

Chapter 5

Race-correlated sparseness adaptation and the history of eugenics

Abstract

Adaptations to low food and population density at sparse frontiers — i.e., the tendencies to social disconnection, competition and mobility previously called *The Sparseness Adaptation Syndrome* — are expected to correlate not only with autism and gender but with latitude of ancestral homeland, which is to say with race: A higher incidence of the syndrome is expected in lineages with long histories in sparse far-northern latitudes where a parallel trait is pale skin. This unavoidable conclusion prompts personal reflections on the history of eugenics.

Introduction

In Part I of this study we saw that sparse frontiers surrounding human ancestors likely destroyed genes favoring generic sociability, yielding a Sparseness Adaptation Syndrome characterized by social disconnection, competitiveness and mobility. This conclusion followed logically from the facts that brains need food, social abilities need brains, unneeded abilities waste food thereby hastening death, social abilities are little needed in sparse areas, food and population are sparse at inevitable frontiers, and other facts. We saw that sparseness adaptation plausibly accounted for major features of autism, including its defining social disconnectedness, correlation with male gender, spectrum of intensities, variety, dependence on multiple genes, and rising prominence.

Now, however, the going gets rough. The difficulty is not in the reasoning but in the social implications. The same logic that simply accounts for major features of autism also leads to an expectation of systematic racial differences in brains. The history of theories about racial differences is ugly and bloody. Rather than carrying on in a bloodless fashion as if theories have no effects (or worse, actively encouraging genocide) I depart from scientific convention to recount the terrible history of eugenics, including personal connections with it, even as I am forced to admit the inevitability of systematic racial differences among brains.

Here I underscore that while the present Sparseness Adaptation theory does predict systematic human genetic differences that correlate with geography, it does not support the view that any race is superior to another. On the contrary, it points rather forcefully to the importance of humans in all parts of the genetic spectrum. The danger is not racial differences: The danger is abuse of theories about them.

Genes and Geography

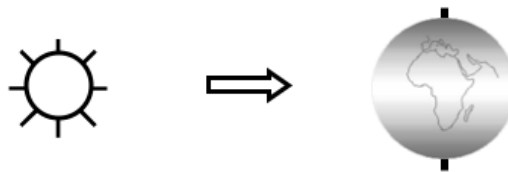
Food and population densities vary not only on the scale of bands and tribes, but on all scales up to the global and beyond. Entire regions of Earth's surface are much sparser in life-sustaining resources than are others. Jungles, woodlands, grasslands, coastlines, mountains, river valleys, deserts, and tundra do not sustain identical population densities. The present theory expects geographically correlated genetic differences, particularly when the areas are large and stable.

The correlation of geography and genes is not entirely due to the destruction of unused genes. Creatures move about, particularly so in sparse areas because of the need to gather diffuse resources. Creatures occasionally happen upon particular geographic regions in which they thrive and gain prominence. In this way correlation of geography and genes can occur even without gene changes, and even when there is significant population mixing. I sometimes call this *geographic affinity*, or *affinity chromatography* by analogy to the laboratory technique.⁴

It should be obvious that danger is afoot here. Human physical types that correlate strongly with geographical location are commonly called *races*. There are no distinct human races, of course, but there are racial differences: Because of population mixing racial differences exist in a spectrum like colors in a rainbow: There are colors in a rainbow even though they are not distinct. The racial spectrum is more spherical than linear because of Earth's round shape, and of course the spectrum is a matter of averages and can change over time. Because the present theory predicts systematic human genetic and brain differences that correlate with geography it is also a theory about race.

The Latitude Connection

Because almost all life on Earth is fueled by sunlight and sunlight is generally weaker at poles than equator there is a terrestrial food gradient declining toward the poles. In the oceans this gradient is complicated by water flow, and on land it is altered by rainfall and other physical factors as well. Nevertheless the weak polar sun dominates these other influences and makes far northern latitudes on land relatively sparse in both population and food.



The present theory expects the Sparseness Adaptation Syndrome to be more prevalent among people whose ancestral homeland is at high latitudes. Skin color is an apparent adaptation to sunlight intensity and, adaptation or not, light skin correlates with high latitude. (Most genes of the darker-skinned Inuit arrived in the Arctic from Asia only about a thousand years ago.³⁴) Therefore the present theory expects a greater incidence of sparseness-adaptive traits among light-skinned Northern Europeans than among

populations with long histories in lush and crowded areas. To put it bluntly, the Sparseness Adaptation theory expects white people to be less socially connected, more inclined to move about, and more competitive — even to the point of violence when food levels fall — than are darker-skinned people. Cultural compensations holding these tendencies in check are likely only a few thousand years old, and are more learned than innate. Here the going gets rough indeed.

At this point we can put our hands over our ears and our heads in the sand and pretend that reason did not lead us here. Alternatively we can distort the reasoning in order to fuel bigotry. I suggest a third way — that of slowing down to look carefully at the reasoning, predictions, and confirming or dis-confirming evidence. The era of understanding brains has begun and there is no turning back. We may send ourselves back to a stone age, but the passion to comprehend ourselves is irresistible and we will return from the stones to pick up where we left off. In the long run we'll have to face and live with the history of our brains, whatever it is and whether we like it or not.

It may be that my concern is premature. It may be that ocean currents evened food levels at all latitudes and that the statistics of interpersonal distance were essentially the same in equatorial and polar tribes. It may be that the benefits of cooperation far outweighed those of individual food-gathering skill and swamped the sparseness-adaptive frontier genes. I doubt it. It seems unlikely that brains are immune to the forces that produced the obvious and stable body differences associated with gender and race. In Part I we noted that even a tiny difference in reproductive success can produce a marked genetic effect in only a few millennia. In any case rigorous observations eventually will lessen these uncertainties.

If the Sparseness Adaptation theory were merely another *Just So* story I would not be alarmed about its potential misuse. However the theory has some teeth and it may grow more. If I overestimate the theory and my concern is overblown then I hope the following attempt to forestall its misuse may be applied to whatever better theory supplants it.

Theories Have Effects: The Sad History of Eugenics

In order to prevent misapplication of the Sparseness Adaptation theory I now trace the misapplication of another theory of heritable differences, Charles Darwin's Theory of Evolution. (The Sparseness Adaptation theory though consistent with Darwin's theory does not strictly depend on it, but that is a matter for discussion elsewhere.)

In 1859 Charles Darwin published his famous book, *On the Origin of Species by Means of Natural Selection, or the Preservation of Favored Races in the Struggle for Life*.⁵ In it he advanced the now-familiar idea that all life on Earth develops through a process of natural variation followed by the flourishing of those well-suited to their environment and the decline of those ill-suited to it. Darwin was not a lone genius in having this idea: Darwin's own grandfather, Erasmus Darwin, had crudely sketched a theory of species evolution himself.⁸ The intellectual times were simmering with the idea and after a delay Darwin rushed to press to establish precedence among rivals. The book caused an

immediate sensation and went through six editions in a dozen years. The times were ripe for the theory to arise and to have an impact.

From *Natural Selection, or the Preservation of Favored Races* it was a small step to the idea that certain *human* races were favored by Nature. In the historical context of the Industrial Revolution and Victorian confidence in progress, it was a small further step to suppose that humans might aid the progress of the species by promoting the reproduction of naturally favored races while discouraging the unfavored. So it was that another grandson of Erasmus Darwin, Francis Galton, invented the term *eugenics*.

Galton wrote, “We greatly want a brief word to express the science of improving stock ... which, especially in the case of man ... give[s] to the more suitable races or strains of blood a better chance of prevailing speedily over the less suitable than they otherwise would have had. The word eugenics would sufficiently express the idea.”¹² Galton continued, “Eugenics co-operates with the workings of Nature by securing that humanity shall be represented by the fittest races. What Nature does blindly, slowly and ruthlessly, man must do providently, quickly and kindly.”¹¹ Lest one doubt the provenance of eugenics, Galton wrote, “The creed of Eugenics is founded upon the idea of evolution.”¹³

Francis Galton made remarkable contributions to the sciences, including his founding of the field of psychometrics and inventing the term *correlation* as it is used in statistics today. Galton’s views were well within the intellectual mainstream of his day. The president of the First International Eugenics Conference, held in London in 1912, was no other than Charles Darwin’s son, Major Leonard Darwin, and the honorary vice president was First Lord of the Admiralty, Winston Churchill. The Advisory Council of the Eugenics Committee of the United States of America, formed in 1922, included the presidents of Antioch College, Boston University, Cornell University, Smith College, Stanford University, the University of California, Wellesley College, and the president emeritus of Harvard University.²⁸

A naïve reader may confuse the Sparseness Adaptation theory with eugenics and so I am at pains to distinguish the two. What exactly did the early eugenicists have to say? Here is a eugenicist writing in 1918 on the subject of gender differences: “[I]t must be remembered that civilization covers not more than 10,000 years out of man's history of half a million or more. During 490,000 out of the 500,000 years, man was the hunter and warrior; while woman stayed at home of necessity to bear and rear the young, to skin the prey, to prepare the food and clothing. He must have a small knowledge of biology who could suppose that this long history would not lead to any differentiation of the two sexes; ...”³¹ That certainly *sounds* like the Sparseness Adaptation theory.

Here is another eugenicist writing in 1916 on racial differences: “The [northern] climatic conditions must have been such as to impose a rigid elimination of defectives through the agency of hard winters and the necessity of industry and foresight in providing the year's food, clothing and shelter during the short summer.”¹⁷ The word *defectives* was not considered unscientific in that day, and to a naïve ear this sentence also resembles the

Sparseness Adaptation theory. It is because of confusions like these that I trace the history of eugenics and how it differs from the Sparseness Adaptation theory.

The creed of eugenics was founded on evolution, but also upon the crucial notion that, just as one could distinguish the enduring art of the Parthenon from the ephemeral contents of the local dump, one could tell which of two humans was the fitter to survive *before* they were put to the test of life. For example, given that the inmates of insane asylums greatly depended upon caretakers for survival the eugenicists concluded that the inmates were less fit to survive, hence more *defective*, than the caretakers. To the eugenicists 1) fitness implied the ability to survive as an adult without great dependence on or crime against others and 2) there was little reason to value a dependent or criminal life — or the lives of unconceived children seen as genetically doomed to such fates. To the eugenicists these two conclusions were common-sense expressions of natural law exposed by Charles Darwin. However, Darwin himself (and regardless of his son's views) espoused no such conclusions. For reasons of their own the eugenicists chose to read prescriptions where Charles Darwin had given only descriptions.

The eugenicists were not mere armchair theoreticians: They had it in mind to implement social policy based on what they saw as the logic of evolution. Policy was not long in coming: In 1907 theory leapt from pen to scalpel as Indiana became the first US state to enact a eugenically motivated compulsory sterilization law. In the ensuing decades over half of US States adopted similar laws and tens of thousands came to be sterilized on the authority of medical panels.²⁵

As I write I have been studying the history of eugenics for many days. There is not space here to review it all, but if one theme emerges it is this: Few if any of the people who thought that humans ought to guide their own evolution come across as evil. With the benefit of a hundred years' retrospect they may seem foolish, self-serving and ignorant, but most of them clearly thought that what they were doing was for the greater good of humankind.

Hannah Arendt wrote of “the banality of evil.”² After reviewing the history of American eugenics what strikes me, and I hesitate to say it, is the *humanity* of evil. I use the word humanity here without any attempt to diminish the horror of the ultimate eugenics effects, and I shall have more to say about these. I speak of humanity simply because I can all too easily see that had I lived a hundred years ago I might well have found the eugenic reasoning compelling myself. I examine that earlier time through a lens one hundred years thick. With the benefit of hindsight I can see what the eugenicists did not — that Darwin's theory in fact has very little to say about the *a priori* fitness of human beings; that honestly misguided science is easily conflated with human alarm at changing demographics, and that step by little step the movements of an innocent scientific pen can bring a hell on Earth.

I shall now break with the noble tradition of reserve in scientific writing by tracing the effects of Darwin's theory and eugenic reasoning as they passed through my own family, and by trying to speak plainly about these effects. I speak personally in a scientific paper

about a theory of human differences because in the deeply personal there is heart and it is only through heart that we can prevent hellish abuse of theory. When a theory, for example a theory of gravitation, has little direct bearing on human relationships then dispassionate reserve may be proper, but when a theory bears directly on human relationships and can easily be twisted to murderous ends then bloodless detachment is no longer appropriate, and heart *is* appropriate. The challenge is to express heart in a way that is not wildly distorted by passion and prejudice.

I grew up on the Stanford University campus. My great-grandfather became chairman of the Chemistry department there at the urging of his friend from earlier Kansas days, the prominent member of the American Eugenics Society, Vernon Kellogg. The formal invitation to become chairman came from Stanford's president, David Starr Jordan, author of several eugenics tracts published under the title, *Blood of the Nation: A Study in the Decay of Races by the Survival of the Unfit*.²² Succeeding Jordan as Stanford University president was Ray Lyman Wilbur, of the above-mentioned Advisory Council of the Eugenics Committee of the United States of America. My great grandfather's next-door neighbor was Lewis M. Terman, founding trustee (with David Starr Jordan) of the Human Betterment Foundation, which championed compulsory sterilization laws. I do not know whether my great grandfather shared the eugenic views of these men, but it would have been shocking if he did not. It would have been surprising if, in his place, I did not. With the inspiration and well-intentioned guidance of men like David Starr Jordan, Vernon Kellogg and Lewis M. Terman California eventually became far and away the nation's leader in compulsory sterilizations.³⁹

Both a grandfather and my father were also Stanford University professors, and both of them physicians as well. A medical library still bears my grandfather's name. My mother and a grandmother were Stanford-educated physicians. My academic blood is blue. My eyes are also blue and I am a tall, white-skinned male. My ancestry is traceable through the American Revolution and the first American colonists, directly to northern Europe. If only I were blond and could throw a javelin I might be a poster child for the Northern European "race" celebrated by some eugenicists.¹⁸

Germany set the global standard for academia in the first half of the last century and it was natural that my great-grandfather studied in Germany. All three generations of my academic ancestors either spoke or closely studied the German language, as well as emulating aspects of German intellectual culture. My grandmother sang German lieder to my grandfather's accompaniment on the Steinway, and he himself was referred to in the German fashion as "the Professor". What struck me most in this strain of family culture, however, was a tendency to clinical detachment. Intelligence was revered while "Kallikaks and Jukes", the unfortunate family lines cited by eugenicists, featured in family discussion as specimens.^{14, 10}

I don't want to embarrass my family, but neither do I want to waste the lessons of its history. From a heap of circumstantial evidence I draw this wisdom: I have few illusions about what would have been my likely role had my family lacked the good fortune to sit on the west rather than the east side of the Atlantic during the early rise of eugenics. It is likely that I would have been, sad to say, sympathetic to strong eugenic programs.

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The second International Eugenics Conference was held in New York City in 1921. That conference, as well as the earlier-mentioned Eugenics Committee and its scientific Advisory Council, was organized by one of the most “despicable, and praiseworthy” figures in American political history, Madison Grant.³⁶

Madison Grant was a New York patrician born in 1865 to a family with roots deep in the American Colonial era. Grant labored until his death in 1937 to preserve all he held to be great about the country in its founding era. This included America’s natural bounty. A biography of Grant reads, “Among his many accomplishments, Grant preserved the California redwoods, saved the American bison from extinction, founded the Bronx Zoo, fought for strict gun-control laws, built the Bronx River Parkway, helped to create Glacier and Denali National Parks, and worked tirelessly to protect the whales in the ocean, the bald eagles in the sky, and the pronghorn antelopes on the prairie.”³⁷ He is credited with saving many natural species from extinction, developed the first deer hunting laws in New York state, legislation that became the model for the entire country, and was essentially the creator of modern wildlife management.^{38, 41} Conservationist H.E. Anthony wrote of Grant that he “exerted an influence for conservation that has probably been exceeded by no other individual in private life.”¹

In the present era of concern about the wellbeing of our planet, and given that as a wealthy man Madison Grant needn’t have worked a day in his life, the foregoing reads like the life of a saint.

One kind of creature whose potential extinction weighed heavily on Madison Grant was his own. However, influenced by the eugenic theories of Francis Galton, Grant saw his kind not as simply human but as “*Homo Europæus*, the white man par excellence,” the “Nordic master race”.²¹ So it was that Madison Grant came to write *The Passing of the Great Race or The Racial Basis of European History*, described by Steven Jay Gould as “the most influential tract of American scientific racism.”¹⁵ Influential indeed. When Major General (and medical doctor) Karl Brandt of the Waffen-SS was tried at Nuremberg for heading the Nazi *Aktion T4* euthanasia program he cited the eugenics program of Grant’s book in his defense.³⁰

Adolf Hitler wrote of Madison Grant’s *Passing of the Great Race*, “This book is my Bible.”⁴⁰

In Steven Spielberg’s film *Schindler’s List* a girl in a red coat evokes all victims of the Nazi Holocaust. She was not the only victim of the Holocaust and Madison Grant was not its only cause, but both are representative. Madison Grant was one of the most ardent and effective protectors of Earth’s endangered species the world has seen and he, like others worldwide, was a bridge from Darwin to Dachau.

I dwell on Madison Grant not because I insist that a reader understand him but because I think I begin to understand him and others like him. A person who campaigns tirelessly for the benefit of defenseless animals and trees is a person with some semblance of a human heart. I recognize his *noblesse oblige*: I myself was raised under the dictum, “Of

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those to whom much has been given much shall be required.” I can feel his impatience as teeming humanity trampled Earth’s majesty seemingly without a thought to responsibility. And finally I can at least recognize as human his shock when a tide of immigrants, over a million of them Jews fleeing persecution in Europe, made his native New York City increasingly unrecognizable to him.

I flatter myself that I would have responded differently had I stood in the shoes of Madison Grant, but I know that is only flattery. When many of the best scientific minds of Grant’s day could not see the intellectual flaws in Francis Galton’s eugenic reasoning how am I to expect that Grant or I could have done better? I understand Madison Grant without excusing his actions, and those actions played a significant role in the murder of millions. This essay is an attempt to learn from lives like Francis Galton’s and Madison Grant’s, and to face unavoidable human differences without fostering genocide.

The rest was like a fire. When bad science met racist tribalism, and both economic depression and war drained resources, the result was a Holocaust. Germany picked up the eugenic baton with a vengeance. Within months of taking power in 1933 Hitler signed the *Law for the Prevention of Genetically Diseased Offspring*. In 1934 California eugenics leader (and Sacramento State College founder) C.M. Goethe returned from a visit to Germany and congratulated a colleague at the above-mentioned Human Betterment Foundation, “You will be interested to know, that your work has played a powerful part in shaping the opinions of the group of intellectuals who are behind Hitler in this epoch-making program. Everywhere I sensed that their opinions have been tremendously stimulated by American thought and particularly by the work of the Human Betterment Foundation. I want you, my dear friend, to carry this thought with you for the rest of your life, that you have really jolted into action a great government of 60 million people.”¹⁵ (Recall that Stanford’s president, David Starr Jordan, and Lewis M. Terman were founding trustees of this influential foundation.) The superintendent of Virginia’s Western State Hospital observed in the Richmond Times-Dispatch, “The Germans are beating us at our own game.”⁹ Under the provisions of Hitler’s law ultimately about 400,000 people were forcefully sterilized.³³

Well before the 1930s the line between sterilization and euthanasia had been erased in the writings of American eugenicists. In *The Passing of the Great Race* Madison Grant wrote, “Mistaken regard for what are believed to be divine laws and a sentimental belief in the sanctity of human life tend to prevent both the elimination of defective infants and the sterilization of such adults as are themselves of no value to the community. The laws of nature require the obliteration of the unfit...”¹⁹ In 1918 Progressive reformer and later University of California regent John Randolph Haynes wrote, “There are thousands of hopelessly insane in California, the condition of those minds is such that death would be a merciful release. How long will it be before society will see the criminality of using its efforts to keep alive these idiots, hopelessly insane, and murderous degenerates... Of course the passing of these people should be painless and without warning. They should go to sleep at night without any intimation of what was coming and never awake.”²²

The authors of the respected and widely-used American text *Applied Eugenics* wrote of eugenic techniques, “From an historical point of view, the first method which presents itself is execution. This has been used since the beginning of the race, very probably, although rarely with a distinct understanding of its eugenic effect; and its value in keeping up the standard of the race should not be underestimated.”³² Had the authors intended only description and not prescription they might have chosen other words.

In July of 1939 Hitler authorized what may have been the first instance of state-sponsored and eugenics-based euthanasia, the killing of Gerhard Kretschmar, a severely disabled child.³⁵ One can sense Madison Grant nodding approval at this “unsentimental elimination of a defective infant.” Several weeks later Hitler inaugurated the secret Nazi euthanasia program known as Aktion T4, in a decree that echoed the mercy-killing language of American eugenicists: It provided that “patients who, on the basis of human judgment, are considered incurable, can be granted mercy death after a discerning diagnosis.”²⁷ The order was backdated to coincide with the invasion of Poland, apparently to make it seem a wartime necessity. Within months the first gas chamber was operational at Brandenburg near Berlin, and gas chambers at five more centers were killing thousands shortly thereafter. Physically and mentally disabled people were the first to be gassed.²⁹

Consider the following case history:

A boy routinely rocks and bangs his body against walls and furniture; He cries at the touch of a few water drops, stuffs paper in his ears to muffle sounds, and rises up on his toes when walking; He speaks like a little professor; His nicknames include “The Brain” and “World’s Foremost Authority”; Physically and socially awkward, practice at fluid motions and ordinary conversation brings him little skill; He is consistently among the last chosen for team sports; People remark at his poor eye contact; He has a focused, persevering interest in mechanisms like flying machines, electronic devices and, later, brains.

In 1944 a paper titled *Autistic Psychopathy in Childhood* appeared in a German-language scientific journal. The author was the Austrian pediatrician Hans Asperger, and in the paper he described a clinical syndrome exemplified by cases much like the one just given. He called the syndrome *autism*.³

So far I have portrayed myself as one who but for fortune might well have become one of the “intellectuals who are behind Hitler.” That speculation was in utter earnest. However, in the interest more of honesty than of self-defense I must point out that I had little control over the circumstances of my birth and that in any case I find no evidence of my superiority to anyone. It is my dismay at the possibility that the Sparseness Adaptation theory might be twisted to eugenic or genocidal ends that prompts this very history. I have a further reason to write this story, too:

The case history above is my own. I have a streak of autism in my constitution. More than that there is a strong family history of suicide. In forty years five close relatives died of suicide and none in any other way. When I was young the social disconnectedness of autism drove me very nearly to self-destruction and I survive today because I pay

continuing close attention to a mind that I sometimes compare to a dragon. By *mind like a dragon* I do not mean that I am insane. My father once commented to me, “We never thought you were crazy: We thought that if anything you suffered from an excess of sanity.” Whatever the condition, when I was younger it was disabling. *Physically and mentally disabled people were the first to be gassed* in Aktion T4 and privileged families were not entirely spared.²⁷ I find myself in the odd position of being equally likely to have been a cause of the Nazi Holocaust and among its first victims. It’s a stretch in either direction, but not entirely far-fetched. Assess the evidence yourself.

Aktion T4 provided the know-how and the murder-inured manpower for the subsequent annihilation of millions, mostly Jews, all supposedly in accord with eugenic aims. Speaking in this case of sterilization programs but nevertheless making the goal of his eugenics clear Madison Grant wrote, “This is a practical, merciful and inevitable solution of the whole problem and can be applied to an ever widening circle of social discards, beginning always with the criminal, the diseased and the insane and extending gradually to types which may be called weaklings rather than defectives and perhaps ultimately to worthless race types.”²⁰

When Galton wrote, “Eugenics co-operates with the workings of Nature by securing that humanity shall be represented by the fittest races. What Nature does blindly, slowly and ruthlessly, man must do providently, quickly and kindly,”¹¹ *what could he possibly have meant other than that races he deemed unfit should be annihilated?* How cold must one’s blood be to overlook that annihilating entire “races” can *never* be kind? The chamber at Schloss Hartheim was readily switched from gassing the disabled to gassing prisoners from Dachau, and then the entire operation was scaled up in the death factories of Sobibor, Belzec, Treblinka, Auschwitz-Birkenau and others. A sadder history has never been written on Earth.

“But we never intended or even imagined the Holocaust!” I hear eugenicists cry. Let us remember, though, that eugenicists did advocate the global superiority of some peoples and the annihilation of genomes, and they were uncritical of eugenic pseudoscience and blind to its potential for abuse. Charles Darwin, weighing his cousin Galton’s eugenic views, clearly saw their potential for abuse and wrote, “if we were intentionally to neglect the weak and helpless, it could only be for a contingent benefit, with ***an overwhelming present evil.***” (Emphasis added.)⁶

Without Darwin there would have been no eugenics, but Darwin’s own views on eugenics were ambiguous. He respectfully acknowledged his cousin’s reasoning but never fully endorsed it, and he drew repeated attention to “sympathy...one of the most important elements of the social instincts.”⁷

Eugenic texts did not fully cause the Nazi Holocaust, but they surely catalyzed it, and a catalyst with effects is a cause. If we wish to avert future holocausts it only makes sense to look closely at all their causes. However nobly intended, eugenic texts made a fuel that was easy to ignite. In dwelling on their history we can learn from their monumental error.

I have no illusions that I can forestall or even foresee all ill effects of the Sparseness Adaptation theory, but perhaps we can at least avoid repeating an overwhelming evil.

We now arrive where we started, at a theory of human differences. This time, though, the theory is advanced by one well aware of its potential for abuse — by one who might have perished at the prompting of similar theories. The present theory, however, differs from eugenic texts in this fundamental way: It does not speak of favored races or defective people and it does not justify annihilating anyone.

A Recent Hint of Tribal Autism

In Part I of this essay we saw that small groups living near a sparse frontier must treat any other nearby groups as deadly competitors if their own genes are to thrive. In other words there is little harmonious connection between bands or tribes near an extreme frontier, particularly during times of famine, and at the inter-tribal level such outlying groups are functionally autistic. I called this *tribal autism*. Tribal autism is expected in areas near frontiers just as individual autism is expected at the extreme frontier itself.

Near an extreme frontier everyone outside of an ancestral tribe was a deadly competitor potentially to be killed, raped, enslaved, or eaten. Civilization enabled by technologies like wheels and agriculture has carried us some distance from this grim history, but the mark is in our blood and in our many religious and legal compensations for violent instincts. I'll have more to say about these compensations in a later part of this essay. In any case, though, some of the grim history is not all that distant.

Ironically the Nazis themselves supplied evidence favoring the present theory. The most brutal, mechanized, and premeditated program of mass murder yet seen on Earth arose nowhere else than in sparse northern latitudes. The extreme social disconnection implicit in murderous competition (exterminating unarmed people being a repugnant extreme of competition) coupled with the treatment of human beings as objects and the large-scale use of mechanical objects in the execution of mass murder all speak loudly of traits expected from great sparseness adaptation, and from resulting tribal autism. By this reasoning a holocaust might have been likely even without the encouragement of eugenics. Whatever the case, experience of the actual Holocaust now commands our practice to prevent similar infernos, regardless of their origin.

When I was young I could not comprehend how the horrors of Auschwitz came to be. I assumed that there must be some radical difference between the monsters who perpetrated the unfathomable crime and me. Now I see that the entire tragedy was made of tiny points, each a recognizable human being. Stepping backward there increasingly emerged a picture of unimaginable hell. I saw that to pronounce myself radically different from any of the victims or perpetrators of the Holocaust was to perpetuate the very myth of radical human difference at the core of Nazi ideology. To say I was in *no* way a Nazi was to *be* a Nazi.

When I say I am autistic I do not mean that I am distinct from other humans but that I fall somewhere on a human spectrum, just as a particular wavelength of light falls somewhere on a spectrum. We are humans. In a later part of this essay we shall see how humans from all points on the sparseness spectrum have been indispensable to the wellbeing of the species.

Conclusion

From the Sparseness Adaptation Syndrome it is a small step to the correlation with the geography of ancestral homeland: Adaptation to frontier sparseness led humans to differ systematically in genes regulating brain structure and behavioral inclination — and these differences now correlate with autism, gender and ancestral migration history, which is to say with race.

If I could dismiss the racial implications of sparseness adaptation I would do so to avoid pointless discord. However, to deny the racial implications is to deny observations that lead to them, and this I find hard to do. In particular I find it hard to deny that 1) fiercely competitive brains prevail in a sufficiently sparse box (see Part I) and 2) human ancestor populations were surrounded by frontiers functionally like sparse boxes, so that 3) those sparse frontiers destroyed genes promoting social connection and favored genes promoting disconnection and fierce competition.

Cooperative strategies can gain a toehold near frontiers, but population geometry and the *Sparse Box* thought experiment (see Part I) guarantee that genes flowing in from extreme frontiers will be relatively socially disconnected. There have long been large sparse frontiers on Earth, with human ancestors migrating into them. The global variations in food and population density then assure correlation between sparseness adaptation and geography-associated traits like pale skin. Some people are sensitive to this logic (and logic generally) and some aren't. In the face of any demands to deny the reasoning though I can't help hearing echoes of Galileo's apocryphal, "And yet it moves."²² *And yet brains differ.* And yet altogether we are human.

Doubtless the present theory is flawed and incomplete, but it's hard to imagine an alternative to the Sparseness Adaptation hypothesis that accounts as parsimoniously for as many features of autism and global history. Probably the theory can be made more formal and precise. If not, a better theory is likely to come to a similar conclusion: There is too much smoke here for there to be no fire.

The history of eugenics is grim but the theory of the Sparseness Adaptation Syndrome is not a eugenic theory. It does not support the view that any group is globally superior to others and it does not justify killing anyone. Whatever the shortcomings of the present account, I hope it at least hints the possibility of giving a rigorous scientific theory together with an equally rigorous attempt to prevent its misuse.

To avert future holocausts it will help to understand their deep causes. Among causes of the paradigm among holocausts on Earth, the Nazi-perpetrated Holocaust, were eugenic pseudoscience and, probably, sparseness adaptation.

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