggled for existence" through the laws of Natural Selection. Darwin's theories again that influenced my awareness of how humanity progressed along geographical realms, and why certain species ultimately did not survive.

Genetic Natural Selection

I categorized Natural Selection as genetic based because of its relationship to diseases that have inflicted humanity. Endler painted a paradoxical picture relative to the sickle-cell trait which

oddly developed in humans to fight off malaria (qtd. in Appleman 385). Sadly, one malady genetically replaced another. Concurring is an alternative article in Nature Reviews: “Natural selection leaves distinctive signatures in the genome, as genetic variants that improve survival and reproduction increase in frequency, and detrimental variants vanish.” (Karlsson 379). These are worthy examples of how human genetic makeup, even under extreme duress, will evolve through naturally selective methods. Further complimentary source material clearing any doubt is a Science Direct article:

“Detecting loci in the human genome that have been targeted by natural selection has a two-fold importance. Firstly, we can infer which selective events have shaped genome diversity most and learn about past evolutionary events that characterized human history. Secondly, loci under natural selection are more likely to harbor functional variants, and therefore can be prioritized in screenings for association with susceptibility or resistance to diseases and infections.” (Fumagalli and Sironi).

The article also pointed out how common mutations already present in populations become advantageous in new environments. Maxmen wrote, “One example is the mutation that gives many adults the ability to drink cow’s milk. It enables the body to produce lactase, an enzyme that digests the sugar in milk, into adulthood” (Nature). Genetically based Natural Selection has influenced on me in leaning away from human predetermination, as human genetics in an empirical sense have developed “spontaneously” over long evolutionary periods.

R.U.R. and the Future of Natural Selection

So far, this essay has argued how Darwin’s theories have personally influenced me away from Genesis through the categorizing of Natural Selection. Another category mentioned in the open is the non-empirically and man-made field of robotics. As technology is ubiquitously evidenced today, R.U.R. presents a futuristic technology where robots are utilized to supplant human inefficiencies. Natural Selection began when Dr. Gall tampered with and implanted human traits into the robots; the results were drastic for human survival. Darwinian theories manifested: humans were “naturally selected” out. Dr. Gall: “You see, so many Robots are being manufactured that people are becoming superfluous” (Act II 51-52). Helena took notice earlier: “During the past week there has again not been a single birth recorded.” (Act II 45-46). She would later ask, “You mean mankind will be destroyed? (47-48). It may seem a stretch, but if future cybernetic technology becomes reality, it will provide evidence of the inevitability of Darwinian theories. Sadly, with the lowering of birth rates in today’s world, that may be the case. Graphically highlighted in an Institute for Health Metrics article, fertility rates indicate 2.5 live births per woman in 2017 vs. 4.5 in 1950 (Gallagher). It begs this question: Will the events that took place in RUR may one day become a necessary reality?

In conclusion, the categories presented relative to Darwin were Natural Selection as being the result of necessity both in the biological observations in Voyage, and those of climatic variations of Species and Descent, as well as the genetic versions relative to diseases. In R.U.R., an additional example of Natural Selection was paradoxically evidenced. Natural Selection, as we have witnessed comes in many different forms. This essay presented Darwin’s influence on a personal level and as mentioned, I evolved along with the literature as I re-considered humanities origins. This caused me to question internally where humanity stands relevant to all other living things. I self-queried: what would lend credence into believing that humanity is

unique on an evolutionary scale? Perhaps the philosophical answer is Becoming Human pointing to humans as having the “ability to understand abstract concepts both about their world and about themselves” (Episode 10 Koonalda) relative to consciousness. However, just as the Darwin’s finches, the Carranchas and the Chimangos, and Lucy’s successors were products of Natural Selection in one way or another, I concluded that humanity is the product of similar selective methods. Hopefully, as was presented in R.U.R., we will not “select” ourselves into extinction.