

Evolution and the Origins of the Biological Race Theory

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ABSTRACT

Scientists have almost universally concluded that the human races are largely equal in regard to innate intelligence and most other traits. In spite of the wide social disparities between the races in the West, no more than approximately one standard deviation difference in mean intelligence exists between the whites and blacks. This fact is contrary to a basic requirement of naturalistic evolution: in order for selection to take place, differences must exist between individual organisms for selection to select from. For selection to work, something first must cause races to develop, a process which in Darwinian terms is called speciation. As evolution progresses, the contrast between groups must become greater, producing development of new definable divisions. The lack of major differences between races, especially in intelligence, the factor most crucial for the major contrast between Homo sapiens and 'lower' forms of life, creates a major difficulty for current evolution theory. In addition, misuse of the theory of evolution was an important factor in the extreme forms of racism, especially that against blacks and Jews, that flourished at the turn of the century and for many years beyond.

Evolution theory postulates that an enormous number of largely random DNA copying errors called mutations produce slight changes in the gene pool of a species. Some of the changes produce a phenotype which confers upon the organism a slight survival advantage compared to those species without it. The environment generally affects the population with these changes in such a way that the organism (or organisms) with the slight advantage will have a greater chance of surviving, and consequently of reproducing and passing on its characteristics to its progeny.¹ Conversely, organisms **without** the advantageous characteristic will be less likely to survive to pass this characteristic onto their offspring. The result is that the organisms with the advantageous characteristic will gradually increase in numbers, and those without it will numerically decrease. The composition of the gene pool will eventually change, altering the characteristics of both individual members and the population as a whole.

THE SURVIVAL ADVANTAGE OF HUMANS

The most significant difference between humans and animals is the brain.² Humans are classified as a high level

primate with a brain superior to all others. Intelligence is the quality which blesses humans with their major survival advantage over all other animals.³ Upright posture, the development of a thumb and many other characteristics differentiate humans from other primates, but the crucial difference — and the factor responsible for humankind's superior achievements — is clearly the brain, especially the cerebrum:

*'... those with the larger brains had the best chance of surviving to reproduce themselves among the perils of new lands, and of finding ways to adapt to new modes of living. The selective pressure for better brains must have been very intense.'*⁴

It is hypothesized that human evolution resulted from a fortunate set of conditions which caused some primates by the process of selection to develop a slightly higher intelligence than others. This 'intelligence edge' conferred upon them a clear survival advantage, improving compared to their less fortunate relatives their ability both to escape predators and secure life support elements from the surrounding environment.⁵ All other things being equal, the higher the intelligence, the more successful the organism will likely be in obtaining food, escaping predators and

finding shelter. Intelligence also enables an animal to more effectively learn survival methods and tricks from its life experiences so as to both successfully escape and avoid possible predators in the future.

This survival advantage would consequently slowly result in those primates with higher intelligence numerically increasing and, likewise, those with less intelligence decreasing. The former group would eventually become more numerous, resulting in a fairly defined group which was separated from others by their higher intelligence. Importantly, even within this fairly defined group would exist individual differences in intelligence. These differences would enable certain group members to be more likely to survive than their peers.

This occurs by several identical or similar mutations occurring which confer a survival advantage on two or three individuals, so eventually these traits would likely spread throughout large sections of the breeding population. If this population was reproductively isolated, the result would be a state of affairs in which the race that inherited these mutations would be in this area superior to the others. In each isolated group, we would expect that several would eventually become superior in at least **one way** compared to other populations. Consequently, the separate discernible groups would eventually grow in numbers as the beneficial traits numerically spread throughout an isolated population.

Also, **within** each group would exist discernible differences which would confer upon them a survival advantage compared to the population which was not part of the 'better' group. Thus, a 'superior' race would sooner or later develop **within** the group which would eventually predominate. Within each race would exist **ongoing evolution**, and this evolution would produce discernible differences **between the subgroups in each group** which would become more and more distinct. By this process, eventually evolving out of this defined group would be another group having an even higher mean intelligence. This subgroup would in time become differentiated enough to be classified as a race or subspecies, and eventually as a species. Evolution theory concludes that it was through this process that modern *Homo sapiens* resulted.⁶

The source of evolution, therefore, is **differences within the species**.⁷ If every member of a population had an identical genotype, evolution could not occur for the reason that it results from nature's selecting from **existing differences**. Without differences, one organism could not possess an advantage over any other. Survival and reproduction success would then depend **only** upon fortuitous factors, and not upon any innate advantage that specific structures confer. For an organism to possess a structural survival advantage compared to others, structural differences must **first** exist. Even a population that is homogeneous for some trait would sooner or later become heterogeneous for mutation-caused traits that gave a selection advantage. Because it would take centuries for the popu-

lation to again become homogeneous for that trait, trait variety would be by far **the most common condition** in the natural history of most animals.

Evolution also requires changes in the environment that result in increased adaptation by some organisms, and this in turn would force other living things to also become better adapted in order to survive. Examples of these environmental alterations include changes in the mean temperature, in the composition of the land, the type and distribution of the foliage, and the kind of animals in a particular region.

The increasing level of adaptation of an animal type will enable them to increase numerically, thus consuming a greater amount of the available life support resources. Then, in response to the lower amount of food, their competitors would also need to continually increase their level of adaptation and improve their survival techniques to successfully compete. Consequently, the existence of differences within the gene pool is crucial to both the survival and evolution of an animal species.⁸ Differences are imperative to provide nature something to select from, and without these differences adaption improvement could not occur. An organism's continued successful competition with the ever increasing complexity around it requires the *first step*, biological differences. This is especially true of the evolving competition and defence systems that protect an animal from the competition of plant and animal organisms within its environment. The assumption that most animals have maximized their adaption, and thus little evolution is occurring today, is offered more as an effort to respond to difficulties in the theory than it is as a conclusion based on empirical evidence. Because of the recent drastic changes in the environment recently brought about by humans, evolution should be occurring at a far **more rapid** pace today than in the past.^{9,10}

Theoretically, this process will continue forever, and humans will continue to evolve to new heights in the future. Even in the last few thousand years, it is claimed that persons with a greater intelligence had a better chance of surviving. As Pilbeam¹¹ explained:

'The expansion of the human brain is extraordinarily late in the hominid story, occupying perhaps only the last 15% or so of the total time.'

Not only is increased intelligence important, but as Smith noted, its extremely rapid increase is viewed as crucial to evolutionary theory.

*'The evolution of modern man from non-tool-making ancestors has presumably been associated with and dependent on a large increase in intelligence, but has been completed in what is on an evolutionary scale a rather short time — at most a few million years. This suggests that the transformation in the brain which provided the required increase in intelligence might have been growth in size with relatively little increase in structural complexity — there was insufficient time for natural selection to do more.'*¹²

Significant differences are often required for evolution because minute differences in many traits would not confer to any one member a large enough advantage over the other members of the culture or society to effect life or death differences during the fertile years. The differences would have to be great enough for a clear survival advantage to exist up to the end of the animal's reproduction period. The difference between humans and lower mammals is enormous, and according to most evolutionists this evolution occurred in a relatively short period of time. Consequently, clear differences must exist for what is actually megaevolution to occur.¹³

In summary, for human evolution to occur, biological differences within the species *Homo sapiens* is necessary to enable selection to select. The crucial factor that has given humans their survival advantage is their intelligence. If this factor was historically important in producing the numerical success of *Homo sapiens*, it follows that intelligence would still be of critical selection importance today. Although some evolutionists argue that it is now less important, much of the reason for this conclusion is because they now recognize the enormous harm to society that this belief has produced.^{14,15} Most structural differences which effect the intelligence that blesses us with a survival advantage and which are genetically transmittable, even if they first developed in a single organism, would likely eventually spread into future generations. The net effect is they would produce a defined group that is superior to the original group, resulting in a new race.

THE NOTION OF RACE

Biologically, 'races' are often called subspecies and are defined as animal groups that are physiologically and chromosomally distinct from other members of the species but which can interbreed. In humans they are differentiated primarily by such characteristics as skin and hair color, hair texture, and skull, nose and eye shapes.¹⁶ In evolutionary theory, the survival advantage factor is the chief explanation for the existence of most differences. Because these differences result from the survival advantage that they confer upon an organism, an evolutionist must assume differences between or within a group likely exist because they provide some inherent survival advantage for the animal. Since the key survival advantage of humankind over 'lower animals' is intelligence, consequently differences in this trait likely also exist between the races. This is exactly what has been assumed by many eugenicists, evolutionists, sociologists, and psychologists, both before and since the time of Darwin.¹⁷⁻²¹ This conclusion has justified a wide variety of governmental and scientific policies, not the least infamous were racial genocide programs.^{22,23}

Human evolution is generally divided into two types:

- (1) **monophyletic** or the Adam and Eve theory, the widely accepted view that all races descended from one com-

mon ancestor, or a very small number of highly interbreeding progenitors.

- (2) **polyphyletic**, the view that humankind evolved from many lines, thus the races today are fundamentally different because different races had different ancestors.²⁴ Eiseley²⁵ notes that this view was advocated by the French anthropologist Pouchet, who in 1864 discussed the implications of evolutionary theory and anthropological investigations which had shattered the belief that all races were descendants of Adam and Eve, thus in a literal sense were brothers. In Pouchet's words, '*What will become of the unity of the human species, if we can prove that certain races are not a whit more intelligent than certain animals . . . ?*'²⁶

Klaatsch, a prominent German evolutionist, concluded that human races differ not only because of survival factors, but also for the reason that they polyphyletically evolved from different primates. The blacks came from the gorillas, the whites from the chimpanzees, and the orientals from the orangutans, and it is **for this reason** that some races are superior. He concluded²⁷ that '*the gorilla and the Neanderthal man*' have a close biological affinity to '*a large number of the living African blacks . . .*'

Klaatsch was only one of many researchers advocating a polyphyletic view of human evolution. Other similar ideas were proposed, and some were widely accepted for many years.^{28,29} In a revealing statement, Klaatsch stresses that:

*'... we cannot deny that the recent tendency of anthropology is not to support the idea of unity of the race that has been suggested by religion and sentiment considerations. Modern science cannot confirm the exaggerated humanitarianism which sees our brothers and sisters in all the lower races.'*³⁰

Harvard's Hooton even advocated that:

*'we must rid ourselves of the false prophets of cultural salvation and the witless preachers of human equality. The future of our species . . . is dependent on [the application of evolutionary] biology. We must have fewer and better men, not more morons . . .'*³¹

The biological concept of race as we know it had its modern roots when social Darwinism was embraced by many scientists.^{32,33} The works of Darwin's cousin, Francis Galton, the founder of the eugenics movement, were of a major influence.³⁴ Cohen concluded that:

'The most emotionally charged question in psychology, indeed, in any branch of science today, comes in two parts: "Is intelligence hereditary, and if so, are there hereditary differences in intelligence among the races?" The question is not a new one. Sir Francis Galton, with whom the study of human intelligence really began, believed very strongly that intelligence was mainly hereditary. He was also convinced there were profound differences in mental ability between the races. He regarded Negroes as barely human at all. "The mistakes the Negroes made in their own

matters," he wrote in *Hereditary Genius*, "were so childishly stupid and simpleton-like as frequently made me ashamed of my own species." Such views were not unusual for a Victorian Englishman who had spent some years in Africa.³⁵

Many of the early evolutionists were outspoken racists, and racial inferiority views were assumed to be proven, and thus were less a subject of debate or concern than one today would assume.^{36,37} Haller concludes that

*'science became an instrument which verified the presumptive inferiority of the Negro and rationalized the politics of disenfranchisement and segregation into a social-scientific terminology.'*³⁸

And that

*'to understand attitudes of racial inferiority in the context of nineteenth-century science and social science is a first step in fathoming the depth of race prejudice in our own day. Inferiority was at the very foundation of their evolutionary framework and, remaining there, rose to the pinnacle of "truth" with the myth of scientific certainty. To see racial prejudices in their scientific robes is to understand why . . . attitudes of racial inferiority have continued to plague western culture.'*³⁹

The success in breeding cattle, dogs and other animals with certain desired characteristics gave empirical support to the concept of racial breeding as advocated by eugenicists and later Hitler and others.⁴⁰ This idea was central to the eugenics movement which was in vogue in the middle of the last century and supported by many of the most prominent scientists of the time.^{41,42} Eugenics, the notion that humans could improve their race by selective breeding, was also highly accepted by the educated public, especially in Europe and the Americas. Sir Arthur Keith, one of the leading evolutionary anthropologists of our century, stated that he was proud that:

*'The German Führer, as I have consistently maintained, is an evolutionist; he has consciously sought to make the practice of Germany conform to the theory of evolution [by applying eugenics to governmental policies].'*⁴³

DARWINISM AND RACISM

The complete title of Darwin's most famous work, often abbreviated to **The Origin of Species**, was **The Origin of Species by Means of Natural Selection or the Preservation of Favoured Races in the Struggle for Life**. As Koster notes about Darwin's view on race, he:

'never considered "the less civilized races" to be authentically human. For all his decent hatred of slavery, his writings reek with all kinds of contempt for "primitive" people. Racism was culturally conditioned into educated Victorians by such "scientific" parlor tricks as Morton's measuring of brainpans with BB shot to prove that Africans and Indians had

*small brains, and hence, had deficient minds and intellects. Meeting the simple Indians of Tierra del Fuego, Darwin wrote: "I could not have believed how wide was the difference between savage and civilized man; it is greater than between a wild and domesticated animal . . . Viewing such a man, one can hardly make oneself believe that they are fellow creatures and inhabitants of the same world.'*⁴⁴

Darwin's belief that some races (such as blacks) were inferior to others became so widely accepted that, as Haller concluded: *'the subject of race inferiority was beyond critical reach in the late nineteenth century.'*⁴⁵ Although Darwin opposed all forms of slavery, he *did* conclude that one of the strongest evidences for evolution was the existence of living 'primitive races' which he believed were evolutionarily between the 'civilized races of man' and the gorilla:

*'At some future period, not very distant as measured by centuries, the civilized races of man will almost certainly exterminate, and replace, the savage races throughout the world. At the same time, the anthropomorphous apes . . . will no doubt be exterminated. The break between man and his nearest allies will then be wider, for it will intervene between man in a more civilized state, as we may hope, even than the Caucasian, and some ape as low as a baboon, instead of as now between the Negro or Australian and the gorilla. . . . It has often been said . . . that man can resist with impunity the greatest diversities of climate and other changes; but this is true only of the civilized races. Man in his wild condition seems to be in this respect almost as susceptible as his nearest allies, the anthropoid apes, which have never yet survived long, when removed from their native country.'*⁴⁶

The missing link wasn't missing but, many evolutionists of the time concluded, lived in Australia and other far-off places.⁴⁷ The existence of some living races was openly viewed as irrefutable evidence of a graduation of living creatures 'linking' humans to the monkeys (or today 'to our common primate ancestor'). This 'scientific conclusion' was interpreted as compelling evidence for evolution, thus a large number of biology textbooks of the time discussed the 'hierarchy of the races' topic.

The man who some regard as the actual modern 'discoverer' of evolution by natural selection, Alfred Russell Wallace, also espoused essentially the same idea.⁴⁸ In his words,

*'the weak dying was necessary to improve the race because in every generation the inferior would inevitably be killed off, leaving the superior — that is, only the fittest would survive.'*⁴⁹

This was the essence of Darwinism, and race differences and fitness of these differences (racism) was at its core.

Although Darwin was far less racist than many of his disciples, especially Spencer, Haeckel, Hooton, Pearson, and Huxley, his theory provided the *basis* for the latter's

extreme racism. As Poliakov⁵⁰ noted, Darwin's primary spokesman in Germany, Ernest Haeckel, was 'the great ancestor' of Nazi biology theoreticians. Importantly, Darwin did little to oppose this conclusion which spread like wild-fire from his works.⁵¹ Since Darwin's writings were critical in the development of evolutionary theory, his thoughts on the application of his theory of racism are crucial to understand how the racism theory spawned. Although he was known as a kind and gentle man, Darwin openly gave his support to eugenic ideas which gradually won acceptance in the scientific community, both in Europe and the United States. Darwin, evidently highly influenced by his early theological and religious training, said:

'I have always maintained that excepting fools, men did not differ much in intellect, only in zeal and hard work.'

Later, convinced that the eugenic theory was valid,

*'In The Descent of Man, Darwin canonized Galton with the words; "we now know, through the admirable labours of Mr Galton, that genius . . . tends to be inherited."'*⁵²

By the beginning of the 19th century, every discussion of social problems was permeated with 'scientific notions of class [and] race,' and that

*'nearly every one of these theories had some practical applications as its corollary: political, social or cultural; and meanwhile biological research, anthropology and the science of language had intensified, not abated, the use of "race thinking".'*⁵³

Even Chambers in his classic *Vestiges of the Natural History of Creation*, about which Darwin said that without this book he might never have written *The Origin of Species*, concluded that the Negro was 'at the foot of' the Mongol, the Yellow race between, and Caucasians at the top.⁵⁴ Chambers himself taught that the 'various races of mankind, are simply . . . stages in the development of the highest or Caucasian type . . .' and that the Blacks were the least developed, and the Caucasians were the highest, most evolved race.⁵⁵

RACISM BASED ON BIOLOGY

People have always tended to assume they were better than those who were culturally different, but most ideas of biological racial inferiority are fairly recent. Since up to the time of Darwin it was almost universally regarded that all humans were descendants of Adam and Eve — a view called *monogenism* — most concluding that all humans must literally be biological brothers. Although some individuals developed ingenious hypotheses to justify the conclusion that Blacks were inferior, such as God created them as a separate race (some concluded that the 'beasts of the earth' discussed in Genesis was the Black race) this view has never held much weight in historical Christian theology, Protestant, Catholic, or Orthodox.⁵⁶⁻⁶⁰ As Proctor opinioned:

'Prior to Darwin, it was difficult to argue against the

*Judeo-Christian conception of the unity of man, based on the single creation of Adam and Eve. Darwin's theory suggested that humans had evolved over hundreds of thousands, even millions of years, and that the races of men had diverged while adapting to the particularities of local conditions. The impact of Darwin's theory was enormous.'*⁶¹

Consequently, until the middle 1800s, most Westerners believed that all humans were descendants of Adam and Eve, thus we are all brothers. Up until the widespread acceptance of evolution, the only justification for racism was the belief that God cursed certain groups or created other Adams who were inferior — a view called *polygenism* — which could be identified by physical traits such as skin colour, or that some groups degenerated biologically more than others — but were still our brothers. As Gould notes, 'nearly all scientists were creationists before 1859, and most did not become polygenists',⁶² and Walbank and Taylor conclude:

*'... Darwinism led to racism and anti-semitism and was used to show that only "superior" nationalities and races were fit to survive. Thus, among the English-speaking peoples were to be found the champions of the "white man's burden", an imperial mission carried out by Anglo-Saxons. ... Similarly, the Russians preached the doctrine of pan-Slavism and the Germans that of pan-Germanism.'*⁶³

On the question of racism and Christianity, especially as exemplified in Germany, Sir Arthur Keith stated that:

*'Christianity makes no distinction of race or of color; it seeks to break down all racial barriers. In this respect the hand of Christianity is against that of Nature, for are not the races of mankind the evolutionary harvest which Nature has toiled through long ages to produce?'*⁶⁴

The racism which developed from the theory of evolution was by no means confined to Blacks. One of the leading American eugenicists, Charles Davenport, founder and director of the prestigious Cold Spring Harbor Biological Laboratory, concluded that Black Americans were below Caucasians — but so were several other groups. Among the groups that he included were 'the Poles, the Irish, the Italians, and ... the Hebrews' and even the Serbians, Greeks, Swedes, Bohemians.⁶⁵ He attributed a wide variety of negative racial characteristics to each different group: Poles tended to be independent although self-reliant, the Italians tended to commit crimes of personal violence, the Hebrews were a mixture of slovenly Serbians and the tidy Swedes, and the Germans and Bohemians were given to 'thriving'. He was concerned that the immigrants then flooding the United States would rapidly cause the American population to become darker in pigment, smaller in stature, and more involved in crimes of larceny, kidnapping, assault, murder, and rape.

Davenport taught that a woman should not marry a man without a thorough knowledge of his biological and gene-

alogical history. He felt a woman should act like a stock breeder who carefully checks the pedigree of a potential sire for his colts or calves. Davenport argued that the state should control who is able to breed, reasoning that if the state had the right to take a person's life, surely it could deny permission to reproduce. As a highly respected scientist, Davenport's ideas were highly influential at the time and no more radical than those advocated by many other scientists and intellectuals. In the late 1930s, the policies that Germany, then the most advanced nation in the world, was advocating were very similar.

The two races most often compared are the 'Caucasian' and 'Negroid', now commonly called the 'white' and 'black' races. The dominant western cultural ethos, that whites were 'superior' and blacks 'inferior' and more 'ape-like', was commonly reflected in science books published from 1880 and 1980. The textbook drawings which depict our supposed immediate ancestors, such as *Homo erectus* and *Homo habilis*, typically have very pronounced Negroid race characteristics including dark skin, kinky hair and Negroid facial features. Modern man (*Homo sapiens*), though, is often pictured as having light skin, straight hair, a flat forehead, a narrow nose and small lips.⁶⁶ Most of the drawings of 'ape-men' and early humans even today still show pronounced Negroid traits (for examples see Time-Life, *The Neanderthals*,⁶⁷ and *Early Man*,⁶⁸ April 1984 Science 84 cover). In addition, the fact that certain Negroid facial features are closer to the facial characteristics of many primates (the kinky hair, flat-nose, large lips, and sloping forehead, as well as the cheek and jaw-bone construction) has lent superficial support to this contention. The Caucasian race would for this reason be more evolutionarily 'fit', meaning it was a 'superior' race. As the major survival element in human evolution is intelligence, the conclusion that the higher evolved race, the Caucasians, possessed a superior intelligence was uncritically accepted for decades. Differences in intelligence were viewed as the key factors in human evolution because mind was a major factor of survival, and thus of selection.

The belief that evolution normally produced racial inequities was often noted, even exemplified, in the standard biology textbooks published around 1900. The popular American high school biology textbook by Hunter, titled *A Civic Biology*,⁶⁹ in the section on evolution under the subtitle 'The Races of Man', stated that

'at the present time there exists upon the earth five races or varieties of man, each very different from the other in instinct, social customs, and to an extent, in structure.'

The five races were then ranked from inferior to superior as follows:

'There are the Ethiopian or Negro type, originating in Africa; the Malay or brown race, from the islands of the Pacific; the American Indian; the Mongolian or yellow race, including the natives of China, Japan and the Eskimos; and finally, the highest type of all, the

*Caucasians, represented by the civilized white inhabitants of Europe and America.'*⁷⁰ (Emphasis mine.)

The textbook states that the 'highest' race is the Caucasians, who are specifically 'higher' developed in terms of '*instincts, social customs, and . . . [physical] structure.*'⁷¹ This book, widely adopted by American public high schools for over 30 years, was the text John Scopes used when he was a substitute biology teacher and was later convicted of violating the Butler Act, the law against teaching evolution in public schools. Also, typical of the views of the educated at this time is an article in the **Encyclopaedia Britannica** which, under the heading 'Negro', stated:

*'By the nearly unanimous consent of anthropologists this type occupies ... the lowest position in the evolutionary scale . . . the cranial sutures . . . close much earlier in the Negro than in other races. To this premature ossification of the skull, preventing all further development of the brain, many pathologists have attributed the inherent mental inferiority of the blacks, an inferiority which is even more marked than their physical differences . . . the development of the Negro and White proceeds on different lines . . . in the former the growth of the brain is . . . arrested by the premature closing of the cranial sutures . . . The mental [differences] are at least as marked as the physical differences . . . No full blooded Negro has ever been distinguished as a man of science, a poet, or an artist . . .'*⁷²

Moser, in reference to the above quote, argued that:

' . . . as to whether the Negroes in America have produced any great men ... the Encyclopaedia Britannica, edition of 1903 [claims that they have not]; the 1970 edition does [not] make this admission.'

Then Moser adds that it is his conclusion that

*'... American Negroes that have made contributions to various fields, sports, science, etc., but ... It is only that Negro that has a mixture of white genes in his system that has risen to the level where he has produced on the level with the white race.'*⁷³

The man primarily responsible for the widespread acceptance of evolution in the 19th century, Thomas Huxley, wrote soon after the black slaves were freed that:

*'No rational man, cognizant of the facts, believes that the average Negro is the equal, still less the superior, of the white man. And, if this be true, it is simply incredible [to assume] that, when all his disabilities are removed, ... he will be able to compete successfully with his bigger-brained and smaller-jawed rival, in a contest which is to be carried out by thoughts and not by bites.'*⁷⁴

Negroes were viewed by evolutionists then as being in certain ways unredeemably, unchangeably, and irrevocably inferior to whites.⁷⁵ And racist sentiments such as these were held by many, if not most, prominent 19th century biologists who were evolutionists. In a review of a recent

work which documented this beyond question, Burnham⁷⁶ noted:

'After 1859, the evolutionary scheme raised additional questions, particularly whether or not Afro-Americans could survive competition with their white near-relations. The momentous answer [from the scientists] was a resounding no ... The African was inferior — he represented the missing link between ape and Teuton.'

Darwin was keenly aware of the implications of his theory on race. In the sixth chapter of *The Descent of Man*, he speculated that survival of the fittest pressures would eventually eliminate both the black race, which he considered inferior, and other 'lower races'. In addition, he concluded:

*'I could show [that war had] done and [is] doing [much] . . . for the progress of civilization . . . The more civilized so-called Caucasian races have beaten the Turkish hollow in the struggle for existence. Looking to the world at no very distant date ... an endless number of lower races will have been eliminated by the higher civilized races throughout the world.'*⁷⁷

And Morris⁷⁸ noted as to Darwin's sub-title of his book *The Preservation of Favoured Races in the Struggle for Life*:

'It is clear from the context that he had races of animals primarily in mind, but at the same time it is also clear ... that he thought of races of men in the same way.'

One of the many examples which illustrates that the 'graduations in the evolutionary level of living man' view was a major aspect of evolution is a response to a Dr Austin H. Clark, a biologist at the Smithsonian Institution, who proposed that evolution proceeds in 'jumps'.⁷⁹ Note that the quote draws support from the now discredited *Pitldown Man*, and the *Neanderthal* and *Cro-magnon* men (both now shown to be different races of modern humans) for evidence.

*'Dr Clark calmly reverses the old saying that nature never proceeds by leaps, and assures us that this is her only method or procedure. Yet man, as the skull history shows us so clearly, proceeded by slow steps from the Pithecanthropus, the Pitldown Man, the Neanderthal Man, to the Cro-magnon Man, who distinctly represents the modern type. If nature were as broad a jumper as Dr Clark believes, the first man should have shown the high, civilized type of today. But we do not have to go back to fossils. The lowest type of men now living, the Australian savages, are at a sufficiently great remove from the civilized type to overthrow Dr Clark's theory, which, instead of embodying the good points of the creation and developmental theories, actually combines the difficulties of both . . .'*⁸⁰ (Emphasis mine.)

And Harvard evolutionist Gould concluded that racism

was so widespread at this time that Darwin's co-author, Alfred Russel

*'Wallace was one of the few nonracists of the nineteenth century [evolutionists]. He really believed that all human groups had innately equal capacities of intellect. Wallace defended his decidedly unconventional egalitarianism with two arguments, one anatomical the other cultural. He claimed [in contrast to the claims of almost all evolutionists of his day] first of all, that the brains of "savages" are neither much smaller nor more poorly organized than our own [and that] . . . in the brain of the lowest savages, and, as far as we know, of the prehistoric races, we have an organ . . . little inferior in size and complexity to that of the highest type.'*⁸¹ (Emphasis mine.)

The differences in behavior found between the black and white races, Wallace concluded, contrary to the conclusions of evolutionists around him, were because of cultural conditioning which 'can integrate the rudest savage into our own most courtly life.' The reason for Wallace's 'unconventional egalitarianism' is explained by Gould as follows:

*'Wallace, the hyperselectionist, the man who had twitted Darwin for his unwillingness to see the action of natural selection in every nuance of organic form, halted abruptly before the human brain. Our intellect and morality, Wallace argued, could not be the product of natural selection; therefore, since natural selection is evolution's only way, some higher power — God, to put it directly — must have intervened to construct this latest and greatest organic innovation.'*⁸²

Gould notes that Darwin was 'positively aghast at Wallace's abrupt about-faith at the finish line itself.'⁸³ He wrote Wallace in 1869 that *7 differ grievously from you, and I am very sorry for it.* Wallace, sensitive to the rebuke, thereafter referred to his non-racist theory of human intellect as 'my special heresy.'

An important argument that Hitler used to support his programs of racial genocide of the Jews, Blacks and other groups was that they were genetically 'inferior' and that their interbreeding with the superior Aryan race would adversely affect the latter's gene pool, polluting it, and lowering the overall quality of the 'pure race'.⁸⁴⁻⁸⁷ As Himmelfarb notes:

*'From the "preservation of favoured races in the struggle for life" [that is, Darwin's subtitle to Origin of Species] it was a short step to the preservation of favored individuals, classes or nations — and from their preservation to their glorification . . . Thus, it has become a portmanteau of nationalism, imperialism, militarism, and dictatorship, of the cults of the hero, the superman, and the master race . . . recent expressions of this philosophy, such as Mein Kampf, are, unhappily, too familiar to require exposition here.'*⁸⁸

Instead of letting chance factors dominate reproduction decisions, Hitler proposed that the scientists use the power of the state to influence these decisions so that the gene pool would shift to what ‘informed conclusions’ concluded was the desired direction. Consequently, Hitler encouraged those individuals that he perceived as having Aryan traits to mate, and discouraged ‘interbreeding’, supposing that this policy would gradually cause the Aryan race to evolve ‘upward’. He believed that the Nazi race programs would further evolution by intelligently deciding which traits were not beneficial, and preventing those with them from reproducing.

FROM THEORY TO SOCIAL POLICY

Little eugenic concern existed in Darwin’s day about Blacks and Jews in Great Britain, but there was much concern about Blacks and Jews in America and Jews in Germany. This was largely because the United States had a much larger population of Jews and Blacks than Great Britain, which at that time was much more homogeneous. British eugenics was marked by more concern over inferior **classes** rather than inferior **races** compared to the American and German eugenicists.⁸⁹ Especially of concern was the results of miscegenation. Many studies were completed relative to the effects of Black and White marriages — one researcher concluded that the Negro race was gradually being ‘bleached’ by intermarrying with Whites, and that the Whites were not so appreciably tanned as the Blacks were bleached.⁹⁰ Numerous ‘scientific’ studies concluded that miscegenation offspring tended to have more of the negative traits of Blacks such as inferiority in mental capacity, than the positive traits of Whites.⁹¹ One massive American study by a Princeton psychology professor and the chairman of the National Research Council concluded:

‘The essential point is that there are 10,000,000 negroes here now and that the proportion of mulattos to a thousand blacks has increased with alarming rapidity since 1850. According to all evidence available, then, American intelligence is declining, and will proceed with an accelerating rate as the racial admixture becomes more and more extensive. The decline of American intelligence will be more rapid than the decline of intelligence of European national groups, owing to the presence here of the negro. These are the plain, if somewhat ugly, facts that our study shows. The deterioration of the American intelligence is not inevitable, however, if public action can be aroused to prevent it. There is no reason why legal steps should not be taken which would insure a continuously progressive upward evolution. The steps that should be taken to preserve or increase our present intellectual capacity must of course be dictated by science and not by political expediency.’⁹²

The extent to which eugenics has filtered into American society was illustrated by the fact that the American chief

wartime mental tester was Robert M. Yerkes, a student of the works of Francis Galton. One of his professors at Harvard was Charles Davenport, and his work with mental tests was in conjunction with Ernest E. Southard of the Harvard Medical School. Southard was an active eugenicist who worked with Davenport and others.^{93,94} One of the more well known American scientists involved in the testing movement was Louis Terman of Stanford. He attributed I.Q. to heredity, and undertook one of the most extensive psychological research studies ever to research this question. His work is summarized in the mammoth five volume set **Genetic Studies of Genius**,⁹⁵ published by Stanford University Press. The first volume was published in 1925, and the last, published in 1959, was entitled **The Gifted Group at Midlife**. This work is a 35 year follow-up of the group of students that were originally identified by the researchers.

Yerkes, Terman and Godard (Godard is most known for his 1912 study of the Kallikak family: **A Study of the Heredity of Feeble-mindedness**)⁹⁶ developed the well-known Army Alpha I.Q. test used on draftees literate in English, and the Army Beta, used for everyone else.⁹⁷ The army efficiently and rapidly administered these tests to millions of people, a task that was believed to be of enormous importance for the war effort. From the army Alpha and Beta, as well as the Stanford Binet (a modification of the original Binet published in France), developed the entire American testing movement. From I.Q. tests came performance, personality, projective and a wide variety of other tests which are now an important part of Western society. A contemporary concern is that these tests were designed to be **aptitude tests**, but are culturally biased and depend heavily upon one’s educational, social and cultural background. They are in fact achievement tests, interpolating aptitude skills from the achievement score. The army tested over 1,700,000 persons — and its alleged success is a key factor that also spurred on the wide use of testing today.

The army data was also used to study race differences and prove ‘conclusively’ that certain races were intellectually inferior — the Mediterranean were inferior to the Nordic, and the Blacks were inferior to all other races. According to the test, the average adult Black living in the United States had the mental age of a 10-year-old white.⁹⁸ These demeaning results were due to educational, cultural and social reasons, but the tragedy is that the results were used to conclude that social and educational programs to help certain races were ill-advised, or at the least, would not significantly change their intelligence or performance. Many scientists, educators, and others believed that offering equal opportunity in the schools was likewise also ill-advised, concluding that to best use scarce resources, one should concentrate on training the most capable.

The effect of these tests was not only Black racism, but racism against a wide variety of groups including those from Eastern and Southern Europe, all Orientals, and

others. The most visible expression of this ethnic and racial hatred was to restrict immigration. America enacted into law the Chinese exclusion acts of 1882 and 1902, and various immigration and naturalization acts directed against Eastern and Southern Europeans and other groups. Riots and systematic discrimination were extremely common in the United States during this time. Directed against a wide variety of groups, such discrimination was often quite vicious in its extent and effects. At the 1923 immigration hearings

'many witnesses argued that "biology" demanded the exclusion of most members of the Eastern and Southern European "races" ... On both sides of Capitol Hill biological and racial arguments figured prominently in the floor debate on the bill. Congressman Robert Allen, Democrat of West Virginia, declared: "The primary reason for the restriction of the alien stream ... is the necessity for purifying and keeping pure the blood of America." '99

The result of the arguments was that in April of 1924 the act was passed by overwhelming majorities in both the house and senate. President Calvin Coolidge supported the law, stating that,

'America must be kept American. Biological laws show . . . that Nordics deteriorate when mixed with other races.'

This belief was translated into behavior not only in the whites' mistreatment of blacks and immigration laws, but has been used to justify social policies ranging from slavery to segregated schools. The assumption that blacks are innately inferior and less intelligent compared to whites was an important, if not the prominent factor, in the racist policies that dominated America and Europe for over 100 years.^{100,101} Reviews of early literature written by whites about blacks found that this conclusion was prominent in most discussions of race until relatively recently.¹⁰²

Current research into the characteristics of blacks has **overturned the once commonly held conclusion that blacks as a whole are biologically and in other ways inferior to whites.** Much of the research supports the contention that those differences that still exist are predominantly the effects of accumulated discrimination, poverty and cultural deprivation.^{103,104} It is now widely accepted that, given equality of background and similarity of experiences, blacks as a whole closely equal whites in across-the-board performance. This situation confirms Benedict's¹⁰⁵ early conclusion that *'the most careful investigation'* shows there is no significant difference between the scores of blacks and whites, even though it is difficult to control for the accumulative effects of deprivation.

Recent I.Q. tests of people throughout the world have found that, with allowance for cultural differences, the I.Q. ranges of **all extant identified races** is extremely close. The pygmy population of Africa, supposedly the most backward race extant today, test close to average when acclimated to Western life. Few differences are found

between the second and third generation pygmies living in large Australian cities who are acclimated to the established European population. And this comparison is between **the supposedly most backward group of people today** (aside from the Tasaday, which have now been shown to be a hoax) **with the supposedly most advanced,** the white Anglo-Saxons.

On the average, blacks have achieved lower I.Q. and achievement scores than whites, but they are also typically raised in very different social and cultural environments than non-blacks. Their world is still different, even if their parents had the same occupation and incomes as whites. Impressive research has demonstrated that black-white cultural differences could easily explain much of the observed performance difference, which is now estimated at about a standard deviation. White school children in eastern Tennessee were able to improve their average I.Q. score by almost this much between 1930 and 1940, apparently as a result of the introduction of schools in their area, increased outside stimulation from innovations such as radios, and more parental support in education.¹⁰⁶

Most studies also find that Orientals and Jews score about ten points higher than Europeans. Reasons other than innate differences are often found to account for this difference, and few scientists now accept the view that genetic differences can account for the level found.¹⁰⁷ The exceptions, such as Carleton Coon,¹⁰⁸ Hans Eysenck¹⁰⁹ and Arthur Jensen¹¹⁰ are few.¹¹¹ The common conclusion that the differences are caused by early environment deprivation was behind the development of such programs as **Sesame Street** and the **Electric Company**, and even **Head Start**. Some persons have even concluded that the tests themselves are not valid, a view which has prompted the legal banning of I.Q. tests for certain uses in a number of States.

The conclusion that whites and blacks as a group are innately equal for most traits (viz., the biological organism is equal) is supported by comparisons of northern blacks with southern whites. A southern white from Mississippi, according to the median scores of the Army AEF Intelligence Test, scored 41.25 compared to 49.50 for blacks from Ohio.¹¹²⁻¹¹⁴ Since the majority of blacks suffer from monetary, educational and cultural disadvantages, according to this evidence much of the difference would be not because of organism inferiority, but largely as a result of environmental differences. And many of these differences have often developed because of racial prejudice in the first place.¹¹⁵

The prominent anthropologist, Ruth Benedict, and Weltfish stated under the topic 'One Human Race' that *'the peoples of earth are a single family and have a common origin.'* Elaborating on this view, they continued:

'Science describes the intricate make-up of the human body: all its different organs cooperating in keeping us alive, its curious anatomy that couldn't possibly have "just happened" to be the same in all

men if they did not have a common origin. Take the structure of the human foot, for instance. When you list all of the little bones and muscles and the joints of the toes, it is impossible to imagine that it would all have happened twice. Or take out teeth: so many front teeth, so many canines, so many molars. Who can imagine finding the same arrangements in two human species if they weren't one family? The fact of the unity of the human race is proved, therefore, in its anatomy ... no difference among human races has affected limbs and teeth and relative strength so that one race is biologically outfitted like a lion and another biologically outfitted like a lamb is. All the racial differences among them are in non-essentials such as texture of head hair, amount of body hair, shape of the nose or head, or color of the eyes and the skin.¹¹⁶

The few differences that exist do not confer a survival advantage of one race over another — all of the differences Benedict classifies as 'non-essentials'. And the non-essentials by definition do not affect fitness, and thus are irrelevant to survival. Hair texture, for example, does not relate to survival but at the most will affect personal comfort in adjusting to certain types of climates, an advantage which is today largely offset by technology — clothes, houses and such. Since these innovations have been part of culture since earliest recorded history, these traits would never have had a significant selection advantage.¹¹⁷

The most obvious difference between blacks and whites is skin colour (thus the terms 'blacks' and 'whites'). Dark skin gives blacks some protection against strong sunlight, especially in the tropics, but whites can easily protect themselves by utilizing sun helmets, special clothes, and sun-screen suntan oil. This enables them to survive quite well in very warm areas. Black skin serves more to aid individual comfort than survival.¹¹⁸ Skin colour variations do not represent a difference of quality, only quantity. All humans have about the same concentrations of melanocytes in their skin.¹¹⁹ The variations are due largely to the amount of melanin these cells produce — the darker the skin, the greater the amount of melanin secreted in the lower layers of the skin.¹²⁰ Except albinos, who totally lack colouring substances (and albinos appear in all races) every person, however dark or light, is affected by the sun in much the same way.^{121,122} All of these qualities have little to do with survival during and before child-bearing years, and consequently cannot be accounted for by evolution. These differences seem to exist primarily to increase the variety so evident in the natural world — a variety which not only makes our sojourn on earth more enjoyable, but also helps us to differentiate the scores of people alive today.¹²³

Other racial differences alleged include substances in the blood, thus the expression 'blood relations' and the classifications 'Aryan blood', 'Chinese blood', or 'Negroid blood'. Of the dozens of blood groups, most are found in every race. The major types, A, B, AB, and O, are present

in all races, although in slightly different percentages. Consequently, blood transfusions can be administered without regard to race — only a blood type match is necessary.

Scholarly works are increasingly supporting what is now the prevailing opinion among scientists: allowing for environment, no significant innate overall difference of consequence exists between blacks and whites. Richard Leakey, the son of the famous anthropologist, Louis Leakey, noted that his father's

*'... life work, in fact, has made him impatient with those narrow ethnic and national perspectives ... furthermore, he notes that racial differences, as they are commonly perceived, are a superficial and recent development having arisen only about 15,000 years ago. Says Leakey, "I am aghast that people think they are different from each other. We all share a tremendous heritage, an exciting bond. We are all the same."'*¹²⁴

For this reason, Benedict¹²⁵ concluded,

'The races of mankind are what the Bible says they are — brothers. In their body is the record of their brotherhood.'

Evolution, though, teaches that differences even within a very small group of people would confer to that group of people a survival advantage. Thus that group would become larger and larger and, as selection continues, would become more and more discernible from the outside population. This, though, is not now happening with humans because separate populations do not seem to be developing from the main populations. This state of affairs means that **without any clear differences, there is nothing to select from. And without selection, evolution cannot occur.** Studies of other creatures have found the same problem with natural selection:

'The discovery of the randomness of species extinctions in 1973 by Leigh Van Valen, professor of biology at the University of Chicago, surprised the scientific world. Working with data tabulated from the books and scientific papers of many paleontologists, Van Valen counted species and calculated their life spans over many millions of years. According to standard Darwinian theory, the better adapted species should last a long time and those not as well adapted should die out quickly. Theory would also have predicted that the longer a species survived, the lower the probability of its extinction in the next time interval. However, Van Valen's statistical analysis of species' lifetimes indicate that there is no such difference. His research implies that the process of extinction does not distinguish between species.'^{126,127}

RESPONSES TO THE IMPLICATIONS OF THIS PAPER

Of the scores of references consulted relative to this problem (see references), not one adequately deals with the

issue that this paper raises. Some assume that selection was important in the past, but because of the structure of our present society, 'natural selection' no longer occurs. Even Charles Darwin concluded that evolution had now stopped among humans. Alfred Russel Wallace reported in 1890:

*'in one of my last conversations with Darwin he expressed himself very gloomily on the future of humanity, on the ground that in our modern civilization natural selection had no play, and the fittest did not survive . . . and it is notorious that our population is more largely renewed in each generation from the lower than from the upper and middle classes.'*¹²⁸

Many researchers have recognized that the implications of the information outlined above apply not only to animals, but to humans as well.¹²⁹ For this reason, several leading scientists have proposed that, for humans at least, classical evolution has presently stopped. The well-known French biologist, Pierre P. Grassé, stated:

*'Biologists find it hard to admit that . . . present living beings differ at all from those of the past . . . But facts are facts; no new broad organizational plan has appeared for several hundred million years, and for an equally longtime numerous species, animal as well as plant, have ceased evolving. We have said that evolution in the present is difficult, if not extremely difficult, to observe. Some biologists maintain that they can not only observe it but also describe it in action; the facts that they describe, however, either have nothing to do with evolution or are insignificant. At best, present evolutionary phenomena are simply slight changes of genotypes within populations, or substitutions of an allele by a new one.'*¹³⁰

And Haller concluded that:

*'Believing that failures in early stages of evolution had limited brain size and quality of the lower races, these scientists . . . suggested that the environment no longer operated in the present as strongly as it once had in the past. Evolution had already come to an end among the lower races, making them unfit for future race development . . . the lower races broke into the modern world as mere "survivals" from the past, mentally incapable of shouldering the burden of complex civilization and slowly deteriorating structurally to a point when at some time in the future, they would become extinct, thus ultimately solving the problem.'*¹³¹

Another argument is that selection works at the *individual* level, not at the *species* or *subspecies* level. This does not deal with the concern, because a process that is central to evolution is for superior individuals to eventually become superior groups. The Neanderthals and other groups were said to not have survived **as a group** because they were supposedly inferior to other existing humanoid groups, and thus were eliminated in the competition for survival.¹³²

Three competing hypotheses exist on why humans are one primary race. The first and most accepted is **Noah's**

Ark theory, the view that all of our close relatives became extinct and only one, *Homo sapiens*, has survived. Most of the many fossil finds support this view.¹³³ The second, the **candelabra theory**, postulates that the different races all evolved independently into the 'same race', a view that is usually regarded as highly unlikely. The last, the **modified candelabra**, claims parallel development occurred due to world-wide intermarrying, resulting in much back and forth gene flow — a position not supported by recorded history. Burt,¹³⁴ in defending the latter view, hypothesizes that after pre-humans spread over a wide area, some individuals became highly successful and eventually evolved into several distinct species. He hypothesizes this 'race-making period' was caused by *Homo sapiens* scattering far and wide, forming geographically isolated groups and 'as a result of natural selection, became adapted to the different conditions', primarily differences in climate.¹³⁵ To explain why only one surviving species of humans now exists, Burt postulates that they later spread out again, this time intermixing and interbreeding. The 'ensuing recombination of different sets of genes produced still greater variations and therefore still greater adaptability.'¹³⁶ He concludes that most of the differences that existed at one time were later obliterated through massive interbreeding, thus few exist today. Two pages later, he argues for the view that

*'there has been no appreciable change in man's innate constitution or in the general quality of his brain throughout the last 20,000 years.'*¹³⁷

Thus, biological evolution has stopped but, Burt claims, cultural evolution continues.

These attempts to explain the failure to find clear innate survival differences, such as in intelligence between races (although Burt was not arguing here that all races are equal), prompt questions such as:

- (1) Specifically, why has evolution evidently stopped for *Homo sapiens* in the last 20,000 or so years, a view with which the doctrine of uniformitarianism is not in accord?
- (2) What evidence is there for factors which would first disperse a race, then much later cause the many separate races that separately developed to interbreed — in essence, uniting all of the different groups?
- (3) What factors would cause humans to leave the homeland they were biologically adapted to, and venture into other geographical areas, then return to marry their 'long lost kin' (who now have evolved into something distinctly different)?

SUMMARY

Differences must exist both between and within races for evolution to occur, specifically differences that provide one race or group a survival advantage over the others. The race with traits that confer on it the greatest survival advantage presumably will in time become numerically

dominant compared to those without this advantage. As Morris concluded:

*'As the 19th century scientists were converted to evolution, they were thus also convinced of racism. They were certain that the white race was superior to other races, and the reason for this superiority was to be found in Darwinian theory. The white race had advanced farther up the evolutionary ladder and therefore, was destined either to eliminate the other races in the struggle for existence or else to have to assume the "white man's burden" and to care for those inferior races that were incompetent to survive otherwise.'*¹³⁸

That elements of this view are still held by some biologists today is evident from the words of a leading modern evolutionist, George Gaylord Simpson, who stated that:

*'Races of men have, or perhaps one should say "had", exactly the same biological significance as the sub-species of other species of mammals.'*¹³⁹

As late as 1962, Harvard anthropologist Carleton Coon¹⁴⁰ concluded that modern human races did not suddenly appear, 'fully formed as from the brow of Zeus', but that the differences between living races could be explained **only** in terms of their different evolutionary history, and that each major race followed its own evolution pathway. Coon even wrote that African civilizations were less advanced because black people were the last to evolve into modern humans. The first hominids may have arisen in Africa, he concluded, but the evolution of modern humans occurred in Europe and Asia: *'If Africa was the cradle of mankind, it was only an indifferent kindergarten.'*¹⁴¹

The raw materials of evolution are physical differences — differences that natural selection can 'select' from, causing them to spread throughout the population. These differences are the **key** to evolution, and without them it cannot occur. In the case of *Homo sapiens*, research has supported the view that few significant differences exist between the various groups (commonly called races) of humans living today. If the few differences that do exist do not confer any significant survival advantages, contemporary evidence for human evolution would be completely lacking.

Most importantly, this evidence argues against a cornerstone of the evolutionary theory, the 'survival of the fittest' hypothesis. It is possible that discernible differences **at one time** existed among the different groups of humans, and for some reason they were all either eradicated or never existed, but the fact is they have never been observed. Our environment was often much more uniform throughout much of history than it has been in the past hundred to two hundred years. At one time more differences existed between, for example, a man who lived in a cave and one who lived in a castle; and historical study has found that the man in the cave was in some ways better off, at least regarding certain health factors. A great difference exists

between the life of Indians in the Philippines and scientists living in a university town; but more genetic differences exist between the members of each community than between these two groups. In other words, biological evolution should now be proceeding more rapidly than ever before, but we do not observe it proceeding at all. Clear biological differences which could conceivably confer a definite survival advantage to one race of humans over another do not exist.¹⁴²⁻¹⁴⁴

The finding that more differences exist within the races than between them does not support what we would expect to find if evolution by natural selection was currently operative upon humans. Even the few fairly clear differences between the races (those which enable researchers to group in terms of races) are only in degree.¹⁴⁵ And these trait differences are all clearly in non-essentials, unimportant to survival. It is also difficult to argue for many branches in our evolutionary tree when only one branch exists today. Evolution must explain why a state of affairs exists in this period of history which is in great contrast to that which they argue has existed for most of humankind's hypothesized evolutionary history.¹⁴⁶

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