

Richard and Lina Kretschmar were \_\_\_\_\_ Nazis. In the summer of 1939, they \_\_\_\_\_ to euthanize their eleven-month-old child, Gerhard, who had been born \_\_\_\_\_ and \_\_\_\_\_. The parents hoped to contribute to their nation by \_\_\_\_\_ their child from the nation’s genetic \_\_\_\_\_. Gerhard is one of the \_\_\_\_\_ victims of eugenics in the 20th Century. Nazis’ genetic \_\_\_\_\_ began with “defective” children. The program was \_\_\_\_\_ to “genetically sick” adults and Jewish people. The belief that “Jewishness” was carried \_\_\_\_\_, \_\_\_\_\_ to children, and therefore should be \_\_\_\_\_ an incredible distortion of logic. This \_\_\_\_\_ was used as a justification to persecute and \_\_\_\_\_ millions of \_\_\_\_\_ individuals. Eugenics is one of the biggest mistakes in the history of science. Both Darwin's \_\_\_\_\_ of evolution and Mendel's genetics, \_\_\_\_\_, do not \_\_\_\_\_ any \_\_\_\_\_ for genetic \_\_\_\_\_. How were they misunderstood and \_\_\_\_\_ into eugenics?

Richard and Lina Kretschmar were ardent Nazis. In the summer of 1939, they petitioned Hitler to euthanize their eleven-month-old child, Gerhard, who had been born blind and with deformed limbs. The parents hoped to contribute to their nation by eliminating their child from the nation’s genetic heritage. Gerhard is one of the countless victims of eugenics in the 20th Century. Nazis’ genetic cleansing began with “defective” children. The program was soon expanded to “genetically sick” adults and Jewish people. The belief that “Jewishness” was carried on chromosomes, inherited to children, and therefore should be eradicated required an incredible distortion of logic. This twisted pseudoscience was used as a justification to persecute and murder millions of innocent individuals. Eugenics is one of the biggest mistakes in the history of science. Both Darwin's theory of evolution and Mendel's genetics, when properly interpreted, do not provide any legitimate basis for genetic cleansing. How were they misunderstood and distorted into eugenics?

ardent	熱狂的な	cleansing	洗浄、浄化
Nazi	ナチ党员	defective	欠陥・障害のある
petition	嘆願する	chromosome	染色体
euthanize	安楽死させる	eradicate	根絶する
deformed	奇形の、変形した	distort	歪める、歪曲する
eliminate	取り除く	pseudo-	偽りの、似非の
heritage	遺産、継承物	persecute	迫害する
eugenics	優生学	legitimate	道理にかなった

\_\_\_\_\_, the basis of eugenics was created by Charles Darwin’s \_\_\_\_\_, Francis Galton. He was one of the \_\_\_\_\_ scientists to Darwin, and the one who misunderstood and \_\_\_\_\_ Darwinism the most. Galton believed that for any creature, including human beings, it was better to be good \_\_\_\_\_ bad; it was better to be healthy than sick, strong than weak. Almost all the \_\_\_\_\_ of this time, including Galton, \_\_\_\_\_ Darwinian \_\_\_\_\_ as a proposal to interfere \_\_\_\_\_ human natural selection in order to improve the genetic heritage of humanity. Galton’s followers were soon proposing eugenic policies, including \_\_\_\_\_ and sterilization of the “disabled.” \_\_\_\_\_ Winston Churchill to Theodore Roosevelt, many politicians became \_\_\_\_\_ of eugenic intervention to better humanity. Indeed, it became politically \_\_\_\_\_ in Britain, France and the United States not to support eugenic policies. In other words, to be against eugenics was seen to be \_\_\_\_\_ about the future of the human \_\_\_\_\_. In Germany, people gradually \_\_\_\_\_ to be ashamed of any feeling of \_\_\_\_\_ with their Jewish friends under the pressure \_\_\_\_\_ - \_\_\_\_\_ propaganda. Today, we have a consensus that eugenics is \_\_\_\_\_ and scientifically wrong, so \_\_\_\_\_ easy to deny eugenics and criticize people who \_\_\_\_\_. However, take a moment to imagine this; if everyone \_\_\_\_\_ you believes in eugenic ideals, can you recognize its \_\_\_\_\_? If you were in a society \_\_\_\_\_ criticizing eugenics would lead to being criticized \_\_\_\_\_ as "not caring about the future of humanity," would you be able to \_\_\_\_\_ your \_\_\_\_\_?

Ironically, the basis of eugenics was created by Charles Darwin’s cousin, Francis Galton. He was one of the closest scientists to Darwin, and the one who misunderstood and distorted Darwinism the most. Galton believed that for any creature, including human beings, it was better to be good rather than bad; it was better to be healthy than sick, strong than weak. Almost all the progressive intellectuals of this time, including Galton, falsely interpreted Darwinian theory as a proposal to interfere with human natural selection in order to improve the genetic heritage of humanity. Galton’s followers were soon proposing eugenic policies, including license reproduction and sterilization of the “disabled.” From Winston Churchill to Theodore Roosevelt, many politicians became passionate advocates of eugenic intervention to better humanity. Indeed, it became politically incorrect in elite circles in Britain, France and the United States not to support eugenic policies. In other words, to be against eugenics was seen to be uncaring about the future of the human race. In Germany, people gradually learned to be ashamed of any feeling of sympathy with their Jewish friends under the pressure of state-sponsored propaganda. Today, we have a consensus that eugenics is morally and scientifically wrong, so it is easy to deny eugenics and criticize people who promoted it. However, take a moment to imagine this; if everyone around you believes in eugenic ideals, can you recognize its fallacy? If you were in a society where criticizing eugenics would lead to being criticized in turn as "not caring about the future of humanity," would you be able to raise your voice against it?

progressive	進歩主義的	sterilization	断種、不妊
intellectual	知識人	advocate	擁護者、提唱者
proposal	提案	promote	促進する
intefere	干渉する	fallacy	間違った考え、誤謬
reproduction	生殖、繁殖		



Eugenics has always been wrong in both evolutionary and genetic \_\_\_\_\_. First and \_\_\_\_\_, eugenics profoundly misinterpret the \_\_\_\_\_ of evolution. Eugenicists \_\_\_\_\_ artificial selection to \_\_\_\_\_ “bad” genotypes and promote human “good.” But in nature, diversity is \_\_\_\_\_, not the exception. In fact, genetic variation in a species is a \_\_\_\_\_ for potential adaptation, and the benefit far \_\_\_\_\_ the \_\_\_\_\_. Without this genetic diversity, a species will eventually lose its \_\_\_\_\_. Also, no genotype is \_\_\_\_\_ superior. It is not that a longer neck is “better” for giraffes; it is just that a longer neck is fit to the specific environment in which giraffes happen to find themselves. Eugenicists \_\_\_\_\_ intelligence, beauty, and health as if there were absolute \_\_\_\_\_ for these qualities. But there is no objective definition for them. \_\_\_\_\_ fitness for a particular environment. Second, it is impossible in principle to \_\_\_\_\_ the eugenic ideal. Any genetic feature is not determined by one gene in a one-to-one manner. For instance, \_\_\_\_\_ no gene exclusively for intelligence or health. Genetic diseases are \_\_\_\_\_ by complex interactions of different genes. Also, a gene for a “genius” in one environment could be the gene for a mental disorder in another environment. Therefore, it is effectively impossible to \_\_\_\_\_ and \_\_\_\_\_ a specific selection of genes that cause diseases or disorders. Some scientists \_\_\_\_\_ a moral \_\_\_\_\_ against the oversimplification of the logic of genetics, but they were \_\_\_\_\_ and could not stop the \_\_\_\_\_ of Darwinism and genetics.

Eugenics has always been wrong in both evolutionary and genetic terms. First and foremost, eugenics profoundly misinterpret the theory of evolution. Eugenicists insisted on artificial selection to eliminate “bad” genotypes and promote human “good.” But in nature, diversity is the norm, not the exception. In fact, genetic variation in a species is a vital asset for potential adaptation, and the benefit far outweighs the liabilities. Without this genetic diversity, a species will eventually lose its capacity to adapt. Also, no genotype is inherently superior. It is not that a longer neck is “better” for giraffes; it is just that a longer neck is fit to the specific environment in which giraffes happen to find themselves. Eugenicists relentlessly pursue intelligence, beauty, and health as if there were absolute standards for these qualities. But there is no objective definition for them. It is just about fitness for a particular environment. Second, it is impossible in principle to achieve the eugenic ideal. Any genetic feature is not determined by one gene in a one-to-one manner. For instance, there is no gene exclusively for intelligence or health. Genetic diseases are caused by complex interactions of different genes. Also, a gene for a “genius” in one environment could be the gene for a mental disorder in another environment. Therefore, it is effectively impossible to single out and eradicate a specific selection of genes that cause diseases or disorders. Some scientists issued a moral warning against the oversimplification of the logic of genetics, but they were ignored and could not stop the misuse of Darwinism and genetics.

foremost	foremost	inherently	本質的に
the norm	the norm	relentless	容赦ない
adaptation	adaptation	principle	原理、仕組み
outweigh	outweigh	single out	選り抜く
liability	liability	inherently	本質的に

Eugenics was nothing more than a \_\_\_\_\_ ideologies, far from \_\_\_\_\_ science. Nonetheless, the majority of the population supported or accepted eugenic policies. Why couldn't science stop eugenics?

Public opinion tends to \_\_\_\_\_ the \_\_\_\_\_ the least cost of building consensus. When a concept is complex, difficult, or counterintuitive, there is a \_\_\_\_\_ for reaching a consensus because we need to invest a large amount of time and energy learning and understanding it. Additionally, \_\_\_\_\_ a \_\_\_\_\_ idea contradicts our favorite belief, the cost for agreement is high because we have to overcome the \_\_\_\_\_ of \_\_\_\_\_ to continue believing what we want to believe.

We, homo sapiens, want to understand the world as \_\_\_\_\_ with a \_\_\_\_\_ intention and \_\_\_\_\_. Darwinian evolution, which claims that everything is the result of randomness and coincidence, is therefore, very likely to be misunderstood. As for genetics, it is much easier to believe that a single specific gene is responsible for a disease or Jewishness than to understand the \_\_\_\_\_ of various genes and the environment. Properly understanding Darwinism and genetics has a lot of \_\_\_\_\_.

Furthermore, there was a \_\_\_\_\_ background \_\_\_\_\_ the \_\_\_\_\_ to support eugenics. During the 19th and 20th centuries, there was \_\_\_\_\_ competition between nations, and they were not \_\_\_\_\_ to \_\_\_\_\_ resources to social \_\_\_\_\_. Since modern \_\_\_\_\_ war required the effective mobilization of all economic power, resource allocation within the nation had to be carefully considered to succeed in warfare and economic competition. Eugenic ideologies, which “scientifically” supported the \_\_\_\_\_ of the disabled or \_\_\_\_\_ groups from resource allocation, easily gained acceptance by the public.

After all, we tend to be \_\_\_\_\_ to the truth and correctness, mostly subconsciously. We \_\_\_\_\_ simple explanation than complex \_\_\_\_\_, and holding our favorite belief than \_\_\_\_\_. Since we are busy both physically and mentally, \_\_\_\_\_ to spend time and energy understanding a complicated idea that may \_\_\_\_\_ what we want to believe. Eugenics had a low cost of consensus building, so scientific correctness couldn't \_\_\_\_\_ its progress.

## Eugenics #4

Eugenics was nothing more than a set of ideologies, far from qualifying as science. Nonetheless, the majority of the population supported or accepted eugenic policies. Why couldn't science stop eugenics?

Public opinion tends to gravitate towards the one with the least cost of building consensus. When a concept is complex, difficult, or counterintuitive, there is a lot of friction for reaching a consensus because we need to invest a large amount of time and energy learning and understanding it. Additionally, when a certain idea contradicts our favorite belief, the cost for agreement is high because we have to overcome the temptation of cognitive biases to continue believing what we want to believe.

We, homo sapiens, want to understand the world as narratives with a series of intention and causality. Darwinian evolution, which claims that everything is the result of randomness and coincidence, is therefore, very likely to be misunderstood. As for genetics, it is much easier to believe that a single specific gene is responsible for a disease or Jewishness than to understand the intricate interplay of various genes and the environment. Properly understanding Darwinism and genetics has a lot of obstacles. Furthermore, there was a societal background encouraging the majority to support eugenics. During the 19th and 20th centuries, there was fierce competition between nations, and they were not affluent enough to allocate sufficient resources to social welfare. Since modern total war required the effective mobilization of all economic power, resource allocation within the nation had to be carefully considered to succeed in warfare and economic competition. Eugenic ideologies, which “scientifically” supported the exclusion of the disabled or minority groups from resource allocation, easily gained acceptance by the public.

After all, we tend to be indifferent to the truth and correctness, mostly subconsciously. We prefer simple explanation than complex theory, and holding our favorite belief than revising it. Since we are busy both physically and mentally, it is hard to spend time and energy understanding a complicated idea that may go against what we want to believe. Eugenics had a low cost of consensus building, so scientific correctness couldn't halt its progress.

qualify	資格がある、基準を満たす	allocate	割り当てる
gravitate	引き寄せられる	sufficient	十分な、足りる
counterintuitive	直観に反した	mobilization	動員、運用
contradict	矛盾する、相反する	indifferent	無関心、無頓着
narrative	物語	revise	見直す、改める
causality	因果関係	halt	止める

Eugenics is \_\_\_\_\_ the biggest mistake in the history of science. It contributed to human rights violations and \_\_\_\_\_ of \_\_\_\_\_ groups by providing “scientific” support. One crucial \_\_\_\_\_ from the \_\_\_\_\_ of eugenics might be to ask ourselves what \_\_\_\_\_ defines science.

The \_\_\_\_\_ characteristic of science is its willingness to \_\_\_\_\_ mistakes and ignorance. Modern science is based on the \_\_\_\_\_ that we know very little about the world. Even more \_\_\_\_\_, \_\_\_\_\_ that the \_\_\_\_\_ could be \_\_\_\_\_ wrong as we gain more knowledge.

zWhen a \_\_\_\_\_ scientist publishes a paper, he or she do not insist \_\_\_\_\_ an absolute truth and never to be \_\_\_\_\_. Instead, they think \_\_\_\_\_; this theory seems to be the closest to the truth within the limits that humanity can \_\_\_\_\_. However, if research progresses or evidence \_\_\_\_\_ found, this theory can always be denied, updated, or \_\_\_\_\_.

By contrast, \_\_\_\_\_ religions \_\_\_\_\_ that everything that is \_\_\_\_\_ about the world was already known and \_\_\_\_\_ texts. In fact, the progress of human society had been quite slow while God and the Bible \_\_\_\_\_ their perfection. If everything was already shown by God, why do we have to research and study? It was only after we realized our ignorance that society began to \_\_\_\_\_.

The essence of science is this \_\_\_\_\_ to \_\_\_\_\_ one’s own ignorance, and \_\_\_\_\_ to recognize, accept and \_\_\_\_\_ one’s mistakes. The \_\_\_\_\_ moment we say “this is right because it is science,” \_\_\_\_\_ to be science.

Of course science \_\_\_\_\_ many things wrong in the past, including Eugenics. Nonetheless, the scientific community will \_\_\_\_\_ most reliable \_\_\_\_\_ of knowledge as long as we stay humble and open to criticism.

We, in the 21st Century, look at the \_\_\_\_\_ of eugenics in the 20th Century and criticize them, saying “how foolish they were.”

\_\_\_\_\_ the things we \_\_\_\_\_ believe in the 21st Century, \_\_\_\_\_ and criticized by people in the 22nd Century, saying “how foolish they were”?

## Eugenics #5

Eugenics is arguably the biggest mistake in the history of science. It contributed to human rights violations and persecution of minority groups by providing “scientific” support. One crucial takeaway from the fault of eugenics might be to ask ourselves what truly defines science.

The most distinct characteristic of science is its willingness to admit its mistakes and ignorance. Modern science is based on the assumption that we know very little about the world. Even more critically, it accepts that the things that we think we know could be proven wrong as we gain more knowledge.

When a qualified scientist publishes a paper, he or she do not insist that it is an absolute truth and never to be questioned. Instead, they think as follows; this theory seems to be the closest to the truth within the limits that humanity can currently achieve. However, if research progresses or evidence refuting it is found, this theory can always be denied, updated, or revised.

By contrast, traditional religions assert that everything that is important to know about the world was already known and written in sacred texts. In fact, the progress of human society had been quite slow while God and the Bible claimed their perfection. If everything was already shown by God, why do we have to research and study? It was only after we realized our ignorance that society began to advance exponentially.

The essence of science is this intellectual humility to face one's own ignorance, and readiness to recognize, accept and correct one's mistakes. The very moment we say “this is right because it is science,” it ceases to be science.

Of course science has gotten many things wrong in the past, including Eugenics. Nonetheless, the scientific community will remain our most reliable source of knowledge as long as we stay humble and open to criticism.

We, in the 21st Century, look at the advocates of eugenics in the 20th Century and criticize them, saying “how foolish they were.”

Among the things we firmly believe in the 21st Century, what will be laughed at and criticized by people in the 22nd Century, saying “how foolish they were”?

arguably	まず間違いなく	refute	反駁する、論破する
takeaway	教訓、要点	exponentially	指数関数的な、加速度的な
ignorance	無知	humility	謙虚さ
assumption	前提、想定	readiness	喜んで~すること
question (v)	疑問を抱く、異議を唱える		