

Letters to the Editor

EDITOR:

Readers of *The Social Contract* who are also members of the Sierra Club will want to know of an opportunity to cast a vote for population sanity. The group Sierrans for U.S. Population Stabilization (SUSPS) has used the democratic process the Sierra Club provides to place a proposition before the membership as a whole — it requires that the organization include in its extensive Sprawl Campaign materials a reasonable discussion of population growth as it contributes to unending sprawl.

SUSPS is a group of thousands of Sierra Club members who think the Club is not paying enough attention to domestic overpopulation. Many of us have been disturbed by the Club's yearly sprawl reports — expensively packaged publications of several dozen pages each which hardly mention population growth. Also distressing is the degree to which the Sierra management has endorsed the trendy ideology of “smart growth” — which is also favored by developers. Improved regional planning and transportation will be woefully inadequate in preserving our environment and quality of life against the onslaught of a population doubling within the lifetimes of children born today.

Watch your mailbox for the Sierra Club mail-in ballot. Then vote YES on the sprawl ballot question and send it back immediately so you won't forget. A very small percentage of Sierra members actually vote, so your participation is very important!

For more information, please see our website www.susps.org and Roy Beck's excellent new sprawl website www.SprawlCity.org.

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Sierrans for U.S. Population Stabilization

EDITOR:

Let me make some small observations about Leon Bouvier's review of the recent UN study, “Replacement Migration: Is it a Solution to Declining and Ageing Populations?”¹

The two figures in the review contain consistent errors. Figure 1 shows a quantity growing at 1% per year which then doubles in size every 70 years. The graph shows the size to be zero at time $t = 0$, and to be 2 at

time $t = 70$ years. Two is not twice zero. The line in Fig. 1 should have the value 1, not zero, at $t = 0$. Figure 2 shows a quantity declining 1% per year, so consequently it decreases to half its size every 70 years. At $t = 210$ years, the quantity has the size 12.5, and one half-life later at $t = 280$ years the quantity is shown to have the size zero. Zero is not half of 12.5. The declining quantity should have the value of 6.25, not zero, at time $t = 280$ years.

We can summarize this by saying that a growing exponential curve can never start at zero, and a declining exponential curve can never reach zero.²

We must note that population curves can be approximately exponential only when the population sizes are large, so that we don't have to deal with difficult situations involving fractions of one person.

Bouvier asks, “In a region with a constant above-replacement fertility, what level of emigration would be necessary to attain a stationary level?” Perhaps I'm missing something, but it seems that the Law of Conservation of People says that the number of emigrants per year should equal the number of births per year, plus the number of immigrants per year, minus the number of deaths per year.

The answer to a somewhat similar question has been given.³ The similar question is, “What combinations of fertility and immigration would it take to produce zero population growth instantly in the U.S.?” One of the combinations that would yield this result instantly is a fertility of one child per family and zero net immigration. Then, over a period of 70 years, if zero net immigration is maintained, the fertility rate could gradually increase to 2.1 while the population remained stationary throughout.

Bouvier writes of population momentum, explaining that “Even if fertility falls considerably, growth continues for another 50-70 years because there are so many young individuals in their reproductive years.” The origin of this 50-70 years was unclear until we constructed a simple computer model of a growing population that was used to answer the question about zero population growth for the U.S.³ The computer modeled an isolated population that is growing at a rate $R(1)$ because the fertility rate $F(1)$ is above the replacement level. This isolated population would grow at a rate $R(2)$ if the

fertility rate is $F(2)$. When the population is growing at the rate $R(1)$, one suddenly changes the fertility from $F(1)$ to $F(2)$. The growth rate does not then suddenly change from $R(1)$ to $R(2)$. The growth rate changes gradually from $R(1)$ to $R(2)$. *The change to the new growth rate $R(2)$ is not complete until every person (in the isolated population) has died who was living at the time the change in fertility was made.* This is the origin of the 50-70 year span for the transition to take place from the old rate to the new rate.

This leads to the frightening observation that, in the absence of migration, the course of population growth some 70 years hence is determined by today's population policies.

The quantitative relationships between fertility rates and population growth rates has been explored in another paper.⁴

REFERENCES

¹ Leon Bouvier, "Replacement Migration?!" *The Social Contract*, Vol. XI, No. 1, Fall 2000, pp.80-84.

² A. A. Bartlett, "The Arithmetic of Growth, Methods of Calculation," *Population & Environment*, Vol.14, March 1993, pp.459-387.

³ A. A. Bartlett, E.P Lytwak, "Zero Population Growth in the United States," *Population & Environment*, Vol.16, May 1995, pp.415-428. [See also the response and the rejoinder: G.C. Daily, A.H. Ehrlich, P.R. Ehrlich, "A Response to Bartlett and Lytwak (1995)" *Population & Environment*, Vol.16, July 1995, pp.521-526; E.P. Lytwak, A.A. Bartlett, "Rejoinder to Daily, Ehrlich, and Ehrlich: Immigration and Population Policy in the United States," *Population & Environment*, Vol. 16, July 1995, pp.527-537.]

⁴ A.A. Bartlett, "Arithmetic of Growth: Methods of Calculation, II," *Population & Environment*, Vol. 20, January 1999, pp.215-246.

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EDITOR:

Having read the learned exchange between professors Parsons and Attarian in the Letters section of the last issue (Fall 2000) I'm almost embarrassed to bring up something as pedestrian as the gender of nouns in the Spanish language. Nevertheless, I will.

The title of Dr. Nelson's article, "El Republica del Norte," [in that same issue, p.42] almost frightened me. Is there something very basic about Spanish that I didn't learn when I graduated from college in Mexico many years ago? At that time "republica" was feminine and carried the feminine definite article, "la." As far as I know, la Academia Real Español (the Royal Spanish Academy) has not changed that. (Although it did eliminate the separate letters "ch" and "ll" a few years ago.)

...Before I run the risk of appearing pedantic, let me stop and simply say that I have been a loyal subscriber since the first issue and commend you for all your excellent work. Unfortunately, you are a voice crying in the wilderness and no one seems to be listening. But anyway, carry on.

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