



## Dr. Jacques Testart

is director of Gamete Maturation and Fertilisation Research at the French Institut Nationale de la Santé et de la Recherche Médicale in Clamart. After his early research on reproduction of domestic animals he pioneered human in vitro fertilisation techniques in France. He is author of various essays reviewing the ethical aspects of reproduction techniques in humans.

The ability to select and grade human embryos, brought about by the alliance of medically assisted procreation (MAP) with diagnostic genetics, has created entirely new conditions in the quality control of children. It enables parents and doctors to refuse the low-grade handicaps that used to be tolerated in conventional antenatal diagnosis (AND) screening. The same diagnosis reached by AND requires more circumspection than one made by preimplantation diagnosis (PID) in a newly fertilised embryo: AND involves a single fetus which the parents already think of as their baby, whereas PID is based on a

# The new eugenics

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multiplicity of eggs carrying relatively low emotional weight and as yet isolated from the mother's body. Embryo multiplicity is the cornerstone of a successful MAP programme and the motor of the new eugenics: in AND, the worst was weeded out; in PID the best is planted in. AND could assess only one potential infant per couple per year; PID can assess several dozen, with predictable impact on the abnormality tolerance threshold, given that most couples aim to have only a small number of children. No longer is it a matter of accepting or rejecting the birth of a child with such and such characteristics; the infant "elected" for birth by PID is the one with the most favourable characteristics in the pool of potential children. The list of physical traits with known gene codings will inevitably lengthen until it encompasses everything that defines the singularity of an individual, yet with no concept of how much this singularity owes to deviation, or of the boundary between deviation and disease.

To guard against eugenic abuse, it has been proposed that lists of

handicaps be drawn up to justify the use of PID. This presumes a precise definition of abnormality (by whom?) and of its various "intolerable" manifestations. Such a verdict amounts to the labelling with consensus effect of "abnormal" individuals as non-human, when in fact, despite medicine's best efforts, a number of them will always continue to exist.

An inventory of the unwanted is neither desirable nor achievable; at the same time, an inventory of couples at risk of producing "unwanted" children and thus potential requesters of PID would need to be infinite, since some major handicaps, e.g. trisomy 21, can occur in any family.

Once PID becomes available, it is hard to see how it cannot be offered to couples already producing multiple embryos in a MAP programme (the annual test-tube embryo count in France is 150,000). The definition of these "sterile couples" is extremely loose, just like that of the "serious handicaps" that PID aims to prevent, while embryos can already be readily obtained from normal fertile couples by uterine

lavage following intercourse rather than by in-vitro fertilisation.

Thus, except by arbitrarily defining a level of intolerable risk, nobody is likely to be refused access to PID; the benefits of multiple indicators for potential infant selection will rapidly become universally available. It is worth noting that in AND there is no restriction on genetic diagnosis; only the act of termination is regulated. In PID, MAP almost always provides an excess number of embryos; selection is thus implicit in the diagnostic process, meaning that it is the access to the diagnosis itself which ought to be regulated.

Given current attitudes and legislation, PID carries no in-built brake upon its use comparable to the role played by termination in AND, with its attendant physical and mental stress. It is naïve to assume that acceptable limits will somehow loom into view as PID develops; the "perfect child" fantasy has no limits. We have become committed to an irreversible process without having reached answers as to possible outcomes. The aim is clearly not to create monsters of perfection, since

this would be open to two major criticisms: absence of the therapeutic justification essential to any medical proposal, especially when it runs counter to conventional thinking; and irrelevance in terms of the market that develops around every biotechnology, as there is no popular demand for such a construct, despite "super-infant" headlines in the media. In fact, the new eugenics will simply select future generations by applying the predictions of the new genetics regarding individual characteristics. But the ability to discover and select potentials for excellence will introduce as yet unsuspected social hierarchies of biological characteristics. Thus a health hierarchy will be set up between, say, one individual embryo, fetus or person at 78% risk of heart disease and 59% risk of asthma versus another individual with risks of only 8% and 13%, respectively, thereby inaugurating a revolution in ethics. To date, it has been impossible to grade and quantify differences in genetic inheritance; a particular blood group determined for the purpose of transfusion, or

a tissue group determined for organ transplantation, define different but equivalent states. Now, however, we have entered an age in which a prior pre-disease grading in terms of statistical risk can stratify the population along health lines, with potential impact on their status and prerogatives in areas such as education, employment, insurance, procreation etc. Incorporation of embryos into this creeping health hierarchy will convert the egg, as some doctors have already proclaimed, into "the smallest patient", i.e. an object of medical attention before any intimation of disease. "Treatment", in this case, will consist, first, in eliminating the great majority of eggs, and second, in engineering a propitious environment for those that are spared.

Two dimensions are almost entirely absent from current discussion of genetic intervention in human procreation:

Gene therapy for serious disease is likely to be achieved, hopefully in the near future. But this is designed for individuals already born and possibly for fetuses, but not for the

fertilised egg. "Germ cell therapy" is a non sequitur: as eggs can be obtained simultaneously in large numbers, at least half of which will be devoid of the disease in question, it would be nonsensical to correct a gene defect in one egg when there are normal alternatives available with which to initiate pregnancy.

The danger, at embryo level, lies not in gene manipulation but in gene purification, i.e. in selecting rather than correcting. In their defence, geneticists often argue that genetics does not have the wherewithal to practise eugenics, claiming that in the final analysis its competence is limited – while at the same time giving us almost daily demonstrations of its awesome power. To be sure, we have not yet reached the time when robots will be reading reams of genetic characteristics from individual embryonic cells supplied by millions of potential parents, with the costs offset by demonstrable gains in public health. But how do we escape the conclusion, as of now, that acceptance of PID as an idea implies acceptance of open-ended eugenics? ●