

Sex Determination and Social Perceptions

Eva Eicher and Linda Washburn (1986) have pointed out that there has been much confusion of primary and secondary sex determination. During *secondary* sex determination, being female is the "default" state. Developing in an estrogenic environment, a mammal without gonads (such as the rabbits castrated by Jost prior to their determination) will develop into a phenotypic female. In other words, their Müllerian ducts will persist and differentiate, they will form vaginas, and even if they are not XX, they will not differentiate male structures since they will not have sufficient testosterone. *Primary* sex determination, however, is another matter. As they state in the introduction to their paper, "Certainly the induction of ovarian tissue is as much an active, genetically directed developmental process as is the induction of testicular tissue."

Indeed, there is a history of speculation about sex determination that views women as incomplete males. Aristotle inherited and propagated the Athenian view of the world wherein women were kept out of public and were thought to be merely the incubators of the masculine seed. In this society, "the mother is not the parent of that which is called the child, but only nurtures the seed that grows. The parent is he who plants the seed (Aeschylus, *The Eumenides*)." Aristotle put this agricultural myth on a "scientific" basis, and he established that the male was superior to the female. Indeed, for Aristotle (*Generation of Animals* 737a 27-29.), "the female is, as it were, a mutilated male."

Aristotle claimed that the goal of semen (=seed, =sperma) is to produce a male. However, if the coldness of the woman into which it is implanted overcomes the heat of the semen, this telos is frustrated, and the embryo becomes more material, i.e., a woman. Aristotle also claimed that women merely supplied the material cause for the fetus. The higher causes (efficient, formal, and final) were supplied by the male. Thomas Aquinas took this as the basis of his theory of sexuality. "Just as God can perfuse matter with form, so can seminal power infuse form into the corporeal matter supplied by the mother." Man produces the form, women supply the matter to be formed. Aquinas saw the production of females as a defect in the production of men and viewed women as having as much claim to reason as a child or imbecile.

Throughout much of European thought, women were equated with "lower" races and white children. They had not developed fully. Evolutionists Thomas Huxley, Ernst Haeckel, E. D. Cope, and Herbert Spencer still held the Aristotelian notion that women were like men, only that their development or evolution had been truncated (see Sayers, 1982). Freud and other psychiatrists and psychologists similarly theorized that femininity was an immature stage of male development. The notion that women are almost-men whose development or evolution is truncated has a long history, and it is not gone from our thinking. One book for the popular audience (Money and Tucker, 1975), states:

<Indent quote>

Everybody has one X chromosome and is surrounded by a mother's estrogens during prenatal life. Although not enough for full development as a fertile female, this gives enough momentum to support female development. Development for a male requires effective propulsion in the male direction at every critical stage. Unless the required "something more," the Adam principle, is provided in correct proportions and at the proper times, the individual's subsequent development follows the female pattern.

Or as a science textbook (Scott, 1972) claimed:

<Indent quote>

In all systems that we have considered, maleness means mastery, the Y-chromosome over the X, the medulla over the cortex, androgen over estrogen. So physiologically speaking, there is no justification for believing in the equality of the sexes.

The notion that the female is an imperfect, poorly developed male represents a version of an intellectual concept called "The Great Chain of Being," wherein every thing in creation was on a linear scale extending from crude matter to pure spirit (or rationality). Rocks graded into minerals, minerals into plants, plants into animals, animals into humans, and for the religiously minded, humans into the orders of angels (Lovejoy, 1936; Horowitz, 1986). Darwin was supposed to have overturned this way of thinking and substituted a branching chain similar to that shown by the development of the gonads. The testis is not a higher form of the ovary, but the ovary and testis diverge from a common ancestor. However, this old view is still with us and informs much of our thinking about science, religion, and society (see Gilbert, in press).

Literature Cited

Aquinas, T. *Summa Theologica*, esp. I, Q 92, art 1; II, Q 70, art. 3.

Eicher, E. and Washburn, L. 1986. Genetic control of primary sex determination in mice. *Annu. Rev. Genet.* 20: 327-360.

Gilbert, S. F. (in press) Tied down by the Great Chain of Being. In *Science and Gender* B. Spanier (ed.).

Horowitz, M. C. 1986. Aristotle and women. *J. Hist. Biol.* 9 : 183-213.

Lovejoy, A. O. 1936. *The Great Chain of Being*. Harvard University Press, Cambridge.

Money, J. and Tucker, P. 1975. *Sexual Signatures: On Being a Man or a Woman*. Little, Brown, and Co., Boston.

Sayers, J. 1982. *Biological Politics*. Tavistock, London.

Short, R. V. 1972. "Sex determination and differentiation," In *Reproduction in Mammals: Embryonic and Fetal Development* (C. R. Austin and R. V. Short , eds). Cambridge University Press, Cambridge, P. 70.

All the material on this website is protected by copyright. It may not be reproduced in any form without permission from the copyright holder.

© 2023 Oxford University Press |