

## Population explosion: facts and fiction

**T**HE FACTS OF TODAY'S population crisis are appallingly simple.

Mankind at first gradually, but recently with extreme rapidity, has intervened artificially to lower the death rate in the human population. Simultaneously we have not, intervened to lower the birth rate.

Since people are unable to flee from our rather small planet, the inevitable result of the wide discrepancy between birth and death rates has been a rapid increase in the numbers of people crowded onto the Earth.

The growth of the population is now so rapid that the multitude of humans is doubling every 35 years. Indeed in many undeveloped countries the doubling time is between 20 and 25 years. Think of what it means for the population of a country like Colombia to double in the next 22 years. Throughout its history the people of

Colombia have managed to create a set of facilities for the maintenance of human beings: buildings, roads, farms, water systems, sewage systems, hospitals, schools, churches, and so forth. Remember that just to remain even, just to maintain today's level of misery, Colombia would have to duplicate all of those facilities in the next 22 years.

It would have to double its human resources as well — train enough doctors, lawyers, teachers, judges, and all the rest so that in 22 years the number of all these professionals would be twice that of today. Such a task would be impossible for a powerful, industrialized country with agricultural surpluses, high literacy rate, fine schools, and communications, etc.

The United States couldn't hope to accomplish it. For Colombia, with none of these things, with 30-40 per cent of its population illiterate, with 47 per cent of its population under 15 years of age it is inconceivable.

Yes, it will be impossible for Colombia to maintain its present level of misery for the next 22 years — and misery it is.

Death control did not reach Colombia until after World War II. Before it arrived, a woman could expect to have two or three children survive to reproductive age if she went through 10 pregnancies. Now, in spite of malnutrition, medical technology keeps seven or eight alive. Each child adds to the impossible financial burden of the family and to the despair of the mother.

According to Dr. Sumner M. Kalman, the

average Colombian mother goes through a progression of attempts to limit the size of her family. She starts with ineffective native forms of contraception and moves on to quack abortion, infanticide, frigidity, and all too often to suicide.

The average family in Colombia, after its last child is born, has to spend 80 per cent of its income on food. And the per capita income of Colombians is \$237 per year, less than one-tenth that of Americans. That's the kind of misery that's concealed behind the dry statistic of a population doubling every 22 years.

But, it seems highly unlikely that 22 years from now, in 1990, Colombia will have doubled its present population of 20 million to 40 million. The reason is quite simple.

The Earth is a spaceship of limited carrying capacity. The three and one half billion people who now live on our globe can do so only at the expense of the consumption of non-renewable resources, especially coal and petroleum. Today's technology could not maintain three and one half billion people without 'living on capital' as we are now doing. Indeed it is doubtful if any technology could permanently maintain that number.

And note that, even living on capital, we are doing none too well. Somewhere between one and two billion people are today undernourished (have too few calories) or malnourished (suffer from various deficiencies, especially protein deficiencies). Somewhere between 4- and 10- million of our fellow human beings will starve to death this year.

Consider that the average person among some 2-billion Asians has an annual income of \$128, a life expectancy at birth of only 50 years, and is illiterate. A third of a billion Africans have an average life expectancy of only 43 years, and an average annual income of \$123. Of Africans over 15 years of age, 82 per cent are illiterate.

Look at the situation in India, where Professor George Borgstrom estimates that only about one person in 50 has an adequate diet. For the vast majority the calorie supply is not sufficient for sustaining a normal workday. Physical exhaustion and apathy is the rule.

No, we're not doing a very good job of taking care of the people we have in 1968 — and we are adding to the population of the Earth 70-million people per year. Think of it — an equivalent of the 1968 population of the

United States added to the world every three years! We have an inadequate loaf of bread to divide among today's multitudes, and we are quickly adding more billions to the bread line.

**A**S I SAID AT THE beginning, the facts are indeed simple. We are faced by a most elementary choice. Either we find a way to bring the birth rate down or the death rate will soon go back up. Make no mistake about it — mankind has not freed itself of the tyranny of arithmetic! Anyone, including Pope Paul VI, who stands in the way of measures to bring down the birth rate is automatically working for a rise in the death rate.

The death rate could rise in several ways. Perhaps the most likely is through famine. The world has very nearly reached its maximum food production capacity — even with the expenditure of our non-renewable resources. Agricultural experts such as Professor Borgstrom and the Paddock brothers present a dismal picture indeed.

The Paddocks' best estimate of the onset of the 'Time of Famines,' the time when many tens of millions will starve to death annually, is 1975. How accurate their prediction is will depend on many factors, such as the weather, over which we have no control. It will also depend in part on what actions mankind takes to attempt an amelioration of the situation. I must, however, agree with the Paddocks that massive famines are now inevitable.

Plague presents another possibility for a 'death rate solution' to the population problem. It is known that viruses may increase their virulence when they infect a large population. With viruses circulating in a weakened population of unprecedented size, and with modern transport capable of spreading infection to the far corners of the globe almost instantly, we could easily face an unparalleled epidemic. Indeed, if a man-made germ should escape from one of our biological warfare labs we might see the extinction of homo sapiens. It is now theoretically possible to develop organisms against which man would have no resistance — indeed one Nobel laureate was so appalled at the possibility of an accidental escape that he quit research in this field.

Finally, of course, thermonuclear war could provide us with an instant death rate solution. Nearly a billion people in China are pushing out of their biologically ruined country towards Siberia, India, and the Mekong Rice bowl. The suffering millions of Latin America are moving towards revolution and Communist governments. An Arab population boom, especially among Palestinian refugees, adds to tensions. The competition to loot the sea of its fishes creates international incidents.

As more and more people have less and less, as the rich get richer and poor poorer the probability of war increases. The poor of the world know what we have, and they want it. They have what is known as rising expectations. For this reason alone a mere maintenance of current levels of living will be inadequate to maintain peace.

Unfortunately we will not need to kill outright all human beings to drive mankind

to extinction. Small groups of genetically and culturally impoverished survivors may well succumb to the inevitably harsh environment of a war-ravaged planet. War not only could end this population explosion, it has the potential for removing the possibility of any future population growth.

Faced with this dismal prospect, why haven't people, especially in an educated country like the United States, taken rational action to bring the birth rate down? Why haven't we led the way towards a world with an optimum population living in balance with its resources? Why indeed have most Americans remained unaware of the gravity of the entire problem? The answers to these questions are many and complex. In the rest of this talk I'd like to discuss one major reason why we have not managed to defuse the population bomb. This reason is the perpetuation of a series of fictions which tend to discount the problem or present fantasy solutions to it. These fictions are eagerly believed by many people who show an all-too-human wish to avoid facing unpleasant realities. Let's look at some of the fictions, and some of the unpleasant realities.

**F** ICTION: The population explosion is over, at least in the United States, because the birth rate is at an all-time low.

**FACT:** Although the birth rate of the United States has hit record lows (around 16 per thousand per year) for brief periods this year it has not approached the death rate, which is down around 9 per thousand per year. Even at the record low rate (if it were to continue) the population of the United States would double in about 100 years. But the low birth rate will not persist since the large group of women born in the post-World War II baby boom move into their peak reproductive period in the next few years. Birth rates are subject to short-term fluctuations, according to the number of women in their reproductive years, the condition of the economy, the occurrence of wars, etc. Viewing a temporary decline of the birth rate as a sign of the end of the population explosion is like considering a warm December 26th as a sign of spring. The ballooning of the temporary decline of birth rate (with, if you recall, no mention of death rate) has done great harm to the cause of humanity.

**F** ICTION: The United States has no population problem — it is a problem of the undeveloped countries.

**FACT:** Considering the problems of air and water pollution, poverty, clogged highways, overcrowded schools, inadequate courts and jails, urban blight, and so on, it is clear that the United States has more people than it can adequately maintain. But even if we were not overpopulated at home we could not stand detached from the rest of the world. We are completely dependent on imports for our affluence. We use roughly one half of all the raw materials consumed on the face of the Earth each year. We need the ferroalloys, tin, bauxite, petroleum, rubber, food, and other materials we import. We, one fifteenth of the population, grab one half as our share. We can afford to raise beef for our own use in protein-starved Asia. We can afford to take fish from protein-starved South America and food to it our chickens. We can afford to buy protein-rich peanuts from protein-starved Africans. Even if we are not engulfed in world-wide plague or war we will suffer mightily as the other world slips into famine. We will suffer when they are no longer willing or able to supply our needs. It has been truly said that calling the population explosion a problem of undeveloped countries is like saying to a fellow passenger 'your end of the boat is sinking.'

**F** ICTION: Much of the Earth is empty land which can be put under cultivation in order to supply food for the burgeoning population of the planet.

**FACT:** Virtually all of the land which can be cultivated with known or easily

foreseeable methods already is under cultivation. We would have to double our present agricultural production just to adequately feed today's billions — and the population of the Earth is growing, I repeat, by some 70-million people per year. No conceivable expansion of arable land could take care of these needs.

**F** ICTION: Although land agriculture can not possibly take care of our food needs, we still have 'unmeasurable' resources of the sea which can be tapped so that we can populate the Earth until people are jammed together like rabbits in a warren.

**FACT:** The resources of the sea have been measured and have been found wanting. Most of the sea is a biological desert. Our techniques for extracting what potential food there is in the sea are still very primitive. With a cessation of pollution, complete international cooperation, and ecologically intelligent management we might manage to double our present yield from the sea or do even better on a sustained basis. But even such a miracle. Indeed there is increasing pollution of the sea with massive amounts of pesticides and other biologically active compounds. In addition, a no-holds-barred race to harvest the fish of the sea has developed among China, Japan, Russia, the United States, and others. This race is resulting in the kind of overexploitation which led to the decline of the whaling industry. All the signs point to a reduction of the food yield of the sea in the near future — not to a bonanza from the sea.

**F** ICTION: Science (with a capital S) will find a new way to feed everyone — perhaps by making food synthetically.

**FACT:** Perhaps in the distant future some foods will be produced synthetically in large quantity, but not in time to help mankind through the crisis it now faces. The most discussed methods would involve the use of micro-organisms and fossil fuels. Since fossil fuels are limited in supply, and much in demand for other uses their use as a food source would be a temporary measure at best. Direct synthesis, even should it eventually prove possible, would inevitably present problems of energy supply and materials supply — it would be no simple 'good for nothing' system. But, I repeat, science holds no hope of finding a synthetic solution to the food problem at this time.

**F** ICTION: We can solve the crowding problem on our planet by migrating to other planets.

**FACT:** No other planet of the solar system appears to be habitable. But, if all of them were, we would have to export to them 70-million people a year to keep our population constant. With our current technology and that foreseeable in the next few decades such an effort would be economically impossible — indeed the drain on our mineral resources and fossil fuels would be unbelievable. Suppose that we built rockets immeasurably larger than any in existence today — capable of carrying 100 people and their baggage to another planet. Almost 2,000 of such monster ships would have to leave each day. The effects of their exhausts on the atmosphere would be spectacular to say the least. And what if through miracles, we did manage to export all those people and maintain them elsewhere in the solar system? In a mere 250 years the entire system would be populated to the same density as the Earth. Attempting to reach the planets of the stars raises the prospect of space ships taking generations to reach their destinations. Since population explosions could not be permitted on the star ships the passengers would have to be willing to practice strict birth control. In other words, the responsible people will have to be the ones to leave, with the irresponsible staying at home to breed. On the cheery side, getting to the stars might not be so difficult. After all, in a few thousand years at the current growth rate, all the material in the visible Universe will have been converted into people, and the sphere of people will be expanding outward at better than the speed of light!

**F** ICTION: Family planning is the answer to the population explosion. It has worked in places like Japan; it will work in places like India.

**FACT:** No country, including Japan, has managed to bring its population under rational control. After World War II Japan employed abortion to reduce its birth rate, but it did not stop its growth. Indeed, in 1966, with its birth rate at a temporary low because it was the 'Year of the Fiery Horse' (considered inauspicious for births), Japan's population was still growing at a rate which would double it in 63 years. Japan is in desperate straits. Today it must import food equivalent to its entire agricultural production. In addition it depends heavily on its fisheries from which it gets food equivalent to more than one and one half times its agricultural production. Japan is so overpopulated that even if her population growth stopped she would succumb to disaster as her sources of food imports dry up and as her share of the yield from the sea shrinks. But, remember, grossly overpopulated Japan is continuing to grow at a rapid rate.

Family planning in India has had no discernible effect even though it has had government support for some 17 years. During those years the population has increased by more than one half, and the growth rate itself has increased. The IUD (intrauterine device) was promoted by the professional optimists as the panacea for India, but the most recent news from that country indicates a recognition of the failure of the IUD campaign and a return to the promotion of condoms.

Most depressing of all is the point that family planning promotes the notion that people should have only the number of children they want and can support. It does not promote family sizes which will bring about population control. As Professor Kingsley Davis has often pointed out, people want too many children. Family planning has not controlled any population to date, and by itself it is not going to control any population.

These fictions are spread by a wide variety of people and organizations, and for a wide variety of reasons. Some have long-term emotional commitments to outmoded ideas such as population control through family planning. Others wish to disguise the failure of the government agencies they run. Still others have simple economic interests in the sale of food or agricultural chemicals and equipment. Almost all also have genuine humanitarian motives.

Most of these people have an incomplete view of the problem at best. The less well informed simply have no grasp of the magnitude of the problem — these are the ones who propose solutions in outer space or under the sea.

More sophisticated are those who hold out great hopes for agricultural changes (now often referred to as a 'green revolution') which will at least temporarily solve the problem. Such people are especially common in our government.

This sophisticated group tends to be ignorant of elementary biology. Our desperate attempts to increase food yields are promoting soil deterioration and contributing to the poisoning of the ecological system on which our very survival depends. It is a long and complex story, but the conclusion is simple — the more we strive to obtain increased yields in the short run, the smaller the yields are likely to be in the long run. No attempt to increase food yields can solve the problem. How much, then, should we mortgage our future by such attempts?

I've concentrated, in my discussion, on the nature of the population explosion rather than attempting to detail ways of reaching a birth rate solution. That is because the first step towards any solution involves a realistic facing of the problem.

We must, as that first step, get a majority of Americans to recognize the simple choice: lower the birth rate or face a drastic rise in the death rate.

We must divert attention from the treatment of symptoms of the population explosion and start treating its causes. We have no more time; we must act now. Next year will not do. It is already too late for us to survive unscathed. Now we must make decisions designed to minimize the damage. America today reminds me of the fabled man who jumped off the top of a 50-storey building. As he passed the second floor he was heard to say 'things have gone pretty well so far.'