

It is accordingly time to use reason and humanism to overcome militarism and imperialism—to eliminate the risk of a third world war and nuclear disaster. Indeed it is imperative for the negotiators of the nuclear powers, whether they be socialist, capitalist, or otherwise, to make binding and effective agreements on urgent cessation of the arms race, on the steps to be taken for disarmament, on war détente, and on banning all military means of solving political and economic issues.

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## OPEN LETTER

### Fewer People for a Better World: A Plea for Negative Population Growth

I would like to offer both my congratulations and my thanks for your stressing, in your excellent Autumn issue, the problems that result from over-population, and that are aggravated by further population growth.

There is a growing consensus that further population growth in an already vastly over-populated world threatens to destroy—for centuries to come, if not for ever—Man's ancient dream of a good life for all, free from material want.

More and more informed individuals believe that the central issue of our time is how to halt and then reverse population growth, so that population size can eventually be stabilized at some fraction of today's numbers. Yet, two very powerful forces in our society—religious and environmental organizations—have failed, until now, to recognize and focus on that issue.

The Roman Catholic Church has often—and entirely justly—been singled out for criticism for its failure to recognize the critical nature of over-population, and the urgent need to find a solution for it. Yet, in all fairness, no other major religion has really come to grips with the problem of over-population, and of further population growth. In the United States, for example, no Protestant denomination advocates measures of real population control, namely the planned and conscious regulation by society of total population size.

It is particularly baffling that more environmental organizations have not long ago acknowledged the utter futility of trying to halt the degradation of our environment unless population growth is also halted and then reversed.

As Sir Julian Huxley asked many years ago, 'What are people for?' As a variation of Sir Julian's question we should ask ourselves, 'What business are we in?'

Are we in the business of trying to determine how many people the Earth can possibly be made to support (never mind for how long), of trying to transform our infinitely varied and beautiful planet into one gigantic food factory (never mind if all other animal species are driven to extinction), of trying to become a sort of planetary ant-heap where people will exist like so many farm animals, cheek-by-jowl at the feeding trough (never mind the quality of life, never mind art, science, and culture)? If so, let human numbers continue to increase.

On the other hand, if we are, or should be, in the business of trying to eliminate hunger and poverty—of trying to create a society that will be sustainable indefinitely in a sound and healthy environment, with a base of material prosperity that will minimize human suffering and allow civilization to flourish—then we had better, without further delay, set about actually reducing population size. The weight of scientific opinion supports the view that a sustainable world population could not exceed two thousand million humans, and might well be not more than half that number.

How could a substantial reduction in population size be achieved? In the 'developing countries' (where 90% of future world population growth is projected to occur), total fertility rates are very high—about 5.3, excluding China. This means that there are more than five children in the average-size family. Marginal, or even fairly substantial, reductions in fertility are clearly insufficient even to halt population growth, much less to reduce population size, in those countries.

Even the two-child average family is not the answer to the problem of halting population growth immediately. If the two-child average family were achieved now, on a world-wide scale, world population would continue to grow for about 70 more years, because of the preponderance of young people in today's population. If the two-child average family became the norm, population growth would finally stop, but only after a further increase of more than 50%, or over two-and-a-quarter thousand million more people!

The question we must ask ourselves is the following: What total fertility rate is needed on a world-wide basis in order to halt population growth almost immediately, and then to start a slow and gradual decline in human numbers? The answer to that question is a total fertility rate of 1.0, or the one-child average family. Such a total fertility rate (about one-quarter of the present world rate) would only be needed for a few decades in the developed countries, and somewhat longer in the developing countries because of the different age-structure of their populations.

After a few decades with a total fertility rate of about 1.0, the rate could be allowed to rise gradually to the long-term replacement rate of 2.1. If the world fertility rate were to follow such a pattern, after about 100 years or so of population decline, world population would stabilize at about half the present number of *ca* 4.5 thousand millions.

In short, the one-child average family now would save the world from a drastic drop in our standard of living, and the disastrous social, economic, and environmental problems, that further population growth is sure to bring in its wake.

Is such a goal Utopian, unrealistic, and even impossible to achieve? Not at all! China, the world's most populous country, has led the way in its advocacy of the one-child family, and hence of negative population growth. The real dreamers are those who assert that we can create a sustainable economy, with a high average standard of living for all, in a healthy environment—with the present world population of 4.5 thousand millions, or even more.

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### Comment: 'Plus ça change ...'

A few years ago it emerged—not unexpectedly, though to the professed surprise of some—that, whatever system prevailed or propaganda declared, the effects of industrial pollution were much the same. Thus we had rivers reportedly 'catching fire' in the Soviet Union as well as in the United States, and often similar stench and abiotic horrors in both as well as widely elsewhere.

Now it seems—with some gratifying relief to thinking people in general but to environmentalists and concerned physicians in particular—that the leadership of both the super-powers is fully aware of the utter horror of any possibility of nuclear warfare, which should surely lead to the first step towards avoiding it. Those of us who read the 'Western' press must know that the abhorrence is widely shared among their own leaders and governments, and we are now confidently assured that much the same is true on the other side of the ideological fence which unfortunately continues to separate mankind.

But still—and probably far more threateningly nowadays than ever before—the appalling nightmare of con-

ceivable nuclear holocaust haunts us (Fig. 1); indeed some alarmists are saying that they do not see how it can be avoided, having regard *inter alia* to the world's mounting incidence and scale of terrorism. Even to our more cautious way of thinking, nuclear holocaust has latterly taken the place of widespread famine as the most likely means of settling what we have long seen as our world's most fundamental problem, namely the ever-increasing burden of human population and its concomitant demands and effects on a finite planet. Hence our stressing of population and pollution in recent issues of this Journal.

So let us affirm it once again: we cannot go on growing indefinitely on a finite globe, and the farther we do grow, the farther will be the ultimate fall and the greater the crash. You may groan at this repetition of such obvious truisms; and yet they should surely be heeded, or the chances of rectification will go past and be irrevocably lost (Fig. 2). So it is with avoiding nuclear war; and yet these two most devastating forces of potential destruction of our modern world seem so exposed to each other that one (the Earth's human population which, though al-

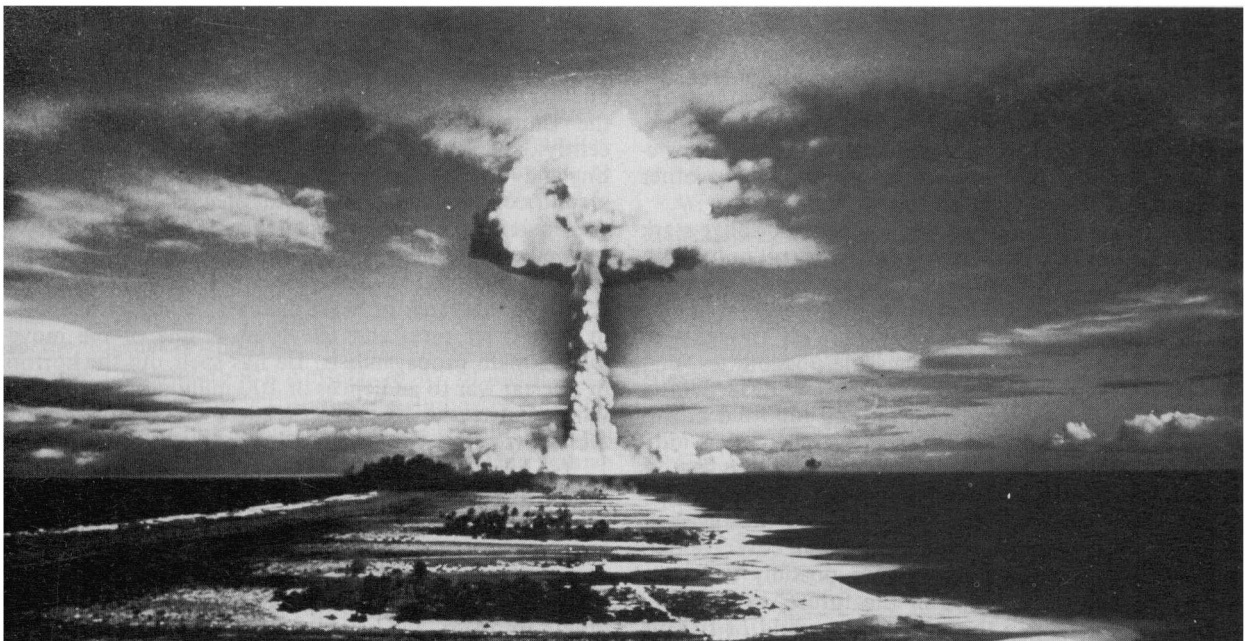


Fig. 1. A 'mushroom' cloud forming after the explosion by France of an experimental atomic bomb in the Pacific region. Photo: United Nations/Sygma.