EUGENICS AND FAMILY PLANNING: EXPLORING THE YIN AND THE YANG

by

GEORGE P. SMITH, III*

1. INTRODUCTION

Substantial scientific evidence exists which indicates man's genetic inheritance acts as a major influence not only upon his behaviour but on his health[1]. In the United States, for example, it is estimated that one out of every twenty babies is born with a discernible genetic deficiency[2]; of all chronic diseases, between twenty and twenty-five per cent are predominantly genetic in origin[3]. At least half of the hospital beds in America are occupied by patients whose incapacities are known to be of a genetic origin[4]. Because modern medicine can alleviate the symptoms of some genetic disease syndromes through sophisticated treatment, many who are afflicted with genetic disease and who would not have survived in the past, now survive. Medicine is unable to do much by way of *curing* genetic defects[5], however, and those afflicted with genetic

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* B.S., J.D. (*Indiana*), LL.M. (*Columbia*). Professor of Law, The Catholic University of America, Washington, D.C. Fullbright Visiting Professor of Law and Medical Jurisprudence, University of New South Wales. This essay evolved from a paper presented at a Residential Seminar sponsored by the Faculty of Law, University of Tasmania at Launceston. The author acknowledges with pleasure the generous support and encouragement that he received from Dean Frank Bates and his colleagues during his visit to Tasmania, together with equally generous financial support of the Australian-American Educational Foundation during his stay in Australia as a Fulbright Scholar. The views expressed herein are solely those of the author.
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1 See, S. Stanley, *The New Evolutionary Timetable* (1981); T. Dobzhansky, *Genetic Diversity and Human Equality* (1973); H. J. Muller, 'The Human Future' in *The Humanist Frame* 401 (J. Huxley, ed. 1961); H. J. Muller, 'Human Values in Relation to Evolution', 127 *Science* 625-629 (21 Mar. 1958); H. J. Muller, 'Genetic Principles in Human Populations', (6 Dec. 1936), 83 *The Scientific Monthly* 277; H. J. Muller, 'The Threads that Weave Evolution', 3 *Transactions, N.Y. Academy Science*, Ser. II, at pp. 117-125 (1941).

2 R. Gorney, 'The New Biology and The Future of Man', 15 *U.C.L.A.L.R.* 273 at p. 291.

3 A. Robinson, 'Genetics and Society', [1971] *Utah L.R.* 487.
Approximately 30,000 severely defective infants are born each year and afflicted with grave handicapping conditions that range from spina bifida to anencephaly. T. S. Ellis, 'Letting Defective Babies Die: Who Decides?' (1981), 7 *Am. J. Law and Med.* 393, n. 1.

4 *Supra* note 1.

5 J. R. Waltz and C. R. Thigpen, 'Genetic Screening and Counseling: The Legal and Ethical Issues', (1973) 68 *Northwestern U.L.R.* 696 at p. 698.

diseases who are kept alive by modern technologies can reproduce and, thus, may increase the number of defective genes in the genetic profile of the human population[6].

Considerable research into techniques for perfecting genetic engineering has been undertaken in an attempt to develop new, effective treatment for individuals with inherited diseases[7]. Under the rubric of the 'New Biology', scientists are both investigating and developing many interventions, including gene deletion surgery, splicing and transplantation, parthenogenesis, amniocentesis and experimentation with the scope and application of DNA[8]. Genetic engineering utilises some of these procedures to reorganize human genes to produce varied, particular characteristics[9].

In order to combat genetic disease, genetic engineering may (and frequently does in fact) rely upon eugenics, the science that deals with the improvement of heredity. Stated simply, a positive eugenics program seeks to develop superior qualities in man through the propagation of his superior genes[10]; with the positive eugenists seeking to produce a 'new breed' with keener and more creative intelligence[11]. Contrariwise, a negative eugenics program attempts only to eliminate genetic weaknesses[12]. When seen in application, positive eugenics programs encourage the fit and 'proper' individuals to reproduce, while negative

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6 Ibid at p. 698.

7 L. R. Kass, 'The New Biology: What Price Relieving Man's Estate?' (1971) 174 *Science* 779 at p. 780.
See also, C. Heintze, *Genetic Engineering: Man and Nature in Transition* (1973).

8 See generally, 'Symposium — Reflections on the New Biology', (1968) 15 *U.C.L.A.L.R.* 267.
Creative, scientific impulses for research and investigation should be neither systemized nor controlled. 'Some part of life — perhaps the most important part — must be left to the spontaneous action of individual impulse, for where all is system, there will be mental and spiritual death'. B. Russell, *The Impact of Science on Society* (1952) at p. 89.

9 J. R. Waltz and C. R. Thipgen, *supra* note 5 at p. 696.
See also, M. Frankel, *Genetic Technology: Promises and Problems* (1973); J. Fletcher, 'Ethics and Recombinant DNA Research', (1978) 51 *So.Cal.L.R.* 1311.

10 See G. P. Smith, 'Manipulating the Genetic Code: Jurisprudential Conundrums', (1976) 64 *Georgia L.R.* 697; W. T. Vukowich, 'The Dawning of The Brave New World — Legal, Ethical and Social Issues of Eugenics', [1971] *U.Ill.L.R.* 189 at p. 222.

11 C. Frankel, 'The Specter of Eugenics', (1974) 57 *Commentary* 25 at p. 30.

12 Ibid.
To be justifiable, the acceptance or rejection of eugenic policies should be based upon more than one criterion. The following requisites should be a part of every eugenic program: scientific validity (*e.g.*, a demonstration of sufficient genetic variation to allow for selection of the attribute in question); moral acceptability (*i.e.*, a demonstration that the attributes chosen for selection are properly considered socially desirable); and ethical acceptability (*i.e.*, a demonstration that the programs needed to institute a eugenic program do not compromise individual rights and liberties presently sanctioned by both public policy and the law). M. Lappé, 'Why Shouldn't We Have a Eugenic Policy?' in *Genetics and the Law* (A. Milunsky, G. Annas eds. 1976) 421 at p. 425.
See also, F. Osborn, 'Qualitative Aspects of Population Control: Eugenics and Euthenics', (1960) 25 *Law and Contemp. Problems* 406.

eugenics programs discourage the less fit and those with inheritable diseases from procreating[13]. Abortion is one way of implementing a program of negative eugenics after earlier measures of regulation have failed.[14].

The Yin and the Yang are the two great principles of Chinese Taoism. Yin is the feminine, negative and passive principle. Yang is the masculine, positive and active principle. At times they oppose, and at other times they combine. If they are separated, no manifestation of any kind is any longer possible. Man's health depends upon the harmonious interaction of both the yin and the yang[15]. The simple purpose of this essay will be to explore the extent to which yin-yang influences or relationships exist and are found within eugenics as a directive force in the science of genetics and to thereby test the extent of their dependence or their independence as an influence in modern family planning.

2. THE HISTORICAL PERSPECTIVE

Plato, in his *Republic*, idealized selective breeding as the foundation for the creation and maintenance of a superior Guardian class[16]. After postulating a theory of evolution which was based upon the natural selection of the fittest organisms by virtue of their greater reproductive successes in the competitive struggle for existence in 1859 with his treatise, *On the Origin of the Species*, Charles Darwin went on to suggest twelve years later in *Descent of Man and Selection in Relation to Sex* that man could profit if selective breeding techniques were introduced into his reproductive cycle[17]. It remained for his cousin, Sir Francis Galton, however, to achieve the status and recognition of being the true father of eugenics in 1883[18]. As early as 1869, however, Galton began to acknowledge that each generation had a power, and a co-ordinate responsibility, to those who followed to use their natural gifts so that they would be of measured advantage to future generations[19]. As it subsequently developed as a theory in 1883, 'eugenics' was denominated

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13 G. P. Smith, 'Through A Test Tube Darkly: Artificial Insemination and the Law', (1968) 67 *Michigan L.R.* 127 at p. 147.

14 T. Dobzhansky, *Mankind Evolving* (1962) at p. 245; M. Haller, *Eugenics* (1963) at p. 3.
See also, H. P. Green, 'Genetic Technology: Law and Policy for the Brave New World', 48 *Ind.L.J.* 559 (1973); T. Dobzhansky, 'Comments on Genetic Evolution', 90 *Daedalus* 451 at pp. 470-73 (1961); *Studies in Genetics — The Selected Papers of H. J. Muller* (1962); *Classic Papers in Genetics* (J. Peters, ed. 1959); *Genetics, Medicine and Man* (H. J. Muller, C. Little, L. Snyder eds. 1947).

15 S. Barndon (ed.) *A Dictionary of Comparative Religion* (1970) 657; P. Edwards (ed.), 2 *The Encyclopedia of Philosophy* (1967) 89; W. Reese (ed.), *Dictionary of Philosophy and Religion* (1980) 637.

16 Plato, *The Republic*, Bk. 5 (J. Davies and D. Vaughn, trans. 1891) at pp. 166-70.

17 C. Darwin, *Descent of Man and Selection in Relation to Sex* (1871) at pp. 402-03.

18 Comment, 'Eugenic Artificial Insemination: A Cure for Mediocrity?', (1981) 94 *Harv. L.R.* 1850 at p. 1852.

19 F. Galton, *Heridity Genius* (1869) at p. 1.

as a scientific approach to give, '... the more suitable races or strains of blood a better chance of prevailing speedily over the less suitable than they otherwise would have had'[20].

First in Europe, and subsequently in the United States, social reformers and modernists seized upon Darwin's theory of evolution as a key to understanding the social disorganization of that period[21]. Indeed, this particular period of social evolution was compared with the very evolution of an organism. Social Darwinists were formed as a group that saw the decaying social order as the product of a type of healthy competition where only the fittest survived[22].

The real honor of being the 'father' of modern genetics fell to Gregor Mendel, an Austrian monk who, in the 1860's, began exhaustive experiments into inheritance factors which were later designated as genes or units of heredity[23]. Mendel discovered, through a process of cross breeding peas, that a pair of determiners or genes were the mechanisms through which inherited traits were passed. Thus, if a plant were to inherit a gene for round leaves from each parent, it would have that specific trait. Yet, interestingly, where a plant might inherit one gene for sets of round leaves and another gene for pointed leaves, in that case the plant would exhibit but one of those traits; and the gene for that trait would be considered the dominant gene — while the other would be classified as recessive. Recessive traits would only appear when a plant inherited two recessive genes. Accordingly, a recessive trait could 'skip' a generation, yet expect to appear in one subsequently. Using this data, Mendel went on to develop a detailed system of ratios which was used to describe the appearance of a trait[24].

While Mendel sought application and validation of his ratios only as to peas, the eugenists proceeded to use these ratios blanketly in order to describe evolutionary genetics as a time in the history of science when knowledge of the field was quite primitive. Almost all of an individual's physical and psychological characteristics were attributed to the presence in his parent's reproductive, or germ cells, of a gene for each specific trait. While little disputation was regarded as to the inheritability of such common physical traits as iris and hair pigment, or skin color, the eugenists extended their positioning by maintaining that psychological traits, such as sincerity or insincerity, truthfulness or untruthfulness were also inherited.[25]

While the noble ideals of positive eugenic programs sought to encourage those with what were perceived as socially beneficial traits to take basic eugenic principles into consideration when choosing a marriage

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20 *Supra,* note 18 at p. 1852.

21 R. J. Cynkar, *'Buck* v. *Bell*: "Felt Necessities v. Fundamental Values?",' (1981) 81 *Col.L.R.* 1416 at p. 1420.

22 Ibid.

23 Ibid, at p. 1421.

24 Ibid, at pp. 1422-1425.

25 Ibid.

partner as well as family size, the negative program for eugenic improvement stressed erradicating socially inadequate germ-plasm (*e.g.*, the feeble-minded) from the American stock through legally sanctioned sterilization procedures[26]. This programme captured the interest and the imagination of a large number of Americans, while the nobility of purpose and idealism seen in implementing a positive eugenic programme never really developed, or, for that matter, flourished[27].

In 1929, those determined to be 'socially inadequate' and recognized as the target groups for sterilizations were the feeble-minded, the insane (which included the psychopathic), the criminalistic (including the delinquent and wayward), the tubercular, syphilitic, leprous and all others with chronic, infectious and legally segreable diseases), the blind and those with seriously impaired vision; deaf and those with seriously impaired hearing, the deformed (which included the crippled) and dependents taken as orphans — the ne'er-do-wells, the homeless, tramps and paupers[28]. The stated goal of a number of the eugenists was to build sufficient institutions so that, by the year 1980, care could be 'extended' to the 1,500 feebleminded per 100,000 of the population which — it was maintained — would then be living in the United States[29].

Twenty-three states had enacted, by 1925, at least one piece of eugenical sterilization legislation. While varying classes of people were declared to be subject to the laws, each law combined various degrees of punitive, eugenic and therapeutic motives to effectuate its intent[30]. Various court challenges to the constitutionality of the statutes were maintained and when such a statute of this type was in fact determined to be unconstitutional it was a decision founded on a denial of equal protection of the laws (*i.e.*, an invidious discrimination of an existing class of citizens), a violation of the due process of laws guarantee of the Constitution or a recognition that the sterilizations were cruel and unusual punishment[31].

Although by 1931, some thirty-two states had passed one or another type of sterilization legislation, the full popularity of the eugenics movement had begun to decline as early as 1927[32]. Interestingly, during the 1920's new scientific investigations began to show clearly that feeblemindedness was not a direct consequence of Mendelian ratios — but, rather, the result of very complex etiologies[33]. Finally, then, in the whole decade of the thirties in America, not only did more startling research advances in psychology, sociology and anthropology show with clarity that environmental surroundings were certainly *as* significant a deter-

26 Ibid at p. 1428.
27 Ibid.
28 H. Laughlin, *The Legal Status of Eugenical Sterilizations* (1929) at p. 65.
29 Ibid, at p. 60.
30 *Supra* note 21 at p. 1433.
31 Ibid, at p. 1434.
32 Ibid, at p. 1454.
33 Ibid, at p. 1455.

miner of human character and intelligence as heredity, but, as important, the passionate commitment of the original leaders of the eugenics movement was not found to be replaceable in the new converts, once the original leadership ranks were thinned by death or retirement[34].

3. IMPLEMENTING A NEGATIVE EUGENICS PROGRAMME

In seeking to eliminate genetic weaknesses from society, a negative eugenics programme necessarily requires a process to determine genetic composition. Genetic screening and counselling accomplish this objective by identifying carriers of genetic diseases and advising couples whether reproduction is biologically desirable[35]. That screening and counselling may occur at both preconceptive and postconceptive stages[36]. A simple preconceptive screening procedure consists of withdrawing and analyzing a blood sample in order to determine if an individual possesses any recessive traits for a genetic disease[37]. Post-conceptive screening and counselling procedures are more medically complicated and also pose more complex legal issues.

a) *Amniocentesis*

A recently developed post-conceptive screening procedure, amniocentesis, has emerged as a principal element of negative eugenic programming. The procedure consists of inserting a needle through the abdominal wall of a pregnant woman into the amniotic sac containing the fetus, withdrawing a sample of the sac fluid, and analyzing it[38]. Since the sac contains cells from different parts of the fetus, analysis of this sample reveals the sex of the fetus and also whether it will be affected with certain genetic disabilities[39] By permitting a physician to predict accurately the presence of certain genetic defects, amniocentesis significantly advances standard genetic counselling procedures that must rely on probabilities[40].

If amniocentesis reveals a genetically defective fetus, the parents face the difficult choice of whether to abort the fetus. A couple informed of

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34 Ibid, at p. 1456.

35 B. D. Davis, 'Ethical and Technical Aspects of Genetic Intervention', (1971) 285 *New Eng. J. Med.* 799.

36 *Supra* note 5 at p. 700.

37 Ibid.
See also, J. A. Kobrin, 'Confidentiality of Genetic Information', (1983) 30 *U.C.L.A. L.R.* 1283.

38 A. Robinson, 'Genetics and Society', [1971] *Utah L. Rev.* 487 at p. 488 n. 24.

39 Ibid at p. 48.

40 Ibid. See P. Ramsey, 'Screening: An Ethicists View', in *Ethical Issues in Human Genetics* 147 at p. 154 (B. Hilton, D. Callahan, M. Harris, P. Condliffe, B. Berkley, eds. 1973).

a genetically defective fetus may decide for religious, personal, or ethical reasons that they want to guarantee the birth of the life they created and therefore allow the pregnancy to continue. Such a choice raises the issue whether the child could bring a tort action against his parents for wrongful life. Under current law, such a claim would be likely to fail[41].

b) *Genetic Screening and Counselling Programmes*

Some of those concerned with negative eugenics currently have emphasized the need for the wide application of traditional screening procedures to identify the carriers of certain diseases[42]. Certain leaders of Jewish communities, for example, encourage citizens of their communities to participate in screening to identify carriers of the Tay Sachs recessive gene, which can cause a debilitating illness[43]. Federal legislation permits the use of public funds to establish voluntary, genetic screening and counselling programmes for carriers of sickle cell anemia[44]; some state legislatures have gone further to require genetic screening of

41 See Note, 'A Cause of Action for Wrongful Life', (1970) 55 *Minn. L. Rev.* 58 Annot., 22 A.L.R. 3d 1441 (1968).

42 C. Rivers, 'Grave New Norld', *Saturday Rev.*, 8 April, 1972, at pp. 23, 26. There are four areas in which genetic disease may be classified: single gene effects; chromosomal abnormalities; congenital malformation; and serious constitutional disorders. The incidence of single gene effects — of which the most commonly known are phenlketonuria (P.K.U.), Tay Sachs disease and X-linked mental retardation — is 11.2 affected births per 1,000 births. Chromosomal abnormmalities — which would include Down's Syndrome and Turner's Syndrome — account for 5.4 per 1,000 births. The incidence of congenital malformation is 14.1 per 1,000 births and the serious constitutional disorders — which include diabetes and epilepsy — occur in 14.8 per 1,000 births. S. Hayes and R. Hayes, *Mental Retardation: Law, Policy and Administration* (1982) at pp. 28, 29.

Usually within the first several weeks of pregnancy, between one-third and one-half of all zygotes abort spontaneously owing to the fact that forty per cent of the abortuses have an abnormal chromosome complement. A rather surprising ninety-seven per cent of Turner's Syndrome and sixty-five to seventy per cent of Down's Syndrome abort by the eighteenth week of pregnancy. Many abnormal foetuses which do not abort spontaneously are identifiable through use of a variety of techniques — with, in all cases, termination of the pregnancy being offered to the prospective parents. Hayes & Hayes, ibid. See also, G. Roderick, *Man and Heredity* (1968) at p. 225; S. Scheinfeld, *Your Heredity and Environment* (1965) at p. 189; H. Papazian, *Modern Genetics* (1967) at p. 77.

43 L. Walters, 'Introduction to Genetic Intervention and Reproduction Technologies', In *Contemporary Issues in Bioethics* at p. 567 (T. Beauchamp, L. Walters, eds. 1978).

44 National Sickle Cell Anemia Control Act, 42 U.S.C. s. 3006 *et seq.* (Supp. III, 1973). See also, A. Etzioni, *Genetic Fix* (1973) at p. 132. See B. J. Culliton, 'Cooley's Anemia: Special Treatment for Another Ethnic Disease'. (1972) 178 *Science* 593, 'National Cooley's Anemia Control Act' (1972) *Public Law* at pp. 92-414. There has also been special congressional concern over the study and regulation of Huntington's chorea (89 Stat. 349 (1975) and hemophilia (90 Stat. 350 (1975).

school age children for that trait[45]. New York provides for premarital testing to identify carriers of the same defective gene[46]. Genetic screening programmes also may include provisions for counselling[47]. Unfortunately, counselling efforts to date have been sporadic and ineffective[48]. If genetic screening programmes are to have any significant impact, more effective counselling techniques must be devised and implemented[49].

Public acceptance of mandatory genetic screening programmes should not be impossible to achieve. Premarital genetic screening would be an easy addition to state statutes that presently require premarital gesting for maternal *rubella titre* (although not itself considered to be a genetic defect), blood group, and *Rh status*[50]. One scholar asserts that statutes

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45 See *e.g., Ill. Ann Stat.* ch. 122 ss. 27-8 (Smith-Hurd Supp. 1979) (exception for refusal of physical examination on constitutional grounds); *Mass. Gen. Laws Ann.* ch. 76, s. 15A (Supp. 1979) (mandatory only if child susceptible); *N.Y. Educ.* s. 904 (McKinney Supp. 1978-79) (exception for refusal based on religious beliefs). See also *Va. Code Ann.* ss. 32-112.20 to 112-23 (Supp. 1979) (voluntary screening program).

Dr Linus Pauling has suggested that sickle cell anemia carriers be identified by tattooing the forehead of every carrier. Other recessive genes, such as hemophilia and phenylketonuria, could be similarly identified. Dr Pauling wistfully suggests that such identification would discourage carriers of the same defective gene 'from falling in love with another' and, presumably, from procreating. See L. Pauling, Forward, 'Symposium — Reflections on the New Biology', (1968) 15 *U.C.L.A.L.R.* 267 at p. 270.

Limited neonatal screening for phenylketonuria (PKU) — a single gene effect that produces severe mental retardation in children — was initiated in the United States and Britain during the 1950's. Today, some forty-three states have PKU screening laws; another fourteen test neonatally for a variety of screening problems other than PKU. Among such diseases may be listed: adenosine deaminase deficiency; galactosemia; homocystinuria; sickle cell anemia; tyrosinemia; histidinemia; branches chaisketonuria. P. Reilly, 'State Supported Mass Genetic Screening Programs', in *Genetics and the Law* (A. Milunsky, G. Annas, eds. 1976) 159 at p. 164.

46 *N.Y. Dom. Rel. Law,* s. 13-aa (McKinney 1977). Other states provide for voluntary premarital testing for sickle cell anemia. See *Cal. Health & Safety Code* ss. 325-331 (West Supp. Pamp. 1978); *Ga. Code Ann.* ss. 53-216 (1974).

47 See *Va. Code Ann.* ss. 32-122.22 (Supp. 1979). R. M. Antley, 'Variables in the Outcome of Genetic Counseling', (1976) 23 *Soc. Biology* 108. A Genetic counselor, 'has freedom to persuade, according to his personal convictions, but he does not have freedom to coerce, based upon his inherent power in the counseling milieu. He must accept the counselee as the ultimate decision maker. Different parents have a variety of motives for their ultimate decisions. Thus, the outcome of their deliberations will vary. And we will preserve our genetic heterogeneity': M. W. Shaw, 'Genetic Counseling' in *Human Genetics: Readings on the Implications of Genetic Engineering* 199 at p. 200 (T. Mertens ed. 1975).

48 J. R. Waltz and C. R. Thigpen, 'Genetic Screening and Counseling: The Legal and Ethical Issues', (1973) 68 *Northwestern U.L.R.* 696 at pp. 701-2, nn. 28-29. See also, *Screening and Counseling for Genetic Conditions: A Report on The Ethical, Social and Legal Implications of Genetic Screening, Counseling, and Education Programs, President's Commission for the Study of Ethical Problems in Medicine and Behavioral Research* (Feb. 1983).

49 J. R. Waltz and C. R. Thigpen, *supra,* at pp. 701-02, nn. 30-31. Confusion as to the significance of possessing the defective gene not only renders screening programs less effective in discouraging reproduction, but the failure to differentiate between the disease and the trait also increase the stigmatization to which carriers are subjected. Ibid.

50 C. Frankel, 'The Specter of Eugenics', (1974) 57 *Commentary* 25 at p. 29.

requiring genetic screening for the population at large would be a simple and readily acceptable extension of present laws requiring vaccinations and chest X-rays for school children[51]. Moreover, societal problems such as population control, the cost of supporting the handicapped, and the general welfare of the population favor the trend toward mandatory genetic screening[52].

Some legal scholars maintain that compulsory genetic screening programmes may be unconstitutional[53]. They assert that the taking of a child's blood sample would constitute a physical invasion of the body in violation of the fourth amendment to the Constitution and that a compulsory counselling programme would interfere with the fundamental rights to marry and procreate[54]. These critics also contend that a less intrusive voluntary programme, together with extensive dissemination of educational material, could accomplish the same objectives[55]. Although genetic screening involves a minor intrusion into an individual's body and may involve a 'search' within the meaning of the Fourth amendment, the search is not unreasonable and prohibited if executed in a proper manner and justified by a legitimate state interest[56]. Similarly, assuming *arguendo*, that mere screening and counselling interfere with the right to procreate, such interference may be justified by a compelling state interest which must be preserved. The state's interest in improving the quality of a population's genetic pool in order to minimize suffering, to reduce the number of economically dependent persons, and possibly, to have mankind from extinction arguably justifies the infringement of individuals' civil liberties[57].

Unfortunately, voluntary programmes have little value in achieving the purposes for which they are structured. People are too preoccupied with the daily vicissitudes of life to be concerned with prospective occurrences of genetic possibilities. Therefore, although a voluntary programme concededly is less intrusive, the only way to achieve positive, enduring results is to implement some form of mandatory genetic screening programme[58].

c) *Restrictions on Marriage*

An even more effective means of preventing the birth of genetically defective persons is prohibiting marriage between carriers of the same genetic defect. Both constitutional and social objections have been

51 Ibid.

52 Ibid.

53 *Supra* note 48 at p. 712.

54 Ibid at pp. 711-712.

55 Ibid.

56 *Cf. Schmerber* v. *California*, 384 U.S. 757 at p. 772 (1966) (compulsory blood test to determine intoxication of automobile driver not unreasonable search).

57 Vukowich, *supra* note 10 at p. 208.

58 Pauling, *supra* note 45 at pp. 270-271.

raised to such a restriction on marriage[59]. Existing laws prohibiting marriage for eugenic reasons and proposals to restrict marriage between carriers of the same genetic defect are attacked as being excessively broad, and the suggestion is made that only procreation needs to be regulated to ensure both eugenic preservation and responsible parents[60].

Since procreation traditionally is set within the marriage framework however, establishing restrictions on marriage is the most practical mechanism for implementing a negative eugenics programme. Moreover, married couples prohibited from procreation nonetheless might have children accidentally or intentionally[61]. Whether a state's pursuit of the public's health and welfare would justify an abridgement of the fundamental right of marriage between carriers of the same genetic defect is doubtful. Such restrictions also might well prove ineffective in the contemporary atmosphere that is increasingly tolerant of free love and common law (or *de facto*) relationships. Thus, it is unlikely that restrictions on marriage would prove to be an acceptable method of eugenic control.

d) *Restrictions on Reproduction*

Modern cases support the proposition that marital and procreative decisions fall within a constitutionally protected zone of privacy[62]. As long ago as 1941, the United States Supreme Court declared that man possesses the basic civil right to have offspring[63]. More recently, the Court has held that the choice of whether to give birth is within a constitutionally protected zone of privacy[64]. These broad pronouncements do not force the conclusion, however, that all restrictions on reproduction are not *per se* unconstitutional. If the state may prevent a person from marrying more than one person at a time, should it not have the same power to prevent a person from having more than one or two children ? The right to procreate may not include a right to breed

59 See Vukowich, *supra* note 10 at pp. 215-216.

60 Ibid at p. 216.

61 Ibid.

62 See *a.g., Eisenstadt* v. *Baird,* 405 U.S. 438 at pp. 452-55 (1972) (forbidding — on morality grounds — sale or gift of contraceptives to unmarried persons conflicts with fundamental constitutional rights); *Loving* v. *Virginia,* 388 U.S. 12 (1967) (state may not infringe freedom to marry person of another race); *Griswold* v. *Connecticutt,* 381 U.S. 479 at pp. 481-486 (1965) (statute forbidding use of contraceptives violates constitutionally protected right of marital privacy).

63 *Skinner* v. *Oklahoma,* 316 U.S. 535 at p. 541 (1941). Concurring in *Griswold* v. *Connecticut,* Justice Goldberg commented that a compulsory birth control law unjustifiably would abridge the constitutional rights of marital privacy. 281 U.S. 479 at p. 497 (1965) (with Warren, C.J., and Brennan, J. concurring).

64 See *Roe* v. *Wade,* 419 U.S. 113 at p. 153 (1973).

without some restrictions[65]. Societal interests may be sufficiently powerful to justify at least some regulation for limitations on reproduction[66].

Some legal precedents do uphold the constitutionality of eugenic sterilization. In the yet to be overruled *Buck* v. *Bell*[67], the Supreme Court of the United States upheld a Virginia statute providing for sterilization of inmates committed to state supported institutions who were found to have a hereditary form of insanity or imbecility[68]. And still, today, nearly half of the states have some form of compulsory sterilization legislation[69] and with the courts typically upholding the validity of actions brought thereunder[70].

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65 M. P. Golding and N. H. Golding, 'Ethical and Value Issues in Population Limitation and Distribution in the United States' (1971) 24 *Vanderbilt L.R.* 495 at p. 511.

66 Ibid at p. 512. The authors conclude, however, that the unrestricted freedom to procreate should be abridged only for a 'good of momentous order'. Ibid.

67 274 U.S. 200 (1927).

68 Ibid at p. 207. Justice Holmes, speaking for the Court, stated: 'We have seen more than once that the public welfare may call upon the best citizens for their lives. It would be strange if it could not call on those who already sap the strength of the State for these lesser sacrifices, often not felt to be such by those concerned, in order to prevent our being swamped with incompetence. It is better for all the world, if instead of waiting to execute degenerate offspring for crime, or to let them starve for their imbecility, society can prevent those who are manifestly unfit from continuing their kind'.
See also, *In re Sterilization of Moore,* 289 N.C. 95, 221 S.E. 2d 307 (1976).

69 The present eugenic sterilization statutes are: *Cal. Penal Code* s. 645 (West 1970); *Cal. Welf. & Instn's Code* s. 7254 (West Supp. 1979); *Del Code Ann.* til. 16, ss. 5701-5705 (1975); *Idaho Code* ss. 39-3901 to 3910 (1977); *Me. Rev. Stat. Ann.* til. 34, ss. 2461-2468 (1978); *Minn. Stat. Ann* s. 252A.13 (Supp. 1978); *Miss. Code Ann.* ss. 41-45-1 to -19 (1972); *Mont. Rev. Code* ss. 69-6401 to 6406 (1970); *N.C. Gen. Stat.* ss. 35-36 to -50 (1976); *N.D. Century Code* ss. 25-04.1-08 (1978); *Okla. Stat. Ann.* tit. 43A, ss. 341-346 (1979); *Ore. Rev. Stat.* s. 436.010-.150 (1977); *S.C. Code Ann.* ss. 44-47-10 to -100 (1977); *Utah Code Ann.* ss. 64-10-1 to -7 (1968); *Vt. Stat. Ann.* tit. 18, ss. 8701-8704 (1968); *Va. Code Ann.* s. 37.1-171.1 (1976); *W. Va. Code Ann.* ss. 27-16-1 to -5 (1976). Virginia's legislation in this area is typical: 'Whenever the director of a hospital shall be of the opinion that a patient in such state hospital is afflicted with any form of hereditary mental illness or with mental deficiency and it is in the best interest of such patient and society that such patient should be sexually sterilized, the director is hereby authorized and directed to proceed . . .' *Va. Code Ann.* ss. 37.1-171.1 (1976). It has been estimated that over 70,000 people have been sterilized under statutes similar to Virginia's. See *Statistics from Human Betterment Association of America, Summary of U.S. Sterilization Laws* (1958) at p. 2. One should distinguish these eugenic sterilization statutes from those sterilization statutes which are wholly voluntary in nature. Among these type statutes are: *Ga. Code Ann.* ss. 94-931 *et seq.* (1979); *Ore. Rev. Stat.* s. 435.305 (Rpl. 1977); *N.M. Stat. Ann.* ss. 24-1-14, 24-9-1 (1978); *N.C. Gen. Stat. ss. 90-271* to -275 (1975); and *Va. Code Ann.* ss. 32-423 *et seq.* (Cum. Supp. 1978). These statutes are essentially contraceptive and therapeutic and not eugenic in nature.

70 See *e.g., Oregon* v. *Cook,* 9 Ore. App. 224, 230, 495 P. 2d 768, 771-72 (1972) (equal protection challenge vased on indigency rejected); *In re Cavitt,* 182 Neb. 712, 721, 157 N.W. 2d. 171, 178 (1968), appeal dismissed, 396 U.S. 996 (1970).
See also, R. Dunn, 'Eugenic Sterilization Statutes: A Constitutional Reevaluation', (1975) 14 *J. Fam. L.* 280.

The extension of *Buck* to sterilization of carriers of recessive defective genes cannot be accomplished without difficulty. Since its decision in that case, the Court has increasingly recognized the right to marry and have children as a basic or fundamental right and that a state must show a compelling interest in order to justify any abridgement of the right, itself[71]. Several factors seem to indicate that the state interest is not as compellingwithregardtosterilization of carriers of defective genes as it is with regard to mental incompetents. A mental incompetent may well be unable to be an adequate parent and the burden of care, therefore, would fall upon the state[72]. Moreover, the sterilization of mental incompetents in institutions can be said to benefit them directly in that it, '... enable[s] those who otherwise must be kept confined to be returned to the world....'[73] The Court seemed to have assumed in *Buck*, however, that there is a strong likelihood that the child of a intellectually defective mother would in fact inherit the same defect[74], even though the child of two heterozygous individuals has only a one in four chance of exhibiting that defective trait[75].

The distinguishing features of *Buck* v. *Bell* do not indicate that the state cannot offer compelling justification to warrant mandatory restriction on reproduction. Such justifications can be found in society's interest in the reduction of human suffering, and in safeguarding the health and welfare of its citizens in the allocation of economic resources and in population control[76] In *Buck*, Holmes J. stressed that, '... it

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71 See *Shapiro* v. *Thompson*, 394 U.S. 618, 638 (1969).

72 See *Oregon* v. *Cook*, 9 Ore. App. 224, 230, 495 P. 2d 768, 771-2 (1972).

73 *Buck* v. *Bell*, 274 U.S. 200, 208 (1927).
The Court's rationale acquires additional significance because it became the basis for distinguishing *Buck* in the case of *Skinner* v. *Oklahoma* — where the High Court invalidated a statute providing for the sterilization of habitual criminals. The *Skinner* Court concluded that the questioned statute violated the fourteenth amendment's equal protection clause. See 316 U.S. 535, 542 (1941).

74 The statute challenged in *Buck* required only that experience demonstrate heredity plays an important role in the transmission of the meantal defect. See 274 U.S. at 206. The inmate involved, however, was the daughter of a feeble-minded mother. Ibid at p. 205.
See generally, J. B. Murray, 'Marriage Contracts for the Mentally Retarded', (1975) 21 *Cath. Law.* 182.

75 See, J. R. Waltz and C. R. Thigpen, *supra* note 48 at p. 721, n. 131.

76 *Supra* n. 57.
A persuasive economic argument can be made for forced sterilization of mentally defectives. A 1971 study undertaken by the United States government concerned one hundred and ninty public institutions for the mentally retarded and disclosed 15,370 patients were admitted for treatment during the 1971 calendar year. This is the equivalent of 7.5 patients per 100,000 people in the over-all population and represents an average daily resident patient population of 181,058. Even though this figure shows a slight decline from the peak year of 1968, during the same four year period, the annual cost of institutional care per patient rose from $3,472.00 to $5,537.00. Stated otherwise, the costs rose from $9.00 per day to $15.00 per day which is a 66% increase. *United States Bureau of the Census, Statistical Abstract of the United States* (95th ed. 1974) at pp. 82-3.
See also, J. H. Landman, 'The History of Human Sterilization in the United States: Theory, Statute and Adjudication', 23 *Ill L. Rev.* 463 (1929); C. H. Baron, 'Voluntary Sterilization of the Mentally Retarded', in *Genetics and the Law* 267 (Eds. A. Milunsky, G. Annas 1976).

would be better for all the world . . . if society can prevent those who are manifestly unfit from continuing their kind'[77]. Perhaps world conditions have become so complex and resources so valuable that society now has a compelling interest in restricting reproduction by those, who although *not* 'manifestly unfit' themselves, perpetuate human suffering by giving birth to genetically defective offspring.

4. THE AUSTRALIAN POSTURE

a) *Sterilization*

In contrast with the United States and Canada, in Australia, there are no compulsory sterilization laws directed toward restricting those from propagating who are suspected of carrying deleterious genes or diseases[78]. Indeed, if there is any kind of procreative policy in Australia, it is in the encouragement of reproduction, not its restriction[79].

The availability of information concerning the frequency of sterilization of mentally retarded citizens in Australia is difficult to obtain since

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77 274 U.S. at p. 207.
Unrestricted genetic transmission forces a heavy burden upon society. The Juke and Kallikak family histories reveal clearly this point. Max Juke resided in Ulster County, New York. He had two sons who married two of six sisters of a local feeble-minded family. One other sister left the area; the other three married mental defectives. From these five sisters, 2,094 direct descendants and 726 consortium descendants were traced by 1915 into fourteen states. All of them were feeble-minded and the cost to society from their welfare payments, illicit enterprises, jail terms, and prostitution brothels was $2,516,685.00. J. Wallin, *Mental Deficiency* (1956) at pp. 43-44.
Martin, Kallikak, Sr., fostered a son — Martin Jr. by a feeble-minded girl during the Revolutionary War. Martin Jr. married a feeble-minded girl and they, in turn, had seven children : five of whom were similarly afflicted. From these progeny sprung 480 descendants, 143 feeble-minded, 46 normals, and 291 of unknown mental stature. When Martin Sr. returned from the War, he married a normal woman and started a line culminating in 496 descendants — all of whom were normal. J. Wallin, *supra,* at pp. 44-45. Environmental deprivation has been recognized by some as an important — if not the determining — factor in the Kallikak 'saga'.
Various estimates have been made relative to the lifetime costs of various genetic diseases — often with rather astonishing results. For example, it has been calculated that the lifetime costs of maintaining a seriously defective individual is $250,000.00; this assumes, of course, institutionalization. Conservative estimates place the number of new cases of Down's syndrome in the United States at 5,000 each year — or, one in every 700 live births. Using the $250,000.00 figure for the cost of maintenance, the lifetime committed expenditure for new cases of Down's syndrome standing alone comes to at least $1.25 billion yearly which is, admittedly, a staggering figure for but one disease entitly.
Another way of calculating the toll of genetic disease is to estimate the future life years cost. One widely cited estimate indicates that some 36 Million future life years are lost in the United States by birth defects — putting the figure for recognized genetic disease (80 per cent of birth defects being genetic in whole or in part) at 29 million future life years lost, or several times as much as from heart disease, cancer and stroke. *What are the Facts About Genetic Disease ?* at pp. 27, 29, U.S. Dept. of H.E.W., Public Health Service, N.I.H., D.H.E.W. Pub. No. (N.I.H.) 75-370 (1978). See also, M. Frankel, *Genetic Technology . Promises and Problems* (1973) at pp. 46, 77; R. Veatch, *Death, Dying and the Biological Revolution* (1976); G. Hardin, *Nature and Man's Fate* (1959).

78 S. Hayes, and R. Hayes, *Mental Retardation: Law, Policy and Administration* (1982) at p. 73.

79 Ibid.

this surgical intervention is not usually conducted on residents of institutions — but rather, on those in private residence with their families[80]. State government institutions in New South Wales reported, however, that in 1979 for contraceptive or hygienic reasons, two or three tubal ligations were performed and no more than five hysterectomies had been performed during the last twenty years[81].

b) *Genetic Counselling and Screening*

Through genetic counselling, as has been observed, prospective parents learn the likelihood of a disease they may carry genetically being passed on to one of their offspring. Most often, the critical information needed to construct family histories is to be found only in various medical records. Under present Australian law, family members have no absolute right of access to their own medical records and, thus, a genetic counsellor's standards of 'probability' may be inaccurately skewed one way or the other without the benefit of a complete family medical profile[82]. Approximately ninety per cent of those couples participating in a programme of genetic counselling have either had a handicapped child or known of one in their immediate family[83]. Tragically, the level of communication and of retentive understanding is perhaps the greatest impediment to an effective utilization of counselling here. It has been shown that patients remember less than one-third of the information given them by their genetic counsellor, with the amount and level of retained information diminishing even further if the news presented is either shocking or upsetting[84].

Genetic screening is currently undertaken in Australia mainly on newborns. In fact, most Australian children are screened not only for phenylketonuria (PKU), but more and more for cystic fibrosis as well[86]. Although of no compulsory nature, these attempts at screening have met with success and with parental approval[87].

c) *Amniocentesis*

Health Commission policy in New South Wales, for example, encourages women forty years of age or over and those with a family history of genetic disorders, to avail themselves of amniocentesis during their pregnancies. The procedure is only available to women between the ages of thirty-five and thirty-nine and to those who have had a

80 Ibid at p. 76.
81 Ibid.
82 Ibid at p. 31.
83 Ibid.
84 Ibid at p. 32.
85 Ibid at p. 30.
86 Ibid.
87 Ibid.
In Victoria, there are forty-three notifiable diseases under the Health Act — but these do not include genetic abnormalities which are identifiable in newborns and there is, furthermore, no compulsion for treatment. Ibid.

previous child with a disorder which would have been potentially identifiable through amniocentesis[88]. The *practical* application of this policy is to restrict the use of the procedure, itself, to those women who show — through their family history or the previous birth of an abnormal child or are either forty years of age or older — that they are 'at risk' in their pregnancy[89].

The availability of amniocentesis varies from state to state, with some authorities even allowing it at will for all women thirty-five years of age[90]. In Queensland, the procedure's use is unrestricted as to age[91]. The interesting point here is that the costs involved in diagnosing one handicapped fetus (disregarding the reduced parental anxiety) are estimated to be less than one-twelfth of the cost of maintaining a resulting abnormal child in a public institution for ten years[92]. For an average lifetime, it has been estimated by the New South Wales Health Commission that approximately $500,000 will be spent for one institutionalized person born with a genetic abnormality[93].

6. THE NEW BIOLOGY AND A PROGRAMME FOR POSITIVE EUGENICS

c) *Artificial Insemination*

Artificial insemination, referred to as A.I.D. or heterologous insemination, is the process of inseminating a woman with the sperm of a donor. Although A.I.D. was developed to provide a child to a married couple that could not reproduce due to a physical impediment of the husband, the method today has a new vitality and purpose as a technique for implementing a programme of positive eugenics[94]. Sperm banks have been established to maintain semen of 'distinguished' persons even beyond their lifetime[95]. Positive eugenists advocate superior sperm banks in order to develop the population to a position of genetic strength and to assure the survival of the human race in the event of an in-

88 Ibid at p. 33.

89 Ibid.

90 Ibid.

91 Ibid.

92 Ibid.

93 Ibid at pp. 48-49.

94 G. P. Smith, 'Through A Test-Tube Darkly: Artificial Insemination and the Law', (1968) 67 *Mich. L. Rev.* 127 at p. 148. It is generally agreed that it is best for any AID baby not to know of its origins. The donor should not be told if his donation of semen resulted in a successful impregnation and birth. L. Atallah, 'Report from A Test Tube Baby', *N.L. Times Mag.*, 18 April, 1976, 16 at pp. 17, 51.

95 G. P. Smith, *supra*, at pp. 145, 146.
The Repository for Germinal Choice became operational in 1979 in Escondido, California, and is designed to make available the sperm of Nobel Prize winners and other '...creative, intelligent people'. See 'Playboy Interview: *William Shockley*', 27 *Playboy Mag.* 69 (Aug. 1980).

sufficient number of acceptable male members to allow normal reproduction[96]. The ultimate goal of positive eugenics is to assure *eutelegenesis*, mass insemination with superior sperm[97].

Interestingly, the very word, *eutelegenesis*, was first proposed by Marion Piddington in 1916, '... as a means of populating Australia and creating a race combining high moral worth with sound physical development', and was used subsequently by early American eugenists[98]. The idea or suggestion for use of A.I.D. practices to implement a programme of positive eugenics should, in theory, encounter little resistance because these practices infringe upon individual rights only minimally, neither restricting nor prohibiting marriage or reproduction[99]. Of course, there are varying ethical and moral issues associated with this practice by single, unmarried women[100].

d) *In Vitro Fertilization and Embryo Implants*

In 1974, Dr Douglas Bevis of Leeds University, announced that out of approximately thirty attempts to conceive human embryos *in vitro*, or in test tubes, and then implant them *in utero*, or into the womb of women, he had achiever three successful implants that resulted in the birth of three babies[101]. The three mothers had been infertile because of diseased, blocked or missing Fallopian tubes. Dr Bevis had removed ova from each woman, fertilized the ova in the test tubes with sperm taken from the women's respective husbands, and then implanted the fertilized eggs into the women's wombs[102]. Because he was unwilling to fully document his research, Dr Bevis' announcement was subjected to considerable doubt[103]. It remained for Dr Patrick Steptoe, a British gynecologist, and Dr Robert Edwards, a Cambridge University physiologist, to document laboratory conception of a test tube baby and of its birth in 1978[104].

In Australia, Dr Carl Wood of Monash University and the Queen Victoria Medical Centre in Melbourne, has gained for himself and his country world-wide credit for perfecting and advancing *in vitro* fertilization techniques, and especially the utilization of frozen embryos, as a means of combatting infertility[105]. A plethora of vexatious moral, ethical, and religious issues have been raised regarding the status of

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96 Ibid.

97 Ibid.
See, generally, S. Pickens, *Eugenics and the Progressives* (1968).

98 H. Brewer, 'Eutelegenecis', (1935) 27 *Eugenics Rev.* at pp. 121, 123, 126. See generally, G. P. Smith, 'The Razor's Edge of Human Bonding: Artificial Fathers and Surrogate Mothers', (1983) 4 *Western N. Eng. L.R.* 639.

99 W. T. Vukowich, *supra* n. 10 at pp. 230-231.

100 G. P. Smith, 'Sexuality, Privacy and The New Biology', (1984) 67 *Marquette L. Rev.* 263.

101 D. Rorvik, 'The Embryo Sweepstakes', *N.Y. Times Mag.*, 15 Sept. 1974, at p. 17.

102 Ibid.

103 Ibid.

104 *Time Mag.*, 24 July, 1978, at p. 47.

105 See *Test-Tube Babies: A Guide to Moral Questions, Present Techniques and Future Possibilities* (Eds. W. Walters, P. Singer, 1982).

frozen embryos and are far beyond the scope and purpose of this present essay[106]. What may be acknowledged, however, is the reality of increased use of *in vitro* fertilization and embryo transplants in humans so long as no other means of conquering infertility are discovered or made available.

If a woman is infertile due to a blocked or missing Fallopian tube, an ovum may be taken from one of her ovaries, fertilized in a test tube with her husband's sperm (or a donor's sperm if her husband is infertile, himself) and implanted in her uterus. If a woman cannot produce normal egg cells, a donor's egg, already fertilized by the husband's sperm through artificial insemination or fertilized *in vitro* with the husband's sperm, could be implanted into her uterus[107]. A woman who cannot carry a baby to term because of a physical disability could enter into a contract with a surrogate or host mother to do so[108], and an egg fertilized either *in vitro* or *in vivo* could be implanted into the host mother. A career woman, such as a professional athlete for example, who has no physical disability may also seek the services of a surrogate mother if she does not wish to miss valuable time from her professional interests to carry a baby for the full term[109].

Successful *in vitro* fertilization also may lead to the development of *in vitro* gestation, thereby enabling a fetus to develop to term completely outside the womb[110]. Married couples could also rely, additionally, on *in vitro* fertilization techniques to have a child that was not even genetically their own. And, of course, an unmarried person desiring a child might wish to utilize these methods as well. Since an unmarried individual would need a donor's egg or sperm to effectuate the procedure, such a programme could introduce positive eugenic concepts to create children with a stronger genetic heritage. As in the case of A.I.D. programmes, the incorporation of positive eugenics concepts would infringe individual rights minimally because they neither restrict nor prohibit marriage or reproduction as eugenic programmes do generally.

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106 *Making Babies: The Test Tube and Christian Ethics*, (Eds. A. Nichols, T. Hogan, 1984); Symposium, 'In Vitro Fertilization: The Major Issues' (1983) 9 *J. Med. Ethics* 192.

107 W. Gaylin, 'We Have the Awful Knowledge to Make Exact Copies of Human Beings', *N.Y. Times Mag.*, 5 Mar., 1972, 11 at p. 48; D. Rorvik, *supra* n. 101 at p. 50.
See generally, R. McKinnel, *Cloning: Nuclear Transplantation in Amphibia* (1978).
Ova transplanting might be undertaken for eugenic reasons similar to those prompting the use of AID. If it is the wife instead of the husband whose germ cells are infertile or carry the threat of transmitting some serious X-linked genetic condition, she can be implanted with eggs from a healthy donor. The results and the parentage problems would then be analogous to those in cases of artificial insemination — with one important difference: instead of the child of a couple not being the husband's genetically, the child in the ova transplant cases would *not* be the wife's. P. Reilly, *Genetics, Law and Social Policy* (1977) at p. 217.

108 See W. Gaylin, *supra*, at p. 48; *cf.* Rorvik, *supra* n. 101 at p. 50 (eggs from one cow can be implanted inthe womb of another).

109 W. Gaylin, *supra* n. 107 at p. 48.
See also, R. Scott, *The Body as Property* (1981), Ch. 8.

110 Ibid.

e) *Asexual Reproduction: Cloning and Parthenogenesis*

The word, 'cloning', which derives from a Greek root meaning cutting, is generally defined as asexual propagation[111] and is a common practice to develop new varieties of plants[112]. In 1966, a team of Oxford University biologists, headed by Dr John Gurdon, announced that they had grown seven frogs from the intestinal cells of tadpoles[113]. What had been routine in the garden, now existed for one group of animals: a new organism produced from a single parent[114].

Several steps would be required to clone a human. First, the nucleus of a donor's egg cell would be destroyed. A nucleus from any convenient egg by microsurgical techniques not yet fully developed. The new cell, placed in a nutrient medium, would begin to divide and embryo implantation would follow in approximately four to six days[115]. The cloned individual would be the identical twin of the person who contributed the body cell[116]. Significantly, the establishment of banks of tissue cultures would permit the production of genetic copies of deceased persons through cloning.

Parthenogenesis, commonly referred to as virgin birth, is another form of asexual reproduction[117]. The French-American biologist, Jacques Loeb, achieved partheneogenesis in sea urchins in 1899[118]. More recently, scientists have reported laboratory parthenogenic experiments for frogs and mice[119]. If this process is perfected for humans, a woman one day may produce the necessary egg cell for conception, jolt the egg by pulling an electric switch or administering a necessary drug, thereby enabling it to split, and then have it implanted in her womb for gestation and ultimate birth — all without phyhical contact with man sexually or with his sperm artificially[120].

Not enough is known, either technically or ethically, about human cloning or parthenogenesis to allow dogmatizing concern whether it should or should not be undertaken[121]. Present standards of medical

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111 D. Rorvik, *Brave New Baby* (1971) at p. 109.

112 G. Taylor, *The Biological Time Bomb* (1968) at pp. 23-25.

113 G. Leach, *The Biocrats* (1970) at p. 94.

114 J. Watson, 'Potential Consequences of Experimentation with Human Eggs', 28 Jan. 1971 (Papers 1, 3, 4, *Harv. Univ. Biological Lebs*).
See also, R. Cowper, *Clone* (1972); W. Walters, 'Cloning, Ectogenesis, and Hybrids: Things to Come', in *Test-Tube Babies: A Guide to Moral Questions, Present Techniques and Future Possibilities* (1982, W. Walters, P. Singer, eds), at p. 110.

115 J. Lederberg, 'Experimental Genetics and Human Evolution', (1966) 100 *Am. Naturalist* 519 at p. 562; J. D. Watson, 'Moving Toward the Clonal Man', *Atlantic Monthly* 227 (May 1971) at p. 51.

116 Comment, 'Asexual Reproduction and Genetic Engineering: A Constitutional Assessment of the Technology of Cloning', (1974) 47 *So. Cal. L. Rev.* 476.

117 *Supra* n. 112, at p. 29.

118 Ibid at p. 30.

119 *Supra* n. 111, at p. 95.

120 Ibid at p. 94.

121 J. Lederberg, 'Genetic Engineering or the Amelioration of Genetic Defect', (1971) 34 *Pharos* 9 at p. 12.

ethics require that a researcher be reasonably confident about the outcome of his research, that he undertake research for reasonably humanitarian purposes, and that he obtain the informed consent of the research subjects[122]. These factors do not force any conclusion that cloning is, or is not, proper. If the rate of pollution of the human gene pool continues to increase through uncontrolled sexual reproduction, however, efforts to produce healthier people may be required to compensate for the spread of various genetic diseases[123]. In that event, one could make a strong ethical argument to justify cloning of healthy individuals on the ground that it could achieve the greatest utilitarian good for the greatest number of people concerned[124].

Legislation which embodies positive eugenic concepts which permit only individuals with superior genetic endowments to clone raises a serious constitutional issue. Such a statute would require safeguards against the large scale cloning of particular types of individuals. To do otherwise would decrease the genetic variation that is so vitally necessary to natural selection and would even threaten man with his own eventual extinction[125]. By discriminating between those with superior genetic traits and all others, however, legislation of this nature would be subject to equal protection challenges. Under standard equal protection analysis, if a court determined that the statutes affected a fundamental right, the state would need to show that the legislation served a compelling state interest by its enactment and enforcement[126]. The right to procreate is, as observed, a fundamental right[127]. But, the denial of cloning methods to individuals who are capable of reproducing in the normal manner may not be a sufficient infringement of this fundamental right to trigger the compelling interest requirement[128]. If it were not such an infringement, the state would be required only to show a rational relation between the legislation and a legitimate state interest[129]. A court might determine that the state's interest in the propagation of superior traits is constitutionally impermissible because it violates the Constitution's nobility clause or the Thirteenth Amendment's prohibition of involuntary servitude[130]. If a court determined that the state has a legitimate interest in the propagation of superior traits, it would probably go on to find that the legislation is rationally related to that purpose.

Persons who carry recessive traits might succeed in claiming that permitting only genetically superior people to colne infringes upon their right to procreate — with that claim thus triggering strict judicial scrutiny

122 Ibid at p. 12.

123 J. Fletcher, 'Ethical Aspects of Genetic Controls', (1971) 285 *New Eng. J. Med.* 776 at p. 779.

124 Ibid.

125 *Supra* n. 116 at p. 561.

126 Ibid at pp. 550, 556.

127 *Skinner* v. *Oklahoma*, 316 U.S. 535, at p. 541 (1942).

128 *Supra* n. 115 at pp. 550-552.

129 Ibid at p. 556.

130 *Supra* n. 127 at pp. 581-582;U.S. Const., art. I, s. 9, cl. 8; Amend. XIII.

of the cloning law and requiring the state to show a compelling interest for its action[131]. Under this type of judicial scrutiny, at least two attacks on a statute, itself, could be made in addition to challenging the state's purpose for action as constitutionally impermissible. It is doubtful whether scientific evidence can provide a rational basis for classification of individuals having superior genetic traits[132]. Moreover, the state may be able to achieve its objective through a less intrusive programme: its interest in the propagation of superior traits through a positive eugenics programme is probably less compelling than its interest in the diminition of inferior traits through a negative eugenics programme[133].

7. CONCLUSION

Eugenics clearly enjoys a definite yin-yang relationship with genetics. It has a negative force or potential (as does human life, itself) to be sure; but the threatening dimension of its unrestrained application is of minor consequence when the positive sequence of its contributions are charted and realized. The dynamic vectors of force seen in the application of modern eugenics through efforts of genetic advancement and 'engineering' must be restrained and placed in equilibrium in order to alleviate fears of unbridled slippery slopes of scientific advancement[134]. Viewed as not only an aid to the tragedy of infertility in family planning, but as a tool for enhancing the health of the nation's future citizens, vital research and experimentation must continue apace in eugenics and genetics. To separate one from the other assures an impotent, as opposed to a virile, response to both the challenge and the mystery of the startling (yet controllable) developments of the new reproductive biology[135].

Controlled breeding through genetic manipulation is not far behind the legalization of artificial insemination. Once public acceptance of A.I.D. is achieved, rapid progress will be made in achieving similar recognition of other new techniques. The law then will be in a better

131 *Supra* n. 127 at p. 556.

132 Ibid at p. 579.

133 W. T. Vukowich 'The Dawning of The Brave New World — Legal, Ethical and Social Issues of Eugenics' [1971] *U. Ill. L.F.* 189 at p. 222.
If the challenged legislation incorporated negative, rather than positive, eugenic concepts so that it only restricted carriers of recessive debilitating defects from cloning, the constitutional problems would be minimized. The legitimacy of the state interest could not be challenged on the ground that it creates an elite group and therefore violates the nobility clause of the United States Constitution. A court could find readily that such a statute is rationally related to a legitimate state interest — specifically, diminishing the propagation of inferior traits. Scientific evidence more readily can provide a rational basis for the classification of those carrying debilitating defects than for those possessing superior genetic traits. Whether the state's interest in a negative eugenics program is sufficiently compelling to sustain the validity of the statute under a strict scrutiny test, however, is uncertain. Ibid at pp. 198-201, 208.

134 See G. Nossal, 'The Impact of Genetic Engineering on Modern Medicine', *Quadrant,* Nov. 1983, at p. 22.

135 Comment, 'Governmental Control of Research in Positive Eugenics', (1974) 7 Mich. J. Law Rev. 615.

position to begin to chart a course of action and keep pace with science instead of remaining behind in grappling with the scientific, legal, ethical, and social issues of the Brave New World. Although some assert that eugenic control or controlled breeding is dangerous, foolhardy, destructive of the integrity of the family, and violative of the human right to determine the size of the family unit, the unalterable fact is that population forecasts indicate that the world soon will be overpopulated if appropriate actions are not taken. Genetic planning and eugenic programming are more rational and human alternatives to population regulation than death by famine and war. Quality of life, in the final analysis, must be recognized as more fundamental than the sanctity of creation.

If we approach mastery of the genetic code with careful resolve to minimise human suffering and maximise the social good (here, the maintenance of health and prevention of disease), we will approach the future with assurance that, as Daedalus, we will in fact arrive safely and meet our goal. If we set out with reckless abandon and are driven only by blind instinct, we will surely be corrupted and, as Icarus, fall[136].

136 G. Smith, *Genetics, Ethics and the Law* (1981) at p. 2.