

## Is the Population Bomb Still Ticking?

by Alan R. Sweezy

YES, IT IS still ticking. According to Ann and Paul Ehrlich, the authors of *The Population Bomb*, "In the 15 years since *The Population Bomb* was written, well over a billion people have been added to the human total." What's more, the world is continuing to grow at a rapid rate, though the growth is now very unevenly distributed. In Europe, North America, and Japan growth has slowed down; in parts of Europe it has even stopped. In large parts of the less developed countries, however — southern Asia, the Middle East, Africa, and Latin America — growth continues at a rate close to 2 percent a year. That means a doubling in about 35 years, and unless we can slow it down, we are faced with a pretty grim prospect.

Can the bomb be defused? The chief instrument so far for doing that — that is, for reducing the birth rate to slow population growth — is the promotion and strengthening of family planning programs. How effective these programs can be has been a subject of hot debate over the last decade or more. The view of the majority of the learned professions — sociologists, demographers, and economists — has until recently been that family planning programs can't do much. As you know, they operate by making the knowledge and the means of controlling births available to people. They

have to go on the assumption that once this knowledge and these means have been made available, people will actually use them. The reason this won't work, according to the pundits in the field, is that people in poor countries have lots of children because they want to have lots of children. And they want to have lots of children because children are an economic asset. Children, it is said, are valuable for the work they do, which is particularly true in peasant agriculture. They're the only source of security in old age for most of the people in these societies. In addition, where infant mortality is still high, they provide an insurance against the great and unpredictable risks of children dying in infancy. These are powerful arguments, and they have had a great deal of influence on attitudes toward family planning.

At the World Population Conference in Bucharest in 1974, the view that family planning could not have an appreciable effect on population growth became the standard view. It was taken up from our scholarly colleagues by the representatives of the Third World countries and pushed with great enthusiasm. The *New Internationalist*, the organ of the Third World delegates at the conference, set the tone with a lead article headed "The Best Pill Is Development." The article presented the view that family planning programs won't work and that the only way to get birth rates down, and thus to slow population growth, is through economic development. That's a somewhat pessimistic view since one of the barriers to development is excessive population growth.

The development school buttressed their argument by an appeal to history. In the Western world — Europe and North America — birth rates were high in the late 18th and early 19th centuries. They were almost as high as they are in the less developed world today. But by the first quarter of the 20th century they had come down to something like their present low level. From an average of about six children, the rate fell to just a little over two in the course of 100 to 150 years.

In looking to the future it is important to learn from the past, and the question obviously is: What caused the decline in fertility in the West? (Fertility, incidentally, is used by demographers in a rather special sense. It means not the ability to bear children, but simply the number of children. We talk about high fertility in societies where six or eight children are the rule; low fertility where two or three.) The pro-development school argue that there are two possible explanations — family planning or develop-

ment. Obviously, the decline was not brought about through the spread of family planning programs. There simply weren't any family planning programs, and the few voices raised in advocacy were scorned and suppressed. All the authoritative elements in society — the government, the church, the judiciary — were strongly against attempts of any kind to control reproduction.

Nor are modern contraceptives responsible. The pill is extremely recent and so is the IUD (intra-uterine device). What are now called the conventional contraceptives, the condom and diaphragm, were not developed until the late 19th century and didn't come into widespread use until the 20th century. So not only is there nothing to be said for family planning programs, but modern contraceptive technology also played no part in bringing about the decline. If the above are ruled out, what is left?

The usual answer is economic development. In the world today, we see that without exception the birth rates are low in the developed countries. This seems to provide strong evidence that economic and social development was responsible for the 19th century decline in fertility. Recently, however, some interesting work has been done in historical demography, work that furnishes the basis for an alternative view.

The key concept in this new view is what is called "natural fertility," which one of the leading authorities characterizes as "situations in which couples do not attempt to terminate childbearing before the end of the biologic reproductive span. In fact, the very idea of wanting any specific number of children may be quite foreign." In other words, instead of being determined by a calculation of advantage, as the sociologists, demographers, and economists have been telling us, children simply come. There is no thought as to what a desirable family size would be. This was no doubt the prevalent attitude up until maybe 100 years ago.

Though the concept of natural fertility stresses the absence of any attempt to limit family size, it doesn't mean that all societies in which natural fertility prevails will have the same size families. Fertility may be different because customs that have nothing to do with family size may intervene to affect the number of children born. The most important of these is breast feeding. In societies in which breast feeding is common and prolonged, the interval between births is longer. This is not a reliable contraceptive, of course, and any individual couple would be foolish to depend on it, but

statistically it holds up very well. Factors that can influence the interval between births also include periods of separation due to the seasonal migration of one of the spouses, variations in the frequency of intercourse, and customs prohibiting resumption of intercourse for some period following birth. All of these are consistent with a regime of natural fertility, since they are not aimed at controlling family size.

How can we tell whether a particular society is a natural fertility society? Since reproduction will continue as long as biologically possible, the age of the mother at the birth of the last child gives us a clue. The table at right\* shows the average age of wives at the birth of their last child in a number of presumably natural fertility societies. These figures are the result of painstaking family reconstitution studies, which have been a prominent feature of the work of historical demographers in recent years. You see the remarkable similarity in these villages — four of them are French, four German. The average age of the mother at the birth of the last child is very close to 40 in all of them. Where you see that, there is a strong presumption that no attempt is being made to control family size — that reproduction is being left to take care of itself.

Demographers have developed a more elaborate indicator, using the age pattern of child-bearing. The table below shows how this pattern differs in two societies at the extremes of control over fertility. The first column presents the age-specific fertility rates for the Hutterites, who are a most remarkable people. Not only is theirs a natural fertility society, it is the most completely "natural" of any society you will find anywhere. They also have the highest fertility that has ever been reported by a society that keeps reliable records. The Hutterites are a religious group who left Germany and moved to the United States. Their first habitat was in North Dakota, but they have spread out. (If they keep on the way they are doing now, this is going to be a country of Hutterites and not many other people.) Their religion completely forbids any type of birth control, and the average number of children in the last 50 years has been from 10 to 12 per woman. They are hard-working people, with a reasonably high standard of living. They believe in using the advantages of modern health care, so they have low death rates, low infant mortality, so their high

\*Etienne van de Walle and John Knodel, "Europe's Fertility Transition: New Evidence and Lessons for Today's Developing World," *Population Bulletin*, vol. 34, no. 6 (Population Reference Bureau, Inc., Washington, D. C., 1980) p. 11.

## WIFE'S AVERAGE AGE AT LAST BIRTH IN PRETRANSITION SOCIETIES

(Family reconstitution studies of French and  
German villages)

Location	Number of studies/ villages <sup>a</sup>	Wife's average age at last birth <sup>b</sup>
<i>French couples married in the 17th and 18th centuries</i>		
South and central France	4	39.3
Paris region and north France	4	40.4
Northwest France	7	40.4
Northeast France	3	39.8
<i>German couples married before 1850</i>		
Southwest Germany	5	39.9
Bavaria	3	40.6
Hesse	4	40.7
East Friesland	2	39.6

fertility leads directly to high population growth.

At the other extreme we have Great Britain around 1920, a typical modern society with low fertility norms and widespread use of birth control. The number of births per 1000 women in the first age group — 20 to 24 — is nearly the same in the two societies. But then it rises among the Hutterites and stays at a high level until biological limits begin to be reached, while in Britain it drops rapidly as couples reach the optimum size family, which at that time was typically two. Young people had most of their children in their 20s, and having reached the

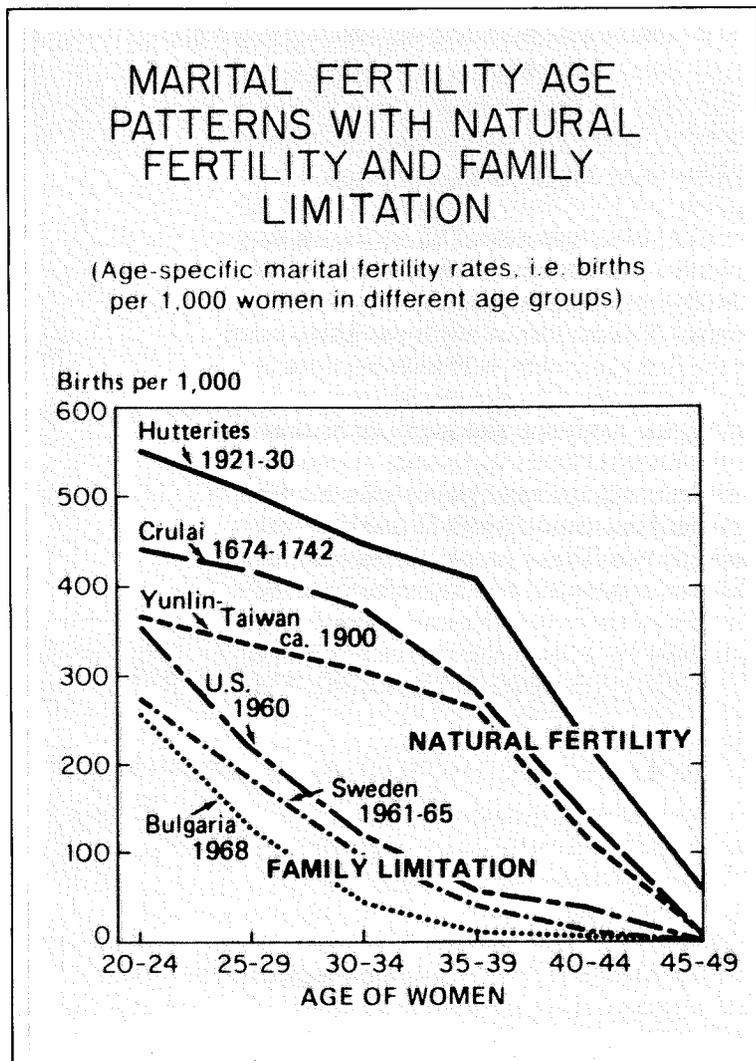
### AGE - SPECIFIC MARITAL FERTILITY RATES

AGE	HUTTERITES (1946-50)	GREAT BRITAIN (1920)
20 - 24	386	320
25 - 29	498	165
30 - 34	443	90
35 - 39	370	50
40 - 44	215	20

desired number, they began to limit severely, so there is virtually nothing in the higher age groups.

The chart below\* shows the same phenomenon, in more elaborate form, based on the work of Ansley Coale, one of the leading demographers in the United States. The top lines show three natural fertility societies, the Hutterites, Crulai (a French village) in the 17th century, and Taiwan around 1900. They all have convex curves, with fertility remaining fairly high until the late 30s, when it drops for biological reasons rather than any conscious effort at control. The opposite, or concave, type of curve is given by the fertility pattern of the United States, Sweden, and Bulgaria in the 1960s, all countries in which birth control was widespread. Coale has used these curves to construct what he calls an index of family limitation. He has taken several typical natural fertility societies and combined their curves to use as a base. Then comparing the shape of the

\*Ibid. p. 14.



age-specific fertility curve for other societies with this natural fertility composite, he gets an index of family limitation. If the society's age-specific curve conforms closely to that of the natural fertility societies, his index shows zero family limitation. As you move to a more sophisticated society in terms of reproductive patterns, the index of family limitation goes up.

Parenthetically, I think Malthus's ideas are a perfect representation of those of a natural fertility society. Malthus wrote his famous book in 1798, at a time when natural fertility ideas were prevalent. In that book he said that "the checks to population which have been observed to prevail in the same and different countries seem to be resolvable into three elements. One is moral restraint. The second is vice. And the third is misery."

Moral restraint means postponing marriage. If you wait until you are fairly well along to get married, you won't have so many children. Misery is the famous positive check to population growth, chiefly through the limitation of the food supply, or the inability of the food supply to grow as fast as the population. That, of course, leads to starvation, which provides a check to population. Malthus does not go on to describe vice; he probably thinks that if his readers don't know about it already he's not going to tell them. But there is plenty of evidence that what he is talking about is contraception. That is so horrible to Malthus that it is perhaps worse than misery. It is too bad if we produce so many people that we fall into starvation and other types of disaster, but that may be better than to be guilty of immoral conduct.

Now come back to my main thesis: the relation of development to the decline of fertility in Europe. I suppose, even if you accept the idea that natural fertility prevailed before the transition of the 19th century, you could still argue that development caused the decline. The argument would run like this: It's true that people in a state of natural fertility don't make any attempt to limit the number of children, but that is because they want as many as they can possibly have. Why? Because children are economically valuable. If this argument is valid, perhaps it can still be said that development brought about the decline of fertility in Europe.

Now that argument has a fatal flaw. We are indebted again to recent historical demographic research for making clear what the flaw is. If development is the cause of fertility decline, then you will find in the various countries in which fertility has dropped that development preceded the decline. Until quite recently, what

scholars did was to look around the world today and, seeing that in the developed countries fertility is low, concluded development must have been what brought it down. That, however, is not really the relevant point. The question is: What was the state of development in a particular country at the time the fertility decline began?

In the table at right, I have picked out a few countries to illustrate the point. First, we have the date at which marital fertility began to decline. (Incidentally, the research of the Ansley Coale group at Princeton has brought out the interesting point that once fertility started to decline it never reversed its trend. That suggests it was a pretty fundamental phenomenon.)

Then we see the relation between fertility decline and two indicators of development: infant mortality and the percent of the male labor force in agriculture. It is clear that in this group of countries a wide range of conditions existed at the time the fertility decline began. Comparison of the figures for Hungary and those for England and Wales (combined) is especially striking. These two countries represented pretty much the opposite extremes of economic development in Europe in the 19th century. Hungary — with 73 percent of its labor force in agriculture, poor, with a high infant mortality rate — was a country which in every way defies the specifications of the development school. England was at the opposite end of the spectrum. England, in fact, was the prototype of an economically developed country. Nevertheless, the two experienced a decline in the marital fertility rate at almost the same time.

Now look at the first country on the list — France. Though we tend to take England as a model, actually France is just as important and was a lot bigger in the late 18th century and early 19th century. The table shows that the English pattern, the pattern of a strong relation between development and fertility decline, was not true of France. In France the decline began nearly a century earlier, and at a time when the labor force was predominantly in agriculture, infant mortality was still quite high, and the standard of living was modest compared to late 19th century England. This again illustrates the lack of correlation between the decline in fertility and the state of economic and social development.

What lessons can we draw from this for the world today? It doesn't prove, of course, that family planning programs are going to be successful. On the other hand, it does show, quite convincingly I think, that economic and

STARTING DATE OF FERTILITY TRANSITION AND INDICATORS  
OF CONCURRENT DEMOGRAPHIC AND SOCIOECONOMIC CONDITIONS

	DATE OF DECLINE IN MARITAL FERTILITY BY 10 PERCENT	INFANT DEATHS PER 1,000 LIVE BIRTHS	PERCENT OF MALE LABOR FORCE IN AGRICULTURE
<u>EUROPEAN COUNTRIES</u>			
FRANCE	ca. 1800	185	70
BELGIUM	1882	161	30
SWITZERLAND	1885	165	33
GERMANY	1890	221	38
HUNGARY	ca. 1890	250	73
ENGLAND AND WALES	1892	149	15

social development is not a prerequisite for a decline in fertility. And that is an encouraging conclusion. At Bucharest the family planners took a beating. The argument of the development people at that time had not been challenged, the concept of natural fertility had not become widely known. The facts about the lack of correlation between development and fertility decline had not been pointed out. As a result, the family planners went away from Bucharest discouraged. They continued, fortunately, to go on with their work, and, in fact, their programs spread in spite of their discouragement. But it was a heavy burden. I knew some of them at that time, and I knew that they were fighting against the feeling that what they were doing was bound to fail. This recent research on demographic history has at least removed the burden of defeatism. It hasn't given us any proof that family planning programs will succeed, but it at least opens up the possibility that they will.

If development was not the cause of the fertility decline, what was the cause? The answer is pretty elusive. It has been suggested that some kind of cultural diffusion process was at work. But we don't know much about how the change in fertility spreads from one area to another or what gets it started in the first place. All we can say is that attitudes can change in a way which is favorable to a decline in birth rates without economic development.

Let's turn now to the less developed countries in the world today. We feel less pessimistic about the success of family planning and related programs than we did 10 years ago. But have we any actual experience yet as to the success of these programs? The time, of course, has been short. A real effort didn't begin until the early 1960s and in most of the less developed coun-

## CHIANG MAI (NORTHERN THAILAND)

POPULATION 1.03 MILLION  
 RURAL 92% ENGAGED IN AGRICULTURE 77%  
 PER CAPITA INCOME \$85

YEAR	TOTAL MARITAL FERTILITY
1968	4.42
69	4.00
70	3.37
71	3.03
72	2.76
73	2.93
74	2.65
75	2.49
76	2.29

tries until the 1970s. There have been some encouraging developments. Many of you have heard, I'm sure, of the success stories that have been reported from Taiwan, Hong Kong, Singapore, and South Korea. In all of them birth rates have dropped to something like the Western level in the last 20 years. These are not pure cases, however, in terms of the argument we have been considering. Economic development has been rapid in all four of these areas. They have also had vigorous family planning programs. So we don't come out with a clear-cut answer on either side of the family-planning-versus-development argument. It is easy to conclude that both are important. As far as it goes, that is fine. If you can have both development and strong family planning programs, your chance of solving the population problem is greatly improved. But there are big areas of the world — southern Asia, the Middle East, Africa — in which the outlook for development is not very promising. Can development be by-passed? Are there policies — family planning or something else — that can speed up the process?

I am going to cite two encouraging examples — one very small and the other extremely big. The very small one is a province in northern Thailand called Chiang Mai. Its population is approximately a million, of which 92 percent is rural — 77 percent are engaged in agriculture. The per capita income is \$85 in U.S. terms. It is

a perfect example of a rural, poor, backward country. But in the table at left you can see that beginning in the late 1960s the marital fertility rate dropped very rapidly from a 4.4 level to a 2.3 level in the middle 1970s, which is virtually the same as the rate in Europe and the United States.

We don't really know why. They had a strong and effective family planning program, and it is tempting to say that was the cause. Demographers who have studied Chiang Mai, however, think it was a contributing rather than the sole cause because when the program began back in the early 1960s, the decline was already under way. Something had begun to change in the attitude of the people that led them to start taking measures to limit childbearing. When the family planning program came along in the late 1960s, they embraced it with enthusiasm. This remarkably rapid drop — a drop which took 40 years in the United States in the 19th century — was all done in Chiang Mai in less than one decade.

The other great example, of course, is mainland China. With a low economic level and a high rate of population growth, mainland China decided about a decade ago to do something about the problem. If they had followed the advice of the pundits at Bucharest, they would not have made that decision. They would have decided to leave the whole thing alone until they had succeeded in building up their economy. But the Chinese felt one of the great obstacles to building their economy was their excessive population size and their continuing population growth. So they did set out to do something about it.

There are many problems connected with the Chinese program, particularly now that they have set a goal that is so extraordinarily ambitious — the one-child family. But without trying to judge yet to what extent they will actually succeed in reaching this drastic goal, we can say that in the decade of the 1970s their program had considerable success. The birth rate at the beginning of that decade was about 35 per thousand, which is comparable to the European birth rates before the transition. By 1979, according to the official Chinese figures, it had dropped to 18. That is almost a 50 percent drop, and it was accomplished by a very vigorous program, a great deal of peer pressure. In fact, the Chinese threw in everything they could think of to contribute to the success of the program. The results are encouraging as to the possibilities for vigorous family planning programs in other parts of the world. □