



# Nobel Laureates, Neuroscience and Eugenics

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Social Sciences and Humanities  
Research Council of Canada

Conseil de recherches en  
sciences humaines du Canada



## Introduction

In 1883, Sir Francis Galton described the science of eugenics as being the investigation “of the conditions under which men of a high type are produced” [1, p.30]. Two streams of eugenic interventions exist: positive and negative. Positive eugenics—increasing the frequency of desirable genes within a population—was achieved in the past simply by encouraging those with desirable genes to reproduce as much as possible; however, now positive eugenics can also be achieved using somatic and germline interventions during the fetal or embryonic stage of life, the manipulation of inheritable genes of prospective parents, and may even include custom designing genomes in the future. Conversely, negative eugenics is aimed at decreasing the frequency of unwanted genes within the population. Techniques that have been used for negative eugenics include the segregation or sexual sterilization of those deemed ‘unfit’ to reproduce (over 60 000 individuals underwent forced sexual sterilization in the United States alone [2]) and selective abortion of fetuses with unwanted traits or genetic material. Furthermore, enhancements which bring humans above the ‘species-typical’ norm are a part of the future of eugenics.

The Nobel Prize was established in 1901 as a result of the last will and testament of Alfred Nobel (1833-1896), signed in 1895. Nobel wanted to recognize those who “have conferred the greatest benefit to mankind” [3]. Excluding 1940-1942, visionaries of physics, chemistry, physiology and medicine, literature, and peace relations have been receiving the Nobel Prize every year since 1901. Economic Sciences was added to the categories in 1969. A total of 840 people have been awarded the Nobel Prize. Prizewinners are often well-known and can winning the prize can greatly increase their visibility in social, academic and political spheres [4]. Support for some form of eugenics has been evident in prizewinners awarded starting in 1903 and spanning until the most recent group of Nobel Prizewinners in 2010, whereas rejection of eugenics is only attributed to one Laureate.

Though eugenics can encompass all human traits, intelligence has been a major focus of eugenicists [5]. Particularly, there has been debate about whether it is the environment that causes lower intelligence, or heredity [6,7]. This focus on the human mind, the genetic traits that affect it and the environment that impacts it means that in order to provide support for or evidence against eugenics, the opinions and knowledge of neuroscientists, psychologists and psychiatrists would have been a valuable resource for eugenicists or opponents of eugenics. This poster will show the role that Nobel Laureates have had supporting or rejecting eugenics, and in particular, it will focus on the discussions and actions by Nobel Laureates in relation to eugenics and neuroscience, psychology or psychiatry.

## Methods

This project was primarily completed using Google Scholar. Keyword searches were used in each individual Laureate’s Wiki with the term ‘eugenic’. After the year 1960 each Laureate was also searched with the terms ‘genetic testing’ or ‘genetic counselling’. Each Laureate that was found to have been associated with eugenics was then searched more extensively using Google Scholar and Google to find publications, affiliations and other information that shed light on their views towards eugenics.

## Neuroscientists, Psychologists and Psychiatrists Supporting Eugenics

**Julius Wagner-Jauregg**

- Psychiatrist, 1927 prizewinner in Physiology or Medicine
- Proponent of racial hygiene, race purity, and eugenic sterilization
- President of the Austrian League for Racial Regeneration and Heredity [8]

**Konrad Lorenz**

- Ethologist, 1979 prizewinner in Physiology or Medicine
- Feared that the quality of the human race was deteriorating, that race degeneration must be ‘cured’ through the public health sphere [9]
- Worried that domestication was dysgenic and created a hereditary interference to instinctual behaviours
- “I am, by inheritance, obsessed with eugenics.” [10, p.20]

**Francis Crick**

- Neuroscientist, 1962 prizewinner in Physiology or Medicine
- Has expressed support for only raising children with certain genetic traits
- “We have to take away from humans in the long run their reproductive autonomy as the only way to guarantee the advancement of mankind.” [11]

**Theodore Roosevelt**

- 1906 Peace prizewinner
- Believed that ‘feeble-mindedness’ was hereditary and that the ‘feeble-minded’ should not be permitted to have children.
- “I very much wish the wrong people could be prevented entirely from breeding. Criminals should be sterilized and feeble-minded persons forbidden to leave offspring behind them.” [12, p. 32]

**Alexis Carrel**

- 1912 Physiology or Medicine prizewinner
- Mainly supported positive eugenics, but supported controlled reproduction and even euthanasia for the insane [13]
- “We cannot prevent the reproduction of the weak when they are neither insane nor criminal.” [13, p.296, italics mine] This shows that he felt that restricting reproduction among the so-called insane was permissible.

**Thomas Hunt Morgan**

- 1933 Physiology or Medicine prizewinner
- Criticized the ambiguity of behavioural and mental categories used by eugenicists, such as ‘feeble-mindedness’ [14]
- Criticized the tendency of eugenicists at the time to discredit environmental influences and overemphasize the impact of heredity
- Felt that it would be impossible to determine which aspects of behaviour were hereditary and which aspects were due to the environment
- “The difficulty, of course, is – aside from our inability to define what is meant by intelligence – that we do not know here how much is due to nature and how much to nurture.” [15, p.209]

**Hermann Joseph Muller**

- 1946 Physiology or Medicine prizewinner
- Promoted the use of eugenics to create a better society
- Thought that eugenics should be aimed at improving behavioural and cognitive traits, such as intelligence and cooperativeness [16]
- Thought that many behavioural and cognitive traits were mainly hereditary, but their genetic basis needed to be explored further

**Winston Churchill**

- 1953 Literature Prizewinner
- Subscribed to the belief that ‘feeble-mindedness’ and insanity was based on inheritance and that those that fell into these categories should not be allowed to reproduce
- “The unnatural and increasingly rapid growth of the feeble-minded and insane classes, coupled as it is with steady restriction among all the thrifty, energetic and superior stocks constitutes a national and race danger which it is impossible to exaggerate. . . I feel that the source from which the stream of madness is fed should be cut off and sealed before another year has passed.” [17, p. 19]

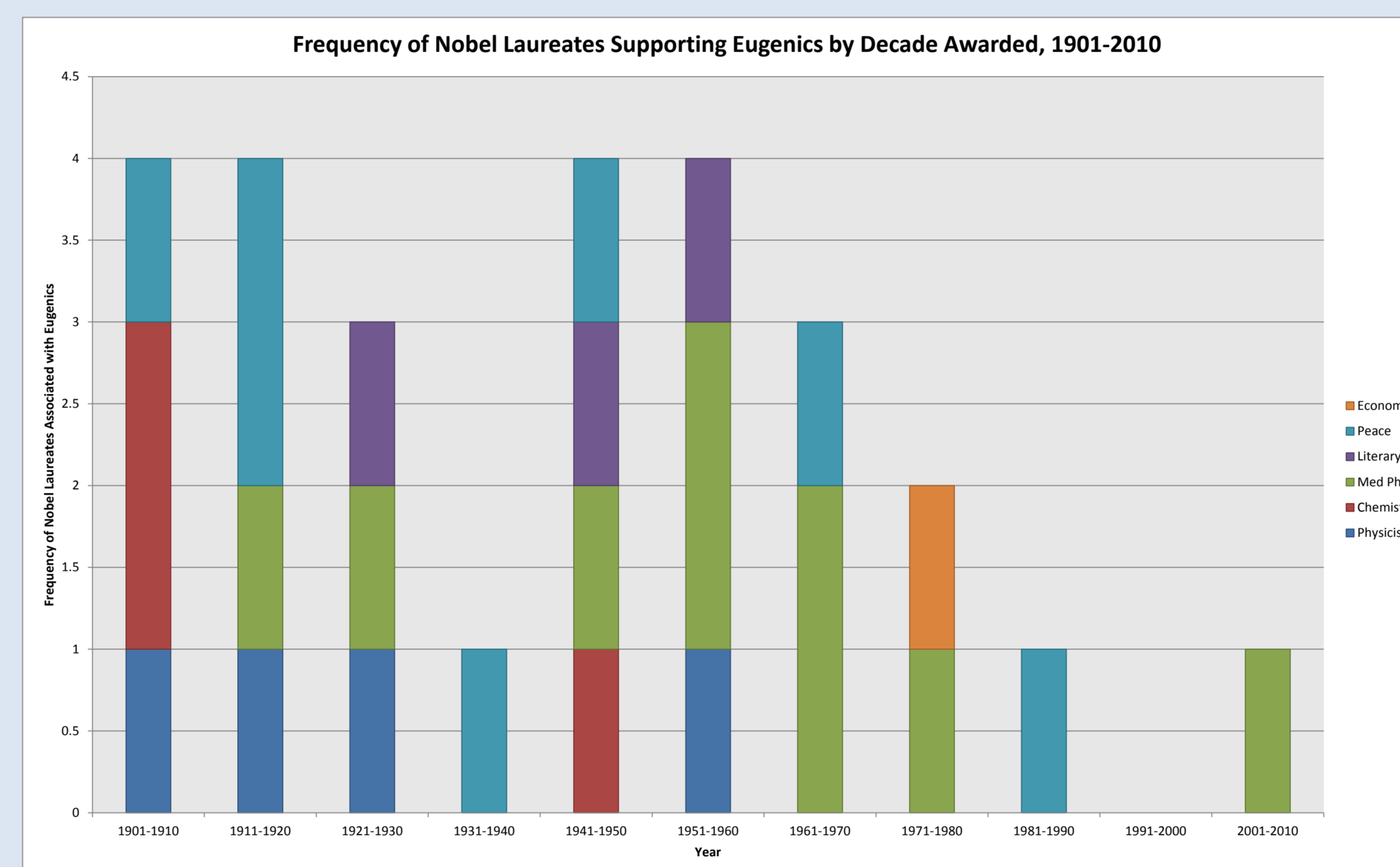
**William Shockley**

- 1956 Physics prizewinner
- Compiled data in an attempt to prove that intelligence was over 80% hereditary and only 20% environmental, and that certain ethnic groups had a hereditary disadvantage [18]
- Promoted the use of eugenics to advance ‘intellectual evolution’
- Called for greater publication and research regarding racial brain anatomy differences, heritability of ‘dysgenic’ behavioural traits
- “Eugenics may be needed to prevent the dysgenic decline of our nation’s quality.” [19, p. 30]
- 1958 Physiology or Medicine prizewinner
- Coined the term ‘euphenics’—individual-level genetic engineering to serve eugenic purposes
- Suggested the use of euphenics to eventually increase levels of intelligence, control brain size
- “If a superior individual (and presumably then genotype) is identified, why not copy it directly, rather than suffer all the risks of recombinational disruption, including those of sex? ... Leave sexual reproduction for experimental purposes; when a suitable type is ascertained, take care to maintain it by clonal propagation.” [20, p. 527]

**James Watson**

- 1962 Physiology or Medicine prizewinner
- Promoted the use of genetic engineering to improve intelligence
- Argues that if the technology for enhancement exists, it cannot and should not be kept from being used by individuals [21]
- “I think it’s irresponsible not to try and direct evolution to produce a human being who will be an asset to the world.” [22]

Nobel Laureates Supporting Eugenics	
1. Svante Arrhenius (1903)	14. Hermann Joseph Muller (1946)
2. Philipp Lenard (1905)	15. Bertrand Russel (1950)
3. Theodore Roosevelt (1906)	16. Winston Churchill (1953)
4. Wilhelm Ostwald (1909)	17. Linus Pauling (1945, 1963)
5. Alexis Carrel (1912)	18. William B. Shockley (1956)
6. Elihu Root (1912)	19. Joshua Lederberg (1958)
7. Johannes Stark (1919)	20. Peter Medawar (1960)
8. Woodrow Wilson (1919)	21. Francis Crick (1962)
9. Robert A. Millikan (1923)	22. James D. Watson (1962)
10. George Bernard Shaw (1925)	23. Gunnar Myrdal (1974)
11. Julius Wagner-Jauregg (1927)	24. Konrad Lorenz (1979)
12. Jane Addams (1931)	25. Alva Myrdal (1982)
13. Emily Greene Balch (1946)	26. Robert Edwards (2010)
Nobel Laureates Opposing Eugenics	
1. Thomas Hunt Morgan	



## Other Laureates on Neuroscience, Psychology and Psychiatry as they Relate to Eugenics

## Discussion

26 Nobel Laureates were found to have openly supported some form of eugenics during their lives. Of these, four Laureates were from the Physics category, three in Chemistry, nine from Physiology or Medicine, three in Literature, seven in Peace, and one in Economics. Three of these Laureates (Julius Wagner-Jauregg, Francis Crick and Konrad Lorenz) carried out work in the field of psychiatry, psychology or neuroscience. Other Laureates discussed topics from these fields and the possible contribution that the understanding of these topics could have towards a eugenic goal. In the cases of some of the Laureates, this stemmed from the idea that behavioural and cognitive traits were strictly, or at least primarily, hereditary. This understanding of the interaction between a person’s genetic makeup and their cognitive capabilities and behaviour provided support for many eugenic practices, such as forced sterilization.

The Laureates that were highlighted in this poster were concerned with certain behaviours and mental capabilities. Particularly, the Laureates discussed intelligence, ‘feeble-mindedness’, insanity and the tendency towards criminality. Many of the Laureates had only a basic or incomplete understanding of heredity available to them, and it was often assumed that these traits came from genetic material that was passed through generations. By this line of reasoning, sexual sterilization or otherwise preventing reproduction was deemed as an appropriate way to improve or discard these unwanted genotypes by ‘removing’ them from the population. As time progressed, however, Laureates such as Watson and Lederberg advocated for greater exploration into the specific biological mechanisms that contributed to behaviour and mental capability. Once these mechanisms were adequately understood, then they could be manipulated and improved upon using genetic engineering or selected for or against using preimplantation genetic diagnostic testing. Additionally, Watson has advocated for enhancements (including neuro- or cognitive-enhancements) [22], which illustrates that the relationship between eugenics and neuroscience is not strictly historical, but is contemporary and has the potential to stretch into the future as new technologies are perfected.

The viewpoints of these Nobel Laureates are important to consider. Those who supported the use of eugenics to improve certain behaviours or cognitive functions implicitly exhibited continued intolerance for the presence or lack of these behaviours/functions. Expressing a desire or so-called ‘need’ to manipulate certain traits implies that there was something fundamentally unacceptable about possessing or lacking these traits. How would the views of these Nobel prizewinners affect those who possess such a trait? While the full impact of these views is beyond the scope of this project, Nobel Laureates are highly visible—the term ‘Nobel Laureate’ will return over 5,000 articles in the New York Times alone, and the academic work of Laureates is cited considerably more often than the average academic [23]. While this would not necessarily translate into greater social, political or academic influence, it is interesting to consider the possible impact that these Nobel Laureates have had on the public’s perception of the ‘acceptability’ of certain cognitive/behavioural traits and, by extension, the acceptability of eugenic interventions.

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## Acknowledgments

Thank you to Dr. Gregor Wolbring, my supervisor.  
Thank you to SSHRC/CURA for making this project possible.