Ten Myths of Population

BY JOEL E. COHEN

FEARS ABOUT EARTH'S BURGEONING human population have long been at the back of many people's minds. Now, it seems, as the threat of nuclear annihilation recedes from the headlines, those fears can move up to claim center stage. Moving along with the anxiety, of course, is a great deal of confusion, not the least of which is about how to recognize a population problem when you see one. Population problems are entangled with economics, the environment, and culture in such complex ways that few people can resist the temptations of unwarranted simplification. The result is a loose and widely accepted collection of myths, all of which wrap a heavy coating of fiction around a nugget of truth. During the 30 years I have spent studying population dynamics, I have become quite familiar with these myths, in all their guises. Here, in their essential form, are ten of the ones that I have encountered most often.

How do we save the world from the burden of too many people? We can start by clearing up a few misconceptions.

1. The human population grows exponentially.
In 1798 the Reverend Thomas Robert Malthus wrote that any human population, "when unchecked," doubles in a certain unit of time, and then keeps on doubling in the same unit of time. For example, according to his statistics, in "the English North American colonies, now the powerful People of the United States of America, . . . the population was found to double itself in 25 years."

The fact is that hardly any human populations keep doubling in the same unit of time for very long. Two thousand years ago, there were about 250 million people on the planet. It took about 1,650 years for the population to double to 500 million. But the next doubling took less than 200 years—by 1830 Earth's human population had passed 1 billion. After that the doubling time continued to shrink: just another 100 years to reach 2 billion, then only 45 years more to get to 4 billion. Never before the twentieth century had any human being lived through a doubling of Earth's population.

But things have begun to change. In 1965 the global population growth rate peaked at around 2 percent per year (a rate sufficient to double the global population in 35 years, if it were sustained) and then began to fall. It has now dropped to 1.5 percent per year, which yields a doubling time of 46 years. For the first time in human history, the population growth slowed, despite a continuing drop in death rates, because people were having fewer children. The myth of exponential growth misses this human triumph.

2. Scientists know how many people there will be 25, 50, and 100 years from now.
Most demographers no longer believe they can accurately predict the future growth rate, size, composition, or distribution of populations. It's not that demographers are a particularly humble bunch; it's

ILLUSTRATIONS BY JONATHON ROSEN

simply that so many of their past predictions have failed. Researchers could not and cannot predict changes in birthrates or the changes wrought by large migrations of peoples; nor did any of them anticipate that the death rates in poor countries would fall as rapidly as they did after World War II.

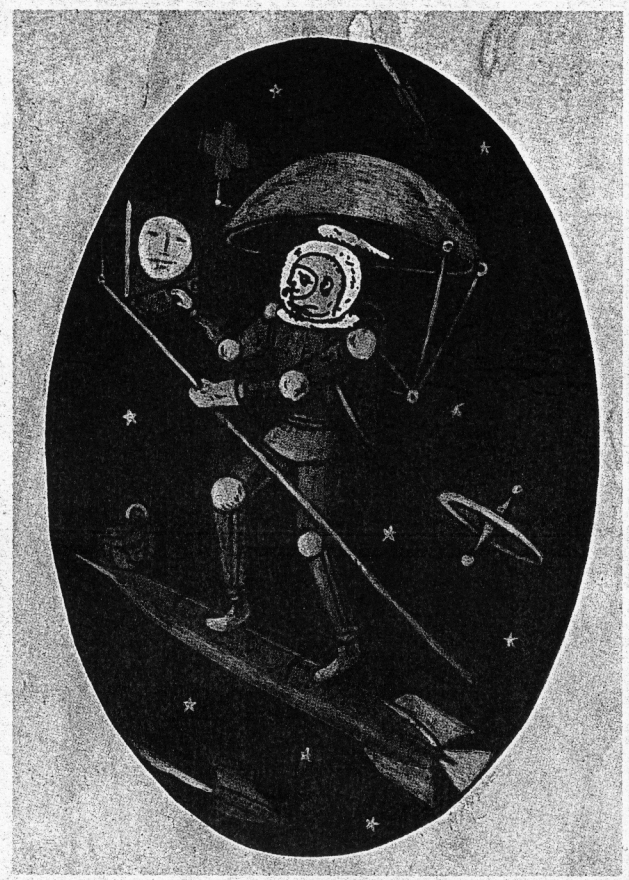
Yet demographers can safely predict some things. They know, for example, that everyone who will be at least 18 years old 18 years from now is already born, and that everyone who will be 65 years old or older 20 years from now is at least 45 years old today. This means that if death rates do not change abruptly, demographers can predict with some confidence how many people of working age there will be 18 years from now, and how many potentially retired people 20 years hence.

3. There is a single factor that limits how many people Earth can support.

This myth has a long, distinguished history. In 1679, Antoni van Leeuwenhoek, the inventor of the microscope, estimated how many people the planet could support. He assumed that what limited Earth's population was population density alone—that is, the number of people per unit of land area. He further assumed that Earth could not be more densely inhabited than the Holland of his day, which had an estimated 1 million people at a density of around 300 per square mile. He calculated that Holland then occupied one part in 13,400 of Earth's habitable land. Therefore, he concluded, the planet could support at most 13.4 billion people.

Things turned out to be more complex than Leeuwenhoek imagined. In 1989 a third of the world population lived at densities greater than 300 people per square mile. People, it turns out, can and will live at higher population densities when technologies and environments make it possible, economic incentives and trade make it affordable, and cultural values make it acceptable or even desirable.

Just behind the "standing room" hypothesis in popularity—at least, among those who have not thought much about the problem or the facts—is the belief that what limits global population is the availability of food. In fact, except for people who are actually starving, humans today do not have more or fewer children according to whether they have more or less food. On the contrary, the average number of children per woman is lowest in the rich countries where food is most abundant (such as in Japan and in Europe and North America) and is highest where food availability per person is lowest (as in Africa south of the Sahara).



Since Leeuwenhoek, some 65 estimates of how many people Earth can support have been published, using a wide range of limiting factors—everything from food to land to freshwater, phosphorus, photosynthesis, fuel, nitrogen, waste removal, and human ingenuity. The estimates have ranged from fewer than 1 billion to more than 1 trillion, and in the past few decades they have grown increasingly divergent. But there are a number of problems with all these studies. The advocates of a single limiting factor can rarely determine whether some other factors might intervene before the assumed constraint comes into play. Moreover, even if these determinations were scientifically possible, many of the isolated factors are not independent of one another. True, the amount of available water determines how productive the land will be, but it itself is partially determined by how much energy is available for pumping the water or desalinating it. And that energy capacity depends in part on the amount of water available to flow through hydroelectric dams and to cool nuclear reactors. Everything affects everything else.

Most important, many limiting factors are subject to changing cultural values. If a peasant farmer in Kenya believes that educating her children matters greatly, and if school fees begin to rise, then she may choose to have fewer children not because land is scarce but because she values her children's future more than their labor as farmhands.

4. Earth's population problems can be solved by colonizing outer space.

Let's review the numbers: the world's population of 5.7 billion people is currently growing by roughly 1.5 percent per year. Now, let's say you wanted to use space travel to bring the growth rate down a tiny notch to 1.4 percent. That would require .001 x 5.7 billion = 5.7 million astronauts to blast off in the first year—and increasing numbers in years that followed. Space shuttle launches cost $450 million apiece, so if you ferried ten people to space in each shuttle, the cost per person would be $45 million. Exporting 5.7 million people would cost $257 trillion, roughly ten times the world's annual economic product. Your mass migration would bankrupt the remaining Earthlings, who would still be saddled with a population that doubled every 50 years.

Demographically speaking, space is not the place.

5. Technology can solve any population problem.

People once feared that shipbuilding would be hampered by the scarcity of tall trees for sailing masts, that railroads would be crippled by a shortage of timber for railroad ties, and that the U.S. economy would grind to a halt with the exhaustion of coal. Yet people figured out

how to switch to metal masts (and then steam power); they invented concrete railroad ties and built superhighways; and they found better ways to extract coal, as well as oil, gas, and other fuels. But these solutions brought new problems, such as acid rain, dramatically rising atmospheric carbon dioxide, stripped lands, and oil spills. Still, technological optimists argue that industrial societies will go on solving problems as they arise.

In technology, as in comedy, timing is everything. For every timely success of technology, doubters can point to problems where solutions did not come in time to avert great human suffering and waste. For example, medical technology's solution for tuberculosis so far is partial at best. One in three humans are infected with tuberculosis (including half the population of Africa), and 3 million of them are dying of it every year. Yet despite decades of medical research, drug-resistant forms of the disease are spreading. Technology will take time to solve such problems—which are ultimately related to population through culture, the environment, and the economy—if it can solve them at all.

6. The United States has no population problem.

When people are born whose parents don't want them, there is definitely a population problem, and the United States suffers this problem in a big way: in 1987, of the 5.4 million pregnancies among American women, about 3.1 million (57 percent) were unintended at the time of conception. Of these, about 1.6 million were aborted; 1.5 million resulted in a live birth. Young and poor women were more likely than average to have unintended pregnancies. In 1987, 82 percent of pregnancies among American teenagers 15 to 19 years old were unintended, as were 61 percent of pregnancies among women 20 to 24 years old. Women with family incomes below the poverty level in 1987 reported that 75 percent of their pregnancies were unintended. The trend is not good: among all U.S. women 15 to 44 years old, the fraction of all births that resulted from intended pregnancies shrank from 64 percent in 1982 to 61 percent in 1988 to 55 percent in 1990.

The inability of the United States to assure that every conception is an intended one is entwined with other social problems. The United States ranks first or second (always behind Australia) among industrial countries in rates of intentional homicides by males, reported rapes of women aged 15 to 59, drug crimes, injuries from road accidents, income disparity between the richest 20 percent of households and the poorest 20 percent, prisoners, and divorces. Unintended births are partly a cause and partly an effect of all these other troubles.

7. Population problems of developing countries are not a problem for the United States.

The myth that the United States is immune to the population problems of the rest of the world ignores migration, infectious diseases, international labor markets, and the shared global commons of crust, oceans, atmosphere, and wildlife. Refugees and immigrants are driven from home by political upheavals, ethnic conflict, poverty, and environmental degradation—all problems that may be exacerbated by rapid population growth—and already play visible roles in the domestic politics of Florida, Texas, and California, as well as in American foreign policy. The health of Americans depends on the health of people outside our borders—infectious diseases do not carry a passport. The rapid population growth of developing countries, leading to fierce wage competition, may even play some role in the movement of jobs out of the United States, although the extent of this role is still controversial because it has not been accurately measured. American workers may do well to recognize their self-interested stake in lowering population growth rates of developing countries.

8. The Roman Catholic Church is responsible for the population explosion.

In some countries church policies have certainly hindered access to contraception and have posed serious obstacles to family planning programs. In practice, however, religion isn't the critical factor for fertility levels among Catholics, not to mention Muslims, Jews, or members of most other religions. Last year Spain and Italy—two Catholic countries—tied with Hong Kong for the lowest levels of fertility in the world, with an average of 1.2 children per woman. In largely Catholic Latin America, fertility has fallen rapidly to the world average of 3.1 children per woman, thanks mainly to modern contraceptive methods. The fertility of American Catholics has gradually converged over the years with that of Protestants. Polls show that nearly four-fifths of them think that couples should make up their own minds about family planning and abortion.

Within the church hierarchy, Catholicism shelters a diversity of views. In 1994, for example, the Italian bishops' conference issued a report stating that falling mortality and improved medical care "have made it unthinkable to sustain indefinitely a birthrate that notably exceeds the level of two children per couple." By promoting literacy for adults, education for children, and the survival of infants in developing countries, the church has helped bring about social conditions that favor a decline in fertility.

9. Plagues, famines, and wars are nature's (or God's) way of solving population problems.

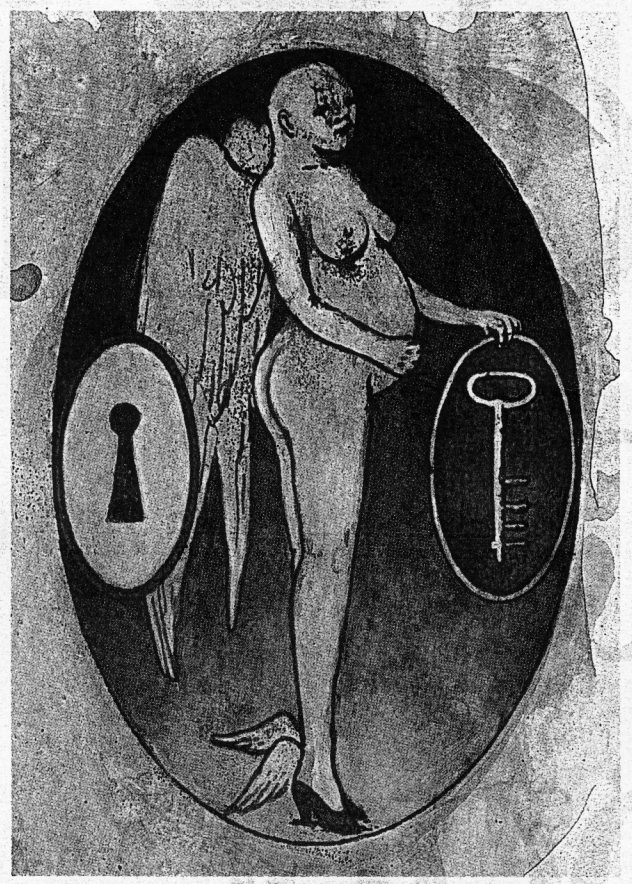
This venerable myth traces back at least to 1600 B.C. According to an ancient Babylonian history, when human commotion disturbed the gods' peace and quiet, the gods inflicted plagues to rid the Earth of humans.

Plagues, of course, are directly caused by viruses, bacteria, and other microorganisms that take advantage of human behavior in a favorable environment. After the last ice age, when sedentary agriculture greatly increased the population density in permanent human settlements, the inhabitants became surrounded by their own wastes and those of their domestic animals and hangers-on like rats and fleas. By the time the Babylonians recorded their creation myths a few thousand years later, people could well have observed that denser settlements were subject to strange new infectious diseases and could have interpreted these diseases as divine interventions. Now we know that humble humans can at least partially control disease. Inexpensive public health measures controlled lethal infectious diseases of childhood in developing countries after World War II, and population growth then accelerated in an unprecedented way.

Modern epidemics, while causing great suffering, have yet to show any probability of putting a brake on population growth. The highly reported Ebola outbreak last year killed 244 people—fewer than are born every minute. As for AIDS, a 1994 United Nations report on the 15 countries in central Africa where it is most prevalent estimated that by 2005 their population growth rate would be 2.88 percent per year in the presence of AIDS. If AIDS were not present, it would be 3.13 percent. These rates correspond to doubling times of 24 years and 22 years, respectively.

Famines today are only partly a result of natural events. Many readers may remember a Pulitzer Prize–winning photograph from 1993, showing a starving Sudanese girl collapsed on a trail, with a vulture looming behind her. At the time, the Sudanese government was just opening parts of its famine-stricken countryside—the scene of a long-running civil war—to relief operations. If aid workers had gotten in sooner, they could have prevented a crop failure from leading to a famine, but the Sudanese government stopped relief from reaching its own people. This is not divine intervention or an act of nature.

Finally, war has not been a major obstacle to human population growth. It's a safe estimate that fewer than 200 million people have been killed in the wars of this century (combined, World Wars I and II may have killed 90 million people, including civilians; since World War II, perhaps 50 million people have lost their lives on conventional battlefields). Yet the population increased from fewer than 1.7 billion in 1900 to 5.7 billion today. This 4-billion-person increase is more than 20 times greater than the number killed by wars.



10. Population is a women's issue, and women are the key to solving it.

If we don't improve the education, welfare, and legal status of women, there is little hope of solving many population problems. Women bear babies, and they are obviously key players in improving the survival of children and lowering fertility. But they are not the only key players. In most of the world, men too need similar help. As demographer Uche Isiugo-Abanihe of the University of Ibadan in Nigeria has pointed out, it is as important to educate African men about the consequences of high fertility as it is African women. In the United States, a 1995 report on unintended pregnancy by the Institute of Medicine concluded that "the prevailing policy and program emphasis on women as the key figures in contraceptive decision-making unjustly and unwisely excludes boys and men." Scientists have discovered it takes two to tango.

Last October a neurophysiologist I was chatting with claimed that the people of India are poorer, more miserable, and more fecund than ever. I quoted him statistics showing that India's average gross national product per person rose 3 percent per year from 1980 to 1993 and that its life expectancy rose from 39 years during the period of 1950 to 1955 to 58 years during the period of 1985 to 1990. I added that in that same period of time the average number of children per woman fell from 6 to 4.1. "Oh, that doesn't matter!" he said. Population myths have a life of their own.

Yet behind the neurophysiologist's exaggerations are valid, urgent concerns. Too many people in India and around the world are far poorer than the means available require them to be. Too many children are born without the prospect of sufficient love, food, health, education, or dignity in living and dying. But only by clearing the myths from our vision of population can we focus on the real problems and find hope without complacency. One way or another, human population growth on Earth must ultimately end. Ending it through voluntary reductions in fertility will make it easier to reduce the poverty of the 4.5 billion people who live on an average of $1,000 a year. At the same time, reducing poverty will make it easier to end population growth through voluntary reductions in fertility. The alternatives are coerced reduction of fertility or the misery of rising death rates. The choice is ours, for now. D