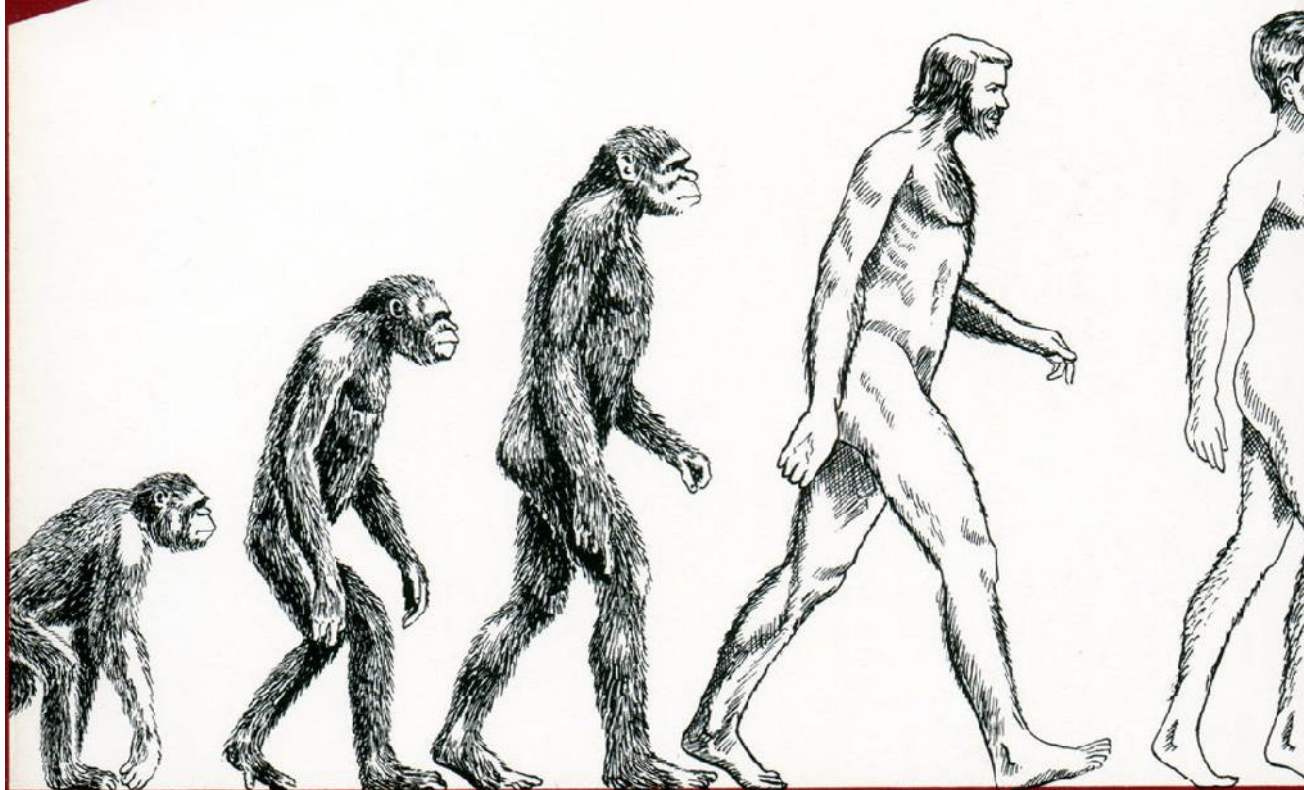


THE FUTURE OF MAN

ROBERT KLARK GRAHAM



To my children, in whom I see myself reborn and, thanks to their mother, perceptibly improved.

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The willingness of these exceptionally able people to render advice should not be taken to mean that they agree with all of the author's ideas.

Author's Intentions

The purpose of this book— a streamlined and updated version of a fully documented work published in 1970— is to describe, as accurately as the available facts permit, where man has come from, why he has come so far, and what major influences are now at work upon him. Its further purpose is to propose ways of altering and modifying some of the adverse influences so man may realize much more of his tremendous potential and move ahead to new heights of human creativity and well-being.

—Robert Klark Graham

FROM HUNTED TO HUNTER

The tree-dwelling ancestors of man were among the most intelligent beings of their distant age.

When these creatures finally abandoned the trees and walked fully upright, freeing their hands to serve as implements of their minds as well as their bodies, there began the most successful evolutionary drive toward higher intelligence ever witnessed in Nature.

As ground dwellers, these creatures were easy victims of the great predators, who hunted them down by day and surprised them at night as they huddled in clearings or in caves. They could not compete in strength, ferocity or speed with their attackers. Armed with little except their hands and what their complex brains enabled them to do with their hands, they had to think or die. For untold thousands of years most of them met early, violent deaths. Only a few in each generation had the good fortune and the ability to outwit their enemies. These favored ones survived long enough to have and rear offspring. The unwary, maladroit or stupid died early. Their offspring, if they had any, were left to starve or be eaten by predators.

Natural selection was operating on the earliest types of man with grimmest intensity. Perhaps no other extant creature has undergone so severe and protracted a period of selective elimination. Yet here and there small groups managed to survive because they had the intelligence to use sticks, stones and clubs to defend themselves. Crude and puny as these implements were, they were *weapons* and their possessors were the first creatures who could kill without having to come in direct contact with their antagonists.

As the great beasts grew larger and either faster or more formidable, man became ever more watchful, ever more successful in pitting his wits against mass and power, more and more adept at slipping out of trouble, and as the challenge grew greater, so did his brain, for the laggards on both sides got left behind in the race for the future.¹

The steps in the development, of man's brain are revealed by the progressively larger braincases which appeared with the passage of centuries. Basing our judgment on the improvements in tools and weapons which took place as the intelligence of their inventors increased, we can reconstruct some of the ways in which natural selection may have worked to bring about a doubling in size of the human brain.

Early Implements

Many edible nuts are too hard for even a caveman to crack between his teeth. Accordingly, they were useless to early man until some genius of his day discovered that any nut could be opened if it were placed upon one stone and struck hard with another. Better fed, the family of this innovator proliferated.

Perhaps centuries later, while a man sat cracking nuts between two stones, one stone broke and the broken edge cut his hand. Previously, men in the same situation had thrown the broken stone away and nursed their cuts. But this man started thinking. Since the edge had cut through his skin and drawn blood, it might also cut through the skin of the small animals he caught, making it easier to get at the meat. The first knife was invented! He and those close to him, and those intelligent enough to imitate them, increased in number. They had a cutting tool which made it possible for them to skin and eat meat in less time, so they

¹ Norman J. Bernill, *Man's Emerging Mind*, New York, Dodd, Mead, 1955, p. 109.

had more time for hunting. Many of the descendants of this exceptional man became increasingly skillful at breaking and chipping hard stones into sharper tools and weapons. Natural selection favoring better knife makers went on for hundreds of thousands of years.

A great many centuries later a young father foraging for his brood may have come upon a long straight stick, splintered at one end. He pulled and chewed at the splinters until only one stout point was left. It seemed to him a very useful stick, for it was sharper than the digging sticks which the women used. He may have remembered a night during his boyhood when a great cat had charged his family's campsite and dragged away a younger sister. Now that he had small children of his own, the memory of that attack was ever present. Lately, he had seen fresh panther tracks. Another family, not far away, had been attacked and the mother had been killed. His dawning intelligence told him his pointed stick might be a better weapon against big cats than the clubs which he and the other men carried. For many days he kept the long stick near him, even when he was laughed at for having what was regarded as a woman's tool.

Then one night he heard a faint rustling. He whispered a quick warning to his family. Suddenly a dim shape charged at him in the darkness. Kneeling, he raised the point of his long stick toward the beast. It sprang, clawed at him savagely, then fled! The creature had struck the point so hard that the blunt end of stick was shoved deep into the ground.

Next morning, following a trail of blood, the man found a panther dead from a punctured chest. The long sharp stick had saved his life. In the same situation less perceptive men, armed only with clubs, would have been killed.

From that time he, his sons and their sons carried impaling sticks whenever big predators were near. Foresight, genetically transmitted to their descendants, had given them a new weapon which they used with devastating effect against their natural enemies.

Perhaps many generations later a bright descendant of the inventor of the impaling stick mated with the daughter of a man who had thought of throwing a club at fruits, nuts and small animals on the lower branches of trees. Now and then this brought down an extra meal.

The man who knew how to defend his family from feline prowlers soon learned from his woman the new way to collect additional food. Their young family thrived and some of the children, with good mental inheritance from both sides of the family, showed an even higher order of intelligence than either of their parents.

With impaling sticks added to their clubs and cutting stones, men no longer had to be such furtive food gatherers. The hunted gradually evolved into hunters. And in times of famine when battles over food were fierce, those with impaling sticks threw them with deadly accuracy at members of other hunting bands. Sharper stone knives and spears gave a double survival advantage during times of crisis. But the most telling gains were the increasing sharpness of the minds.

However incomplete our knowledge of human ancestry, there is scarcely any doubt that the development of brain power, of intelligence, was the decisive force in the evolutionary process which culminated in the appearance of the species to which we belong. Natural selection has brought about the evolutionary trends towards increasing brain power because brain power confers enormous adaptive advantages on its possessors. It is obviously brain power, not body power, which makes man by far the most successful biological species which living matter has produced.²

² Theodosius G. Dobzhansky, *Evolution, Genetics and Man*, New York, Wiley, 1955, p. 334.

Language

As man's brain continued to evolve, his often incomprehensible jabberings and outcries came to have increased meaning. At first he was capable of only a few utterances to warn against enemies. Then other sounds were added. He learned how to call his fellow hunters to the kill; how to call his family to help him bring in the game. Eventually men were able by speech and gesture to organize attacks on large beasts. Scouts could announce they had just sighted a group of grazing animals. Slowly language took shape.

Speech is the greatest of all man's early accomplishments. His tools were crude and his brain was still far from matching that of his descendants. With the development of language, however, he could transmit important information to other men and to his family. Most creatures have a very limited repertory of emotional and informational cries. Man alone has articulate speech.

A word is an instrument of thought.... The naming of things is the great difference that separates the human mind from animal minds.... Man's brain evolved to the stage where he was able not only to think of things (through images or whatever animals use) but also to see the value of using names for them. With language the human species entered a new world, began to think more clearly, became capable of reflection on the past and penetrating the future...³

By means of language the ideas of the brightest individuals were widely disseminated. The unimaginative could now profit from the ideas of others. As words gave wings to thoughts, the thinking of a few was of great benefit to all who could understand and imitate.

Fire

As we can surmise how the earliest and crudest implements were discovered or devised, we can also imagine how fire might have been captured. It may have first occurred after a stormy night, hundreds of thousands of years ago, when a great pine was set afire by a bolt of lightning. Nearby a primitive family huddled together in a cave, awed by the anger of the gods.

At daybreak that part of the pine which had been dead and dry was still burning. The men and women ventured closer, staring at the flames and smoke from the once familiar tree.

An old woman called out that the smoke was the dying tree's ascending spirit. But the head of the family was skeptical. He knew that trees died differently. He watched intently as flames ignited the branches on which he used to perch to spy out game. Now and again a burning branch would fall to the ground. Driven by curiosity, fortified by a dim comprehension of the workings of fire, he seized a dry branch and held it over a burning limb. The old woman shrieked that this was defiance of the tree god and indignantly tried to knock the branch from his hand. He fought her off. His fingers were scorched by the heat and the hair on his outstretched hand was singed, but he would not move until the dry branch caught fire. Proudly carrying the first torch, he walked quickly to his cave, the group trailing after, and laid it at the entrance. Hesitantly, he fed the fire with dry needles and twigs. The flames burned more brightly, as he suspected they would. It didn't take him long to find that the "magic light" warmed him and his family when the weather was cold. At night it drew animals. From his cave he could see the fire reflected in their eyes. But now they were afraid to attack.

³ Norman L. Munn, "The Evolution of Mind," *Scientific American*, June 1957, pp. 140-50.

Often he burned himself while tending the fire. Discovering that a breeze made it burn brighter, he learned to blow upon his fire when it started to smolder.

Hearing of the miracle, neighbors came to see and wonder. The old woman, never one to let truth get the upper hand, declared it was a gift from the gods. Some of the more curious carried away brands to start their own fires.

Such was man's first conquest of a primary force nature, his first source of power outside his own muscles. Fire made him the first superanimal.

Only a few grasp a new idea quickly. This was especially true in those times, for man had not yet become *Homo sapiens*. To most of the cave folk, fire was a frightful thing. Many avoided it, fearing the displeasure of the spirits. In some places fire-worshipping cults sprang up and limited fire to holy uses. It seems man had fire for many thousands of years before he used it for cooking.

So great was the advantage of fire that those who did not know how to make use of it could not long compete with those who did. Today, there is no human society which does not have fire, though the Andaman Islanders still do not understand how to kindle it and so must tend it perpetually through rain and storm.

With the help of fire [men] are able little by little to spread into cooler climates.... Thus selective migration occurs. In the newly occupied regions, people of the more intelligent and competent type can intermarry only with one another, whereas their former comrades in the old home intermarry not only with one another but with the non-users of fire.... Cool weather no longer has its former ill effect on comfort and efficiency. On the other hand, in the new region the ill effects of undue heat are lessened because the hot period is not as long as in the warmer climate.⁴

Progress

In those remote times there were men of many sizes and shapes. Man was far more varied than he is today. Ape-men, small-brained men and six-foot men all dwelt in their respective territories. At times they met and fought. Inevitably the less intelligent competitors in each area were killed off by those who were able to devise better weapons or wield the ones they had more effectively.

But even for the most intelligent the threat of hunger hung like a dark cloud over all hunting peoples. Only the keenest and those with the most foresight survived.

When there was a food shortage—and in temperate climates this was the prevailing condition in winter—the able hunters who captured the existing food supply might starve competing families to death without ever coming face-to-face with them.

And as the weak grew weaker, the strong grew stronger. Now and then mutations in the direction of more brain cells and greater intelligence would occur, giving their possessors a better chance to survive and to outbreed the less advantaged. At other times the mating of two exceptional people would produce some superior offspring. This dual process—advantageous mutations and sexual recombinations—was the key to biological progress.

That man, by nature the weakest of the larger animals, survived at all is a tribute to the intelligence his forebears possessed when they came down from the trees. Brainpower made it possible for this arboreal fugitive to transform himself gradually from relatively defenseless prey into the deadliest of all hunters. It is nature's most amazing success story. Lacking

⁴ Ellsworth Huntington, *Mainsprings of Civilization*, New York, Wiley, 1944, pp. 403-4.

horns, man used his brain and hands to make spears which were more effective than any horns. Without claws or fangs, he developed knives which were superior to either. Given a poor sense of smell, he learned to enlist dogs to overcome his olfactory deficiency. Once hunted by fierce animals, he gradually learned how to kill them and clothe his nakedness in their very skins.

Man in the rudest state in which he now exists is the most dominant animal that has ever appeared on his earth. He has spread more widely than any other highly organized form; and all others have yielded before him. He manifestly owes this immense superiority to his intellectual faculties, to his social habits, which lead him to aid and defend his fellows, and to his corporeal structure. The supreme importance of these characters has been proved by the final arbitrament of the battle for life.⁵

Our clear-thinking forebears managed to live until they could transmit their intelligence to their children and eventually to us. In times of trouble only those few in each generation whose mentality shone a little brighter than the rest survived. Many were tested, but few passed.

Selection for intelligence went on for innumerable generations. In all that time, if there had been even one member of your ancestry who failed to live to adulthood, or having lived, failed to reproduce, you would not be here.

For more than a thousand millennia, natural selection kept the population of our hunting ancestors below one million. Later, when the discovery of agriculture made food much more abundant, when the proportion of those who did not die of hunger or in combat was greatly reduced, the number of human beings increased in only 13,000 years to more than four billion. This tremendous upsurge indicates how sternly natural selection had been at work during the myriad centuries of man's hunting stage.

Other factors, including strength and luck, entered in, but the chief dynamic force for human progress was intelligence. On the other hand, the main evolutionary drive of the large apes, many of whom were also ground dwellers and partially erect, was in the direction of greater muscles instead of greater brains. Intelligence came to be the most human thing about humans.

In a general way we can say that the brain volume doubled during the ten million years or so of man-ape evolution.... and that it has on the average doubled again during the last million years.⁶

The trend toward increased brain size is the most continuous, long-lasting, and marked hallmark of hominization.^{6a}

Enter Homo Sapiens

Probably in some part of ancient Mesopotamia (then a true garden of Eden), there emerged the type of man known as *Homo sapiens*.

⁵ Charles R. Darwin, *The Descent of Man*, New York, Modern Library, pp. 431-32.

⁶ Norman J. Berrill, op. cit., p. 70.

^{6a} Phillip V. Tobias, *The Brain in Hominid Evolution*, New York and London, Columbia University Press, 1971, P. 115.

The rest of the human story is that of *Homo sapiens* alone. No other kind seems to have lived long beyond that same point, about 37,000 years ago, at which modern men were coming into Europe.⁷

The *sapiens* form of man was a creature wonderful to behold. His descendants migrated to and dominated all livable parts of the Earth. Some progressed, some retrogressed, depending on their nature, their surroundings and the extent to which they absorbed more primitive peoples. But everywhere they dominated all other creatures with whom they came into contact.

The first members of *Homo sapiens* to appear in Europe were a superb race of hunters who arrived during the latest ice age.

The... entry of true man into Europe was led by the most magnificently developed folk the race has ever produced.... Some of the males stood six-feet-five inches high; the shape of the face suggests keen intelligence, and in size of brain they equalled or even surpassed modern man.⁸

The Cro-Magnons, as they were called, towered over the indigenous population. Although they apparently did not bring with them any radically new weapons, such as bows and arrows, they easily outfought any cave dwellers who opposed them by being better organized for combat and by making better weapons and better use of the weapons they had. They must have seemed like scourging gods to the less evolved Neanderthals, whom they gradually exterminated.

The intelligence... of the Cro-Magnon race [is] most surprising.... superior individuals of this race would have been capable of becoming senior wranglers at any of our modern universities.⁹

These were the most intelligent human beings in more than a million years of selection for intelligence—the mightiest hunters in the million-year evolution of hunting men. The woolly rhinoceros and the mammoth were fair game to them. So were cave bear, bison, reindeer and wild horses.

At Solutre in France, they killed a hundred thousand horses, and at Predmost in Czechoslovakia, a thousand mammoths. The Neanderthals were surely able and valiant in the chase, but they left no such massive bone yards as this....¹⁰

The Cro-Magnon peoples were not only great hunters; they were superb artists.

No such skill in picturing living animals appeared again until the days of the ancient Greeks, perhaps 12,000 years later; and the Greeks had comfort and a wealth of materials for their work. These paleolithic artists achieved their effects with tools made of chipped flint, and they worked half-naked and shivering, with light from a lamp made by floating a moss wick upon melted fat in a hollowed-out stone!¹¹

⁷ William White Howells, *Mankind in the Making*, Garden City, N.Y., Doubleday, 1959, p. 259.

⁸ Martin Stevers, *Man Through the Ages*, Garden City, N.Y., Doubleday, 1940, p. 91.

⁹ *Asia*, June 1924, p. 43 1.

¹⁰ Howells, op. cit., p. 206.

¹¹ Stevers, op. cit., p. 97.

It is important to visualize the stage of evolution attained by man toward the end (circa 10,000 B.C.) of the latest ice age. In those severe times few second-rate humans existed, for the less adapted were commonly eliminated by the rigors of nature and competition. In most cases, survival was reserved for the first-raters. Today, 12,000 years later, with modern farming providing food a thousand times more abundantly and with natural selection greatly diminished, the Earth is overrun with masses of men who, individually, could never have stood up to the Cro-Magnons.

Having dominated Europe for at least 25,000— years longer than the whole of written history— these once mighty hunters vanished into prehistory. We know some of the reasons. Later members of the race were not the match of their forefathers. The climate turned milder and more humid. As large game became scarcer, the Cro-Magnons had to resort to fishing. Their descendants displayed far less ability in weapons-making. Other races with superior techniques moved in.

The fate of the Cro-Magnon race was no exception to what had gone before or what would follow many times thereafter. Race after race... rose and became master, declined and passed into final extinction. As the day of Cro-Magnon ascendancy waned, a new race invaded western Europe. The Old Stone Age came to its end approximately ten thousand years ago with the advent of Neolithic (New Stone Age) man. He developed a great innovation in manufacturing his implements, making his instruments better and more useful by polishing the stone.¹²

The principal change, however, was an economic one, namely the introduction of a rudimentary knowledge of agriculture with the corresponding use of a variety of plants and seeds.... the New Stone Age witnessed a domestication of animals which corresponded closely with that of present times and included cattle, sheep, goats, pigs, horses and dogs.¹³

With the decline of the Cro-Magnons, a new phenomenon appears in the evolution of man. As later *sapiens* types replaced earlier ones, it was evident their cultural advantages were enormous. But there was no further improvement in their physical or mental attributes. If anything, there seems to have been some regression in average brain size.

A few... thousand years ago.... skulls of that... date had bigger braincases on the average than those of their present-day descendants. The graph of rising brain size flattened out to a plateau and then began to drop somewhat.¹⁴

Consequently, for the first time in human evolution, one type of people, because of sweeping cultural advantages, managed to replace another type that was actually more intelligent. This surely represented a crucial turning point in human evolution. Cultural evolution began to prevail over biological evolution. As time went on, cultural gains continued to accumulate at the expense of human biology. Increasing enormously in quantity, man began to decrease in quality.

It is not difficult to see why this occurred. Food production permitted millions to live who would have been incapable of survival during the rigorous natural selection that took place in

¹² Frederick Tilney, *The Master of Destiny*, Garden City, N.Y., Doubleday, 1930, p. 259.

¹³ Frederick Tilney, *The Brain From Ape to Man*, Vol. II, New York, Hoeber, 1928, p. 766.

¹⁴ Tobias, op. cit., p. 100.

the hunting stage. But why, if brains are so important, were the people with bigger brains replaced by others with slightly smaller brains? Why, for example, didn't those with bigger brains become the first farmers?

It is probable that the best conditions for the development of agriculture were not the best for human selection. Since many of the plants and animals most suited to domestication were indigenous to Asia Minor, it is likely that agriculture was almost predestined for the occupants of that region, once the climate of the ice age had moderated to the point where the cultivation of food plants was possible.

In truth, agriculture is more of a discovery than an invention. The fortunate people of the favored areas, if not quite as brainy as the best hunters, were bright enough to take advantage of the situation offered by their unique environment.

Food production will support more than a thousand times as many people as hunting. It also provides more leisure for the development of technology. Consequently, the people who engaged in agriculture soon found they could outnumber and overwhelm neighboring peoples. If they hadn't better brains, they had so many good brains at work and so much more time to devote to work— and to war— that they were easily able to outperform and dominate the hunters who man for man were probably more intelligent. For the first time cultural gains began to replace physiological gains.

II

FROM HUNTER TO FARMER

It may have been an especially observant woman— later to enter folklore as the goddess Ceres—who first noticed that the discarded seeds of fruits and cereals sprouted luxuriantly on the refuse heaps. When humans learned to sow as well as reap, the harvests could be described as golden.

Grain crops attracted grazing animals. Of these, many were killed by the new breed of farmers, but a few of the young were probably kept as pets and served as the foundation of a domesticated herd.

At about the time when the last great glacier was finally melting away, men in the Near East made the first basic change in human economy. They began to plant grain, and they learned to raise and herd certain animals. This meant that they could store food in granaries and "on the hoof" against the bad times of the year. This first really basic change in man's way of living has been called the "food producing revolution."¹⁵

In the land south of the Caspian Sea man began to gain his living by tending crops and domestic animals. He became the only vertebrate to produce his own sustenance.

In discovering the arts of agriculture, man acquired a new degree of control over his environment. He was no longer dependent upon the changing fortunes of day-to-day hunting. More than any other creature, he became a partner in nature's productive processes and, as such, the arbiter of his own fate.

When man discovered that planting provided more reliable and more abundant nourishment than hunting, he attached himself wholeheartedly to the soil and established permanent homes. From this arose the concept of real property, as distinguished from personal possessions.

There were, and still are, irresponsible food growers who ravage the soil they till and then move on to virgin land. There are still nomads who follow their herds. There are even remnants of primitive, stone-age hunters who roam widely in search of food, as all men did throughout the million or more years of their early development. Nevertheless, farming has now become the predominant way to support human life.

Once man no longer had to expend almost all his labor and almost all his powers of concentration on obtaining his next meal, he could apply his mind to many new fields of endeavor. Like Antaeus, he gained strength from his contact with the earth. The new abundance also enabled greater numbers of men to gain a livelihood in a given area. Soon, instead of a few single dwellings, clusters of dwellings began to appear. Much of the countryside became widely, even densely, occupied. Clusters of dwellings grew into villages, then into towns and later cities.

Civilization

As settlements grew in size and complexity, there was a marked transition away from the traditional barbarous modes of living. In certain fertile and populous areas arose the first of those advanced conditions of urban culture called civilizations. The earliest of these great

¹⁵ Robert J. Braidwood, *Prehistoric Man*, Chicago, Natural History Museum, 1959, p. 20.

transitions probably occurred in Sumer on the banks of the Tigris and Euphrates rivers about 5,500 years ago. The Sumerians were the first to live in cities, around which they constructed walls, partly to protect themselves against rising waters, partly to ward off enemy attacks.

In Sumer spoken words came to be represented by visual symbols. In this way the first written language was developed. Civilization, written communication and written records all emerged together.

There followed one of the most fruitful eras in human history. The wheel was invented, so was the large-scale smelting of metals.

Knowledge of how to reduce copper ore, so that the metal could be conducted in a molten state into moulds prepared to the shape of tools required for daily use, marked the greatest advance in man's equipment as a craftsman since he first learnt to work flint. The use of metal tools enormously enhanced his mastery of stone, wood and a whole range of substances.¹⁶

The same period saw the birth of arithmetic, astronomy, the arch and the dome.

As their cities grew, the Sumerians organized complex systems of government. Conflicts arose over water and land rights. These increased in size and ferocity as the populations increased and as governments recruited more warriors. Where once there were tribal skirmishes, now there were wars. Out of political organization came the grimmest by-product of civilization-organized warfare.

The will to war was in existence long before the dawn of civilization; the latter, therefore, is not the cause of war, but it did provide the conditions which make calamitous wars possible.¹⁷

There also developed, chiefly in cities, the adverse effects of artificial living which, like war, we have not yet learned to control. Natural selection, which had given man his great brain, became so enfeebled that preponderance of the most capable largely gave way to preponderance of the most prolific. These two influences, external war and the increase of the less fit, the first recorded plentifully in history, the other so insidious as scarcely to have been appreciated a century ago, appear to have contributed decisively to the downfall of Sumer.

Of the Sumerians nothing more is heard... the race had gone, exhausted by wars, sapped by decay, swamped by the more vigorous stock which had eaten of the tree of their knowledge.¹⁸

As civilization develops, the growing urban centers attract increasing numbers of the more capable elements of the population. In cities the rearing of children is more difficult and costly. Many couples who have the understanding and foresight to control their childbearing do so with the result that their birthrate diminishes while the birthrate of those deficient in understanding or foresight remains almost as high as ever.

There is a tendency of the best men in the country to settle in the great cities, where marriages are less prolific and children are less likely to live... there is a steady check in an old civilization upon the fertility of the abler classes; the improvident and

¹⁶ Grahame Clark, *From Savagery to Civilization*, London, Cobbett, 1946, p. 95.

¹⁷ Sir Arthur Keith, *Evolution and Ethics*, New York, G. P. Putnam, 1947, p. 126.

¹⁸ Sir Charles Woolley, *The Sumerians*, Clarendon, Oxford, 1929, p. 182.

unambitious are those who chiefly keep up the breed. So the race gradually deteriorates, becoming in each successive generation less fitted for a high civilization, although it retains the external appearances of one, until the time comes when the whole political and social fabric caves in and a greater or lesser relapse to barbarism takes place....¹⁹

This process has helped to bring about the downfall of every civilization in history, except our own, and it is operating on ours.

¹⁹ Sir Francis Galton, *Hereditary Genius*, New York, Horizon Press, 1952, pp. 347-48, reprint of 1869 edition.

III

FROM FARMER TO FABRICATOR

In practically all agricultural societies, farmers and millers found that each produced more if the former concentrated on the growing of grain and the latter specialized in milling it. The time he saved by no longer having to hand-grind his own grain enabled the farmer to produce more than enough additional grain to pay the miller. Farmers and millers both benefited from this division of labor. Each could produce more wealth by specialization than by providing for all his necessities himself.

Each gained by the voluntary exchange of goods and services. When such exchange was restricted or interrupted— by robbers, racketeers or tax collectors— all parties suffered. When exchange was entirely halted, everyone was worse off, and it would have been better for all if no one had ever specialized in any occupation. The essence of the system was not only division of labor, but *free and unhampered exchange* of the products of everyone's labor.

Simple exchanges were carried on for thousands of years. Phoenicians, Greeks and Romans were among the more successful trading peoples. In the Roman world a vast and complex exchange economy prevailed. After the disintegration of the Roman Empire, the Western peoples lived in small, relatively self-contained communities for more than six hundred years. Exchanges of goods and services, other than local ones, were few and far between during the stagnant centuries of the Dark Ages.

An exchange economy began to function again on a widening scale as our own Western civilization developed. This time, instead of being limited largely to products of fields, mines and handicrafts, trade was augmented by a new means of production—the factory. The wider the area in which a commodity could be marketed, the more specialized and efficient could be the production of that commodity. The more specialized the production, the more it lent itself to mechanization and to organized production in one place.

As this new technique of manufacturing spread, it brought to millions of humans a level of material wellbeing so far above any previously known that it was called the Industrial Revolution.

Part and parcel of this revolution was the alliance of industry, science and invention, which brought forth a prodigious variety of power-driven machines and equipment. The accumulation of earnings for investment— so long as there was a reasonable chance of gain— made possible even more and better production techniques. Through this progression the products offered often came to be so affordable and in such demand that mass production became not only feasible but mandatory. For example, two centuries ago in the West not one person in a thousand had stockings. Today, not one in a thousand is without them.

Today, as the scientific and industrial revolution still continues, man has come to dominate the air, the world of plants and animals and, increasingly, the world of insect and bacterial life. He has learned to cross the oceans with ease and safety and to probe their deepest parts. He can fly faster than sound, unleash the energy of fossil and nuclear fuels and communicate with others over thousands of miles with the speed of light. What Roman emperor could travel a mile a minute in a four-wheeled land yacht? What sultan, with or without a magic carpet, could fly at hundreds of miles per hour? What renaissance prince could protect his children from polio and smallpox? These once unimaginable feats of technology are now the prerogatives of the majority of citizens in the industrialized countries. Hundreds of millions now enjoy comforts, luxuries and privileges beyond the wildest dreams of those who lived only a few centuries ago.

IV

PRESENT DANGERS

Today man is increasing prodigiously in numbers. Most of the natural enemies of his hunting days are practically extinct. One after the other his epidemic diseases are being eliminated or controlled. His food-producing abilities are multiplying enormously. Because of these and other accomplishments, his numbers have doubled and redoubled over and over again. Each twenty-four hours at least 230,000 more people are added to the Earth's population. This is equivalent to creating a city larger than Geneva every morning. In World War I some ten million human beings were killed in four years. Today this many additional lives come into being in less than two months. In the past year ninety million more people—a number greater than the population of the United Kingdom or West Germany—arrived to share with us the dwindling resources of the globe. It took more than fifty thousand years to raise the number of *Homo sapiens* to a billion. The second billion took about a hundred years; the third less than forty. As the world fills up with people, the rate of increase is itself increasing. One of every twenty-five people who ever lived is alive today. The human species has undergone a biological explosion.

If we take our eyes from the fascinating contemplation of the knowledge and techniques which have enabled man to increase his numbers so greatly and examine more closely the character of the increase itself, we find certain processes in operation which need to be understood and dealt with if mankind is to have a brighter future or any future at all.

Civilization has not increased the mental capacity of its subjects; what it has done is to supply men with the opportunities, the leisure, and the means to develop the mental gifts already attained by man while living in a state of nature.²⁰

With the easing of man's precarious existence, the severity of natural selection diminished. At first only a few individuals, slightly less able than the rest, could manage to survive and reproduce. However, as time and easier circumstances brought additional security, more and more of the less able not only survived but multiplied.

Franz Weidenreich, the noted anthropologist, informs us that 40 percent of the Neanderthals died before they reached twelve years of age. By the end of the Old Stone Age only 25.5 percent died this young. Today, in Europe, 95 percent survive beyond puberty.

Natural selection eventually became so "unselective" for intelligence there was no further increase in the size of the human brain. Now and then a larger or better brain appeared, such as Newton's or Leonardo da Vinci's, but these no longer had a significant selective advantage in offspring. The growth of that great and powerful organ which allowed humans to excel all other forms of life had ceased completely by the time agriculture was adopted.

We know that in the late Villafranchian era, when *Australopithecus* lived, hominid brain size was still around 650 cc., while some three or four hundred thousand years later, brain size had increased to 1500 cc. This was an extraordinarily rapid rate of evolution. But then the curve suddenly flattened out, and in the last 50,000 to 100,000 years there has been no increase in brain size at all.²¹

²⁰ Keith, *Evolution and Ethics*, p. 88.

²¹ Ernst Mayr, "Comments," *Daedalus*, Summer 1961, p. 467.

One of the greatest helps to the survival of the less intelligent was the development of farming. This is not to say that those with superior mental equipment did not farm. They did better than the others as a rule. But farming, much more than hunting, enables parents to rear and protect their less capable children until they reach the age of reproduction. In a state of nature, many of these would have been picked off early by predators or have been the victims of infanticide or starvation. In farming even simple-minded people can subsist and increase their kind. They might not be bright enough to add or subtract, but they could multiply as never before.

Yet even the agricultural revolution was subsequently surpassed, as an incubator and supporter of the less bright, by the industrial revolution. It doesn't take a great deal of brains to hold a routine job in a factory. Here a limited mind can be an asset, since it permits mastering a dull, repetitive task which would bore a good mind to distraction.

Welfare

The industrial revolution also surpassed agriculture in fathering large broods of the less intelligent by channeling some of its great wealth-producing powers into charities and governmental relief for those unable or unwilling to support themselves by performing simple tasks.

Accordingly, as man changed his manner of earning his living, he devised social and economic institutions which not only permitted him to gain in numbers, but also sheltered and sustained retrograde humans who could not possibly have survived in an environment as demanding as that endured by the Cro-Magnons.

Today, in civilized countries, so all-embracing is the protective web of health services, unemployment benefits and womb-to-tomb welfare that millions grow up and breed despite weaknesses and deficiencies that would have decimated them 20,000 years ago.

With savages, the weak in body or mind are soon eliminated; and those that survive commonly exhibit a vigorous state of health. We civilized men, on the other hand, do our utmost to check the process of elimination; we build asylums for the imbecile we institute poor-laws; and our medical men exert their utmost skill to save the life of everyone to the last moment... Thus the weak members of civilized societies propagate their kind. No one who has attended to the breeding of domestic animals will doubt that this must be highly injurious to the race of man. It is surprising how soon a want of care, or care wrongly directed, leads to the degeneration of a domestic race; but excepting in the case of man himself, hardly any one is so ignorant as to allow his worst animals to breed.²²

Hermann J. Muller was the first geneticist to win a Nobel Prize. His voice is certainly one to respect. He has warned, "We probably save for reproduction, by means of our advanced medical, industrial and social techniques, more than one-half of the people who in past times would have had their lines of descent extinguished as a result of their genetic shortcomings."

So effective is man's brain that, instead of continuing to be dominated and gradually improved by the environment, he has discovered ways to dominate and alter the environment itself. But the more he modifies his environment, the less the environment is able to move him up the evolutionary scale. With this turning of the tables, nature, which began with a tiny blob of living protoplasm and shaped and reshaped it through countless generations until it

²² Darwin, *The Descent of Man*, p. 501.

became the amazingly intricate creature called man, is now largely prevented from improving him further.

For the last several thousand years the average and below-average humans have survived and proliferated thanks to the cultural and technological advances provided by a few highly intelligent innovators. Today, the men who, thanks to cultural accumulations, walk on the moon or manipulate the power of the atom have a brain and a body no better than those of their Stone Age ancestors. Man has substantially freed himself from natural selection without adopting a viable alternative. As a consequence, he has become an evolutionary derelict. The direction of his drift is, if anything, downward.

V

BIOLOGICAL DEGRADATION

As the influence of natural selection diminished, a sinister counterinfluence asserted itself. In man, as in every other form of life, harmful mutations occur far more frequently than beneficial ones. Indeed, more than 99 percent of all mutations are harmful.

The injurious character of most mutants is not an attestation of inherent perverseness in nature. A change in a gene is expected to be injurious for the same reason for which random rearrangements of wires in a radio set would spoil it more often than improve it.²³

Natural selection, when not interfered with, tends to weed out the many harmful mistakes in the innate character of organisms. If they are not weeded out, they can multiply in succeeding generations. When this occurs, the result is a cumulative increase of inferior traits.

Natural selection of this primeval variety is today completely incompatible with happiness, sympathy, or civilization itself. The only adequate alternative to it, however is some kind of thoroughgoing eugenics.... Failing this, a biological deterioration of the human race seems to be inevitable, and this might even endanger the dominance of man as a species.²⁴

As the influence of natural selection waned, the influence of harmful mutations— including those in the direction of reduced brain capability— grew at an accelerating rate. After the establishment of cities and the protection from the hazards of nature which they provided, the number of the less capable and the incapable, thanks to their relatively uninhibited rate of reproduction, began to multiply prodigiously. Also, the ever larger population pools, rural or urban, were further augmented by the retrograde mutations and unfortunate genetic combinations which occasionally occur in the offspring of the more intelligent. As a result, we have today reached a condition in which those of mediocre or less than mediocre mentality outnumber all others to a far greater extent than ever before.

Obviously this dilution of intelligence cannot go on, generation after generation, without seriously affecting the nature of man. It is like the encroachment of weeds upon a once well-tended garden. Since it doesn't happen overnight, it is easily overlooked. Yet the effect is there, and it is being compounded. It could not be otherwise. Man does not happen to be an exception to biological laws. Quantitatively, he is an enormous success. Qualitatively, he is retrogressing. Much the same result can be expected when any type of organism, freed from the process of natural selection, continues to breed indiscriminately.

All improvers of plants and animals contend with this fundamental problem of degradation. The Second Law of Thermodynamics states that all systems tend to run down. Life itself tends to follow the inexorable dictates of entropy, and the process of degradation is accelerated by the presence of harmful mutations.

Natural selection, which has been described as "a process for generating improbability," has been the great counterforce to the Second Law. It drives organic matter toward more complex, higher-energy life forms. Natural selection chooses for survival the advantageous

²³ Theodosius Dobzhansky, "Genetic Loads in Natural Populations," *Science*, Aug. 2, 1957, p. 19.

²⁴ Hermann J. Muller, *Out of the Night*, New York, Vanguard, 1935, 44.

mutations—the beneficial rare exceptions to the rule— which reverse the degradation process. When the winnowing of the weak is not sufficiently rigorous, however, the Second Law operates with few or no constraints.

It is against this background that we must consider the consequences of man's present violation of the basic laws of biological development.

Birth Control

Before human beings realized that pregnancy followed sexual union, almost everyone indulged in sex as often as circumstances permitted. This is still true of some aborigines, who even today do not comprehend the correlation. But with the domestication of grazing animals many thousands of years ago, men and women were able to observe the sexual activities of their herds. This experience allowed the intellectually curious to deduce the causes of conception, which knowledge led directly to ways of forestalling pregnancy in humans. The most common techniques were abstention, continence and celibacy. Later it was realized that these monastic approaches were not necessary, provided spermatozoa were prevented from meeting ova. Other means, including abortion, began to be practiced. As information about contraception spread, those with the intelligence and self-control to make the most effective use of it were the most successful in reducing the number of their children. Eventually this practice had a tremendous influence on human quality. To the abnormal increase of the less intelligent was added an artificial reduction in the number of the more intelligent.

The tendency of civilized life to sterilize its ablest citizens... is the experience of nearly all countries which enjoy even a passable degree of prosperity. It is perhaps more marked now than ever before, but it has certainly occurred at other periods of history. For example, the earlier Roman emperors were continually in difficulty because of the extinction of the senatorial families, which were the class whose administrative ability had been so largely responsible for the creation of the Roman Empire.²⁵

Ancient Egyptians were familiar with various methods of birth control. Abstention from intercourse during the days of ovulation, which has received much attention in recent years, was taught in ancient Greece. Infibulation (mechanical prevention of copulation) was well known in ancient Rome, as were condoms and vaginal douches. In general, contraceptive measures became more efficient and more widely used in the highly urbanized states. One of the latest advances in this dubious technology is, of course, the Pill.

(It should be noted here that a good mind offers its possessor a wealth of outside interests that are almost as engrossing as sex, while those with more limited minds are more likely to make sex their major concern. Consequently, the less intelligent have a constitutional advantage over the more intelligent in regard to having the most offspring.)

The day that man learned the cause and prevention of pregnancy was one of the darkest in human evolution. It was then that artificial selection by differential birthrate began to make inroads on natural selection by differential death-rate. Birth control may some day save us from worldwide starvation. There may even come a time when it can serve to raise rather than lower human quality. But so far it has been almost wholly pernicious in its effect upon the biological progress of *Homo sapiens*.

²⁵ Sir Charles Galton Darwin, *The Next Million Years*, Garden City, N.Y., Doubleday, 1952, p. 91.

The most intelligent individuals, on the average, breed least, and do not breed enough to keep their numbers constant. Unless new incentives are discovered to induce them to breed, they will soon not be sufficiently numerous to supply the intelligence needed for maintaining a highly technical and elaborate system— meanwhile, we must expect that each generation will be congenitally stupider than its predecessor. This is a grave prospect.²⁶

The trend toward the practice of birth control was, and is, stronger in some races and population groups than in others. Exceptionally capable people, living in a predominantly agricultural society like 17th and 18th century England and Anglo-America, where children were an economic advantage, markedly increased the intelligence gradient of the population. For example, in the colonial era in America each married white woman had an average of eight children. Today, although throughout most of human history it was considered unnatural to have small families, it has actually become stylish to do so. It doesn't take brains to have a child. This is an act that can easily be accomplished by the lowliest animals. Unfortunately, it does take a certain amount of intelligence to avoid having children.

Another damaging influence on human intelligence has been exerted by recent advances in physics and chemistry. Exposure of the reproductive organs to x-rays, radioactivity and hallucinatory drugs increases the occurrence of harmful mutations.

The rate at which mutations are damaging mankind is widely debated. At present it is impossible to give an accurate figure. But as one Nobel laureate tells us:

I am unhappy that the pool of human germ plasm, which determines the nature of the human race, is deteriorating. The collection of molecules of deoxyribosenucleic acid that will make the next generation of human beings what it will be is not so good as that which determined our character; there are more bad molecules in the collection. The defective genes are now not being eliminated from the pool of human germ plasm so rapidly as in the past, because we have made medical progress and have developed feelings of compassion such as to make it possible for us to permit the individuals who carry the bad genes to have more progeny than in the past. Moreover, defective genes are being manufactured at a greater rate than in the past, because there are new mutagenic agents operating in the world today.²⁷

It might be supposed that man, having ascended the evolutionary ladder through beneficial mutations, would profit from an increased mutation rate. But it doesn't work out that way. Except for resistance to certain diseases, natural selection, now largely inoperative, no longer selectively preserves the advantageous mutations and eliminates the bad.

The sinister and pervasive influences reviewed in this chapter appear in each new generation to produce an ever greater component of human mediocrity. Though most of the intelligent classes are presently addicted to birth control, a small proportion of highly capable individuals, by means of the vast communications networks at their disposal, can still advance knowledge and technology. Consequently science can still move forward at a breathtaking pace despite the overall decline in human mental resources.

²⁶ Charles Beard, *Whither Mankind*, London, Longmans Green, 1934, p. 80.

²⁷ Linus Pauling, "Molecular Disease," *American Journal of Orthopsychiatry*, Vol. XXIX, No. 4, 1959, p. 684.

Man is wasting a magnificent inheritance. He is able to control the development of other creatures, yet he has not chosen to control his own. Man's greatest enemy is now man himself.

We can face this dilemma with the happy-go-lucky attitude of the big spender who likes to say, "We aren't bankrupt yet." Or we can act with the foresight and speed of the capable administrator who knows if he doesn't stop short-term evils, they will lead to long-term disasters.

VI

BIOLOGICAL EFFECTS OF CLASS WAR

Throughout the million or more years of the hunting stage, if intelligent men had not eliminated their enemies, human and otherwise, they would not have survived to become our ancestors. Yet toward their own people, intelligent or not, they were tolerant and even compassionate. So long as those around the best minds were not overt enemies, they were seldom harmed, no matter how meager their capabilities. Accordingly, as natural selection relaxed its pressure, more and more incapable hunters and huntresses were able to survive and reproduce. With the end of the latest ice age and the discovery of agriculture a significantly greater proportion of the less capable were able to live to the reproductive years and beyond. The proportion has grown much greater in the past 250 years. Today, in nations where figures are available, about 50 percent of the population is what might be described as dull.

When the underachieving masses multiply sufficiently to overwhelm the upper classes, they abandon the ancient policy of live and let live. As the proportion of mediocre minds increases, the growing power of the "people" is characterized by certain ominous manifestations. In areas where the ratio of the masses to the elite is large and the established leadership is inadequate, a potentially explosive situation is created. If incendiary leaders appear and ignite this explosive atmosphere, the social detonation is devastating. Amid the violence and confusion, the masses can be incited to turn upon the more intelligent members of their own people and either expel them, imprison them or slaughter them.

This bloody process, known as class war, has great historical significance and has exerted a major evolutionary influence on man himself. An examination of the phenomenon is gruesome, but it is essential to an understanding of some of the worst aspects of the human condition. The great mass revolts of the 20th century exceed in deadliness the most lethal international conflicts of all time.

The masses rampage, seize and steal the possessions of others. Violence is also inspired by the desire to destroy the galling evidence of their own relative inferiority. They are impelled to obliterate all those they feel are above them, whether the superiority lies in wealth, position, character, beauty or intellect. The only intelligent men spared are the masses' own radical leaders. But not for long. Soon most of them expire in the infighting that takes place as the revolutionaries battle each other for power.

Class War in France

The French Revolution is the first great instance in modern history of what occurs in a nation when the rabble—the revolutionary segment of the masses—gains the upper hand. The circumstances of this bloodbath were not concealed behind iron or bamboo curtains.

The French Revolution was a universal insurrection of the lower orders against the higher. It was sufficient to put a man's life in danger, to expose his estate to confiscation, and his family to banishment, that he was, from any cause, elevated above the populace. The gifts of nature, destined to please or bless mankind, the splendour of genius, the powers of thought, the graces of beauty, were as fatal to their possessors as the adventitious advantages of fortune or the invidious distinctions of rank. "Liberty and Equality" was the universal cry of the revolutionary party. Their liberty consisted

in the general spoliation of the opulent classes; their equality in the destruction of all who outshone them in talent or exceeded them in acquirement.²⁸

This period (1793-4) was marked by the height of the Terror... the prisons filled faster than they were emptied. Batch after batch was sent to the guillotine... Heads fell like slates from a roof.²⁹

From the furthest extremities of France crowds of prisoners daily arrived at the gates of the Conciergerie, which successively sent forth its bands of victims to the scaffold. Grey hairs and youthful forms, countenances blooming with health, and faces worn with suffering, beauty and talent, rank and virtue, were indiscriminately rolled together to the fatal doors.³⁰

The whole of the country seemed one vast conflagration of revolt and vengeance. The shrieks of death were blended with the yell of the assassin and the laughter of buffoons.... Whole families were led to the scaffold for no other crime than their relationship; sisters for shedding tears over the death of their brothers... wives for lamenting the fate of their husbands....³¹

The French Revolution was but a small-scale preview of the horrendous class wars of our own time.

In our century the masses and their leaders, in the process of establishing a "dictatorship of the proletariat" over enormous areas of the Earth, have massacred their own countrymen on an even vaster scale.

Class War in the Soviet Union

The Russian Revolution deserves particular attention.

Communist leaders well know that their voluntary followers must be recruited from people who are mentally immature— people who, even though of adult age, have never really grown up.³²

We are not warring against individual bourgeois. We are out to destroy the bourgeoisie as a class. Hence, whenever a bourgeois is under examination the first step should be, not to endeavour to discover... proof that the accused has opposed the Soviet Government, whether verbally or actually, but to put to the witness the three questions: "To what class does the accused belong?" "What is his origin?" and "Describe his upbringing, education, and profession." Solely in accordance with the an-

²⁸ Alexis de Tocqueville, *The European Revolution*, Garden City, N.Y., Doubleday Anchor edition, 1959, p. 161.

²⁹ Albert Mathiez, *The French Revolution*, New York, Russell, 1956, 499.

³⁰ Sir Archibald Alison, *History of Europe*, Vol. III, Edinburgh and London, William Blackwood & Sons, 1849, pp. 265-66.

³¹ Louis Adolphe Thiers, *The History of the French Revolution*, Vol. III, Philadelphia, J. B. Lippincott Co., 1894, p. 223.

³² Fred G. Clark and Richard S. Rimanoczy, *Why Communists Hate*, New York, American Economic Foundation.

swers to these three questions should his fate be decided. For this is what "Red Terror" means....³³

Embittered and hardened in exile, or crushed spiritually and physically under the present government, the tragedy of the Russian Intelligentsia is the most pathetic and poignant in human history.³⁴

In 1923 Professor Ivan Pavlov wrote to Stalin, "You are depraving and annihilating the intelligentsia to such an extent that I am ashamed to be called a Russian."³⁵

The Russian intellectuals, or Intelligentsia, as they called themselves, had for generations been Russia's brain and conscience. In the Intelligentsia were concentrated Russia's best hopes of progress and civilization. The Intelligentsia stood bravely between despotic Czardom and benighted masses, striving to liberalize the one and to enlighten the other, accepting persecution and misunderstanding as part of its noble task... the Intelligentsia was not of one mind. It had its conservatives, its liberals, its radicals, even its violent extremists— from which the brains of Nihilism and Bolshevism were drawn.... The intelligentsia backed the *political* revolutions of 1905 and March, 1917. The latter, in particular, fired it with boundless hopes. The Intelligentsia believed that its labors and trials were at last to be rewarded; that Russia was to become the liberal, progressive nation of its dreams.

Then came the Bolshevik coup [the October revolution, 1917].... The extremist wing of the Intelligentsia accepted Bolshevism with delirium, but the majority rejected it with horror. Bolshevism's narrow class consciousness, savage temper, fierce destructiveness, and hatred of intellect appalled and disgusted the Intelligentsia's liberal idealism. But the Bolsheviks, on their side, had long hated and despised the intellectuals, regarding them as enemies to be swept ruthlessly from their path. The result was a persecution of the intellectuals as implacable as the persecution of the bourgeoisie. The Russian intellectuals were killed, starved, and driven into exile. Multitudes perished, while the survivors were utterly broken....³⁶

Marx labeled religion "the opium of the people." Expanding on this theme, Lenin wrote, "Religion is kind of spiritual vodka in which the slaves of capital drown their human shape and their claims to any decent human life."³⁷ In 1918, having come to power, Lenin ordered "put into effect a merciless terror against the kulaks, priests and White Guards."³⁸

³³ Latzis, quoted by Sergey Petrovich Melgounov, *The Red Terror in Russia*, London, J. M. Dent, 1926, pp. 39-40, 138.

³⁴ Leo Pasvolsky, "The Intelligentsia Under the Soviets," *Atlantic Monthly*, Nov. 1920, p. 692.

³⁵ W. Horsley Gantt, "Pavlov, Champion of the Truth," *Modern Medicine*, Nov. 12, 1962, p. 338.

³⁶ Lothrop Stoddard, *The Revolt Against Civilization*, New York, Scribner's, 1922, pp. 196-97.

³⁷ V. I. Lenin, *Selected Works*, Vol. XI, New York, International Publishers, 1943, p. 658.

³⁸ *Facts on Communism*, Vol. II, House Document No. 139, Washington, D.C., U.S. Government Printing Office, 1961, p. 87.

During the first Communist decade, a large proportion of the clergy of all faiths was wiped out along with other "enemies of the regime".... The state confiscated all church buildings and property.³⁹

Religious schools were taken over, the religious press was shut down and all religious teaching of the young prohibited.

In the 1930s a wave of persecution struck the military.

In June ('37) reverberated the thunderbolt which decapitated the General Staff and struck terror into the country: under the unheard-of charge of espionage, under the ridiculous pretext of having "violated their military oath, betrayed their country, betrayed the peoples of the U.S.S.R., betrayed the Red Army," Marshal Tukhachevsky, Generals Yakir, Kork, Uborevich, Eideman, Feldman, Primakov and Putna, all well-known "heroes of the Civil War," all several times decorated with the order of the Red Flag, all classed as adversaries of Trotsky and partisans of Stalin, were tried in camera, condemned to death without witnesses or defense, and executed within forty-eight hours.⁴⁰

The initial practice of the Bolsheviks, carried out for many years after their revolution, was to persecute all classes except the property-less portion of the laboring class. This led to the flight abroad of millions of intelligent Russians in the post-World War I years, long before the building of the Iron Curtain.

When, of the remaining middle and upper classes, enough millions had been slain to eradicate serious opposition, outright slaughter yielded to slave labor camps where millions were sent "to die usefully." Later, as international competition intensified, Communists realized their need for men of brains. By then a new generation had been reared under communism and its indoctrinated members had relatively "safe" minds.

The caste system of Tsarist Russia had not permitted the intelligent to rise to any level for which they could qualify, as currently in France and the United States. Accordingly, there were more genes for intelligence buried in the Russian masses than in the masses of some other countries. These were the chief source of bright young people in Communist Russia.⁴¹

The war against the intelligentsia was relaxed from time to time, especially when good minds were needed to replace the decimated officer corps or to direct five-year plans.

Following the revolution in 1917, the Soviet authorities were quick to grasp the significance of the scientific community to the nation and provided extensive funds or resumption of the basic research effort. The scientists again became an elite group. Unfortunately, however, they were not exclusive enough to escape the purge that spread throughout Russia in 1929, and many prominent scholars were exiled or disappeared....

³⁹ *Communism in Action*, House Document No. 754, 79th Congress, 2nd Session, Washington, D.C., U.S. Government Printing Office, 1946, p. 217.

⁴⁰ Boris Souvarine, *Stalin*, Toronto, Longmans, Green, 1939, p. 269.

⁴¹ Personal communication of Hermann J. Muller to the author.

When the purge subsided during the late 1930s, emphasis was again placed on practical research that could be applied to strengthening the military might, and this effort paid off in the early years of World War II.⁴²

By the 1950s the Soviet government began to pay some of its intelligent and competent citizens relatively more than their counterparts were receiving in the increasingly socialized economies of Western countries. Even so, Soviet leaders still depend heavily on Western technology to keep their economy functioning. However, our concern here is not with economic systems, but with biological effects.

If we consider the matter with cold objectivity, it becomes plain that, to the extent that Soviet power and Communist revolution spread, dysgenic deterioration and catastrophe will radiate outward from the present Eurasian core of Communist rule. This means dementalization, both in the form of brainwashing and in the much more irreparable genetic sense. The conscious purpose and final upshot of these processes of physical extermination of the elite will be to stabilize and equalize human intelligence at a level so low that *Homo sapiens* will no longer be capable of functioning in a social order based on individual initiative and personal freedom.⁴³

Class War in the Far East

The information from Communist China is meager and confused by propaganda. However, the pattern of violence appears to be typical, except the death count was much higher than in any other revolution in history.

The massacres began in the villages when Mao Tse-tung's party cadres convened what they called "speak bitterness" meetings. The cadres prodded the peasants to denounce their former landlords for old crimes, real and imaginary. The landlords took their abuse kneeling, hands tied behind their back, and then were led away and shot. In the cities, the target was anyone who had not thoroughly knuckled under to Communism. Businessmen and intellectuals naturally were suspect.⁴⁴

[T]he casualties of Soviet Chinese purges have been estimated at anywhere from 15 to 20 million human beings, including amongst them the leaven, the flower and the most promising creative potential of a great civilization.⁴⁵

It was the same story in Indochina.

38,000 South Vietnamese... have fled their homes and farms rather than submit to the Red embrace— not counting the 850,000 who fled North Vietnam when the Reds took over there.... Ten *thousand* local leaders have been assassinated within the last two years.⁴⁶

All these grisly examples of the deliberate extermination of the most intelligent segments of whole populations reveal a type of depravity that can brutalize human nature for all time. We

⁴² James W. Useller, *Ordnance*, Sept.-Oct. 1958, pp. 242-43.

⁴³ Nathaniel Weyl and Stefan Possony, *The Geography of Intellect*, Chicago, Regnery, 1963, p. 149.

⁴⁴ *USA* magazine, April 1962, pp. 17-18.

⁴⁵ Weyl and Possony, op. cit., p. 147.

⁴⁶ *Research Institute Report*, July 2, 1965, p. 2.

abhor cannibalism, but here are animals killing their own kind, not even for food. Here is an unprecedented phenomenon in which intelligence-the quality that enabled man to rule the organic world-leads to the extermination of its possessors rather than to their survival. Here is artificial selection leading downward to the level of The masses and working exactly contrary to evolutionary natural selection. The slaughter of the "haves" is conclusive evidence of the power and intentions of the less fit when their revolutionary tendencies are inflamed by rabble-rousers. If these vast liquidations of the middle and upper classes, the repositories of every nation's intelligence and wisdom, spread to the Western countries that have so far escaped them, there will be a quick reversion of the whole species back to the brute stage.

VII

WE ARE THE TARGET

"We will bury you," promised Nikita Khrushchev.

"First we will take Eastern Europe, then the masses of Asia. Then we will surround America, the last citadel of capitalism," promised Lenin.

Today it should be starkly clear that the intelligent and capable peoples of the West have the choice of substantial annihilation in country after country or of becoming more vigorous, numerous and influential. They will be either men of destiny, or victims of destiny. Fundamental to Marxism is the calculated liquidation of the upper and middle classes, including the intelligent elite who alone are capable of effectively opposing the revolutionary leadership. Communists do not tolerate minds capable of penetrating their propaganda.

Intelligent people could, of course, elect to exterminate the revolutionary proportion of the masses before it is able to exterminate them. But this, as human evolution and the survival of the masses demonstrate, is not in keeping with the general disposition of self-reliant individuals who by and large reject class war.

To regard the worldwide threat of communism as a mere "conflict of ideologies" is to overlook the Soviet Union's avowed purpose of world domination. Communism's primary enemies are the men who have sufficient brains not to be duped by Marxist propaganda.

Communism is based upon a fundamental biological phenomenon. It is able to exploit the rapid increase of people with mediocre intelligence, an increase which occurs because natural selection no longer keeps their numbers down. This is the source of inner confidence which gives Marxist revolutionaries the expectation of total world conquest. Even when the failures of communism are fully and painfully evident to thinking persons, it will continue to make gains as the ratio of unthinking people increases. This is why Communists do not have to rely exclusively on war. They need only wait until the intelligent are sufficiently outnumbered in countries not yet under Communist control. They do not anticipate a long wait.

Communism may be delayed by reforms, counter-ideologies, welfare or appeasement— all of which attack the symptoms instead of the causes. But communism will only be stopped by an alert and growing body of intelligent people who leaven their nations as yeast does a rising loaf and who offer competent leadership. The basic answer to the increase of the masses is a proportionate increase of the intelligent. Fortunately, they need not match each other man for man. Ten men of high intelligence can be far more effective than a thousand morons.

It is not sufficient for the intelligent simply to cling to diminishing areas of relative freedom and to diminishing influence within these areas. A system in which each person is free to rise to the level justified by his own ability and energy holds small attraction for those whose ability and energy are in short supply. It does little good to show people that private ownership and free enterprise constitute the most productive system ever evolved, if such people have scant capacity for producing anything. Evidence of productive ability in others does not inspire non-producers to work. It fills them with envy and with the desire to grab the fruits of others' labor. The Communist slogan, "From each according to his ability, to each according to his need," will prevail whenever and wherever poor producers can overpower good producers. When the former are shown by demagogues how to use their collective strength to take the wealth and property of the producing classes, they will overpower all who stand in their way.

It is futile to point out that confiscation only divides existing wealth and slows the creation of new wealth. Scarcity is the inevitable consequence of proletarian revolution. The aroused masses are not perceptive enough to grasp this truism. Their way is to chop down the tree to get at the fruit.

It is essential that the virtues and potential of the enormously productive free-enterprise system be widely taught. But it is by no means sufficient for intelligent men and women quietly to point out to each other the advantages and rewards of laissez-faire. So long as the proportion of intelligent members of society continues to decrease, the trend toward their political and economic exploitation will be accelerated and will almost surely end in revolution. It is impossible to hold on to freedom unless a sufficient proportion of the population understands the difference between liberty and license and is capable of using liberty constructively.

Men are qualified for civil liberty in exact proportion to their disposition to put moral chains upon their own appetites; in proportion as their love of justice is above their rapacity; in proportion as their soundness and sobriety of understanding is above their vanity and presumption; in proportion as they are more disposed to listen to the counsels of the wise and good in preference to the flattery of knaves. Society cannot exist unless a controlling power upon the will and appetite be placed somewhere, and the less of it there is within, the more there must be without. It is ordained in the eternal constitution of things that men of intemperate minds cannot be free; their passions forge their fetters.⁴⁷

Now is a crucial time in man's evolution. Will the masses and their irresponsible leaders conquer everywhere and substantially exterminate the intelligent, who alone can carry evolution forward? Will the turning point be inevitably and irrevocably downward for mankind everywhere?

The first step of a successful counteroffensive must be the strengthening of the ranks of those with the will and the wits to resist communism. This truth is still not rightly understood in the diminishing number of nations that have not undergone proletarian revolutions. The only truly effective way to resist the revolt of the masses is to raise the intelligence level of the nation's population.

Education can spread knowledge and improve the ways and means of using intelligence but it cannot create intelligence. Much of the potential for intelligence is determined in the womb. And the world's supply of intelligence can only be increased by intelligent couples bearing more children. Like so many things, this is more easily said than done, but it is by no means impossible. It can be done legally, morally and naturally, within the framework of our present society.

This is the very crux of the matter. The future evolution of man hangs upon the answers to the questions: Will our more intelligent men and women continue to decline in numbers until the remnant is too weak to resist extermination? Or will they overcome their self-imposed infertility and advance to ever higher levels of intelligence and achievement?

⁴⁷ Edmund Burke, in a letter written in 1791 to a member of the French National Assembly, as quoted in *Science*, May 10, 1968, p. 602.

VIII

A LOOK BACK

“If we could first know where we are, and whither we are tending, we could better judge what to do and how to do it.”

—Abraham Lincoln

Thousands of able men have labored to unearth the evidence of evolution. Other thousands have sought to understand and explain how nature has allocated widely differing amounts of wisdom and ability among men. Out of all this work, which is still in progress, comes the knowledge that allows us to chart, more surely than ever before, where man stands on the evolutionary curve at this precise moment. Whatever else can be said about it, we are in a tense, stirring and decisive time.

Today we can comprehend the slow, but truly transfiguring effect of the cruel contest known as the survival of the fittest. We see how, for millions of years, it tended to select the best-adapted individuals to produce the next generation. We can trace roughly the process by which man became the possessor of such mental power he could dominate the organic and inorganic worlds. Yet we also see that man in the past 13,000 years has largely retreated from the fierce struggle responsible for the development of his high intelligence. As a consequence, his brain has ceased to increase. On the whole, he may not even maintain the level of intelligence he reached under the guidance of natural selection. Because there are now so many more of him, there are more brains at work than ever before and, because of the accumulation and dissemination of knowledge, far more information and tools to work with. Nevertheless, many negative influences are operating to reduce man's laboriously acquired innate capabilities.

With typical adolescent enthusiasm, man left his natural surroundings and set off on a series of wild and brilliant adventures. With typical adolescent energy, he erected elaborate civilizations time and again, only to see them collapse, one after another. This erosion was due to the fact that the very people who had created these high cultures did not sufficiently replace themselves. The biological resources that made the great, highly complex social systems possible were not adequately renewed. Piece by piece the systems, including the "eternal" Roman Empire, fell apart. The decline and fall of twenty-one civilizations demonstrates that man can build great societies, but has not learned to maintain and preserve them beyond a limited time.

Man, the heir to more than a score of civilizations, is now living in the most pervasive and powerful one that ever existed— one that appears to be slightly past its zenith. Among many other adverse signs, great wars of destruction since 1914 have made this century the bloodiest in history. Man in general seems to be relinquishing the touchstone of intelligence which made him lord of the Earth and the gradual loss of which is accelerating the demise of his present civilization. In fact, his situation has been so drastically altered that intelligence has actually come to have a potential for extinction rather than for survival.

Man's ascent to his present level, both biological and cultural, has been irregularly upward. Each advance has reached certain peaks of development and then fallen back. New advances by new peoples have then built upon the remnants of the old foundations. However, the latest biological attainments have not equaled those of the Cro-Magnons and the latest cultural attainments have not approached the marvels of Greek civilization.

At this moment man, like the lemmings, appears to be heading toward a condition of overcrowding which can only be relieved by drastic and politically unacceptable means. Though the surge of technology has given him greater power than ever before, the degenerative forces working from within seem to be leading him toward self-impairment and potential self-destruction.

Our food-producing abilities have been so enhanced by the scientific improvement of agriculture that we can still feed millions of newborn each year, while also providing for the increase of total population caused by the declining death-rate. Yet it is no longer the intelligent who gain biological advantage from the scientific miracles they have wrought, but the proliferating masses of the less intelligent. Medical science is keeping more of the defective population alive than ever before, while our best brains, heavily addicted to birth control, do little to correct the decrease in their own numbers. For example, the birthrate of the Anglo-Saxons, Dutch, Germans and other Northern Europeans who founded the United States has been reduced from eight per couple, the rate from 1620 to 1820, to less than two per couple today.

Whatever the reasons— and we have only touched some of them— too many of our highly competent citizens are failing to increase proportionately in the stupendous world population explosion. The opportunity so eagerly awaited by the Communist masters of the masses comes when a free country has too few leaders of ability and when the population as a whole is too unintelligent to vote into office the ablest that still remain (a state of affairs which is already beginning to exist). Then, in the subsequent economic and political chaos the revolutionary cadres take over by insurrection from within or attack from without, or both. Once in control, they proceed to eliminate those who do not think and act as Marxism says they should. To be doubly secure, the Communists also liquidate most of those who think for themselves at all. Good minds are a great threat to the best-laid plans of Marxist big brothers.

This is a grim prospect for thoughtful people. It calls for great decisions— the most momentous in human history. If, as some have calculated, the Earth is about halfway through its cycle of existence, what will be the fate of man through the five billion years that remain before our planet becomes inhospitable to human life? Will the masses be permitted to continue their engulfment of the intelligent? Will high intelligence eventually prove to be self-extinguishing—a biological failure as a result of its own interference with natural selection? Or will man use his profound knowledge of biology to better his inherent abilities?

Unless great decisions are made and implemented very soon, victory in the war between the lower and higher elements of mankind seems destined to be handed to the former.

IX

A LOOK AHEAD

“Man may be excused for feeling some pride at having risen, though not through his own exertions, to the very summit of the organic scale; and the fact of his having thus risen... may give him hope for a still higher destiny....”

—Charles Darwin

Pessimists might say we have only two alternatives. We can revert to the ice age form of natural selection which was so fatal to the unintelligent. This would mean a cataclysmic return to the hunting stages of our development.

Or we can continue our present drift toward average dullness, so fatal to the intelligent.

However, there is a solution which is infinitely more humane and practical than the choices just given.

No one man devised this solution, but many superior minds contributed to it. It is mankind's greatest cumulative discovery. It is only concealed from most eyes because it transforms gradually instead of swiftly. It can increase man's inner resources until he is not only equal to the gigantic biological tasks facing him, but is able to go on to better things. One of the several names for this solution, the logical successor to natural selection, is intelligent selection.

Man is young as species go. He doesn't have to accept senility and decline as inevitable. Already he has within his grasp the knowledge to make himself a better man than his forebears. Intelligent selection gives him the remarkable opportunity to control his own evolution. He may scorn to use the knowledge, even as the mighty Cro-Magnon hunters appear to have spurned the grubby techniques of stone-polishing and primitive agriculture. Or he may utilize the constructive evolutionary powers which great minds have placed in his hand. Whether he uses or rejects his new opportunities will determine whether his future trends upward or downward. It will be one or the other because change, sometimes swift, sometimes slow, is the first law of the high organic world of which he is a part.

For the first time in the history of humanity a crumbling civilization is capable of discerning the causes of its decay. For the first time it has at its disposal the gigantic strength of science. Will we utilize this knowledge, this power? It is our only hope of escaping the fate common to all great civilizations of the past. Our destiny is in our hands. On the new road, we must now go forward.⁴⁸

For more than 10,000 years man has had cultural progress at the price of genetic stagnation or regression. No longer is it necessary for him to pay such a huge and intolerable price. He can have both cultural and genetic progress.

Intelligent selection is neither new nor untried. Since man first domesticated plants and animals, he has used it with increasing effectiveness. He has taken the sour wild crabapple and transformed it into a sweet, delicious and much more nutritious fruit. He has taken wild chickens and doubled their size and increased their egg-laying capacity many times. He has taken wild dogs and created canines of greater strength, greater speed and quicker minds. Intelligent selection offers man an opportunity never given to any other species— a chance to

⁴⁸ Alexis Carrel, *Man the Unknown*, New York, Harper, 1939, pp. 321-22.

transcend the limitations and cruelties of the natural selection which shaped his destiny for so long.

Intelligent selection is the means whereby the more intelligent people will bring more of their kind into the world. Instead of killing off the unfit at an early age, as primitive natural selection did, it would simply slow the rate at which the unintelligent breed, while encouraging the intelligent to breed at a higher rate. This is an elementary procedure in the science of husbandry, yet when humans seek to apply it to themselves, they are confronted by a mass of altruistic emotions and attitudes inherited from our distant past.

Intelligent selection need not be imposed. Like government with the consent of the governed, it may be employed voluntarily by any group concerned enough and enlightened enough to put it into effect. Man is self-domesticated. He can also be self-selecting. It is as though a beneficent Providence, seeing man faltering and beginning to retrogress, chose to reveal to him in his time of need certain secrets of his being, so he might save himself from the biological degradation brought about by his own indiscriminate breeding. Only lack of understanding or downright inertia prevents man from benefiting from his own greatest discovery.

We have seen how man has been able to control his environment to such an extent that it acts as a counterforce to natural selection. The stages in this control— weapons, tools, fire, agriculture, industrialization and science— pale in comparison to the potentialities of what now lies before him. The resources of intelligent selection, capably utilized, can enable him to rise above the limitations, not only of himself and his environment, but of the evolutionary process itself. It will allow him to break the cycle of progression and regression which has been characteristic of all animal societies, including his own. It may stimulate his ascent toward a new level of being, of which his present organic status may be only the crude beginning. He may become, not just the latest creature in a succession of dominant creatures, but the first to direct and shape the unfolding of his own biological makeup. The mastery of fire was man's first conquest of the forces of nature. The mastery of his own evolution would be his greatest.

"When... we consider the logical consequences of the application of the science of genetics to man," H. J. Muller wrote, "we see progress of a hitherto inconceivable kind opening before us."

Intelligent selection would work much more rapidly and benignly than natural selection, while offering the greatest of all opportunities for human betterment.

Man in this moment of his history has emerged in greater supremacy over the forces of nature than has ever been dreamed of before. He has it in his power to solve quite easily the problems of material existence. He has conquered the wild beasts, and he has even conquered the insects and microbes. There lies before him, as he wishes, a golden age of peace and progress. All is in his hand. He has only to conquer his last and worst enemy— himself.⁴⁹

If a major nation were to pursue intelligent selection diligently and have so much as a one-generation lead over the rest of the world, no other nation would ever be able to catch up with it.

In this era of highly technical warfare it becomes ever more evident that the most critical and strategic commodity of all is brainpower. Great nations have fallen because of a small,

⁴⁹ Winston Churchill, March 28, 1950.

relative deficiency of it. Others have won out despite severe shortages of men and materiel. Today, defeat will come swiftly and surely to the nation which falls behind in brainpower.

X

DEFICIENT MINDS

“Man is gifted with pity and other kindly feelings; he has also the power of preventing many kinds of suffering. I conceive it to fall well within his province to replace Natural Selection by other processes that are more merciful and not less effective.”

—Sir Francis Galton

We may be determined to go forward, but the path must be taken one step at a time. Ascent is not so easy as descent. First we must ask ourselves if it is possible, consonant with our laws and traditions, to put intelligent selection to work for us. The essence of intelligent selection is for intelligent men and women to release the natural fertility which they have repressed so long. At the same time, the mentally deficient should be helped to reduce their reproduction rate. It is more easily said than done. But it can be done. The sooner and better it is done, the better it will be for everyone except some demagogues. This brings us to a discussion of concrete measures for lowering the reproduction rate of the dull, irresponsible segment of mankind which has remained most primitive in its child-bearing habits. Among this segment are found most of the mental defectives.

Feeble-mindedness is an absolute dead-weight on the race. It is an evil that is unmitigated. The heavy and complicated social burdens and injuries it inflicts on the present generation are without compensation, while the unquestionable fact that in any degree it is highly inheritable renders it a deteriorating poison to the race; it depreciates the quality of a people.⁵⁰

Killing human beings except in wartime or as punishment for the most extreme crimes is not a permissible practice in most present-day societies. That is to say, most governments do not allow taking life once it has begun. However, societies do accept the prevention of life. The death of cast-off sperm or egg cells is not the same order of tragedy as the death of a living human being at even the earliest stage of its development. Women who bear many children still produce hundreds of ova which die infertile. Every man wastes hundreds of millions of spermatozoa for each one which joins an ovum to produce a child. We lock up criminals and the insane, thereby restricting their opportunity to reproduce. Nuns and priests are forbidden the reproductive act. We buy all sorts of contraceptive devices. We look with complacency upon childlessness among highly able and intelligent people, although this practice means the irretrievable loss of some of the most precious human genes. Accordingly, to lower the reproduction rate of deficient and defective individuals calls for no great change in attitude, especially if the reduction is voluntary, as it can be with simplified techniques of sterilization and contraception.

We are now alert to the most common and most dangerous communicable diseases and we can substantially control them. But we are relatively apathetic toward hereditary diseases and defects. We must overcome this apathy in such a way that it will no longer lead to the further increase of those who are a burden and a detriment to society. Why, for example, should we continue to finance the proliferation of those who cannot make their own way in life? It places a growing financial load on our own children.

⁵⁰ Havelock Ellis, *The Task of Social Hygiene*, New York, Houghton Muffin, 1912, p. 43.

Multibillion-dollar welfare programs are working against reducing the number of the defective and deficient. Many of the programs actually subsidize the increase of the problem-making population. This is what one of the great minds of our time calls "humanitarianism gone berserk." However compassionate and politically expedient government aid to the disadvantaged may be, as it is presently carried out, it constitutes a biological blunder of the first magnitude. The world will be forever the worse for it. Yet, the compassion can be retained while correcting the blunder.

Let the needy receive aid, especially victims of accidents or those afflicted with nonhereditary diseases. But when we give it let us be sure to ask ourselves this question: If people cannot support themselves and their families during the prime of life, when can they? At the very least such persons should be discouraged from producing offspring who have a strong chance of turning out like their parents. Let the disadvantaged, be offered a simple means of birth control. Equally important, let them be thoroughly instructed in the use of the contraceptive means they select.

Some who think they are preserving human rights try to maintain that, when the accidents of heredity make men or women a liability to themselves as well as to others, such men or women should be free to inflict a similar liability on their children. This is surely one of the curiosities of human misunderstanding. Compassion for the unfortunates, yes. But if their mental affliction is hereditary, let us help them *not* to have children who would be likely to have the same affliction. To assert that people should be free to pass on their deficiencies is like arguing that a leper should be free to infect his own offspring.

The ignorant may be taught. The wicked may be reformed or disciplined. But against innate stupidity, what can be done? Short of eliminating most of the incompetent, as natural selection did, we can only strive to reduce their proliferation in coming generations. If we were to spend as much money and effort in discouraging the multiplication of human deficiencies as is now spent helping the deficient to multiply, there would be an enormous reduction in the ranks of the incompetent. Furthermore, the incentive-killing and suffocating weight of welfare would be lifted from the capable elements of our population, leaving them freer for more constructive and more creative pursuits.

Anyone who doubts the often poor inheritance of the mentally retarded person should read the... magnificent study made by the Doctors Reed, of the University of Minnesota, of seven generations of mentally retarded people. Another fact that every physician should know is that when some genes which govern the development of the brain go wrong, several different conditions can show up, ranging from psychosis to eccentricity, neurosis, alcoholism, minor equivalents of psychosis, criminality, feeble-mindedness, and epilepsy.

This fact was proved up to the hilt during a study made years ago by Dr. Serge Androp.... Because Dr. Androp had spent thirteen years in the little city of Gallipolis, Ohio, he knew well the members of some 200 families, many members of which had been cursed by a bad nervous system; also, because he had access to state and hospital records of the antecedents of these people, he was able to make and publish 56 charts—astounding charts—showing how several nervous abnormalities had come down through several generations of certain very unfortunate families.

For instance, in one case (the S family) in which a feebleminded man married an intelligent woman, in two generations, they produced 4 feebleminded children, 1 epileptic, 1 insane person, 3 criminals, 1 alcoholic, 1 suicide, 1 immoral woman, and 1 pauper.

In the M family... there were 4 feebleminded, 2 insane, 4 epileptic, and 5 criminal persons. In the McM family... there were 5 feebleminded, 4 epileptic, 4 insane, 5 violent-tempered, and 1 alcoholic person. In the L family... there were 9 feebleminded, 1 criminal, and 2 insane persons.⁵¹

It is not that childbearing should be off limits to unintelligent people. This would only be justified in such extreme cases as persistent criminality and incurable and uncontrollable hereditary diseases. It is simply that the reproduction of the less useful members of society should not be encouraged and subsidized. More important, they should not be prevented from obtaining information about contraception. We should be as charitable to the unfortunate as our circumstances permit, but we should not assist those with hereditary mental deficiencies to incapacitate their descendants. If we continue to do so, *Homo sapiens* will become increasingly less sapient. Simple devices and precautions which enable those with transmittable defects to control their reproduction are now widely available. We must see that the unfortunate ones know about and are encouraged to use contraceptive techniques.

⁵¹ Walter C. Alvarez, *Modern Medicine*, March 11, 1968, p. 85.

XI

RAISING THE INTELLIGENCE LEVEL

We now present five proposals to stimulate the interest of intelligent couples in childbearing.

1. Help to Married Graduate Students

Our coeducational colleges, hardly in existence a century ago, provide special opportunities for intelligent young men and women to meet. Insofar as colleges bring together gifted persons who may eventually marry, they contribute to the concentration of intelligence in some very fortunate children. But, insofar as the economic demands of higher education discourage students from early marriage and childbearing, the total fund of human intelligence tends to be diminished. The reproductive rate of highly educated couples is approaching zero.

Therein lies the irony of contemporary higher education. The more knowledge amassed by our society, the more years must be devoted to study by those who would master even one specialized part of it. The more intelligent the individual, the longer he may wish or need to attend a university, and the longer he will put off supporting a family. Accordingly, he ends up with fewer children than a less educated person.

Searching out and training our best minds represents efficient use of existing brainpower, but it also constitutes scraping the bottom of the intelligence barrel while discouraging its replacement. This shortsighted exploitation of our most precious natural resource can be compared to cutting down rare specimens of trees without providing for their reseeded. Though it's hard to believe, one of our greatest cultural achievements—higher education—has been transformed into an instrument of genetic regression. Godfrey Thomson put it this way, "The educational system of the country acts as a sieve to sift out the more intelligent and destroy their posterity."

If the downward cycle were changed into an ascending spiral, it would permit society to flourish beyond all imagining. There is nothing basically incompatible between acquiring a higher education and bearing children. Students do not choose to be in a poor financial situation during this (potentially) most fertile period of their lives. It's the system of extended education and the consequent economic pressures which make them less fertile.

It goes without saying that intelligent young men and women should not defer childbearing until their years of greatest fecundity are past. Even if they are not self-supporting in these years, they should be persuaded to have children. The adverse economics can be improved, at least for the most deserving couples, by other intelligent individuals who are older and more affluent. The great foundations might also lend a hand

This is a constructive plan, not a destructive one. It is gradual, not revolutionary or violent, though nonetheless urgent. It contemplates the day when so many of the finest and brightest young graduate students are parents that childless couples will feel ashamed of their own barrenness and be caught up in the spirit of procreation.

Our society annually spends hundreds of millions of dollars to support the breeding of indolent people of low intelligence. Cannot we do as much for young couples of high intelligence? The children of bright and healthy graduate students would be far less a burden than the deficient offspring now financed by welfare. When they grow up, the children of college graduates are more likely to become social assets instead of liabilities. It would be difficult to imagine an investment which would yield higher human returns.

Those parents who have children or grandchildren in college should give them all the help they can. Action becomes more imperative as higher education demands more and more

years from increasing numbers of intelligent young adults. Bright young men should not refrain from marriage until they can support their wives. A carry-over from a largely agricultural economy, this attitude leads to a considerable amount of campus immorality. Our materialistic society needs to recognize more fully that marriage is primarily a biological, not an economic, matter. Good students who want to marry are instinctively on the right path. It is the extended and prolonged education which is unnatural.

Parents should realize that discouraging their children from marriage while acquiring an advanced education may result in the extinction of the family line. College administrators should recognize the situation and plan living quarters for married couples, as well as nurseries and daycare centers for their children so that higher education, particularly postgraduate studies, will not require bachelorhood. Professional training and having children should go together.

Colleges and universities should consider reducing tuition fees for students with children. Such students are producing the best kind of future citizens, while childless students produce no biological assets at all. Awards for reproductive students should also be considered. If a nation can combine normal childbearing with higher learning, it will become invulnerable.

2. Corporate Donors

Corporations search colleges for technical competence and executive potential. The search grows more intense and less productive as the need for capable personnel grows.

Today, for the first time in our history, we are running short of skilled technical brainpower. The broad-scale application of advanced technology has increased our consumption of technically trained persons to the point at which our available supply is no longer sufficient to meet our needs. The disparity between supply and demand has been emphasized by the officials of two hundred large companies which together employ well over half of all scientists and engineers in industrial research and development in the United States... the officials of more than half of these companies reported that shortages of technical manpower are either hindering present research activities or preventing desired expansions in their research and development program.⁵²

Limitations on corporate growth now depend less on available capital and more on the competence of employees. Many corporations are able to generate needed capital through retained earnings. They can also generate the brains they will need by encouraging the birth of bright children. Farsighted corporations should progress from the primitive hunting stage to the husbandry stage in acquiring qualified personnel. Funds should be set aside to enable brilliant young engineers, scientists and business management students—the top-ranking young men corporations are looking for—to marry and to have children while completing their education.

Corporations are excellently suited to accomplish this, for they are theoretically as long-lived as the governments which charter them. Their continuity enables them to reap future harvests of intelligent employees. In the United States the laws permit five percent of pre-tax earnings to be deducted if properly expended for such purposes.

Since ours is still a relatively free society, the student's offspring, when grown, would not be committed to work for the corporation which helped to finance their existence. But the father

⁵² C. G. Darwin, *The Next Million Years*, p. 31.

of children financed by a corporation would be more inclined to work for his benefactor after getting his degree than for any other firm.

The company long managed by the author of this book utilized a variant of this plan. Young employees who were "corners," if they were married to an intelligent young woman and had at least one normal child, could charge to the company the prenatal and obstetrical care of each additional child. Also, depending on the employee's potential value to the company, we offered to pay some or all of the cost of the advanced education of his additional child or children. This was handled through endowment insurance with the employee's children as beneficiaries. In the author's opinion, the larger a man's family the less likely he will move away from his place of employment. Deferred profit-sharing compensation and the cost-sharing plan outlined above, are mutually reinforcing. In addition, we had some good second-generation "dividends" coming along, because of our preferred status as a employer.

If the best employees of any company are not raising children capable of succeeding them in the years to come, the firm is neglecting one of the best means of business growth. "Raising your own" is at least as sensible as outbidding other companies for personnel and thereby raising employment costs all around.

3. Communities for Children

The high degree of urbanization which is characteristic of the late stages of civilization appears to be a major cause of thinning the ranks of intelligent men and women. Since children are more of an encumbrance in large urban centers than elsewhere, their number tends to be severely limited by bright city couples.

[T]here is a curious characteristic of the city which seems in all ages and all regions to have led to a lowered rate of reproduction. Mortality has perhaps often tended to be higher in cities than in the country, because of the increased hazards of disease; but fertility has also tended to be lower. It has been asserted that the great city has never reproduced itself, but has always depended on immigration from surrounding territory....⁵³

This distressing situation suggests yet another approach to raising the level of human intelligence—the creation of an urban environment conducive to the bearing and rearing of children. In appropriate areas special residence units could be constructed for couples who meet certain standards of intelligence. Attractive homes with at least three bedrooms would surround a supervised children's park and play area that would also contain a day-care center (see next page).

Mothers, liberated from day-and-night child watching, would then be free to recuperate rapidly from childbearing. Surrounded by other mothers and mothers-to-be, they would be inclined to have more children than otherwise.

Occupancy within such subdivisions would be limited to those who had at least one child and planned to have more. Rents would be nominal, thereby easing the father's pocketbook. The relatively homogeneous and select groups living in such subdivisions would attract other members of the "brightest and the best." Fathers and mothers could be with their children as much as they wished. Alternatively, they could have more time for their outside interests.

⁵³ Marston Bates, *The Prevalence of People*. New York, Scribner's, 1955, p. 57.

Where means permit, professional child care could be available all or part of the time. Where means do not permit, the mothers could rotate in supervising the play and care area. Fathers would rotate duty on weekends and holidays.

Colleges and universities should have one or more such subdivisions for outstanding students and young faculty members. The money would be well spent.

Religious denominations that built such accommodations near campuses for young married couples would be likely to have more bright youngsters for church membership.

4. Youth Farms

Farms are unquestionably the best place for children. They are safer and more wholesome than cities and represent the most inexpensive way to raise a new generation. Equally important, most children are much happier when living a life that gives them the outdoor physical activity needed to develop their bodies, while reducing their emotional problems to a minimum.

Youth farms should be accessible to cities and schools. They need not be on the best land, for their most valuable harvest would be children. There should be cows, chickens, pasture, orchard, wood lot, truck garden, hayfield, workshop and simple, fireproof accommodations for a moderate number of youngsters.

These farms would also serve some of the same functions as private boarding schools, but would be far less expensive because the children would be partially self-sustaining and would attend local public schools. The boys and girls could visit their parents on weekends and on vacations. Parents could visit their youngsters on the farms and work with them whenever possible.

A major factor in the success or failure of a youth farm would be the people in charge. There are many warm-hearted and industrious farm-owning couples who would accommodate, for a consideration, young guests from a nearby city. Or qualified couples could be selected to manage farms organized specifically for youngsters. The total cost of raising a child on a youth farm would certainly be much less than it would cost to raise him or her in a city.

The project is not without its problems, but neither is city or suburban living, which often demands extensive commuting. Youth farms are a way for intelligent people, who now gravitate to cities, to combine an urban way of life with a normal number of bright children.

5. Germinal Repositories

In the United States tens of thousands of children are born each year as a result of artificial insemination. The births derive largely from the inseminations of women who are unable to have children by their husbands. Both spouses prefer this method to child adoption, for it gives the wife genuine motherhood and thereby consummates her principal biological function. Also, husbands are inclined to accept and love children borne by their own wives.

It is estimated that from one to five million fertile American wives are deprived of maternity by the infertility of their husbands. The same ratio probably holds in most other Western countries.

Artificial insemination makes it unnecessary for the germinal father and mother to meet. A physician acts as the intermediary. If the male donors were in the ninety-five percentile or above, the mothers would bear the brightest children they were capable of bearing. If the mothers were also highly gifted, then children of superior capabilities, who would never have been born otherwise, might in some cases make important contributions to mankind.

But this method of solving the problem of infertility, so potentially beneficial to everyone, has not yet been widely adopted. One reason is that few men who fit the desired qualifications are inclined to put themselves on call to a physician.

Fortunately, a way has been found to surmount these handicaps. It is now possible to keep male sperm viable under deep refrigeration for ten years or more. Donors may contribute at their convenience and with complete anonymity and detachment. Children may even be fathered by men long dead. Consider what it would mean to scientific progress if another twenty or more children of Lord Rutherford or Louis Pasteur could have been brought into the world by highly qualified women whose own husbands were infertile. Consider the gains to society if this new technique had been available to engender additional sons of Thomas Edison.

Artificial insemination in humans was suggested by Hermann J. Muller in 1908. The first sperm bank for preserving the genes of some of our most creative scientists and supplying them for artificial insemination was established in 1976. It is called the Repository for Germinal Choice, P.O. Box 2876, Escondido, California 92025. For the present, donors are limited to Nobel laureates in science who are relatively young and free of genetic defects.

As sperm banks are not expensive, every large metropolitan center should have at least one. It would then be possible to produce thousands— even hundreds of thousands— of future contributors to the strength and progress of mankind. It could be expected that the proportion of geniuses in the population would increase exponentially. That part of the process of natural selection which assured that the brightest men left the most children would be at least partially restored.

As Weyl and Possony have written, the method "has the potentiality of determining which... countries will have the mental power necessary for world leadership in science, the arts and political and economic development...."⁵⁴

⁵⁴ Weyl and Possony, *The Geography of Intellect*, p. 251.

XII

THE GREATEST SUCCESS STORY

Measures to encourage intelligent men and women to have more children are of crucial importance to a brighter future for man. The proposals made in the previous chapter are only a small fraction of the possibilities. Everything, of course, depends on the attitude of intelligent couples toward parenthood. This is the pivotal issue. If everyone decided to have no children, mankind would be extinct within a hundred years. If only the most intelligent men and women elected to have children, the average intelligence of *Homo sapiens* would increase considerably in only a generation. If intelligent parents everywhere could be persuaded to have more children, nothing would be of greater benefit to mankind. There would be more wealth, higher standards of health and new sources of food, comfort, well-being and enjoyment.

If some young adults delay marriage or put off childbearing, they should remember that their father and mother did not give them love and care in order to be paid back. They gave it so that their children, in turn, would pass it on to *their* children, even as their parents gave it to them. *The children debt is to the next generation, not to the previous one.*

As the world becomes overcrowded with below-average underachievers, we desperately need more achievers. That is why competent young people today are in such demand and have so many opportunities. Despite threats of war, inflation and racial conflict, the Western child of today can expect to live seventy or more years and enjoy the highest living standards ever known to man. He can expect to see more of the world, labor less and live a fuller life than members of all previous generations. If you can have superior children, and there is a question of whether or not to have more, have them. Since we will live longer than our own parents and since children are the greatest interest, comfort and protection we can have in later life, they are the best investment young people can make. They will enrich your life and love you well into your old age. Nothing brings such deep and lasting satisfaction as a large family. If you are intelligent enough and thoughtful enough to consider the ideas set forth in this book, there should be many more of you. The world needs more of what you can give it.

If you can give to your children, in the words of Admiral Rickover, "the most lasting, the most persistently satisfying, the most all-around useful of natural endowments—a really good mind," then give this priceless gift liberally. It may be given again and again while your store of it remains undiminished. This is "the cress which never runs dry." It is more precious by far than Aladdin's lamp, if not so fast-acting. Many of your friends and business acquaintances possess good minds—because you tend to associate with others like yourself. But in the aggregate, relatively few possess superior mental capabilities. If you are one who does, be generous with them. Increase the number of good minds in your church, your city and your nation. As Miller Upton, president of Beloit College writes, "the quality of any society is directly related to the quality of the individuals who make it up."

Today the impulse to exhibit material evidences of success is so strong it drives able men to burn themselves out and able women to limit the size of their families. The money gained is spent on elaborate homes and on a wasteful social life. Now that economic success is heavily penalized by taxes, the habit of trying to outdo the Joneses has become an anachronism. There are many other forms of success than the acquisition of money, influence and transient fame. The greatest success of all, and the one most enduring and most satisfying, is success at bringing into the world numerous other human beings who are as good as or better than ourselves. This is in true accordance with Nature's plan.

How Many Children?

Putting aside the problematic results of fertility pills, the number of children a couple may have varies from none to sixty-nine (the number of offspring produced by an Austrian woman named Mrs. Scheinberg). Neither of these extremes represents the ideal. An intelligent couple that has no children condemns to death

the genes for intelligence of which the couple is the living custodian. An intelligent couple that has as many children as possible would maximize its genetic contribution to the next generation, but might impair the environmental and educational advantages which the parents could offer a moderate number of children. Moderation is usually best.

The person who fails to reproduce cannot be a complete success at life, no matter how successful he or she may be in other ways. For himself or herself the life score stands at zero. Whoever fails to hand down what has been handed down to him in unbroken succession since the beginning of life is the destroyer of his potential descendants. He becomes an evolutionary dead end, the perpetrator of nature's unforgivable sin. For defective or deficient individuals this is not a great tragedy. They are already the victims of biological regression. But when it comes to intelligent humans, of all the sins of omission, none is so grave as the willful termination of the genetic continuum which led to their own existence—none so bad as the ending of that precious chain in which they have made themselves the terminal link. The fertile yet childless adult who is the repository of genes responsible for high intelligence is a faithless repository. That portion of the human gene pool of which he or she is the sole guardian has been irretrievably lost. In that loss mankind has died a little.

The disappearance of genes for high intelligence is a defeat for the uniqueness of man, an erosion of the essence of the human condition. The childlessness of an Isaac Newton or a George Washington, the extinction of the Lincoln family, the spinsterhood of the brightest girl in the class, are great biological tragedies. As a result, man is deprived of some of that essential quality which separates him from the apes.

Every intelligent person who appreciates and enjoys the cultured life of a hard-won civilization should, moreover, reflect that by his failure to breed, in the face of a rising tide of defective intelligences, he brings a relapse into brutality one step nearer.⁵⁵

Bright, healthy and fertile individuals who deliberately have no children are not to be regarded as smart, but as forfeiters of their birthright. In future societies they may well be designated as criminal delinquents.

Charles Darwin's grandfather was Erasmus Darwin, physician, poet and philosopher, and independent expounder of the doctrine of organic evolution. Darwin's father was a distinguished physician, described by his son as 'the wisest man I ever knew.' Darwin's maternal grandfather was Josiah Wedgwood, the famous founder of the pottery works. Amongst his first cousins is Sir Francis Galton. He has four living sons, each a man of great distinction, including Mr. Francis Darwin and Sir George Darwin, both of them original thinkers, honored by the presidency of the British Association. No one will put such a case as this down to pure chance or to the influence of environment alone. This is evidently, like many others, a greatly distinguished stock. The

⁵⁵ Raymond Cattell, *The Fight for Our National Intelligence*, London, King, 1937, p. 139.

worth of such families to a nation is wholly beyond anyone's powers of estimation. What if Erasmus Darwin had never married!⁵⁶

For a superior couple to have but one child is so inadequate a performance it deserves no comment. If you fit the above classification but it is impossible for you to have more than one child, then you deserve the sympathy of parents who are more fortunate. On the other hand, if you deliberately limit your family to one child when you might have more, you deserve no sympathy. You are a reproductive malingeringer. One child is a distraction, but several children constitute the most natural career for the mother.

Two children are a good beginning for a young couple. Yet for two bright adults to produce but two offspring does not fully live up to their obligation to the continuity of their species, since even with all the advanced medical techniques of the present day not all children reach the age of reproduction and marry.

If you can have children with better than average intelligence, yet contemplate stopping with only one or two, you may attain a higher socioeconomic status than otherwise, but only by suppressing the lives of several possibly superior children. When you think about it, are you really willing to be an accessory to this subtle form of stifling lives? Some parents are willing, perhaps because they do not realize they are trying to acquire the material things of life by cheating on life. And the few children they do have may eventually turn out to be inadequate parents because children belonging to small families are themselves inclined to be poor reproducers. Do you want your own biological deficiency to be imitated by your children when they grow up?

If circumstances beyond your control have restricted you to two offspring, the best thing to do is encourage and assist your own limited progeny, in their time, to raise your family's score.

Until a couple has three children, husband and wife are biologically deficient. The purpose of their union is only partially fulfilled. They may satisfy their sexual and parental urges, but they have not fully paid their biological debt.

Three children are the least a couple may have and still not contribute to an impoverishment of the human gene pool. Three qualify the parents as biological winners. However, three represent numerical success only. It would be a satisfactory performance if the population were static, but the population is far from static. Relatively, three children are well below the world average.

We have no difficulty understanding how couples with only one child diminish their race. We should also realize that couples with less than four children diminish their race relatively when the general population is doubling every thirty years or so.

It is one of the miracles of children that each added child is on the whole much less trouble than the last. Yet each is an experience almost as wonderful and joyful as the first. No matter how often it is repeated, the creation of new life retains its magnificent mystique, while the ability to love, rear and enjoy children increases as the family increases. The more children there are, the more the older ones help the younger. The larger the family, the richer the whole life of every member.

Here it should be emphasized that this book is not engaged in a numbers game. The world is overpopulated, but it is not overpopulated with intelligence. If intelligent people don't have more children than unintelligent people, mankind is heading for disaster. If unintelligent par-

⁵⁶ Caleb Saleeby, *Parenthood and Race Culture*, New York, Moffat, 1909, p. 336.

ents average four or five children each, then intelligent parents must average five to six children. The most sensible solution to the problem is to reduce the birthrate of unintelligent parents to well below the replacement level. Until this happens, however intelligent parents must on the average at least double the size of their present families. *The more intelligent you are, the more children you should have.*

Those with small families try to rationalize their behavior with excuses about inflation, the high cost of living, overpopulation, the desire not to be tied down, the threat of war, etc. But those who have an adequate number of children need not look for excuses. They sense their affinity with nature, their fulfillment of life's chief purpose. The sleeker car or more expensive neighborhood which the biological malingerers can afford— since they spend most of their income on themselves— are not envied by those who have the deeper and more fundamental satisfactions that derive from a large family.

History is full of regrets expressed in old age by men who had sought fame or fortune and felt that their years had been misspent. We cannot recall ever having heard of a man who, after bringing up successfully a family of superior children, expressed regret opportunities.⁵⁷

In our society, which is thinning at the top, some attitudes toward large families have become so irrational that it is well to point out that a normal young woman who marries five years after puberty and who does not restrict her child-bearing could expect to be the mother of thirteen children, fifteen if she marries earlier. For a healthy husband and wife to have only 10 or 20 percent of the offspring they could have indicates some unnatural restraint upon the woman's reproductive faculties. Opinions on family size should be based, not on shifting opinions as to what is a faddish number, but on the facts of nature.

Childbearing is far easier and safer than it was even fifty years ago. If the mothers of our nation when it was young could average eight children, five or more is indeed a modest goal. The safety of mothers at childbirth has increased drastically in the United States....⁵⁸

Those with ample funds can find no more constructive project than encouraging young and capable parents to have additional children. Those with time on their hands can have no more fascinating avocation than persuading bright young couples to have a substantial family. The whole development of man shows clearly that his supreme purpose in life is to evolve upward in intelligence. Only since the end of the latest ice age has this progress been interrupted. Participating in constructive procreation is the most meaningful thing we can do.

The creative response can produce, by thousands and millions, young, intelligent, trustworthy allies in our struggle for a better and a brighter future. All we need is a change in attitude. Attitudes are subtle but powerful weapons. A wrong attitude can carry us to destruction. A right one can unleash tremendous forces for good. If a change in our attitude toward child-bearing comes rapidly— and the urgency of our situation demands rapid change— then the dangers ahead can be overcome much more easily.

Will this change in attitude come about? It needs only the catalyst of willpower to accomplish it.

⁵⁷ Paul Popenoe and Rosell Johnson, *Applied Eugenics*, New York, Macmillan, 1933, p. 265.

⁵⁸ *Science News Letter*, May 14, 1960, p. 318.

At this very moment the future begins. Its shape depends in significant measure on you and what you do after you close this book.

ILLUSTRATIONS

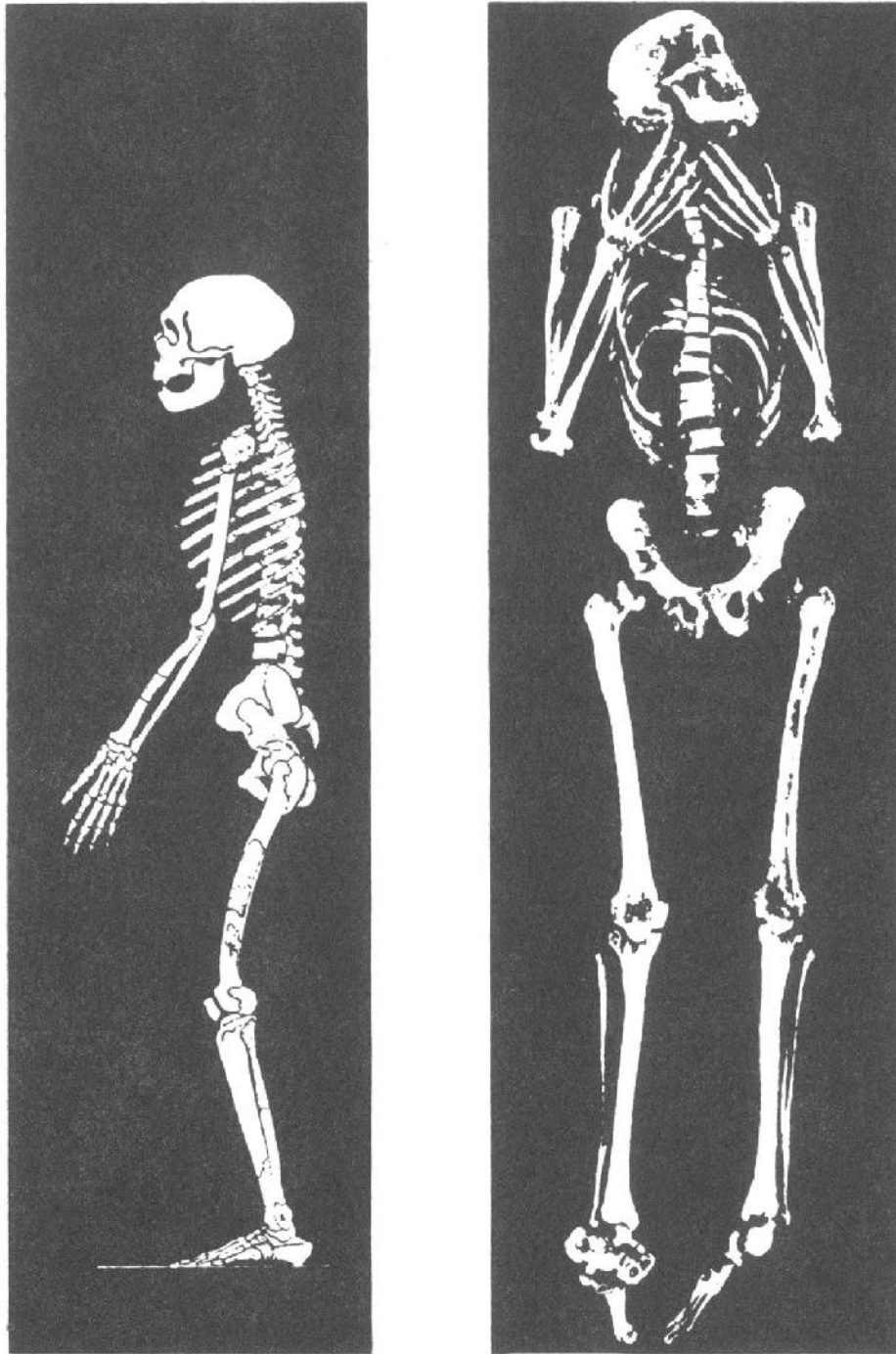


FIGURE 1 COMPARATIVE VIEW OF NEANDERTHAL AND CRO-MAGNON SKELETONS

View of a Neanderthal skeleton (left) and of the skeleton of a very tall member of the Cro-Magnon race (right). Both figures are approximately one-seventeenth life size. (*From Men of the Old Stone Age* by H. F. Osborn, New York, Scribner's, 1918, p. 297.)

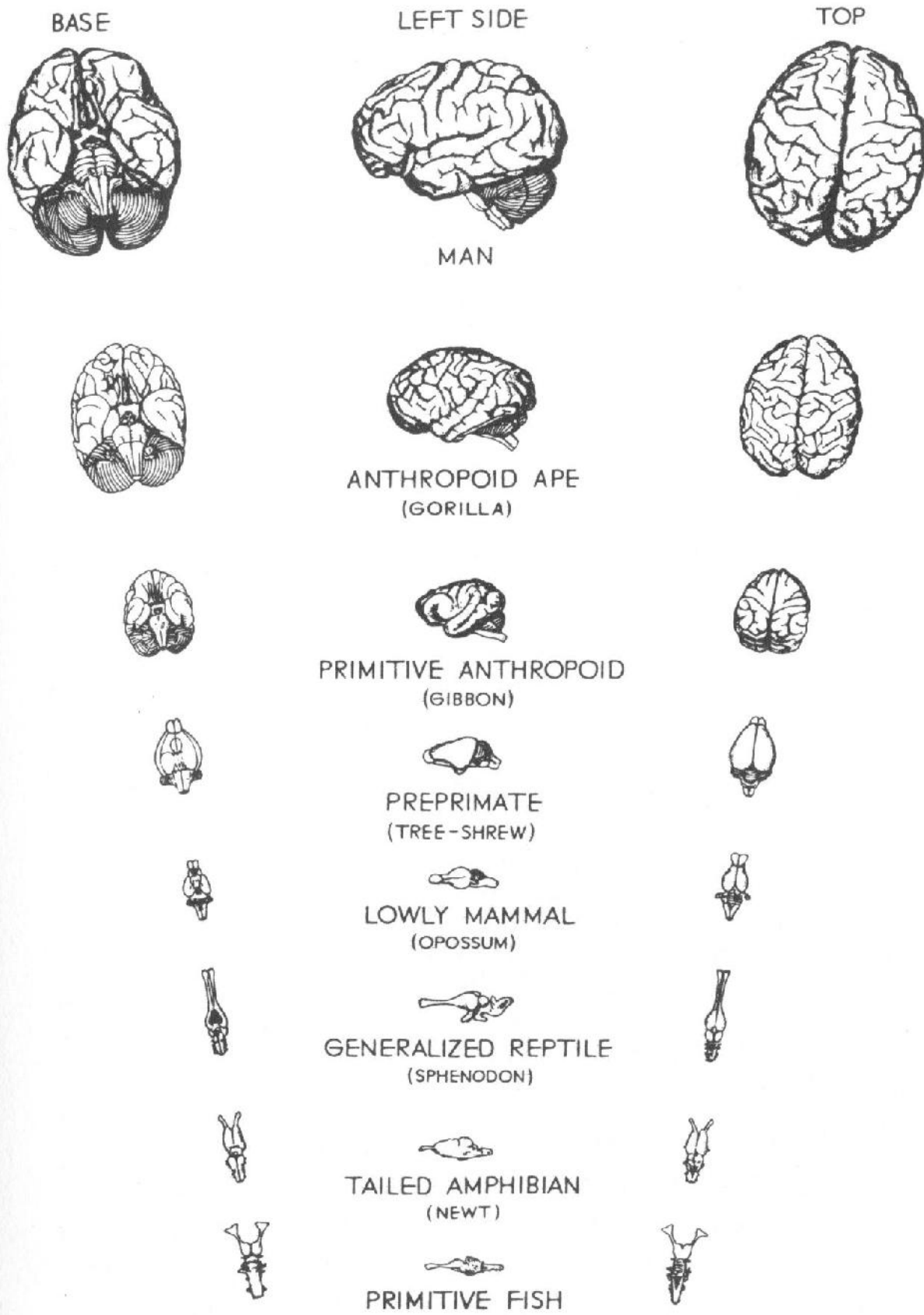


FIGURE 2 EVOLUTION OF THE HUMAN BRAIN

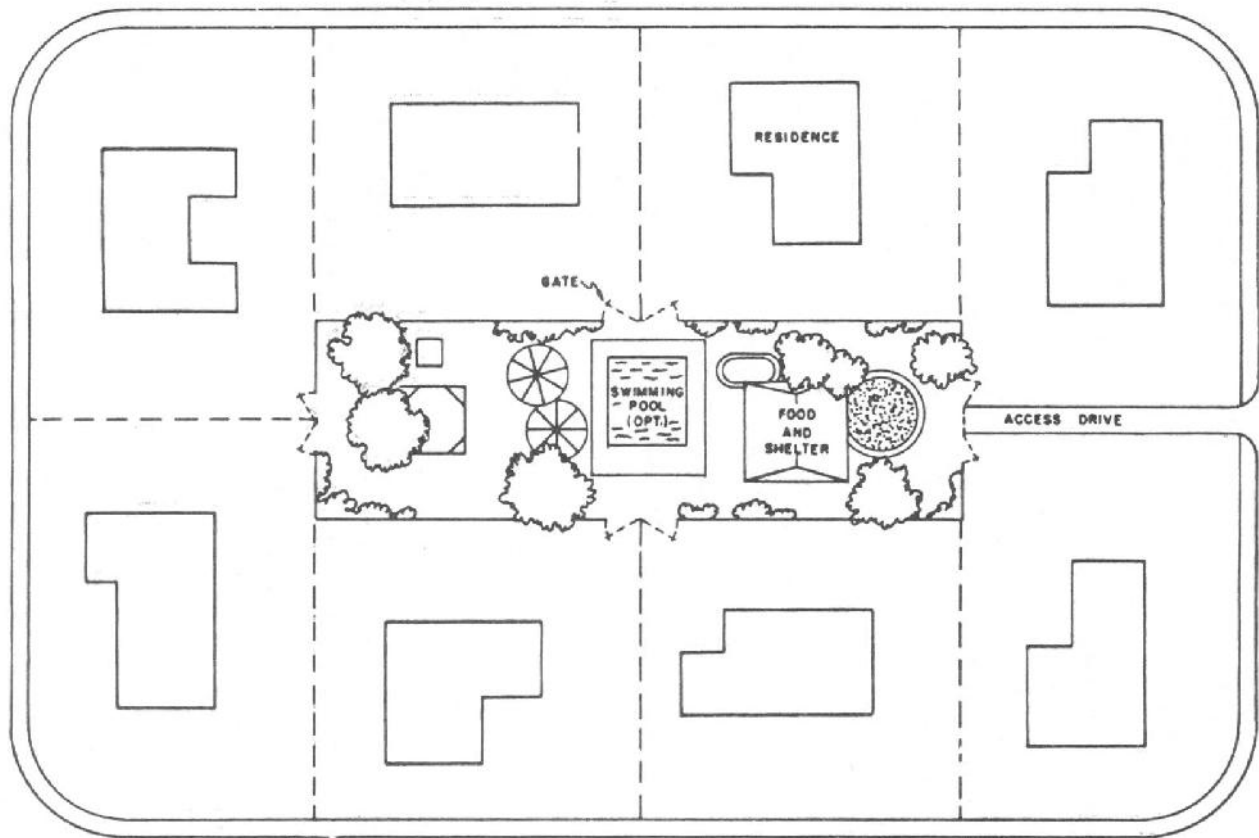


FIGURE 3 PLAN FOR URBAN SUBDIVISION

Three-bedroom residences with fenced center for child play and care.

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The Book

The Future of Man traces the gradual development of man into the most intelligent and most dominant creature on Earth. But as man progressed materially, his intellectual growth did not keep pace. At least half of the people now crowding this planet would never have survived the rigorous selective processes that operated on earlier man.

The author proposes various ways to deal with the vast human derangement brought about by the decline in average human intelligence. These include means of enabling the less intelligent to limit their births to the number desired— and means of encouraging a substantial increase of good minds to cope with the world's intensifying problems. The author's advice could bring stability and innumerable benefits to all of mankind.

The Author

In early 1980 the world was buzzing with the name of Robert Klark Graham when it became known he had established a sperm bank (germinal repository) for Nobel laureates. Amid all the purple publicity little attention was focused on Graham's previous achievements. It was hardly mentioned that, as the developer and manufacturer of lightweight, shatter-proof plastic lenses, he was "The Man Who Made It Safe To Wear Glasses." The words are those of the National Eye Research Foundation. Indeed, half of the hundreds of millions of people who wear glasses today look through lenses developed by Robert Graham.

But there is more to Graham than his skill in optics, for which he was awarded the Herschel Gold Medal in West Germany. One of the 1,600 modern greats listed in *Who's Who in the World*, Graham is also an author, a philosopher, and a man who is as interested in improving the human condition as he was in improving human vision.

