

Greek theories on eugenics

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Abstract

With the recent developments in the Human Genome Mapping Project and the new technologies that are developing from it there is a renewal of concern about eugenic applications. Francis Galton (b1822, d1911), who developed the subject of eugenics, suggested that the ancient Greeks had contributed very little to social theories of eugenics. In fact the Greeks had a profound interest in methods of supplying their city states with the finest possible progeny. This paper therefore reviews the works of Plato (The Republic and Politics) and Aristotle (The Politics and The Athenian Constitution) which have a direct bearing on eugenic techniques and relates them to methods used in the present century.

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Introduction

Eugenics (Gk eu- good, well; Gk gen- genesis, creation), a term proposed by Francis Galton, was defined as “the science of improving the inherited stock, not only by judicious matings, but by all other influences ...”.¹ With the recent developments in the Human Genome Mapping Project the scope for eugenics has enormously increased because of the development of a very powerful technology for the manipulation of DNA. A multitude of gene sequences and genetic markers are now becoming available to predict risks of developing such common conditions as cancer, ischaemic heart disease, diabetes mellitus and hypertension; and in some cases it is possible to treat such disorders by gene therapy (ie replacement of the LDL-receptor gene in patients with homozygous familial hypercholesterolaemia).² Gene manipulation of germ-line cells is currently in use for animal models of human disease and no doubt will soon become available for the supply of donor organs for purposes of human transplantation surgery. A wider definition of eugenics might therefore be “the use of science applied to the quantitative and qualitative improvement of the human genome”; and this would cover methods of regulating population numbers as well as improving genome quality by selective artificial insemina-

tion by donor, gene therapy or gene manipulation of germ-line cells.³ This definition does not include any terms related to the acceptability or otherwise of the means to achieve these ends, ie whether some methods should be made compulsory by the state, or left entirely to the personal choice of the individual. A major problem for the future will be where to draw the fine line between state control and personal choice for the many genetic issues that will arise with the application of the new DNA technology. This is particularly so as some of the genetic issues related to multifactorial disease are complex and may go beyond the understanding of some citizens who may be involved in such decisions.

Galton's work on eugenics makes very little reference to Greek social theories of eugenics and current standard works on eugenics⁴ make no reference to the Greek contribution. For example Galton states in a letter, that he had read “Plato's *Republic* and *Laws* for eugenic passages; but they don't amount to much beyond the purification of the city by sending off all the degenerates to form what is termed a colony!”.⁵ It is not clear where Galton obtained this idea of colonisation as a eugenic measure; it does not appear to occur anywhere in Plato's works. In early ancient Greek history (from the eighth to sixth centuries BC) establishing colonies was a way of coping with population expansion and of establishing trading contacts overseas. Perhaps Galton may have been recalling Herodotus, Book IV, where Polymnestus, a man of high repute in Thera, had a defective son with a speech impediment named Battus (meaning stammerer); and Battus was dispatched by the citizens with sanctions from the Delphic oracle to found a colony in Libya.⁶ However, Herodotus does not say anything explicitly to suggest that the disability was a motive for sending him to lead a colony. On the other hand Plato's works do reveal a profound interest in eugenics as a means of supplying the city state with the finest possible progeny. This was of vital significance for the future of the city, which needed to supply men for its army which was continually at war with other city states. The purpose of this paper is to describe prevailing ancient Greek views on

eugenic methods to improve the quality of their progeny.

Plato's Republic⁷

This work was probably written before 368 BC when the author was in his fourth to fifth decade. It is a blueprint for the organisation of an ideal society and with regard to eugenics adopts the policy of ensuring "judicious matings". Plato thought it vital to society that the correct arrangements should be made for such matings. He proposed that marriage for the guardian classes (guardians were the premier class of Athenian citizens, selected by their natural capacities and attainments to govern the state) be abolished and that provision be made for men and women of the same natural capacities to mate. He drew an analogy with the selective breeding of sporting dogs and horses in order to obtain the desired stock. The members of the guardian classes should only be allowed to breed in their prime, for men, after reaching the age of 25 years, for women 20 years.

Inferior members of the guardian classes should be discouraged from reproducing. Only the best of the offspring should be kept in the guardian class and the inferior children should be relegated to the civilian classes (farmers or craftsmen). These were the general principles; and in practical terms they could be implemented by the institution of a marriage festival, bringing together suitable young people in the correct age band. Sacrifices, poetry, songs and dance would set the atmosphere for young couples to "marry" and cohabit during the period of the festival for about one month, after which the marriage would be dissolved and the partners remain celibate until the next festival. The number of marriages at each festival would be at the ruler's discretion, to keep the population numbers constant, taking into account losses caused by war or epidemics. Plato was more afraid of a decline than a rise in the birth rate and considered that the civilian classes could breed without restriction so as to keep an average city state with 5,000 citizens (as stated in *The Laws*). To prevent marriage of the inferior members of the guardian classes a lottery system would be set up but so rigged that young men acquitting themselves well in war and other duties would be given the first opportunities of having a marriage partner for the term of the festival to produce children whilst the inferior youth would draw lots which "by chance" would not procure a partner for them. At the end of the festival the marriages would be dissolved but the superior youths would be able to draw by lot another (and different) partner at the next festival.

The newborn children were to be taken from their mothers and reared in special nurseries in a separate quarter of the city. Family life was to be discouraged as it provided a distraction from the business of governing, of defending or extending the city state by conquest. Any children born defective would be "hidden away" in some appropriate manner. This may actually be a euphemism for infanticide.⁸ However neither infanticide nor exposure as practised in Sparta and other Greek cities was recommended by Plato for his republic.

Women should be allowed to bear children from the ages of 20 - 40 years, and men reproduce from 25 - 55 years, when the bodily and mental powers are at their best. Unofficial unions which produced children would be considered as a civil (and divine) offence and appropriate punishments instituted. Men should only have relations with women of a marriagable age if the rulers had paired them together. Incestuous unions between parents and children were to be forbidden; but there were no sanctions against brother-sister unions. Brother-sister marriages were not uncommon in Egypt and the Greeks had probably not noticed the increased frequency of defective children resulting from consanguineous marriages. The main aim of brother-sister incest as practised by the royal families of Egypt was to keep the throne within the family. It appears clear from portraits of the Ptolemies of Egypt, the most notorious case of such incest, that some members suffered from inherited endocrine disorders,⁹ but there is no evidence that this was connected by the ancients themselves with the practice of brother-sister incest. However, if all the newborn Greek children were brought up communally in a creche, real brothers and sisters would not perhaps know they were so related; especially as there would be so many different marriage pairs from each succeeding festival. Finally, men and women of the guardian classes past the child-bearing age could form relationships that would fall outside the jurisdiction of the rulers.

Plato's Laws¹⁰

This is the last of Plato's dialogues, written in his eighth decade in about 350 BC, but it is highly likely that he was at work on *The Laws* for many years during intervals of writing other texts, since it is his longest work and it may well incorporate material for earlier projects at which he hints, but seems never to have completed. It is a more practical treatment and extension of the political problems raised in *The Republic*. He attempts to frame a model constitution and legislation that might be adopted by a society of average Greeks. He by now considers the temporary unions at

marriage festivals, with a community of wives and children, to be impractical. Instead he would legislate for monogamous marriages with strict chastity outside of that. Provision for this should be initially made by arranging sports and dance festivals so the young people of the city could meet each other. If a man of 25 years or more finds a suitable partner he should submit his case to the curator of laws, and if the match is found suitable, should in all cases marry her before the age of 30 - 35 years. A girl could marry from the age of 16 - 20 years. With regard to fitness for marriage a man should primarily court a woman for the city's good and not just because she takes his fancy. The origin of the bride and her family should be carefully scrutinised. The wealth or poverty of the bride's family should not play a large part in his choice.

If any fit young men did not, or refused to marry, up to the age of 35 years they then should pay an annual fine of 100 drachmas if belonging to the wealthiest class; 70 drachmas if to the second; 60 if to the third and 30 drachmas if to the fourth class. The fines so collected would be dedicated to the Temple of Hera.

Married couples should make it their first concern to present the city with the best and finest progeny. They should therefore be under the supervision of a board of matrons, appointed by the magistrates, to superintend the conduct of the married couples. For example, expectant mothers should assemble daily for a minimum period of 20 minutes at the Temple of Ilithyia (a goddess identified with Artemis or Hera) to provide sacrifices and rites to the Goddess of Matrimony. Their period of supervision by the board should last ten years and the board would provide advice and guidance on all problems connected with childbirth (for example, if couples were infertile, or producing too many children). Infertile couples could have their marriages dissolved but the relatives of both parties were to have a voice in the terms of the separation. Finally, an official register of births and deaths should be kept and made easily accessible by the recording of its details on whitened walls. Such a record would be required for the proper observance of the laws fixing the ages for marriage, military service or qualifications for various official posts.

Regarding Plato's other political dialogues, *The Statesman*¹¹ deals with the different forms of government and the nature of political science but makes no reference to eugenics.

Aristotle's Politics¹²

Aristotle initially studied with Plato at the Academy from 367-348 BC, but then left to

travel. He returned to Athens in 336 BC and founded the Lyceum. In his book *Politics* he first criticizes Plato's views and then proposes his own. He thinks that the community of wives and children for the guardian class is impractical and if anything is better suited to the civilian classes. If the latter have wives and children in common they will be less closely united by bonds of affection and family ties and perhaps remain more obedient to the ruling elite and be less likely to rebel. Also, would mothers in the guardian class voluntarily give up their children to be reared in a communal nursery? If some of their inferior children are relegated to the lower classes and eventually find out their true parents, this may lead to quarrels and recriminations and perhaps would provide more a source of disorder in society.

He also criticises Plato's view that the birth rate should be left unrestricted for the lower classes. If this leads to over-population, the attendant evils of poverty, crime and revolution would most likely follow. In Aristotle's view the birth rate should be regulated even more stringently than was done in c 330 BC. He quotes in support of this idea that Phaedon of Corinth, an early legislator, recommended that land allotments for families and the number of citizens should be kept equal to one another, implying a tight regulation of the birth rate.

Raw material

Aristotle's own views agree in principle with Plato's that conditions should be managed to ensure the highest possible state of health for the city's newborn children. The quality and quantity of their population depends on this and is the first concern of the city state. The population is the raw material on which the statesman works. Aristotle would therefore legislate for the following proposals. Strict monogamous marriages should be instituted, with women marrying at about 18 years and men at 37 years, when he considers both sexes to be at their prime. Pregnant women must take care of their bodies with regular exercise each day by walking to the Temple of Ilithyia to worship at the altar of the gods presiding over childbirth. Expectant mothers should be given nourishing food and remain as tranquil as possible since the embryo derives its nature from the mother, rather as plants do from the soil in which they grow.

Laws should be introduced to oppose an unrestricted birth rate, but no children should suffer exposure just to limit the population. If couples are having too many children abortion must be procured before the embryo has reached the stage of "sensitive life". Infanticide should be practised for any children born with deformities.

Other proposed ideal constitutions considered by Aristotle, ie those of Phaleas of Chalcedon or Hippodamus of Miletus appear to make no provisions for eugenics. The actual constitution of Sparta appears to include eugenic measures but these were mainly directed to a single aspect, namely military prowess.¹³ Their practice of child exposure and infanticide was mainly aimed at developing a cadre of good soldiers but this led to a shortage of manpower which proved to be one of Sparta's major social weaknesses. A law had eventually to be passed to encourage population growth in which a father of three sons was exempt from military service and a father of four sons was exempt from all state-imposed obligations, including taxes. The actual constitution of Crete had measures to regulate the birth rate by segregating women from men. However, Lycurgus, the supposed legislator for both Sparta and Crete, sanctioned sexual intimacy between males as a means of controlling reproductive rates, the morality of which Aristotle appears to question.

Commentary

It is of interest that neither Galton nor many contemporary commentators^{4 15} appear to give credit to or even mention the Greek contribution to the subject of eugenics. In fact Galton's proposals for the development of the subject³ go very little further than the measures proposed by Plato except that there was almost no element of coercion in the former. Galton's main proposals were: (1) Extensive family records should be kept and in competitive examinations for professional posts in, for example the civil service, extra marks should be awarded for "family merit". The family history as well as the personal history of the applicant should be taken into account; (2) Early marriages for women from "gifted" families should be encouraged by the award of financial endowments, analogous perhaps to the use of grants for higher education for promising young adults; (3) Rules of celibacy for gifted individuals (for example Fellows at the older universities) should be abolished; and finally (4) The state should take some form of action (unspecified) against the procreation of the feeble-minded, the insane, and some classes of habitual criminals.

Plato's methods to improve the genetic constitution of the ruling elite class are far more original than those of Aristotle and are in accord with modern genetic theory. Different choices of partners at serial marriage festivals amongst a selected elite of the population would be expected to lead to an optimal spread of abilities for their offspring. He recommends systematic deception in the pursuit of these aims by rigging the lottery system for

marriage partners, and in Book Three of *The Republic* he states that deception of citizens for the city's welfare is justified for political ends in the same way that doctors may conceal the truth from their patients for their own good, but patients should conceal nothing from their doctors (if they want a correct diagnosis). In practice, of course, justifying a means for political ends can be almost total variance with justification for the benefit of the citizen's welfare. Aristotle criticised the social implications of a community of wives and children; but both Plato and Aristotle appear to have overlooked the possibility of brother-sister (or half brother-half sister) matings leading to the appearance of deleterious recessive characters that occur at high frequency in the human genome (c. 20%). Perhaps the adverse effects of consanguineous marriages had not been recognised by the Greeks or Egyptians, since brother-sister marriages were condoned.

Plato and Aristotle both recommended legislation of social methods aimed at promoting judicious matings amongst an elite class, methods that would be unacceptable today. Contemporary genetics has more aimed to discourage injudicious matings in the population by methods that are equally questionable. In the early half of this century state institutions introduced compulsory measures to improve the "inherited stock" of their society. For example from 1930 onwards 27 states in the USA passed sterilisation laws to prevent various classes of people from having children.¹⁶ These included the insane, those suffering from epilepsy, and the feeble-minded. In some states these laws were applied to habitual criminals and "moral perverts". Most states did not enforce these laws, but in California compulsory sterilisations reached a total of 9,930 by 1935. Other countries, including Denmark, Switzerland, Germany, Norway and Sweden also passed sterilisation laws for similar categories of people, and between 1935 and 1976 about 60,000 young Swedish women deemed mentally defective or otherwise handicapped, making them incapable of looking after children, were sterilised. The laws in Sweden remained on the statute books until 1976.¹⁷ Only in Germany have recent attempts been made to "breed" for an elite class. The Lebensborn (Spring of Life) state programme of the Nazis established Lebensborn homes throughout Germany where SS men and suitable young Aryan women were encouraged to procreate.¹⁸ The policy never became firmly established and there were only 700 employees in all of the Lebensborn homes. It probably failed to realise its full potential because of the overriding demands

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of the resettlement and extermination programmes.

In the USA between 1969-73 many states organised compulsory schemes to screen for sickle cell heterozygosity which occurs primarily amongst the black population. Carriers, who are entirely healthy, had problems with obtaining marriage certification, employment and access to life insurance. For example, carriers of the sickle cell trait were excluded from positions in the Air Force academy involved with flight training and from flight personnel posts. In the Department of the Navy employees were screened and heterozygote cases excluded from airborne, ranger or flight crew training. Such procedures could be interpreted as racist and a means of discriminating against the black population by preventing their promotion to officer class.¹⁹ This could also have an indirect eugenic effect although there is no demographic evidence that reproductive rates were affected by this policy.

More recently insurance companies in the UK (1997) required the declaration of previous genetic tests for susceptibility to such diseases as cancer, heart disease and premature dementias; premiums are adjusted according to the health risks involved.²⁰ Since life insurance is frequently tied to mortgages this would tend to have an effect of discouraging (by financial pressures) individuals possessing an adverse genetic constitution from starting families and therefore could act as a covert eugenic measure.

Currently the trend for eugenics has been very much away from social coercion by various state institutions to providing more education and freedom for citizens to make their own genetic and reproductive choices. For example, mothers can choose to have a disabled child with trisomy 21 even though the state may eventually have to provide for the child's long term care. If there were a genetic "cure" for trisomy 21 the mother could be held responsible for injury to her child for withholding it. If a pregnant mother can take steps to cure a disability affecting her fetus she should do so, or otherwise she could be held responsible for deliberately injuring her child.²¹ The only "cure" at present for trisomy 21 is termination of pregnancy and perhaps a state body should inter-

vene in such cases if the mother is clearly unable to provide economically for the long term care of her handicapped child. However, each particular case for state intervention has to be scrutinised very carefully in view of the gross abuse of such measures in the present century.

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References

- Galton F. *Inquiries into human faculty and its development*. London: J M Dent and Sons, 1943:17.
- Grossman M, Raper SE, Kozarsky K *et al*. Successful ex vivo gene therapy directed to liver in a patient with familial hypercholesterolaemia. *Nature Genetics* 1994;6:335-41.
- Galton DJ, Galton CJ. Francis Galton: and eugenics today. *Journal of Medical Ethics* 1998;24:99-105.
- Kevels DJ. *In the name of eugenics*. Cambridge, Mass: Harvard University Press, 1995.
- Pearson K. *The life, letters, and labours of Francis Galton*. Cambridge: Cambridge University Press, 1930:312.
- Herodotus. *The histories* [translated by Carter H]. Oxford: Oxford University Press, 1962.
- Plato. *The republic* [translated by Cornford FM]. Oxford: Oxford University Press, 1955.
- Adam J. *The republic of Plato* [vol 1]. Cambridge: Cambridge University Press, 1965: 357-60.
- Davis N, Kraay CM. *The Hellenistic kingdoms - portrait coins and history*. London: Thames and Hudson, 1973: plates 13-47.
- Plato. *Laws* [translated by Taylor AE]. London: J M Dent and Sons, 1969.
- Plato. *Parmenides, Theaitetos, sophist, and statesman* [translated by Warrington J]. London: J M Dent and Sons, 1961.
- Aristotle. *Politics* [translated by Warrington J]. London: J M Dent and Sons, 1964.
- Aristotle. *The Athenian constitution* [translated by Warrington J]. London: J M Dent and Sons, 1964.
- Kitcher P. *The lives to come*. London: Penguin Books, 1996.
- Weir RF, Lawrence SC, Fales E, eds. *Genes and human self knowledge*. Iowa City: University of Iowa Press, 1994.
- Olson FH. *Eugenics*. In: *Encyclopaedia Britannica* [15th ed]. Chicago: H H Benton, 1980.
- Armstrong C. Thousands of women sterilised in Sweden without consent. *British Medical Journal* 1997;315:563.
- Toland J. *Adolf Hitler* [vol 2]. New York: Doubleday, 1976.
- Duster T. *Backdoor to eugenics*. New York: Routledge, 1990.
- Association of British Insurers. *Life insurance and genetics*. London: Association of British Insurers, 1997.
- Harris J. Is gene therapy a form of eugenics? *Bioethics* 1993;7: 178-87.