

RESYMBOLIZING LIFE: RELIGION ON POPULATION AND ENVIRONMENT

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ABSTRACT

The environmental crisis has transformed the debate over the appropriate size of the human population, presenting humans with a choice of reducing population, redistributing resource use, and restraining consumption or inflicting severe, perhaps fatal, damage to the earth's capacity to sustain life. Having surveyed gross evidence supporting this choice, this article argues that Christianity must reinterpret its tradition, resymbolizing respect for life from an exclusive focus on birth and fertility toward the sustaining of life and life's habitat, earth.

I. Introduction

Forty years ago the population of the earth was half what it is today. As recently as two centuries ago the human population of the earth was only a tiny fraction of what it is now.¹ During prior millennia it had fluctuated wildly, struggling sometimes in vain to maintain or increase its numbers against obstacles such as disease, famine, animal migrations, climate change and natural disasters. For most human communities of the past, birth—of animals as well as people—served well to symbolize life. Each birth was a momentary victory for life. Today Christians, sometimes unconsciously, draw on this past in their symbolism. Think of romantic treatments of the Nativity, or how we surround the Paschal cross in the northern and western hemispheres with newborn chicks and bunnies or exchange decorated eggs (many thousands of years old symbols of fertility²) among the spring lily blossoms—themselves a sign of nature's reawakened fertility.

On October 11, 1999 the world celebrated the birth of its six bil-

¹United Nations, *World Population Prospects: The 1994 Revision* (New York: United Nations, 1994).

²See archeologist Mariya Gimbutas, *The Language of the Goddess* (San Francisco: HarperCollins, 1989), 213-21.

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lionth living human being.³ The birth of this child marked a milestone in the explosion of human life that now threatens not only humans themselves, their lives and societies, but the entire living earth, our biosphere. Birth and fertility as Christian symbols for life, its sanctity and dignity, have never been more inadequate than they are in facing a crisis of the proportions of today's population/consumption/environment threat. Christianity inherited some birth and fertility symbols from the Jews and later adopted birth and fertility symbols from the largely agricultural peoples of the Roman world whom they evangelized, associating these symbols with the life messages in the gospel. But throughout Christian history until this century birth and fertility carried other, more negative, meanings for Christians as well. Lived experience of fertility and birth frequently entailed watching twenty percent of children die before their first birthday, and up to forty percent before adulthood; in addition, three to five percent of women routinely died in childbirth, with many times this number permanently impaired in the kidneys, liver, heart, bladder and other organs by the rigors of pregnancy and childbirth.⁴ These negative associations, and many other moral/spiritual ones based in Christian theology, competed with and balanced the use of birth and fertility as symbols of life and the goodness of God's creation.

Theologically in Christianity birth and fertility were often understood as the wages of sexual sin. One reason this theological interpretation was so long lived in Christianity was that the lived experience of most Christians was that human fertility often outstripped family resources; more births were often unendurable burdens for the poor.⁵ Another cause for negative attitudes towards births was that freedom in

³"The Six Billion Mark," *New York Times*, 13 October 1999, A24:1. The population predictions quoted in this editorial are not documented, and include only the low, not the medium or high, U.N. estimates.

⁴S. Ryan Johansson, "The Moral Imperatives of Christian Marriage," in John S. Coleman, ed., *One Hundred Years of Catholic Social Teaching* (Maryknoll, NY: Orbis, 1991), 139, 149.

⁵In *The Structures of Everyday Life*, the first volume of his three volume *Civilization and Capitalism*, Fernand Braudel writes about famines in the fifteenth-eighteenth centuries. He cites ten general—not local—famines in the agriculturally rich nation of France in the tenth century, twenty-six in the eleventh, two in the twelfth, four in the fourteenth, seven in the fifteenth, thirteen in the sixteenth, eleven in the seventeenth and sixteen in the eighteenth centuries. Florence, he says, had 111 years of famine between 1371 and 1791. In the midst of famines, towns, afraid of food riots, lured the hungry poor to the gates with promises of bread and then expelled them, barring the gates against them. Death rates due to famines were high; between a quarter and a half of the Finnish population died in the famine of 1696-97. In 1662 the Electors of Burgundy sent a letter to the king charging that the famine had killed ten thousand families there and forced a third of the inhabitants to live on grass. Another chronicler of that same famine reported incidents of cannibalism. See Fernand Braudel, *The Structures of Everyday Life*. trans. Sian Reynolds (New York: Harper and Row, 1981), 71-78.

Christ came to be understood within the Roman family system as freedom from the role expectations of marriages arranged for social, economic and political reasons; over time vowed virginity won over householder status as the highest form of Christian vocation.⁶

The fact that these negative associations of birth and fertility, in both theology and social experience, have largely disappeared in the centers of historic Christendom makes it difficult for many Christians to resist the remaining positive, even romantic treatments of birth and fertility in Christian tradition which have now been exaggerated by late modern secular trends.

The expected size and consumption of the human population over the next century and a half, based on present fertility and consumption rates and predictions, will have a devastating environmental impact. In response to these predictions, U.S. Christians must not only take necessary economic, political or scientific actions, but should also begin a massive task of resymbolizing the Christian message so that it does not support the devastation of creation. Specifically, Christians must recast the symbol for dedication to the sanctity of life from a focus on birth and fertility—the initiation of life—to a focus on the sustainable maintenance of interactive communities of life. Birth is a necessary part of sustainable life on earth—but only a part.

II. Population: Where We Are

All numbers representing world reality—or even national reality—are estimates based on a sample or groups of samples, whether we are talking of population size, GNP, habitat destruction, acres under production or total fertility per woman.⁷ There is general agreement that specific calculations of both population and environmental sustainability can only be reliably known on a locality by locality basis, for local geography and human social factors both play huge roles in environmental impact. For example, if global warming continues, coastal

⁶Peter Brown, *The Body and Society: Men, Women and Sexual Renunciation in Early Christianity* (New York: Columbia University Press, 1988).

⁷The population numbers I will use come from the Population Reference Bureau's 2000 World Population Data Sheet, available at The Population Reference Bureau Homepage, <http://www.prb.org/pubs/wpds2000>. I use them for two reasons; they offer the most complete set of population information for every nation of the world, and their figures for total fertility rates and rate of population growth are the lowest, and therefore the most optimistic, I could find. I do not want to aid those who would dismiss this argument by claiming that I have used alarmist statistics. In fact I think some of PRB's total fertility rates are impossibly low. The PRB figure of total fertility rate for the U.S., for example, is 2.0 children per woman, while the Census Bureau shows a U.S. population increase of 2 million a year, with 1,450,000 from natural increase and 550,000 from immigration, legal and illegal. With the population bump of baby boomers largely past reproduction, we should not have any population growth with a 2.0 rate; 2.1 is usually used as the replacement rate at which point there is no growth.

populations and environments around the world will be affected by rising oceans, but how many people and square miles are affected will depend on how steeply coastal areas ascend in elevation from the coast, the population density near the coast, and the level of wealth and technology the local population has to devote to the problem. In the face of rising oceans the Netherlands is likely to expand its technologically advanced system of dikes and drainage and Bangladesh is not, though both of them are densely populated nations with extensive coastal floodplains.⁸ For these reasons we do not know the human carrying capacity of the earth. It has been estimated to range from three billion to over thirty billion humans. Mean, median and modal figures from samples of the estimates fall between seven and twelve billion. Obviously the carrying capacity of the earth depends on a variety of variables, such as the consumption levels of specific populations and the extent of previous damage to air, soil and animal habitats. The measures we do have point to decreasing carrying capacity.

The world's population remained between one and two billion for two hundred years between 1750 and 1950.⁹ In 1960 there were three billion humans living on earth. Now, only forty years later, we have six billion humans on earth, and despite drastic reductions in the fertility rate, the present doubling time of the earth's population is only fifty-one years—thirty years in the developing world. For some twenty-three nations of Sub-Saharan Africa, three of Central America, and a handful in Asia and the Middle East, the doubling time is less: twenty to twenty-five years.¹⁰

This explosion in population has taken place at the same time that total fertility rates were dropping over most of the globe. The world's total fertility has dropped from over 6 children per woman in 1950 to 2.9 children per woman today.¹¹ This is not simply the result of changes in the developed world, or even the developed world and China. South America has decreased its fertility rate from over 6 children per woman to 2.7 children per woman (3.1 in Central America) in the last fifty years; India has decreased to 3.3 children per woman, East Asia to 1.8.¹² Demographic transition is the process that begins when the death rate begins to drop and ends when the birth rate drops to the

⁸Alex De Sherbinin, *Population and Consumption Issues for Environmentalists* (New York: Population Reference Bureau/Pew Global Stewardship Initiative, October 1993), 9.

⁹The Population Reference Bureau Homepage (PRB), 1 March 2001 <http://www.prb.org/pubs/wpds2000>; United Nations, *World Population Prospects: The 1994 Revision* (New York: United Nations, 1994).

¹⁰*Ibid.*

¹¹*Ibid.*

¹²*Ibid.*

same lowered level of the death rate. During demographic transition, populations explode. Demographic transition began in the developed nations over two centuries ago. It took over two centuries for the total fertility rate in the developed world to drop from between six and seven children per woman—over ten in colonial North America—to the 2.8 children per woman level of 1960.

Developing nations today are roundly criticized in the developed world for not completing the demographic transition in the last forty to fifty years since their populations began to grow rapidly in response to falling death rates. This criticism is historically uninformed as well as arrogant. Today's developed nations not only had 200 more years to deal with their demographic transition, but during that 200 years they were able to dispose of surplus population in ways that are not open to developing nations today. Spain was spared much of the pain of demographic transition by exporting surplus population to its colonial empire for over three centuries. England, France and the Netherlands exported massive portions of their surplus population to their colonies for one to three centuries. Demographic transition, and not only movements of capital and raw materials, underlay most colonial empires. Immigration to the Americas of Italian, Greek and eastern Europeans in the late nineteenth and early twentieth century was similarly pushed by rising population rates at home and the political pressures they exacerbated.

Sub-Saharan Africa, on the other hand, has had a demographic double whammy. From the fifteenth through the twentieth centuries¹³ the slave trade systematically depopulated Africa, mostly of young adults in their most productive years.¹⁴ Traditional cultural support for high fertility was intensified by a rebound effect in response to systematic depopulation. With the end to the slave trade and the advent of epidemic control in the twentieth century, the gap between high birth and dropping death rates soared. The continuing and related absence of industrialization in much of Africa has further delayed a drop in fertility.

It is wrong to place blame for the global population crisis on the peoples of the developing world, many of whom are still dealing with the results of colonialism. These developing nations have already managed to drop fertility rates much more rapidly than the developed nations did, under much more difficult conditions. Bangladesh, for example, cannot export its millions of excess people who live in the streets or on floodplains— from which they are swept away to die by

¹³In the Ottoman Empire, slavery was not ended until the twentieth century.

¹⁴Herbert S. Klein, *The Atlantic Slave Trade* (London: Cambridge University Press, 1999).

the thousands every few years— as Britain exported its poor and its younger sons, even its criminal population, to the Caribbean, North America, Australia, Kenya, India, South Africa, New Zealand and Hong Kong.

Of the six billion humans on earth today thirty-one percent (in eastern, western and middle Africa, for example, forty-five to forty-six percent) are fifteen or fewer years old.¹⁵ So many of the six billion, especially in developing nations, have not yet reproduced, that according to U.N. projections even if prevailing rates of fertility decline continue until the average woman has only 2.1 children, world population in 2050 would still be between 9.8 and 11.9 billion.¹⁶ If fertility rates fail to reach 2.1, but stabilize between 2.5 and 3, we will have a world population of twenty-seven to twenty-eight billion by 2150. The difference between a population of ten to twelve billion and one of twenty-seven to twenty-eight billion in 2150 is, remarkably enough, less than one child per average woman.

Should we not assume that fertility rates will continue to decline at prevailing rates? In February 2001 the U.N. raised its 1998 projection of world population for 2050. In 1998 the medium projection was 8.9 billion persons; in 2001, based on three more years of birth and death data, the medium projection rose to 9.4 billion (with low projection of 7.9 and a high projection of 10.9).¹⁷ These new projections are increased despite the tremendous toll that HIV/AIDS is taking on birth as well as death rates in many parts of the world. In Africa, for example, where virtually none of the HIV infected have access to the drugs which have cut the death rate and made births from infected mothers much safer, life expectancies have dropped significantly: in Kenya from 66 to 49, in South Africa from 66 to 47, in Namibia from 65 to 44, in Zimbabwe from 69 to 43, and in Botswana from 70 to 36.¹⁸ Virtually all these deaths occur not in the elderly, but in young adults and children. Some parts of the world have demonstrated relatively little drop in fertility; for example, sub-Saharan Africa had a fertility rate of 6.7 in 1960, 6.7 in 1980, and, unfortunately assisted by calamitous levels of AIDS deaths among young adults, 4.9 in 1993. Many experts believe that significant fertility declines in Africa, if they continue in the short term, will be AIDS dependent, and may even provoke a fertility rebound. In many parts of the world where fertility rates are still high

¹⁵United Nations, *Report of the International Conference on Population and Development* (New York: United Nations, 1995), #6.6.

¹⁶United Nations, *Report of the ICPD*, 1.4.

¹⁷Carl Haub, "U.N. Raises World Population Projections," PRB Homepage, 18 March 2001.

¹⁸Haub, "U.N. Raises," PRB Homepage, 18 March 2001.

there is some unfilled demand for contraception, but much of the forty to seventy-five percent of the reproductive age population which does not use contraception is not interested in using contraception. The objective with this part of the population is not filling demand, but *creating* demand for contraception.

It is simply wrong to assume that the provision of contraception alone will solve high fertility. Countless doctors and clinic administrators from throughout the developing world made this point at the Cairo conference. One after another said, "Our clinics and hospitals have closet after closet filled by the rich countries with injectables and implantables, condoms, IUDs and oral contraceptives. But we have no aspirin, no antibiotics, few immunizations or rehydration salts, no drugs for TB, much less expensive drugs for hypertension, diabetes, or HIV. We are supposed to sit by while mothers watch their babies die of diarrhea, respiratory infections, measles and mumps and then persuade them to be sterilized or accept five year implantable contraceptives?"¹⁹

Research in region after region preceding the 1994 U.N. Conference on Population and Development in Cairo found that there are, in effect, two ways to raise contraceptive demand. One we have long known: eliminate poverty. As families and societies have lower and lower rates of poverty, they have fewer children due to factors linked to urbanization and education. But what became clear in this new research was that even if prevailing levels of poverty remain, contraceptive demand can be created by eliminating some of the most oppressive social aspects of poverty.²⁰ That is, reducing the rates of infant and child mortality (reductions caused by cleaner drinking water, sanitary sewers, better nutrition and childhood inoculations),²¹ increased years of education for girls,²² and the provision of small scale business credit to the poor, especially women²³—these are the factors that create contraceptive demand.²⁴ These factors in the absence of other negative economic

¹⁹This was repeated again by Adrienne Germain and Rachel Kyte, *The Cairo Consensus: The Right Agenda for the Right Time* (New York: International Women's Health Coalition, 1995), 6.

²⁰"New Perspectives on Population: Lessons from Cairo," *Population Bulletin* 50/1 (March 2, 1995):23.

²¹"New Perspectives on Population," 28-29.

²²Fertility has been found to be highest among those women who have had less than four years of schooling. See Franz Böckle, Hans-Rimbert Hemmer and Herbert Kotter, *Poverty and Demographic Trends in the Third World* (Bonn: German Bishop's Conference, 1991), 16.

²³Noeleen Heyzer, "Strengthening Women's Livelihoods," *Earth Ethics* (Spring/Summer 1996) : 29-30. Heyzer points out that women are not only especially disadvantaged economically around the globe, but their employment and their health are both more dependent upon the health of the local environment than those of men.

²⁴United Nations, *Report of the ICPD*, 6.4; "New Perspectives on Population," 18-19.

trends usually increase family economic well-being. But even if the overall economic situation does not improve, making these changes induces couples to want fewer children.

So, both eliminating poverty and ameliorating these specific effects of poverty increase contraceptive demand. But to what extent are attempts being made to eliminate or ameliorate poverty? When the Cairo—Plus-Five Conference was held spring 1999, it became clear that more than half the funds pledged at Cairo to combat these specific effects of poverty—especially the bulk of the funds pledged by the U.S. and Japan—had not been contributed.²⁵ Most poor nations have reduced their social expenditures in the last two decades under the pressure of external debt payments; all prospects for significant increases in social expenditures depend on large-scale debt forgiveness.²⁶ The net result: more people live in dire poverty than ever before in the history of the world—significantly more than a decade ago. In many countries not only the numbers but the *proportion* of those who live in abject poverty has increased in the last generation. So there is some reason for pessimism about past rates of fertility decline continuing in the immediate future.

Many Americans conclude that though this is a sad picture, it is, after all, a picture of other places; overpopulation is not a problem here. But the U.S. does not have the low level of fertility of most developed nations. How many Americans do you know who have recently had, or who plan to have more than two children? My Religious Studies faculty over the last five years has had a fertility rate of 2.3 children per couple. My eight siblings and I have a fertility rate of 2.55,²⁷ which while a considerable drop from my parents' rate of nine, is still high. None of my colleagues or siblings are poor by global standards. Creating contraceptive demand among the comfortable requires more than educating them to the global population situation. Because they have been taught to understand parental responsibility in terms of providing resources for children, people who are comfortably well-off tend to feel that so long as they can feed and clothe and educate their children, they can have as many as they like; it is the poor who should forgo children. As a society we have not been encouraged to consider that we all draw on common resources, that we do not have a right to "buy" disproportionate shares of the world's clean air and water and productive soil.

²⁵Paul Lewis, "Rift in Effort to Curb Births With Rights for Women," *The New York Times*, 11 April 1999, p.1.

²⁶C. Garg Ramesh, "The Case for Debt-forgiveness of Latin American and Caribbean Countries," *Intereconomics: Month Review of Economic Policy* 28/1 (January 1993): 30-34; "World Debt Relief," *Time* 24 July 2000, p. 40.

²⁷This includes only biological children, and neither the dozen adopted children nor the six stepchildren.

Many nations, even semi-developed, far outstrip the U.S. in lowered fertility. Europe as a whole has a total fertility rate of 1.4, Canada 1.5. Within Europe, Bulgaria and the Czech Republic have a fertility rate of 1.1 child per woman; Italy, Russia, Slovenia and Spain are at 1.2 and Rumania, Greece, and Germany are at 1.3. Japan is at 1.3, Australia at 1.7, and China at 1.8. At the high end of the fertility scale in Europe are Iceland at 2.0, Ireland at 1.9 but dropping more quickly than any European nation, and France and Norway at 1.8.²⁸ In the U.S., by comparison, our population, with a total fertility rate of 2.1, increases by about two million a year, seven-tenths of that from natural increase. So what, you may ask, the U.S. can afford to feed two million more a year. But this is the crux of the argument: population prospects can no longer be evaluated in terms of food, as they were when the issue first got worldwide attention in the 1970s. Then, concerns about how we could continue to feed a growing human population were answered by arguments that we would increase yields through both increasing acreage under cultivation and increasing productivity through science and technology. Today we are clear that while we might be able to feed most of a population of 28 billion in the year 2150, to do so even for a century or two would entail such horrendous damage to the biosphere that the quantity and quality of life that could be sustained afterward would be drastically diminished for unknown centuries into the future.

III. Environmental Threats

Some extol the possibility of genetically modified crops to increase yields and thus increase the carrying capacity of the earth. But at the present time the dangers from genetically modified crops loom as large as the potential benefits. One dangerous aspect of genetically modified crops is that they decrease genetic diversity not only within a given crop region, but globally as well, since the company which, for example, produces corn resistant to both common predators and droughts will not develop a hundred different varieties of resistant corn, but only one. When all corn farmers in a region or nation plants the same seed corn, all of them are vulnerable to whatever blight or pest eventually proves successful.

Second, any gains of genetically modified crops are temporary. If scientists, for example, insert into corn seed a gene from a plant that poisons a species of insect which eats it, the corn can become poisonous to this species and kill the insect. But not every single member of the species which eats the corn will die. A few will eat less, a few will have more resistance to the poison—and these will recover, inoculated

²⁸The PRB Homepage, 1 March 2001.

against the poison. When they breed with others who have increased resistance, their offspring will have even more resistance, and, given the size of their food supply—thousands of square miles of corn— these resistant offspring will gradually replace those without resistance, thus rendering the genetically modified seed ineffective against this pest. We have seen with the use of pesticides that the reproductive cycles of insects is so short that this process of developing resistance need not take many years.²⁹

The very success of genetically modified crops can be a threat. This is especially the case with insects. A number of studies have now shown that genetically modified corn in the midwestern U.S. produces pollen that is poisonous not only to corn predators but to monarch butterflies who land on plants at the edges of the cornfields.³⁰ Genetically modified crops have the potential to depopulate species in the area, and even, combined with other stressors in a given area and time, eliminate whole species, thus disturbing the food chain. For all these reasons, any food gains from genetically modified food will risk other ecological hazards.

The more traditional way to expand food supplies has been to extend cultivation to lands previously untilled. Today since the most productive land globally is already under the plow, yields from new cultivation will not be as high. But at what cost would we extend cultivation? We are already in many parts of the world extending cultivation into semi-arid lands through irrigation, up onto mountainous slopes,³¹ and into cleared tropical rain forests. Most of this expanded tillage is ecologically devastating, whether done by agribusiness or poor peasants.³² Mountainside agriculture can be environmentally healthy if it is terraced or done on less steep slopes; most new mountainside tillage is by desperate peasants without the time or resources to terrace, and without access to readily tillable slopes. They create

²⁹A.M. Shelton, J.D. Tang, R.T. Roush, T.D. Metz, and E.D. Earle, "Field Tests on Managing Resistance to Bt-Engineered Plants," *Nature Biotechnology* 18/3 (March 2000): 339-442; H.S. Judelson and S. Roberts, "Multiple Loci Determining Insensitivity to Phenylamide Fungicides in *Phytophthora Infestans*," *Phytopathology* 89/9 (September 1999): 754-60; E. Rossi and G. Rainaldi, "Induction of Malathion Resistance in CCE/CCI28 Cell Line of Mediterranean Fruit Fly," *Cytotechnology* 34/1-2(October 2000): 11-15.

³⁰J.E. Losey, L.S. Raynor, and M.E. Carter, "Transgenic Pollen Harms Monarch Larvae," *Nature* 399/6733 (20 May 1999): 214; L.C. Hansen Jesse and J.J. Obrycki, "Field Deposition of Bt Transgenic Corn Pollen: Lethal Effects on the Monarch Butterfly," *Oecologia* 125/2 (23 October 2000): 241-48.

³¹E.g., see Don Hinricksen, "Moving Mountains in Nepal," *Amicus Journal* 15/4 (Winter 1994): 24-25.

³²De Sherbinin, *Population and Consumption*, 14-15, 18-20; Kevin M. Cleaver and Gotz A. Schreiber, *The Population, Environment and Agriculture Nexus in SubSaharan Africa* (Washington, DC: The World Bank, 1993).

massive erosion which also silts up streams, causing flooding. Clearing tropical rainforests whether for cattle agribusiness or peasant agriculture is eliminating plant and animal species at astounding rates, frequently alters rainfall patterns, creating arid desert, and promotes topsoil loss to winds, leaving formerly lush jungle barren.³³ Irrigation of semi-arid lands for agriculture has not only depleted local water tables in many areas, but much soil has become so salty as to be virtually useless. Yet these environmental costs of expanding food production to accommodate expanding human population are only the smallest part of the environmental costs we face.

There are costs—environmental costs—not only to feed each new human, but also to shelter, clothe, educate, and provide health care to each new human. This is why the difference between, for example, a total fertility rate of 5 in Africa and a 2.1 rate in the U.S. is of global interest. An American child has a much more negative impact on the global environment than does a child in any other nation. For example, the average American uses, every year, 24 times the energy of an African and produces 20 times the carbon dioxide emissions of that African, with even higher rates for water use and garbage production.³⁴ The environmental impact of Americans is even disproportionate to that of other developed societies: a European child uses .4 the energy, .44 the water, .55 the cropland, and produces .43 the carbon dioxide emissions of an American.³⁵ The U.S. is one of the only nations in the world that is negatively impacting the global environment both through population increase and through high consumption levels.

Population size and consumption level are both important, but so is the level of technology used, as the general formula for environmental impact makes clear:

$$\text{Environmental Impact} = \text{Population} \times \text{Consumption} \times \text{Technology}^{36}$$

High population with low levels of consumption and low levels of technology can be ecologically devastating as when poor people in search of fuel deforest land and open it to erosion. But moderate to low levels of population coupled with high consumption even with high levels of technology (lead-free fuel, scrubbers) can also be ecologically devastating, as fluorocarbon and carbon dioxide emissions from the U.S. illustrate.

³³James Lockman, O.F.M., "Reflections on the Exploitation of the Amazon in the Light of Liberation Theology," in Carol S. Robb and Carl J. Casebolt, eds. *Covenant for a New Creation* (Maryknoll, NY: Orbis, 1991), 173-75.

³⁴National Geographic Society, *Population and Resources Supplement* (Washington, D.C.: National Geographic Society, 1998).

³⁵*Ibid.*

³⁶Regarding limitations on the IPAT formula, see Carolyn E. Orians and Marina Skumanich. *The Population-Environment Connection* (Seattle: The Batelle Seattle Research Center, 1993), 22.

Ten to fifteen years ago, scientists were divided over global warming, with many insisting that the observed rise of .5-.78 degree Centigrade in earth temperature around the globe over the past few decades need not be human dependent but could be part of earth's natural thermal fluctuations. Today with a great deal more accumulated data, there is general agreement among scientists that human-generated air pollution, especially the 47,940,000,000 tons of carbon dioxide emitted into the atmosphere every year,³⁷ causes a substantial proportion of the global warming thus far observed.³⁸ Even more alarming is that carbon dioxide emissions are expected to continue to rise, even to double. Independent projections by the Intergovernmental Panel on Climate Change and the U.S. Environmental Protection Agency agree that global temperatures will rise by over four degrees Centigrade by 2100.³⁹ The warming impact of present and future increases in CO² production would be considerably worse if not for its absorption by oceans and vegetation; without such absorption, global warming would now be not .5-.78 degrees, but 1.3 degrees C. But we know little of the process by which the oceans absorb CO², and have no idea how long they can continue to do so, at what rates, or with what effect to their own health. As for vegetation, through deforestation, especially the

³⁷Other sources say over fifty billion tons, but this figure is an aggregate of continents' emissions rates times population from the *Population and Resources* figures from National Geographic.

³⁸The study of ancient ice cores of Antarctica illustrates the concentration of CO² in the atmosphere as well as the Global Mean Annual Temperature for each of the last 160,000 years. The finding was that fluctuations in one mirror fluctuations in the other. Levels of CO² and temperature have been increasing steadily since the end of the last ice age 10,000 years ago. But the present rates are much greater than ever before, and accelerating. Since 1850, the average concentration of CO² in the atmosphere has increased from 280 to 360 parts per billion. Thus the Intergovernmental Panel on Climate Change formed by the U.N. in 1987 had decided by 1995 that there is discernible human influence on global climate. Based on this, the nations of the world gathered in Japan in 1997 and negotiated the Kyoto Protocol, which would oblige every developed nation to reduce its CO² output to below 1990 levels by 2008-12 (the U.S. to 7% below, the E.U. to 8% below, and Japan to 6% below the 1990 levels.) Thus far, seventy three nations have signed, including the U.S. But to take effect, at least 55% of the nations (in present polluter percents) must ratify, and the only nations to ratify have been Fiji, Tuvalu, and Trinidad and Tobago. See The Woods Hole Research Center, "The Warming of the Earth," 1 March 2001 http://www.whrc.org/global_warming; also see De Sherbinin, *Population and Consumption*, 7 and Intergovernmental Panel on Climate Change, "Report to the Fifth Session of the Intergovernmental Negotiating Committee for a Framework on Climate Change," presented by IPCC, New York, 20 February 1992 (updated from 1990); Richard A. Kerr, "Greenhouse Science Survives Sceptics," *Science* 256 (May 1992): 1138-40. The March 2001 decision of the Bush administration to renege on his campaign promise to regulate CO² emissions makes Kyoto a dead letter.

³⁹John P. Bongaarts, "Population Growth and Global Warming," *Population Council Working Paper* 37 (1992).

clearing of tropical rainforest, the amount of global vegetation present to absorb CO² globally is constantly shrinking.

There is scientific agreement that the major hole in the ozone layer at the South Pole and the thinning of the ozone layer at the North Pole are the result of chlorofluorocarbon emissions.⁴⁰

World chlorofluorocarbon production is virtually nil since the 1987 Montreal Protocols were adopted, but leaks from car A/C and refrigeration are still significant. While we know more about the process of ozone depletion than about greenhouse effect, we know little of how or over how long a period ozone regeneration could repair the hole. Nor do we know the consequences of ozone depletion. Studies are ongoing to determine if marine animals, for example, plankton and krill, have any defenses against ultraviolet rays (like human melanin); if not, severe damage to the bottom of the marine food chain could deprive the one billion people (up from 6000 million in 1980)⁴¹ who now live in coastal urban agglomerations of staples in their diet, including their chief source of protein. This is not to mention the damage to ocean life itself.

Scientists now tell us that the expansion of human population has reduced the biological diversity of the planet to its lowest level since the end of the Mesozoic era sixty-five million years ago.⁴² According to Harvard biologist E.O. Wilson, the current rate of extinction is 10,000 times faster than what would be normal or natural without humans.⁴³ In the U.S., the states with the greatest percentage of population growth—Nevada, Arizona, Florida, California and Washington—are also the states with the highest rates of species extinction.⁴⁴ Paul Harrison created a chart based on figures from fifty countries, agricultural and industrial, developed and developing, whose wildlife habitats have been traced over the last 100-200 years. Animals are not, of course, the only part of natural environments which need to be protected, but in general, the larger the animal, the larger its habitat, and the more likely it is that protecting habitats of large, especially predator, animals also protects habitats of other species of animal and plant.

⁴⁰Union of Concerned Scientists, *Stratospheric Ozone Depletion* (Cambridge: Union of Concerned Scientists, 1991), 1.

⁴¹World Resources Institute, 1992, quoted by De Sherbinin, *Population and Consumption*, 4.

⁴²De Sherbinin, *Population and Consumption*, 12; John C. Ryan, *Life Support: Conserving Biological Diversity*, (Washington, D.C.: Worldwatch Institute, 1992).

⁴³E.O. Wilson in Stephen R. Kellert and E.O. Wilson, eds., *The Biophilia Hypothesis* (Washington, DC: Island Press, 1993), 36.

⁴⁴Reed Noss and Robert L. Peters, *Endangered Ecosystems: A Status Report on America's Vanishing Habitat and Wildlife* (Washington, DC: Defenders of Wildlife, 1995), 9, citing U.S. Bureau of the Census, *Statistical Abstract of the United States*, 1994 (Washington, DC: U.S. Government Printing Office, 1994).

According to Harrison's chart, at population densities of 294 per square kilometer, fifty-nine percent of animal habitat remains intact; at densities of 379, forty-five percent remains intact; at densities of 454, thirty-three percent remains intact; at densities of 1189 twenty-two percent remains; and at densities of 1888, only fifteen percent of animal habitat remains intact.⁴⁵

Bangladesh now has more than 772 people per square kilometer;⁴⁶ Puerto Rico has almost 700;⁴⁷ Germany has over 370.⁴⁸ According to Werner Fornos, president of the Population Institute, in testimony to the U.S. House Committee on Appropriations in 1994, barring a significant increase in the use of contraception around the world, "one third of the world's population will exceed densities of 400 per square kilometer by the middle of the twenty-first century. . . ."⁴⁹ At that point, a significant part of the world will have only a third of the wildlife habitats which were present one to two centuries ago.

Human density is problematic for the earth because humans produce and consume. The World Bank estimates that, with this increase in population density, world GDP could rise from twenty trillion dollars in 1990 to sixty-nine trillion dollars in 2030 in real terms. The ability of the planet to sustain this increase in production and consumption is questionable; certainly it would require a tremendously more efficient production system, other new technologies, more extensive recycling, as well as changes in what is produced. World energy consumption doubled from 1965 to 1988. Even if developed nations reduce energy consumption by 60% and developing nations reduce population growth rates by forty percent, by 2050 world energy consumption is estimated to increase by 133% of its present level with proportionate increases in greenhouse gases.⁵⁰

The post-consumption end of production is also environmentally dangerous. Landfills are a major source of groundwater contamination, and incineration results in air pollution and carcinogenic ash.⁵¹ Garbage tonnage increased in the U.S. from 82 to 178 million metric tons

⁴⁵Paul Harrison, *The Third Revolution: Environment, Population and a Sustainable World* (New York: I.B. Tauris, 1992).

⁴⁶Population Reference Bureau, at www.prb.org/pubs/wpds2001/sheets5.html.

⁴⁷Patricia Braus, "The Spending Power of Puerto Rico," *American Demographics* 13/4 (April 1991): 46-49.

⁴⁸*Department of Transportation and Related Agencies Approp. for 1994* (Part 8). Hearing. U.S. House Committee on Appropriations (Washington, DC: GPO, 1993) FactSearch/FirstSearch.

⁴⁹Werner Fornos, "Foreign Operations, Export Financing. . . Appropriations for 1994" (Part 3). Hearing. U.S. House. Committee on Appropriations (Washington, D.C.: GPO, 1993) FactSearch/FirstSearch.

⁵⁰Gretchen Kolsrud and Barbara Boyle Torrey, "The Importance of Population Growth in Future Commercial Energy Consumption," in J.C. White, ed., *Global Climate Change* (New York: Plenum Press, 1992).

⁵¹De Sherbinin, *Population and Consumption*, 18.

between 1960 and 1990. Japan has the most efficient and extensive garbage recycling system in the world, which includes low-polluting incineration, but is still running out of landfill, even of space for more trash islands in Tokyo Bay.⁵² Europe, Japan and the U.S. all export garbage to poor nations in much the same way that we have exported high-polluting industries.

The main sources of ocean damage are land-based coastal pollution from municipal sewage, industrial waste, agricultural chemical runoff, ocean dumping, discharge and spills of petroleum, and discarded plastics.⁵³ Seven of the world's nine major ocean fisheries are at present depleted; suspected causes include overfishing and ocean pollution. While world population doubled between 1954 and 1989 the world marine catch increased by 450% from 19.4 to 84.2 metric tons. The fact that virtually all the severely depleted species are those preferred for human consumption is not coincidental. Unfortunately, more than half the oceans' biological productivity lives within the 200 mile coastal shelf,⁵⁴ precisely the ocean areas most degraded by dumping, runoff and oil spills.

In addition to major systemic threats such as global warming, ozone depletion and loss of biodiversity, soil degradation and desertification are also long term trends in many regions. None of these trends exist in isolation; they impact each other. As the temperature of the oceans rises, for example, marine animals move, seeking familiar temperatures. In the last five years Florida manatees have appeared in Chesapeake Bay and South Atlantic schools of fish have moved toward Antarctica, in competition with species already there. Coastal water pollution and higher water temperatures combine to endanger additional species, aggravated by individual events. September 1999 flooding of huge hog and turkey farms, cities and towns in the Carolinas by Hurricane Floyd washed millions of gallons of animal waste, not to mention chemicals, into coastal waters, decreasing the oxygen levels of those waters, producing plant and animal kills.⁵⁵ Well water and the water table were affected by that waste until late spring 2000. South Florida runoff from October 1999 Hurricane Irene filled sewers and canals that were discharged into Florida Bay as a huge plume of brown sludge miles long, killing everything it touched.⁵⁶

⁵²"People Count" (video), Pew Global Stewardship Initiative/Koch TV, 1993.

⁵³Global Tomorrow Coalition, "Oceans and Coastal Resources," in *The Global Ecology Handbook* (Boston: Beacon, 1990), 135-44.

⁵⁴De Sherbinin, *Population and Consumption*, 22.

⁵⁵David Firestone, "Lingering Hazards Cover Carolina's Sea of Trouble," *New York Times*, 22 September 1999, p.A22; Cornelia Dean, "Hurricane Floyd: Growth and Govt Collude in Creating a Hazard," *New York Times*, 16 September 1999, p.A27.

⁵⁶National Public Radio, Morning Edition, 22 October 1999.

IV. What Can We Do?

Facing these interconnected threats to our biosphere there are a number of practical, political/economic imperatives that we in the “overdeveloped” world should immediately promote:

1. Further lower total fertility rates to the lower European levels (1.1–1.3).
2. Lower U.S. energy consumption rates by fifty to sixty percent within a generation.
3. Grant debt forgiveness to poor nations and offer transfers of clean technologies to poor nations in order to allow them to reduce child and infant mortality and female illiteracy.
4. Increase immigration rates from the most distressed areas of the world to the U.S. and to places with even lower fertility and less density.

Christians face a particular moral imperative to reform their religious tradition regarding its symbolic treatment of birth/fertility. We are at the inevitable point when the people of the earth must agree to lower the population level itself, and not merely its rate of growth. Such a population reduction will not be easy; it will create enormous social tensions. Among other changes, aunts, uncles and cousins will become rare. The burden of aged parents will become heavier because usually falling on a single child. Religious legitimation of this shift is essential. Among Christians it is the responsibility of churches to lead the way in legitimating this shift, and this requires transforming symbolic treatment of birth and fertility.

Some Christians will object that higher cuts in consumption can and should replace a call for reduced fertility. While cuts in consumption are critically necessary, they are not enough. Families know or easily learn how to have fewer children. That sixty-seven nations of the world have reached replacement rate or less is proof of this. But as families and individuals we only know how to cut consumption in minimal ways, because our consumption is tied to the structures of our society. Reducing consumption not only calls for individual commitment to water and energy conservation and recycling. It also and more importantly requires changes in public policy and in production processes. Changes in public policy include planning denser, more integrated areas of residence, work, shopping and greenspace, as well as mass transit systems. Changes in production should begin with including environmental costs in production costs and ending planned obsolescence so products are repaired, not replaced. But these changes take time. Meanwhile, reducing fertility to the 1.1–1.3 of most of Europe

would not only allow the U.S. to accept more immigrants, but would gain us time to work out social lifestyle, production and public policy transformations.

This is not to say that the churches should ignore the need for individuals to take responsibility for lowering consumption. Responsibility to God and to all of creation demands that the churches connect the cultivation of personal virtue with the choices we make about what model car to buy, how much we recycle, what we eat, how many gallons of water our toilets use, how we water our lawns and to what extent we express a political willingness to pay the full cost, including environmental costs, in the prices we pay for goods. In the light of the environmental situation, the commandments barring killing and coveting one's neighbor's goods can take on new meanings if we consider our neighbors to include other species and future generations.

If Christian churches take seriously their commitment to the sanctity of life, they should be facilitators in the shift to both lower consumption and lower fertility rates to preserve the biosphere. At the same time, many Christian churches, including both the World Council of Churches and the Catholic Church, which have been involved in the campaign for debt relief for poor nations, should continue that lobbying. Christian churches, however, will need to beware of at least three inherent temptations facing them in the general project of addressing population and consumption levels.

One temptation would be to use physical asceticism rather than justice and love of life as the justification for reducing consumption. Physical asceticism—denying the sense appetites of the human body—as an end in itself, is not Christian. Various forms of physical asceticism can be a valuable discipline for achieving some good ends, from feeding others to facilitating meditation. But physical asceticism does not facilitate all the good ends to be desired. If one is nursing a ward full of plague victims, fasting is not a helpful discipline, for it only makes one more susceptible to disease and deprives the sick of one's care. If one is the parent/childrearer of young children, a vow of silence on one's part is not in their interest, for an important part of one's role is teaching language and language customs.⁵⁷ Depriving the body and its senses has its uses, but they are limited.

Moreover, the majority of peoples on the earth need to consume more, not less—more food, more education, more health care, more technology—in order to satisfy human dignity and allow them to be productive, contributing members of the global community. It would

⁵⁷This does not mean that deaf or deafmute people cannot be good parents; virtually all have language and teach it to their children.

be wrong to push physical asceticism on this poor majority for any reason, and equally wrong to push bodily deprivation as a good in itself even on the privileged. Christians too easily forget that Jesus was criticized for his high consumption (Mk 2:15-20; Lk 5:29-38),⁵⁸ for his failure to adopt the asceticism of John the Baptizer. Jesus insisted instead that God's Kingdom was identified by abundance; he repeatedly taught and enacted as sign of the Kingdom the great banquet to which all were invited, and at which there was always enough if everyone shared (Lk 14: 1-24). Suffering and sacrifice were sometimes necessary in support of that shared abundance of the Kingdom, but asceticism was never advocated as a good in itself; quite the opposite.

Catholic social teaching, beginning with Paul VI's "Populorum Progressio" (1967) and continuing through John Paul II's "Sollicitudo Rei Socialis" (1987) have been most clear about the need for the poor majority to consume more, and the World Council of Churches has paralleled this teaching during the same period.⁵⁹

The second temptation for the churches is to ignore the social and political task and instead to interpret lowering consumption and fertility only in individual terms. But neither turning thermostats down nor simply urging couples to "responsible procreation" is enough. The task is inherently political, however much the churches prefer to individualize it. Societies not only influence the desires and expectations that couples have for both consumption and family size, but they also facilitate or obstruct the achievement of those expectations. If individualizing responsibility for reducing consumption and fertility prevents collective action, our children and grandchildren will find themselves faced not only with overt social coercion, but with draconian, and almost certainly class-biased, population control policies. It is naïve to pretend that women's bodies would not be the field for that coercion. Certainly extensive national efforts to lower fertility coercively in major parts of the world over the last forty years have been almost without exception limited to women, and for the most part to poor women.⁶⁰ The churches do not have an exemplary record in terms of defending the personhood of women, especially not their right to sexual and reproductive freedom and responsibility. Great care is needed to see that the churches facilitate rather than impede collective action to adequately address this complex of threats, and specifically that they not

⁵⁸All scripture references are to the New Revised Standard Version.

⁵⁹Paul VI, "Populorum Progressio," and John Paul II, "Sollicitudo Rei Socialis," in David J. O'Brien and Thomas A. Shannon, eds., *Catholic Social Thought: The Documentary Heritage* (Maryknoll, NY: Orbis, 1992): 240-62, 395-436.

⁶⁰See Betsy Hartmann, *Reproductive Rights and Wrongs: The Global Politics of Population Control* (Boston: South End, 1995).

find themselves legitimating new ways of continuing control of women's bodies by others.

This is not to say that there are no circumstances under which coercion in fertility could be morally legitimate. No one has a right to endanger community survival. But in order for reproductive, or any other type, coercion to be legitimate, every effort must have been made to resolve the problem by voluntary means, the decision for coercion should be chosen by the majority, the burdens of coercion must fall equally on all (males and females, rich and poor), and coercion should take the least restrictive form effective.⁶¹

V. Resymbolization

Perhaps the greatest religious challenge in this new situation will be rethinking symbols. Birth and fertility must become "neutral," no longer transparent symbols for the goodness of creation, God's will for humans, or the divine plan that ends in heaven. Resymbolizing birth and fertility will inevitably lead to a much needed resymbolization of death in Christianity as well. Under the influence of dualism Christians long ago developed a tendency to interpret the Cross/Resurrection to mean that real life comes after death. Thus there is no real tragedy in death however premature—whether the death of Jesus, of starving children, or of the biosphere—because what comes after death is inevitably superior. I have dealt with this issue elsewhere, as have others.⁶² Here I only note the connection between this problem with symbols of death and Christianity's need to decenter birth and fertility as central symbols for Christian commitment to life, its sanctity and dignity.

Christian evangelism was one early source for associating birth and fertility with the gospel. Beginning in Europe and Asia Minor missionaries in the early church used already existing local symbols of spring renewal after the death of winter to represent Jesus' death and resurrection, and invented a birth day for Jesus to allow people to celebrate the winter solstice, a celebration whose purpose was inducing the gods to restart the cycle of creation. Such symbols connecting Jesus' life and his death with the cycle of life in the natural world made the new faith seem more familiar and acceptable, not so radical a rejection of previous culture and social structure.

Nevertheless, birth and fertility were never perceived by the majority of Christians as exclusively good from either a theological or a

⁶¹For further treatment of reproductive coercion in terms of Christian ethics, see Susan Power Bratton, *Six Billion and More: Human Population Regulation and Christian Ethics* (Louisville, KY: Westminster/John Knox Press, 1992).

⁶²See chapter 3 of my *Victimization: Examining Christian Complicity* (Philadelphia: Trinity Press International, 1992).

material perspective. Too many families experienced another mouth to feed as a threat to family welfare. In the Roman Empire Christians, like other groups, abandoned surplus children in large numbers first at crossroads and markets, later to church-run foundling homes and state orphanages.⁶³ As late as 1800 in Christian Europe child abandonment rates ranged from twenty-five to fifty percent of all births.⁶⁴ From the ninth through the late seventeenth century child abandonment included the practice of oblation, in which families gave surplus children to the church. St. Thomas Aquinas, for example, was sent as an oblate to the abbey of Monte Cassino at the age of five.⁶⁵ Oblates were raised to become celibate members of religious orders; for many centuries in Christian Europe ten to fifteen percent of the population were unmarried, most of them in religious orders. Oblation served to limit excess population for the society as well as the family. Under these circumstances, the church could not help but be aware that fertility could be a curse as well as a blessing.

In fact, Christian attitudes toward sex and marriage were so negative during most of Christian history that children were often theologially presented as the cost or even punishment for the sinfulness of sexual activity, especially pleasure. Leo I writing about 450 C.E. wrote, "In all mothers conception does not take place without sin."⁶⁶ Seven centuries later, the future Innocent III, writing as Cardinal Segni in 1195, produced a medieval bestseller in which he asserted: "Everyone knows that intercourse, even between married persons, is never performed without the itch of the flesh, the heat of passion, and the stench of lust. Whence the seed conceived is fouled, smirched, corrupted, and the soul infused into it inherits the guilt of sin, the stain of evil-doing, that primeval taint. Just as drink is polluted by a soiled vessel, anything that touches something polluted becomes polluted."⁶⁷ One way that some strong proponents of Christian virginity, including St. Jerome, argued for its superiority over marriage was by presenting pregnancy as the result of disgusting intercourse and as constituted by heaving and vomit; any woman who agrees to endure this a second time (by remar-

⁶³John Boswell, *The Kindness of Strangers; The Abandonment of Children in Western Europe from Late Antiquity to the Renaissance* (New York: Vintage, 1988).

⁶⁴David I. Kertzer, *Sacrificed for Honor: Italian Infant Abandonment and the Politics of Reproductive Control* (Boston: Beacon, 1993), 10.

⁶⁵Elizabeth Clark and Herbert Richardson, *Women and Religion: A Feminist Sourcebook of Christian Thought* (New York: Harper and Row, 1977), 79.

⁶⁶Leo I, Sermon 22, in Philip Schaff, ed., *A Select Library of the Nicene and Post-Nicene Fathers of the Christian Church* Vol. 12 (Grand Rapids, MI: Eerdmans, 1980), 131.

⁶⁷Innocent III, *De Miseria Humanae Conditionis*, ed. D.R. Howard (New York: Bobbs-Merrill, 1969), 8-9.

rying), wrote Jerome, is like a dog that returns to its vomit.⁶⁸ Once they are born, Jerome says, children are constantly crying, slobbering, crawling and puling. No romanticism here!

But the negativity in attitudes toward fertility went beyond fear and disdain for sexuality and the dependency of children. Body-soul dualism was so deeply entrenched in Christian theology that many a Christian parent grieving for a dead infant was told to rejoice that the child was now with the angels, and in losing life had lost only the opportunity to sin. Nor was such advice limited to the far distant past. It is still heard occasionally: in this view, the materiality of both the body and the world is equated with sinfulness.

Popular experience of birth reinforced this negative theological perspective until very recently, in that infant mortality was very high.⁶⁹ Demographer Ryan Johansson writes that under normal circumstances in pre-modern Europe, a little more than half of all children born survived to ten years, and a little less than half survived to aged 20.⁷⁰ Ann Dally reports that children's were not the only premature deaths. Maternal deaths were also very common in the past; among many others, Descartes, Rousseau, Froebel, Paderewski and Mary Shelley all lost their mothers in their first year; Nero, Tolstoy, and Anne Bronte at two; Isaac Newton, Pascal, Ronald Knox at three; Dante, Lavoisier and Charlotte Bronte at five; Muhammad, Michelangelo and William Cowper at six; Robespierre and Hume at seven; and Wordsworth, Voltaire, Charles Darwin, Joseph Conrad, Ivan the Terrible and Ernest Bevin at eight.⁷¹

Frequent death of the young persisted into the twentieth century. In the first half of the twentieth century, one of my paternal great-grandmothers buried three young husbands and two of her eight children. One of my maternal great-grandfathers lost one wife in childbirth and lost one child to late miscarriage, one to stillbirth, and two of his

⁶⁸Jerome, *Epistles* 54:4; *Adv. Jovinian* 1:41-47. On the other hand, while religious such as Jerome paint the most dismal picture of children and married life in general, dismissing any reasons for desiring children, they assume that parents do love their children when they praise the sacrifice of parents who have left children to pursue the religious life. E.g., when Jerome praised his friend, the Roman matron Paula, who followed him to Jerusalem where she founded a monastery for women, he admiringly described how, as her ship departed from Ostia, her infant son, Toxinius, stretches out his arms for her, and her older daughter Rufina sobs at his side while Paula, "overcoming her love for her children with her love of God" sails out to sea with never a backward glance. See Rosemary R. Ruether, "Virginal Feminism in the Fathers of the Church," in Rosemary R. Ruether, ed., *Religion and Sexism* (New York: Simon and Schuster: 1974), 174-76.

⁶⁹In sub-Saharan Africa in the 1990s it remains high—one in every ten children dies in its first year. See United Nations, *Report of the ICPD*, #8,12.

⁷⁰Johansson, "The Moral Imperatives of Christian Marriage," 135-54.

⁷¹Ann Dally, *Inventing Motherhood: The Consequences of an Ideal* (New York: Schocken, 1982), 41.

remaining five children to scarlet fever. The churches were constantly required to deal with the death of children as well as relatively young adults; in so doing they often invoked their understanding of this world as a vale of tears and sin⁷² which tests our worthiness for the next, better spiritual world. Faced with so much death of the young, the Christian churches developed a pastoral practice that turned sacramental symbolism on its head and interpreted birth in terms of baptism, and death in terms of resurrection, in order to comfort mourners. Fertility was good because through the instrumentality of baptism it increased the community of those destined for the eternal life of salvation by virtue of Jesus' sacrifice. The death of humans, it was insisted, simply speeded up this glorious destiny: Christian dead were to be envied, not mourned.

Until modernity, the negative consequences of such pastoral theology were remarkably few. The environment was not yet much threatened by population/consumption levels, and the birth rate could as yet be changed only by wars, famines and widespread celibacy practices such as oblation, all of which *reduced* the size of the reproductive generation. And the comfort this theology provided mourners may have been worth the callousness it may have sometimes encouraged toward unnecessary—that is, unjust—premature death.

By late modernity there were serious consequences to this theology both for demography and environment, since this traditional theology encouraged fertility which was no longer restrained by high death rates. Furthermore, due to the industrial revolution, consumption levels for that larger population had risen, with a corresponding increase in devastating environmental impact.

As infant and child mortality as well as death rates in general declined, Christians very gradually began to shed negative associations with birth, both theological and experiential. The Protestant Reformation had abandoned Catholic preference for celibacy over marriage and reproduction. Though most Protestant denominations preserved negative attitudes toward sex and body which implied a connection be-

⁷²Individual pastors did not invent this understanding of this world as a place of suffering and testing for the better world to come. Leo XIII, for example, wrote in "Rerum Novarum," "As regards bodily labor, even had man never fallen from the state of innocence, he would not have been wholly unoccupied; but that which would have been then his free choice, his delight, became afterwards compulsory, and the painful expiation of his sin. 'Cursed be the earth in thy work, in thy labor thou shalt eat of it all the days of thy life' (Gn 3:17) In like manner, the other pains and hardships of life will have no end or cessation on this earth; for the consequences of sin are bitter and hard to bear, and they must be with man as long as life lasts. To suffer and endure, therefore, is the lot of humanity; let men try as they may, no strength and no artifice will ever succeed in banishing from human life the ills and troubles which beset it." (Leo XIII, "Rerum Novarum," # 14, in O'Brien and Shannon, eds., *Catholic Social Thought*, 20).

tween birth and sin, the connection was weakened.⁷³ In the late nineteenth century otherworldly theology began to give way to a more integrated view of the human person and of Christian mission. Socio-economic trends probably had even more impact on this change than theological ones.

As death rates dropped all over the world in the eighteenth through the twentieth centuries, gradually the use of birth control, beginning in eighteenth-century France and becoming widespread in the nineteenth century, began decreasing unwanted fertility in one nation after another.⁷⁴ At the same time, as capitalism developed and industrialization spread, not only was economic growth celebrated, but it became accepted that economic growth depended upon growth in both population as well as consumption in order to create both market demand and the production workers that satisfied it. Increased births—but not too many—as good became economic dogma.

Industrialization produced massive changes in family life, and the ideology which developed to legitimate those changes romanticized family roles away from earlier more ambivalent (Catholic) Christian attitudes toward family. As the home went from being a place of production to being a place of consumption, women who had been home producers alongside men became domestic supervisors of both family consumption and newly discovered aspects of child welfare and development.⁷⁵ Husbands followed production out of homes and into factories. Once children no longer participated in home production, urban industrial societies increasingly idealized them as innocent and playful, in need of mothers' protection and constant care. Mothers were now expected not only to feed their children, punish them when their behavior warranted, and see that they received religious instruction, but also to oversee new types of child needs not recognized before, including balanced diet, bodily cleanliness, formal education, social development and overall psychological health. Motherhood became a full-time occupation for the first time in history, initially in the upper and middle classes, and by the twentieth century in the working class as well.⁷⁶ Christian churches adopted this romanticized modern view of childhood and motherhood wholesale.

This ideological shift in understandings of the family accompanied

⁷³See Chapter 11 on Luther and the Protestant Reformation in Clark and Richardson, *Women and Religion*, 131-48.

⁷⁴Kertzer *Religion, Sacrificed for Honor*, 173-74. Note that the primary method of birth control was withdrawal, with condoms, herbal potions and abortion much less widespread.

⁷⁵Beverly W. Harrison, "The Effects of Industrialization on the Role of Women in Society," in her *Making the Connections*, ed. Carol Robb (Boston: Beacon, 1985), 42-53.

⁷⁶*Ibid.*

not only a shift to smaller families (along with industrialization and urbanization), but also a decrease in negative associations with birth and fertility. What remained of the connection between sex, sin and birth in the theological tradition was trampled under the churches' rush to sentimentalize and pedestalize motherhood.⁷⁷ In a home understood as a sanctuary for innocent children presided over by a morally superior, self-sacrificing maternal caretaker there was no way to maintain the idea of birth as the wages of sexual sin.

Symbols live; that means they change and sometimes die, too. Birth and fertility have always been inadequate symbols for Christian resurrection because Christian resurrection is primarily about victory over evil, not victory over finitude. Finitude is not evil. Today birth and fertility are not only inappropriate symbols for Resurrection, but inappropriate symbols for the goodness of creation. The most adequate symbols of creation today depict the interdependency of the human species with all other living communities.

Living symbols have power to motivate and direct human energy. The power in symbols is both historical and contextual. A symbol which does not connect people with something in their personal or communal experience has no power.⁷⁸ A symbol that is out of sync with its context may have power, but may exert its power with consequences contrary to the prior (or intended) meaning of the symbol. Birth and fertility still have power as metaphors for life and creation today—but the consequences of that power have changed in a dangerous direction. Today birth and fertility as symbols of life or the goodness of creation produce consequences that *undermine* the maintenance of life in God's creation.

In the ancient world in which *homo sapiens sapiens* was developing, "increase and multiply and fill the earth" and "have dominion over . . . every living thing that moves upon the earth" (Gn 1:28) pointed to survival, to life, and could be understood as enhancing God's creation. It was not understood in the same way that it came to be understood after the development of Enlightenment philosophy of science, as if non-human creation was mere matter to be treated however humans choose.⁷⁹ In Gen-

⁷⁷See Dally, *Inventing Motherhood*, chapter 1.

⁷⁸Most of contemporary concern for linguistic and symbolic change deals with this situation, where the language or ritual has lost symbolic power, as e.g., in Joseph O'Leary's "Overcoming the Nicene Creed," *Cross Currents* 34/4 (1984): 405-13. With birth/fertility the problem is not the loss of symbolic or ritual power, but the consequences of that power.

⁷⁹See Carolyn Merchant, *The Death of Nature* (San Francisco: Harper and Row, 1980), chapters 7-8. Note that the Christian justification for understanding nature as soulless—contrary to earlier Christian and pre-Christian views—was that it had been corrupted by the sin of Adam, and had in sin become hostile to humans and now must be coerced (by machines) to surrender its riches for the nurture of humans.

esis itself there are other stories which do not lend support to an ethic of environmental domination, but rather call for respect. Remember the story of Noah's ark, which God bade him build not to save other humans besides his immediate family, but rather to save a breeding pair of every species under the sun, even those species that God calls "not clean" (Gn 7:2). We do not know what the human violence was that so angered God that God sent the flood; perhaps it was even violence against nature. Was Noah's society irresponsibly unsustainable, so that they had to be eliminated to save the other species? The story does not tell us exactly what angered God. But it does tell us what God thought should be saved: every living species.

Today in our environmental crisis, a call for human expansion and dominion is a formula for death, a denial of humankind's God-given role as co-creators. Today this formula and the continuing use of birth and fertility as symbols of life which results from this formula, are denials of the divine will expressed in the act of original creation.

Christian art and ritual were the primary tools for teaching past generations their Christian theology. In Christian art there is nothing inherently wrong with depictions of the Madonna and child. But our tradition is heavy with romanticized images of the infant Jesus and Mary, or images of the stable at Bethlehem, which too often convey celebration of fertility, not hope against suffering and evil. Christian art is also heavy with depictions of the suffering and death of Jesus, and of the resurrection or the post-resurrection Jesus (e.g., on judgment day, or the Sacred Heart of Jesus in the Catholic tradition). We have become comfortable with a Jesus who was killed by earthly evil which can no longer touch him, but who now invites us to live with him in the paradisiacal clouds of some other galaxy where ozone depletion is not a problem.

Specifically, we must focus on Jesus' announcement of the Kingdom of God as an inclusive banquet meant for all—which for us today must mean not only all humans, but the entire community of life that makes up creation. Jesus' condemnations of those who abused the powerlessness of children must be applied as well to those who abuse the powerlessness of the poor and of other species as well. But so long as we remain with romanticized images of the Nativity that teach unquestioning acceptance of and fulfillment in motherhood, birth as a sign of divine will, and the crucifixion as meaning that a better life follows death, we will not take our environmental crisis seriously.

Ritual, like art, has an indispensable teaching role. Baptism should convey that the person baptized is not only being initiated into the human community following Jesus, but also into a community that shares with many other communities stewardship for all of creation.

We must stop using language suggesting that the baptized are primarily souls, that the more souls for heaven the better, as if the baptized were not also bodies which must be sustained by a finite earth. We must stop assuming that in all of creation God only cares about humans, and discern in the interdependency within ecosystems God's valuation of earth's constituent parts.

Many Christian churches have stopped overt stress on fertility in marriage ceremonies, but have substituted an emphasis on romantic love. Such an emphasis can not only lead to overreliance on the spouse to fill all the interpersonal needs of the individual, but this substitution of romantic love for fertility disconnects marriage from life-giving. We still need to insist that marriages be life-giving—we just need to expand life-giving from an exclusively biological focus. We must shift our understanding of Christian responsibility to and for life from an exclusive focus on life-creation to include life-maintenance. Love in marriage and in other forms of committed relationship should be understood as grace and strength for the global task of maintaining and celebrating life: filling the needs of the elderly, the poor, needy children, endangered animals, the oceans and whole ecosystems.

In funeral rituals Christianity needs to be more selective in understanding the relation of our deaths to Jesus' death. Jesus died a premature death due to the sin of specific human persons, as have other human persons before and after Jesus. All the prematurely dead, whether they died from human violence and injustice or avoidable natural disasters, should have lived longer. Justice demands that we raise life expectancy in poor nations and discriminated groups to that of more privileged nations and groups. But this does not mean that living longer—lengthening the human life span—is itself a proper goal for overall human society. Much of the allure of today's gene research is a revival of Ponce de Leon's quest for the fountain of youth, for the elixir of eternal life, a quest that runs counter to the needs for both sustainable society and justice within and between human communities.⁸⁰ Right now to extend the human life span of those who already live long lives is an insane goal for the peoples of the earth. Human lives and deaths must be balanced if the earth is to live; deliberately and substantively prolonging the lives of the elderly would either endanger the sustainability of life on earth or would require dropping the

⁸⁰There is a justice problem in that one only has to look at which AIDS patients get drug treatments and which persons with organ failure get transplants on our earth to know that the poor peoples of the earth will not have equal access to gene surgery to extend their lives. This technology would resemble the currently discussed "opportunity" for space travel via NASA rockets which is being offered to the "civilian public"—those who can pay \$7-8 million per ride.

total fertility rate to far less than one child per woman, as well as grossly overburdening the working young.

Funerals should celebrate the lives of those who lived their span, acknowledge the different kinds of loss that exist from this death, and comfort the mourners not only by reminding them of coming reunion in resurrection, but sometimes calling them to collectively resist those forces that steal life from the prematurely deceased. In effect, funerals in our society should be constructed to make it more difficult for us to accept premature death, and to make it easier for us to accept the fact of death, including our own.

Finally, one theological problem for some parts of Christianity is the teaching about final judgment and resurrection. Classic Christian creeds teach "I believe in the resurrection of the body;" not only the soul is saved. St. Paul writes out of this same understanding:

So it is with the resurrection of the dead. What is sown is perishable, what is raised is imperishable. . . . It is sown as a physical body; it is raised as a spiritual body. If there is physical body, there is also a spiritual body. . . . What I am saying, brothers and sisters, is this: flesh and blood cannot inherit the kingdom of God, nor does the perishable inherit the imperishable. Listen, I will tell you a mystery! We will not all die, but we will all be changed, in a moment, in the twinkling of an eye, at the last trumpet. For the trumpet will sound, and the dead will be raised imperishable, and we will be changed. When this perishable body puts on imperishability and this mortal body puts on immortality, then the saying that is written will be fulfilled: "Death has been swallowed up in victory. Where, O death, is thy victory? Where, O death, is thy sting?" (1 Cor 15: 42-55).

Many contemporary systematic theologians, following biblical scholars, insist that for the Jewish Jesus and Paul this kingdom of God to which persons were to be reborn was a material kingdom here on earth, though structured and ruled very differently than the unjust, hierarchically arranged kingdoms of his period. For Jesus at the coming of the kingdom and for Paul when Jesus returned, the dead were to be brought back to life in this material world, and, at least for Paul, those who had not died would be changed to become immortal, spiritual beings. For Paul, physical and spiritual were not simple opposites in the sense of pure matter and pure spirit.⁸¹ For Paul the body itself is a combination of the flesh and the spirit which can be oriented toward either good or evil. Thus the transformation at the end is not a transformation from

⁸¹See 1 Cor 6:19: "your body is a temple of the Holy Spirit"; and 1 Cor 6:13: "the body is meant not for fornication, but for the Lord, and the Lord for the body."

materiality to immateriality. It is something both more and less, not perfectly clear.

We had better hope that the mystery surrounding the nature of the reunited souls with newly immortal bodies is simply beyond our imagination, that the language of bodies is metaphorical, that like angels, thousands of these bodies can dance on the head of a pin, and not need water, or food, or fuels of any kind. Until two centuries ago, all the humans who had ever lived on the planet could rise, be vindicated in the last judgment and maintain a sustainable kingdom. But we have come to a time when the kingdom of God as understood by Jesus and the people of his time—as in this material world—can no longer sustain the living, much less the resurrected. How should we deal with this? Retreat to otherworldly visions of heaven and drop the classical commitment to saved bodies? Assume that most of the living and the newly resurrected dead will be assigned at judgment to an otherworldly hell? Console ourselves that the mystery will be solved at the end of time?

The environmental crisis has presented Christians with a variety of new moral, ethical and theological difficulties that will not simply go away. These issues must be addressed. They will continue to both multiply and become more urgent. For theologians and pastors to spend another forty years arguing about the morality of contraception would be to fiddle while not just Rome, but the carrying capacity of the earth, is consumed.