



The next million years by Charles Galton Darwin

Description

Sir Charles Galton Darwin, KBE, MC, FRS was an English physicist who served as director of the National Physical Laboratory during the Second World War. He was the son of the mathematician George Howard Darwin and a grandson of Charles Darwin. [More at Wikipedia](#)

Hormonal modification

"Another type of discovery may be connected with hormones, those internal chemical secretions which so largely regulate the operations of the human body. The artificial use of hormones has already been shown to have profound effects on the behaviour of animals, and it seems quite possible that hormones, or perhaps drugs, might have similar effects on man. For example, there might be a drug, which, without other harmful effects, removed the urgency of sexual desire, and so reproduced in humanity the status of workers in a beehive. Or there might be another drug that produced a permanent state of contentment in the recipient—after all alcohol does something like this already, though it has other disadvantages and is only temporary in its effects. A dictator would certainly welcome the compulsory administration of the "contentment drug" to his subjects." *p183*

Oligarchical monopoly

"Widespread wealth can never be common in an overcrowded world, and so in most countries of the future the government will inevitably be autocratic or oligarchic; some will give good government and some bad, and the goodness or badness will depend much more on the personal merits of the rulers than it does in a more democratic country." *p.194*

Normative government

"To think of it as possible at other times is a misunderstanding of the function of government in any practical sense of the term. If the only things that a government was required to do were what everybody, or nearly everybody, wanted, there would be no need for the government to exist at all, because the things would be done anyhow; this would be the impracticable ideal of the anarchist. But if there are to be starving margins of population in most parts of the world, mere benevolence cannot suffice. There would inevitably be ill feeling and jealousy between the provinces, with each believing that it was not getting its fair share of the good things, and in fact, it would be like the state of affairs with which we are all too familiar. If then there is ever to be a world government, it will have to function as government do now, in the sense that it will have to coerce a minority – and indeed it may often be a majority – into doing things they do not want to." *p.191*

THE NEXT MILLION YEARS

BY

CHARLES GALTON DARWIN

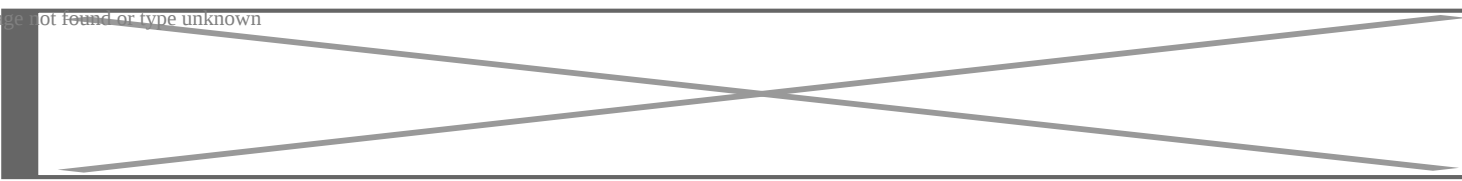
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- George Pember Darwin (1928–2001) worked developing computers, and then (1964) married Angela Huxley, daughter of David Bruce Huxley. She was also a granddaughter of the writer [Leonard Huxley](#) and a great-granddaughter of [Thomas Huxley](#), "Darwin's Bulldog".
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After the death of his first wife, Leonard married Rosalind Bruce (1890–1994), and had two further sons. The elder of these was **David Bruce Huxley** (1915-1992), whose daughter **Angela Huxley** married **George Pember Darwin**, son of the physicist Sir [Charles Galton Darwin](#) (and thus a great-grandson of [Charles Darwin](#) married a great-granddaughter of [Thomas Huxley](#)). The younger son (1917-2012) was the [Nobel Prize](#) winner, physiologist [Andrew Fielding Huxley](#).
en.wikipedia.org/wiki/Huxley_family

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Further References

Fancher, R. E.. (2009). Scientific Cousins: The Relationship Between Charles Darwin and Francis Galton. American Psychologist

Plain numerical DOI: 10.1037/a0013339

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"This article traces the personal as well as the intellectual and scientific relationship between Charles Darwin and his younger half-cousin Francis Galton. Although they had been on friendly terms as young men, and Darwin had in some ways been a role model for Galton, the two did not share major scientific interests until after the publication of Darwin's *On the Origin of Species* in 1859. That work precipitated a religious and philosophical crisis in Galton, which he gradually resolved after conceiving and developing the basic ideas of 'hereditary genius' and eugenics. More mathematically inclined than Darwin, he subsequently contributed to the Darwinian evolutionary discussion, and to the future science of psychology, by proposing the basic concept of the nature-nurture dichotomy, the conceptual and statistical foundations for behavior genetics, and the idea for intelligence testing. (psycinfo database record (c) 2010 APA, all rights reserved). (from the journal abstract)"

Gillham, N. W.. (2001). Sir Francis Galton and the Birth of Eugenics. *Annual Review of Genetics*

Plain numerical DOI: 10.1146/annurev.genet.35.102401.090055

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"The eugenics movement was initiated by Sir Francis Galton, a Victorian scientist. Galton's career can be divided into two parts. During the first, Galton was engaged in African exploration, travel writing, geography, and meteorology. The second part began after he read the *'Origin of Species'* by his cousin Charles Darwin. The book convinced Galton that humanity could be improved through selective breeding. During this part of his career he was interested in the factors that determine what he called human 'talent and character' and its hereditary basis."

Galton, D. J., & Galton, C. J.. (1998). Francis Galton: And eugenics today. *Journal of Medical Ethics*

Plain numerical DOI: 10.1136/jme.24.2.99

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"Eugenics can be defined as the use of science applied to the qualitative and quantitative improvement of the human genome. The subject was initiated by Francis Galton with considerable support from Charles Darwin in the latter half of the 19th century. Its scope has increased enormously since the recent revolution in molecular genetics. Genetic files can be easily obtained for individuals either antenatally or at birth; somatic gene therapy has been introduced for some rare inborn errors of metabolism; and gene manipulation of human germ-line cells will no doubt occur in the near future to generate organs for transplantation. The past history of eugenics has been appalling, with gross abuses in the USA between 1931 and 1945 when compulsory sterilization was practised; and in Germany between 1933 and 1945 when mass extermination and compulsory sterilization were performed. To prevent such abuses in the future statutory bodies, such as a genetics commission, should be established to provide guidance and rules of conduct for use of the new information and technologies

as applied to the human genome."

Galton, F.. (1985). Essays in eugenics. The History of hereditarian thought ; 16

Plain numerical DOI: 10.1038/064659b0

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"CONTENTS: the possible improvement of the human breed under existing conditions of law and sentiment eugenics, its definition, scope, and aims restrictions in marriage studies in national eugenics eugenics as a factor in religion probability, the foundation of eugenics local associations for promoting eugenics sir francis galton (1822-1911) was a victorian polymath: geographer, meteorologist, tropical explorer, founder of differential psychology, inventor of fingerprint identification, pioneer of statistical correlation and regression, convinced hereditarian, eugenicist, proto-geneticist, half-cousin of charles darwin and best-selling author."

Harper, P.. (2002). A life of Sir Francis Galton. From African exploration to the birth of eugenics. Human Genetics

Plain numerical DOI: 10.1086/374096

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"Few scientists have made lasting contributions to as many fields as francis galton. he was an important african explorer, travel writer, and geographer. he was the meteorologist who discovered the anticyclone, a pioneer in using fingerprints to identify individuals, the inventor of regression and correlation analysis in statistics, and the founder of the eugenics movement. now, nicholas gillham paints an engaging portrait of this victorian polymath. the book traces galton's ancestry (he was the grandson of erasmus darwin and the cousin of charles darwin), upbringing, training as a medical apprentice, and experience as a cambridge undergraduate. it recounts in colorful detail galton's adventures as leader of his own expedition in namibia. darwin was always a strong influence on his cousin and a turning point in galton's life was the publication of the origin of species. thereafter, galton devoted most of his life to human heredity, using then novel methods such as pedigree analysis and twin studies to argue that talent and character were inherited and that humans could be selectively bred to enhance these qualities. to this end, he founded the eugenics movement which rapidly gained momentum early in the last century. after galton's death, however, eugenics took a more sinister path, as in the united states, where by 1913 sixteen states had involuntary sterilization laws, and in germany, where the goal of racial purity was pushed to its horrific limit in the 'final solution.' galton himself, gillham writes, would have been appalled by the extremes to which eugenics was carried. here then is a vibrant biography of a remarkable scientist as well as a superb portrait of science in the victorian era." Magnello, M. E.. (2013). Galton's Law of Ancestral Heredity. In Brenner's Encyclopedia of Genetics: Second Edition

Plain numerical DOI: 10.1016/B978-0-12-374984-0.00060-7

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"Francis Galton developed his theory of ancestral heredity in the late 1880s to determine the relationship between various traits, especially stature in parents and their offspring. He created the idea of a 'midparent' to measure the contribution of both parents over three generations. His theory incorporated elements of both blending and particulate inheritance, which generated interest from many Victorian scientists, including Charles Darwin, James Clerk Maxwell, and Karl Pearson. Galton's ideas on reversion, regression, and correlation provided the framework from which Pearson went on to devise a battery of correlational techniques and statistical models for simple and multiple regression." Bulmer, M.. (2003). Francis Galton: Pioneer of Heredity and Biometry. Journal of Heredity

Plain numerical DOI: 10.1086/521468

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"If not for the work of his half cousin Francis Galton, Charles Darwin's evolutionary theory might have met a somewhat different fate. In particular, with no direct evidence of natural selection and no convincing theory of heredity to explain it, Darwin needed a mathematical explanation of variability and heredity. Galton's work in biometry—the application of statistical methods to the biological sciences—laid the foundations for precisely that. This book offers readers a compelling portrait of Galton as the 'father of biometry,' tracing the development of his ideas and his accomplishments, and placing them in their scientific context. Though Michael Bulmer introduces readers to the curious facts of Galton's life—as an explorer, as a polymath and member of the Victorian intellectual aristocracy, and as a proponent of eugenics—his chief concern is with Galton's pioneering studies of heredity, in the course of which he invented the statistical tools of regression and correlation. Bulmer describes Galton's early ambitions and experiments—his investigations of problems of evolutionary importance (such as the evolution of gregariousness and the function of sex), and his movement from the development of a physiological theory to a purely statistical theory of heredity, based on the properties of the normal distribution. This work, culminating in the law of ancestral heredity, also put Galton at the heart of the bitter conflict between the 'ancestralists' and the 'Mendelians' after the rediscovery of Mendelism in 1900. A graceful writer and an expert biometrician, Bulmer details the eventual triumph of biometrical methods in the history of quantitative genetics based on Mendelian principles, which underpins our understanding of evolution today. — A. W. F. Edwards, University of Cambridge, author of Pascal's arithmetic triangle and likelihood"

Sandall, R.. (2008). Sir Francis Galton and the roots of eugenics. Society

Plain numerical DOI: 10.1007/s12115-008-9058-8

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"The eugenics movement was initiated by sir francis galton, a victorian scientist. galton's career can be divided into two parts. during the first, galton was engaged in african exploration, travel writing, geography, and meteorology. the second part began after he read the origin of species by his cousin charles darwin. the book convinced galton that humanity could be improved through selective breeding. during this part of his career he was interested in the factors that determine what he called human 'talent and character' and its hereditary basis. consequently, he delved into anthropometrics and psychology and played a major role in the development of fingerprinting. he also founded the field of biometrics, inventing such familiar statistical procedures as correlation and regression analysis. he constructed his own theory of inheritance in which nature and not nurture played the leading role. he actively began to promote eugenics and soon gained important converts."

Liu, Y.. (2008). A new perspective on Darwin's Pangenesis. Biological Reviews

Plain numerical DOI: 10.1111/j.1469-185X.2008.00036.x

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"In 1868 charles darwin proposed pangenesis, a developmental theory of heredity. he suggested that all cells in an organism are capable of shedding minute particles he called gemmules, which are able to circulate throughout the body and finally congregate in the gonads. these particles are then transmitted to the next generation and are responsible for the transmission of characteristics from parent to offspring. if any cells of the parent undergo changes as a result of environmental change, they will consequently transmit modified gemmules to their offspring. soon after darwin's pangenetic theory was published, francis galton designed a series of blood transfusion experiments on differently pigmented rabbits to test its validity. he found no evidence in support of the existence of darwin's gemmules and the concept of pangenesis was largely abandoned. in this article, recent reports of successful induction of heritable changes by blood transfusion are reviewed. detection of circulating nucleic acids and prions in plant sap and animal blood is considered as fresh evidence for the existence of gemmules. it is now apparent that a considerable revision of views on darwin's pangenesis must occur before a new comprehensive genetic theory can be achieved."

Galton, D. J.. (2005). Eugenics: Some lessons from the past. Reproductive BioMedicine Online

Plain numerical DOI: 10.1016/S1472-6483(10)62222-5

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"Eugenics was first debated by the ancient greeks, particularly plato and aristotle, developed in the nineteenth century by francis galton and charles darwin, and then abused in the twentieth century by right-wing politicians. with the new methods of assisted conception combined with the use of genetic markers, all the old problems of eugenics have resurfaced. gender selection, embryo selection, preimplantation genetic diagnosis of common disease, and gene replacement techniques (somatic

cells) have added greatly to the power of the modern eugenicist. how are these procedures to be monitored and regulated? what is the role of the state compared with individual families for the implementation of the new methodologies? some of these issues will be discussed. © 2005 reproductive healthcare limited."

Jeynes, W. H.. (2011). Race, racism, and Darwinism. Education and Urban Society

Plain numerical DOI: 10.1177/0013124510380723

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"This article examines the views of darwinist evolution on issues regarding race and how this contributed to the spread of racism in the united states. the writings of charles darwin and a myriad of his followers are examined, including herbert spencer, francis galton, and others. the influence of darwinism in contributing to the growth of institutional racism and the teaching of scientifically based racist thought is addressed. the article also examines how darwinist evolutionary thought affected the nation's beliefs about those with special needs and how this contributed to people's perceptions about people of color. the author asserts that the blatant inaccuracies of darwinist evolution regarding race raise questions about the theory's overall veracity and how teachers should approach instruction regarding darwin's theory. "

Champkin, J.. (2011). Francis Galton centenary. Significance

Plain numerical DOI: 10.1111/j.1740-9713.2011.00507.x

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"This year marks the centenary of the death of the great victorian scientist sir francis galton (1822–1911). galton, a cousin of charles darwin, and wildly eccentric, is a key and curious figure in the founding of modern statistics – and of several other sciences as well. we celebrate the life and achievements of an extraordinary man."

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