On Human Nature

Melvin Konner

Starr Ockenga, Untitled, *1984*

The Gender Option

During the eighteenth century, Japanese peasants had at least two uses for the word *mabiki*. Depending on the context, it could mean either to "thin out" a rice crop, by pulling up newly sprouted seedlings, or to "thin out" one's progeny, by killing unwanted newborns. Babies with congenital defects often were subject to mabiki, as were twins, with their burdensome material needs. But what most often marked an infant for suffocation or a blow to the head was its sex —or rather *her* sex.

The Japanese, with their patrilineal traditions, had always prized male children for their unique ability to propagate surnames. For centuries, families managed to ensure their continuity by producing plenty of offspring, and thus plenty of boys. But during the eighteenth century, as the small island nation fell short of farmland with which to feed its burgeoning population, families with five and six children stopped making sense. Caught between their traditions and the threat of mass starvation, peasants resorted to mabiki to achieve the ideal combination of two sons and one daughter—a second son to insure against the death of the first, and a daughter who could be married off in exchange for a wife for the heir.

Such a custom may sound exotic, even freakish, but the fact is, human societies have been manipulating their sex ratios since time immemorial, and little girls have generally borne the brunt. Female infanticide has been documented among peoples as diverse as the Eskimo of the Canadian Arctic and the hunter-gatherers of the Australian bush. On the South Sea island of Tikopia, live baby girls have been buried in the earth and covered with stones. In India, they have been held to their mothers' poisoned nipples. In rural China, they have been drowned.

Even societies that forbid outright infanticide have long managed to manipulate their sex ratios through neglect. They may sanction weaning daughters at a younger age than sons and thus depriving them of adequate nutrition—a common practice among peasants in ninth-century France. Or they may underfeed and overwork females throughout childhood, as was the case in colonial America, where girls sometimes died at twice the rate of boys from ages one through nine. In Ireland, this pattern continued well into the twentieth century, and throughout much of Asia and the Middle East it remains a fact of modern life.

All of which provides an unsettling context for thinking about recent advances in reproductive technology. The first of these was the development, during the late 1960s, of amniocentesis, a prenatal diagnostic test that involves withdrawing fluid from the womb of a pregnant woman and cultivating cells from it. By examining the chromosomes in the nuclei of those cells, clinicians managed, for the first time, to discern the genetic makeup of the developing fetus. If the cells contained pairs of X chromosomes, the child would be a girl; if the X chromosomes were paired with smaller, less impressive looking Ys, it would be a boy. Amniocentesis cannot be initiated before the second trimester of pregnancy (only then will the amniotic fluid produce cells). And since growing the cells in culture takes

three to four weeks, the analysis cannot be completed until the fetus is five months old. Still, the development of this technique gave determined couples an option they had never had before: they could, by way of legal abortion, ensure that a child of the wrong sex never saw the light of day.

Today, amniocentesis-cum-abortion is among the cruder forms of sex control; improved methods of prenatal diagnosis have allowed for much earlier intervention. With a new technique known as chorionic-villus sampling, a clinician can, as early as the eighth week of gestation, snip a tiny piece of tissue from the developing placenta. Since the tissue consists of actively growing and dividing cells, genetically identical to those of the fetus itself, there is no need for incubation; the chromosomes can be analyzed quickly and the sex revealed well within the first trimester of pregnancy, when abortion is an easier medical option.

Even earlier gender readings were reported last June by a group of researchers at the University of Edinburgh's in vitro fertilization unit. Using commercially available DNA probes—molecules that bind selectively to male-determining DNA segments within the chromosomes—the Edinburgh team managed to discern the sex of test-tube embryos just four to eight days old. This technique, like amniocentesis and chorionic-villus sampling, was developed as a tool for screening against various hereditary diseases, but it could make dictating an infant's sex as simple as selecting among artificially fertilized embryos for implantation in the womb. "It certainly wouldn't be ethical to use the method to choose the sex of a baby," John West, a member of the team, said recently. "But we couldn't prevent the technique's being used that way."

Meanwhile, other researchers are working on techniques that would allow parents to settle on a gender before their child is even *conceived.* These techniques are based on a procedure, developed in 1973 by the American biochemist Ronald J. Ericsson, for segregating sperm cells according to the chromosomes that determine sex. Each sperm contains either an X or a Y chromosome, which combines with an X chromosome in the egg to engender either a girl or a boy. Ericsson found that Y-bearing sperm, possibly because they are smaller and more motile than X bearers, pass more readily through dense, viscous fluids, such as human serum albumin. He was thus able—by placing undifferentiated sperm cells atop a column of such liquid, and later harvesting them exclusively from the bottom—to generate samples in which as many as eighty-five percent of the sperm were male.

Since the late 1970s, a handful of physicians in the United States and Japan have been combining such sperm-sorting techniques with artificial insemination to let parents create embryos of a specified sex, and the results have been impressive. Teams at the University of Chicago's Pritzker School of Medicine, at the University of Pennsylvania School of Medicine, and at a private clinic in Berkeley, California, have reported seventy-five- to eighty-percent success rates. And in Japan (where physicians generally withhold amniocentesis results from their patients for fear that they will abort fetuses identified as female), some sixty gynecologists now offer the new sperm-sorting techniques in private clinics.

Clearly, we've come a long way since the days of mabiki; what we once accomplished by killing infants, and later by destroying fetuses or discarding embryos, we can now achieve by segregating sperm cells. But while the new gender-control technologies are undoubtedly less brutal than the old ones, they may have even graver implications. The reason, ironically, is that they make it so easy for us to get what we want. In a world where gender is a matter of choice, any popular preference for children of a particular sex will likely be mirrored by a distortion in the population. And the social effects of such distortions could be dire.

The anthropological record suggests that a society's preference for children of a particular gender is often associated with specific demographic pressures. For example, boys seem to be favored in societies in which male labor is the basis of economic production. Sheila Ryan Johansson, of the University of California at Berkeley, documented this correlation in a 1984 study showing that the advent of commercial agriculture in nineteenth-century Europe was closely tied to excess mortality among young girls. When families lived directly off the land, Johansson explained, men and women participated jointly in the labor of subsistence. But as farming became a commercial activity, men and boys grew "disproportionately involved in production for the market," and the domestic labor performed by women and girls was "perceived as less and less valuable to the family economy." The result was that daughters received less care than sons, and their survival rates shifted accordingly.

Another common source of antifemale bias is the need to control population growth. The number of females always determines a society's capacity to expand, of course; a village of a hundred men and seven women will rarely see more than seven pregnancies in a given year. Communities threatened with overpopulation have long understood that principle, and many have exploited it—by doing away with potential mothers long before they reached reproductive age. On Tikopia, censuses conducted during the 1920s and the 1950s suggested that females were by far the more common victims of infanticide: in some age groups, male-to-female ratios were as high as 153:100 (the ratio at birth is 106:100).

A third type of society that tends to want sons is one engaged in warfare, as the anthropologists William Divale and Marvin Harris showed in 1976. Divale and Harris analyzed data from five hundred and sixty-one primitive social groups and found that those oriented to war were "heavily unbalanced in favor of male infants and children," apparently because girls were either killed at birth or neglected during childhood. Specifically, they found that groups currently at war had an average sex ratio of 128:100 for children under fifteen. For populations that had seen no war in five to twenty-five years, the average childhood sex ratio was a more balanced 113:100. And for groups that had been at peace for more than twenty-five years, it was 106:100. Divale and Harris theorized that, in primitive societies, warfare and female infanticide serve as checks on population growth, each compensating for the distorting effect of the other. Indeed, they found that the groups with the most imbalanced childhood sex ratios managed, by sending young men into battle, to achieve *adult* ratios of almost perfect parity.

Male babies also tend to be favored in societies that practice hypergamy, a system in which the payment of dowries enables young women to marry into higher social classes. In a hypergamous society, daughters can provide people of low social standing with valuable links to nobler families, but since each daughter requires a dowry, there is a strong incentive not to have many of them. And at the top of the social hierarchy, the incentive is to have no daughters at all, for they can provide no upward mobility. In fact, a *dearth* of daughters serves a positive purpose: it keeps brides—and dowries—moving up the ladder. Northern India, with its caste system, has long felt the effects of these incentives. As recently as the nineteenth century, thirty to a hundred percent of the females born into upper castes were killed in some provinces; sex ratios among higher castes in the Kangra District of Punjab averaged 302:100.

Though British colonialism effectively ended the tradition of mass infanticide, the mania for sons remains very much alive in parts of India today. In fact, some Indian couples clearly are using amniocentesis and abortion to express it. A survey of seven hundred women who under-

went amniocentesis at a hospital in Poona during 1976 and 1977 found that, of the four hundred and fifty who learned they were carrying daughters, four hundred and thirty—nearly ninety-six percent—opted for abortion. Of the two hundred and fifty fetuses determined to be males, not one was aborted, even though some were identified as suffering genetic disorders. Another study, conducted in the Bijnor District in 1984, suggested that amniocentesis would be used to similar ends if it became available there. Obviously, the newer sex-control technologies would make acting on these prejudices even easier.

What about our own society? Given the power to choose the sex of our offspring, will we express a similar prejudice? We may not fall neatly into any of the four classic categories of male-biased societies, yet several features of our culture suggest that we are far from neutral in our gender preferences. Western traditions of male supremacy, though they may be dying, are dying hard. The defeat of the Equal Rights Amendment, the persistence of pay discrepancies between male- and female-dominated professions, the unequal domestic burdens borne by women in working couples, the dominance of males in government, industry, religion, and, of course, the military: all of this suggests that males retain a favored status in our society. And there is no reason to assume it will stop at the gender-clinic door.

No one would argue that people in New York or Los Angeles crave sons with the fervor of, say, peasants in Poona. But, as the sociologist Amitai Etzioni demonstrated in 1968, the available data on American gender preferences suggest that the bias is substantial. In one survey, of fifty-five college students, the fifty-one who planned to have children expressed a sixty-five-percent greater preference for boys. A second survey, conducted among parents in Indianapolis, found that although half the respondents were indifferent to gender, and the women expressing a preference were about evenly split between boys and girls, the men who voiced preferences voted nearly five to one in favor of boys. Still another study, this one of completed families, found that American couples often continued having children after giving birth to a girl but stopped after having a boy—a pattern suggesting a clear preference for the latter. The result, in fact, was a sex ratio of 117:100 in a sample of more than five thousand lastborn children.

The studies Etzioni reviewed were conducted during the 1930s and 1940s, but more recent ones have produced similar results. For example, a 1984 survey of college students in Texas showed that sixty-two percent wanted their firstborn to be a boy, whereas only six percent preferred a firstborn daughter. And there doesn't seem to be much wariness of new sex-control technologies. In 1977, sixty-six percent of a random sample of California college students said such technologies should be available to all parents, and forty-five percent said they would want to use the technologies themselves.

When having another child is the only way to get one of the desired gender, strong preferences cause only minor demographic distortions; the law of averages serves as a check. But suppose the couples in the various preference surveys had been able to dictate their children's genders; their biases would have translated directly into babies. If a nation of fifty-four million married couples enjoyed that power of choice, even a thirty-percent increase in the male birthrate (half the increase the fifty-one college students might have achieved) would add hundreds of thousands of surplus males to the population every year. And as long as such a trend continued, its effects would be cumulative.

Is the potential for such distortion anything really to worry about? In evolutionary terms, probably not. Natural selection guarantees that neither sex will ever become so scarce as to threaten a population's survival, for the scarce sex always gains a selective advantage over the plentiful one. If a population becomes seventy percent male, for example, each female's chances of finding a mate and bearing offspring will be good. But since there will be more than enough males to go around, many of *them* will never get a chance to reproduce. As long as that is true, families that bear and raise daughters will enjoy better long-term survival rates than will those that invest in sons, for they will always produce more grandchildren. And as such families come to dominate the population, the daughters they generate will redress the shortage of females. In short, a scarce sex is a valuable one, and a valuable one tends not to remain scarce forever. That is why, in most species, sex ratios oscillate around equality.

But the fact that evolution will someday correct our mistakes hardly warrants complacency. Other societies have managed, by means far cruder than those now within our grasp, to maintain male-dominated populations for hundreds of years. And, as we've seen, many of those societies have tended toward violence and social stratification. A tradition of war or hypergamy or the denigration of women's work may precipitate a preference for male offspring—but so, in turn, may a predominance of males foster and perpetuate such traditions. In many of the primitive societies analyzed by Divale and Harris, not only did female babies end up being killed so that more warriors could be raised, but war became a necessary tool for eliminating excess males.

Obviously, these cultures are different from ours, and the fact that they have used sex control in certain ways doesn't mean we would do the same. But the evidence suggests that we *would* use it to create a surplus of males. And there is no doubt that such a surplus would create social distortions. For example, it is well known that young men are responsible for the vast majority of violent crime; indeed, one of the clearest influences on any society's crime rate is the percentage of its population made up of males between the ages of fifteen and thirty-five. It is thus fairly easy to see how a boom in baby boys could become a later surge in murder, rape, and robbery.

It is also easy to see how a radical gender imbalance might affect our society's attitudes toward war. We know that males, for reasons at least partly biological, are more given to aggression than are females. It's hardly inconceivable that a modern nation with an excess of ten or fifteen million adult males could, through voting and other expressions of public opinion, turn more readily to military action. In 1968, polls indicated that American men approved of U.S. involvement in the Vietnam War by a margin of twenty percent, and that women *disapproved* by nearly the same margin. Similar gaps have since been documented repeatedly.

And if we failed to kill them off in some suitable war, what would life be like for the armies of surplus males we brought into the world? Obviously, many would never find female companions. And to the degree that prostitution and homosexuality failed them as alternatives, there would be loneliness. The consequences of loneliness can range from clinical depression to physical illness; studies have shown that single men suffer more depression than married men, and that mortality rates are higher among people with few social ties, regardless of sex.

Together, these possibilities should be enough to make us wonder about the wisdom, and the moral meaning, of manipulating the sex ratio. As individuals, we may sense nothing wrong with choosing our children's genders—and in ultimate, evolutionary terms, it may be a harmless pastime. But, considering the immensity of the possible social consequences, why not resist the temptation altogether? ●

MELVIN KONNER, the Samuel Candler Dobbs professor of anthropology at Emory University, in Atlanta, is the author of BECOMING A DOCTOR: A JOURNEY OF INITIATION IN MEDICAL SCHOOL, *just published by Viking.*