

Thinkpieces

THE SCIENTIST AS STATESMAN: BIOLOGISTS AND THIRD WORLD HEALTH

by John J. Carvalho IV

Abstract. One of the most threatening problems the world faces is the growing poverty crisis and the related human rights inequalities and the spread of diseases in underprivileged areas. Human rights and relief organizations try hard to contain the devastation of these interconnected difficulties. What is the role of the biomedical scientist in this endeavor? The challenges that biomedical scientists face in their research lead us to question whether scientists can go beyond the time-consuming realm of experimental investigation and engage the issues of society in a more public way. I suggest how the scientist's role can be expanded in our complex and precarious world, introducing the idea of the modern biomedical researcher as scientist, scholar-philosopher, and statesman for the scientific community and the larger human rights community. I provide examples of where the scientist can interface with human rights organizations, medical doctors, political and civic leaders, and the science-religion dialogue. My argument reveals the emerging role of the biomedical scientist as one of public service in addition to and beyond the realm of the experimental investigator. This role, however, is formidable, and I list some of the obstacles it entails.

Keywords: environmental ethics; evolutionary biology; global health; global inequalities; globalization; human rights; liberation theology; preferential option for the poor; science and philosophy; science and religion; science and society; social justice; theology of disease; Universal Declaration of Human Rights

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[*Zygon*, vol. 42, no. 2 (June 2007)]

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INTRODUCTION TO THE PROBLEM

The terrorist attack of September 11, 2001, on the World Trade Center in New York City and the Pentagon by Al Qaida hijackers of four passenger airplanes is one of the most memorable and shocking events in world affairs. During the months that followed, I told colleagues and friends that I thought we were witnessing “the third world knocking on the first world’s door.” I argued that the terrorist activities of that brutal Tuesday morning were the result of extremists taking advantage of youths who could not see themselves as living lives of greater value. Actually, the event was a culmination of decades of problems in the socioeconomic history of the Middle East—problems that largely could have been avoided if past governments had chosen different strategies and policies regarding their relationships to each other. Now, years after the attacks, we are witnessing many other examples of the third world knocking on the first world’s door. We see it in the phenomenon of suicide bombers in the Middle East, portrayed in the 2005 films *Paradise Now* and *Syriana*. We see it in South America, a continent that is trending to the political left, where Venezuelan President Hugo Chávez is openly and fearlessly criticizing the Bush administration, while his counterpart in Bolivia is taking Bolivia’s oil fields from foreign companies so as to give the nation’s natural resources back to the indigenous people living there. We see it in the explosion of the immigration debate in the United States, where millions of Latin Americans and other individuals protest for citizenship for immigrants who have worked in the U.S. for years. Numerous other examples exist of the poor crying out for help in ways that are gaining international attention.

A parable in the Bible (Luke 16) depicts a poor man, Lazarus, asking for aid from a wealthy Israelite, only to be rejected. Later, when both men die, Lazarus ascends to Abraham and God in Heaven, while the wealthy man is punished in Hades for not coming to Lazarus’ aid. Pope John Paul II was fond of stating that the third world is Lazarus in reality—desperately seeking aid from wealthy nations only to be manipulated or rejected. Lazarus was knocking on the rich man’s door, but he was ignored. We are now experiencing the real-life rendition of this biblical parable in the third world knocking on the first world’s door through the events that are taking place in these first years of the new millennium. More accurately, the third world is *pounding* on that door with the possible intent of breaking it down, as the events of September 11 show. I am reminded of the story of a wealthy person who complained bitterly after purchasing a personal yacht for \$500 million (which is what it cost to build the MGM Grand Casino/Hotel in Las Vegas, Nevada). Harvard University economics professor Jeffrey Sachs in *The End of Poverty* (2005) puts the matter before us succinctly in his analysis of how far ahead wealthy nations stand in comparison to those that are suffering in Africa. He states that the four hundred wealthiest American taxpayers in the United States possess a net worth of

some \$12 billion *more* than the 161 million people living in the countries of Botswana, Nigeria, Senegal, and Uganda. And a small portion of the Republican tax cuts to the wealthiest over the past five years in America could have fully funded the United Nations Millennium Development Goals, a strategy that has floundered because of lack of funding (Sachs 2005, 305–8). Sachs' analysis places him in collaboration with such international celebrities as rock group U2's Bono and the late Pope John Paul II, both tireless advocates for third world debt relief.

Sachs' account, with its images of global inequalities, parallels that of *Pathologies of Power* (2005), written by Paul Farmer, a physician and anthropologist at Harvard Medical School, who became a celebrity in his own right after his biography, *Mountains beyond Mountains*, was written by Pulitzer Prize–winner Tracy Kidder (2003). Farmer has spent most of his professional life attending to the needs of the poorest of the poor in countries such as Haiti, Rwanda, Russia, and Peru as well as in Boston. His efforts have led to the establishment of numerous clinics and of Partners in Health, a social justice organization concerned with the health of the most disadvantaged across the globe. In *Pathologies of Power* Farmer introduces the concept of global inequality by revealing some of the extraordinary injustices suffered by poor people in Haiti and elsewhere. In addition to his monumental medical work in the field, his research has led him to explore the idea of human rights as a basis for better understanding inequalities. He argues that the basic human right of survival is being trampled upon—including social, economic, civil, and political rights for the poorest of the poor (Farmer 2005, 1–22). In his view, which parallels the views of many liberation theologians (see Boff 1995; Gutiérrez 1996), the poor are those who suffer from injustice largely stemming from exploitation and, in some cases, forced impoverishment (Farmer 2005, 1–22). Ultimately, Farmer sees this as the cause of most of the diseases the third world is experiencing (pp. 9–11, 138). Throughout his work, Farmer builds a philosophical argument that directly links human rights and the epidemiology of disease, especially when he gives a detailed example of the tuberculosis problem in Russia's prisons (pp. 115–33, 138).

Farmer's human-rights perspective essentially mimics that of Nobel Prize–winning economist Amartya Sen, who in *Development as Freedom* puts forward the idea that third world development cannot be defined as merely the expansion of a country's gross national product, rise in personal income for its citizens, or increase in industrialization (Sen 1999, 3–4). Rather, Sen sees development identified with the expansion of personal freedoms, civil liberties, and political freedoms (pp. 3–11, 13–34). With the removal of barriers to the different human freedoms, Sen believes, the quality of life in the third world would improve dramatically (pp. 3–11). Throughout his book, Sen explains that it is this “development as freedom” that ultimately will resolve the third world poverty crisis.

There are current movements to resolve this crisis, including one instigated by former U.S. President Bill Clinton. His Global Summit has developed into an international consortium of scholars, civic leaders, relief organizations, and human rights workers committed to the belief that, even though poverty in some form will remain a global problem, the extreme poverty that much of the world experiences can be abolished. Clinton stated firmly in this regard, "We know how to do this" (CNN Connects: A Global Summit and CNN Presents: The End of AIDS: A Global Summit with Bill Clinton, 29 April 2006), affirming that there are ways in which extreme poverty can be reduced or eliminated.

It can be argued that the United Nations' *Universal Declaration on Human Rights* introduced key concepts, such as everyone having the right to adequate medical care and social services, that are pertinent to any discussion about curing global poverty (Roosevelt et al. 1948). Indeed, this declaration is important, even foundational, in the human rights dialogue in which Farmer and others are immersing themselves. The West, including the United States, would do well to use the U.N. declaration as a starting point for its own attempt to address world poverty. The declaration clearly lists the rights each person should have and each nation should respect. In order to act as a role model for the rest of the world in the arena of human rights, however, the United States must first possess moral credibility. It must be committed to pursuing human rights for all and must abstain from committing human rights violations itself. When it violates human rights, such as those of captives at Guantanamo Bay or detainees in Iraq, it cannot assume moral authority. It devolves into a lesser nation because it honors neither the U.N. declaration nor its own constitutional foundations. In order to regain moral credibility, the United States must change its present course in world affairs and pursue one of leadership with a clear focus of promoting human rights for all people everywhere.

Farmer's quest to cure the "mountains beyond mountains" of diseases and inequalities afflicting the world's poor has inspired student activists to collaborate with him. Many of these human rights workers are physicians who share his immense enthusiasm. Recently the question has arisen among those of us doing biomedical research as to what *our* role should be in taking up the challenge Farmer, Sachs, Sen, Clinton, and the *Universal Declaration* have introduced. What is the role of the scientist in all of this? How is the scientist to collaborate with other professionals working to combat global health problems? How does the scientist engage the global-health issue more fully, more productively, and with greater influence and impact?

THE SCIENTIST AS EXPERIMENTAL INVESTIGATOR

The chief role in global health work for the scientist is as experimental investigator. This is a position that most in the dialogue recognize. Sci-

ence has its own difficulties and peculiarities. Biomedical research is a time-consuming, energy-draining, intellectually exhausting, emotionally stressful line of work. Scientists labor long hours. Many researchers are underpaid. The biomedical research enterprise is plagued by insufficient funding, especially in countries where science is seen more as a luxury than a necessity. Scientific breakthroughs often occur in environments that are conducive to uninterrupted scholarship, but many scientists are also educators and must spend time teaching students. These serious commitments prevent many scientists from taking on larger roles in the quest to solve third world health problems. Indeed, it can be argued that experimental investigation is the role of the scientist and that in order to keep the assembly line of research advancing this role in its present parameters must be maintained first and foremost. I agree with this position, though I argue here that there also is room for scientists to expand their role.

Farmer, during the question-answer session following a recent lecture at the Harvard Medical School (Farmer 2006), pointed out that it is difficult for individuals of “reduced agency” to change the world. Farmer was primarily speaking about disadvantaged individuals in impoverished nations, but he extended his point to students and even scholars (including scientists) at universities. Farmer sees collective action—that is, bodies of individuals, such as departments, programs, or whole universities—as having a more effective and timely impact on the advancement of social justice for the third world. This clearly is the case with scholars and human rights workers engaging the third world. A Roman Catholic priest in South America resonates with Farmer’s statement by revealing how priests in these areas are so concerned with relief work that it is difficult for them to spend time in prayer, relaxation of the mind and body, or other pursuits, such as their writing, whereby they could contribute to the dialogue (Boff 1995). This is an excellent point for any scientist who is attempting to expand his or her domain of influence to consider and should be taken into account as a path to greater success in the additional roles a scientist can play. Nevertheless, individuals must emerge first as activators of change before collective agents (such as departments or institutes) can evolve from individuals’ actions to carry on their legacy of reform. I propose therefore that the scientist must remain chiefly the experimental investigator but that he/she must also play a more active role as an individual motivator of evolving collective agents.

THE SCIENTIST AS SCHOLAR-PHILOSOPHER

A scientist who wishes to engage the larger society must recognize that he or she cannot be occupied solely with experiments in the laboratory but also must philosophically reflect on the relationship of these experiments to the larger questions of world health. If we consider how experts are tackling world health problems, we see them approaching the problems

primarily from three different perspectives. The first is a service role, directly on the front lines of the crisis. This is the approach of medical doctors in the field, such as Farmer. This is the role that missionaries, such as the late Mother Teresa of Calcutta, play. They are hands-on leaders tackling the problem on a case-by-case basis, with great impact on the lives of suffering individuals. Their impact is personal, rewarding, and fundamental for curing the human health crisis in the third world.

The second perspective is that of the governmental official who tackles legislation and organization to bring about change. This is the angle from which politicians and governmental officials in the country of interest or on the world scene come. This is the role that the United Nations Peace Ambassador and Goodwill Ambassadors play. They try to mobilize, organize, and administrate projects to solve global health issues. They provide the system by which national change can occur.

The third perspective is that of the scholar-philosopher. These individuals witness the global health crisis on a worldwide, historical scale. The health crisis to these experts is one that can be understood and analyzed through time and regardless of culture, nationality, race, religion, gender, sexual orientation, social taboos, or any other socially constructed barrier to greater human understanding of the ills that affect all people everywhere. They put forward the philosophical analyses and philosophical strategies by which individuals from the other perspectives can do their work. Hence, on a global as opposed to personal level, the scholar-philosopher is the critical activist who introduces the agenda by which global health problems can be tackled. It can be argued that the role of the scholar-philosopher usually has been played by anthropologists, historians, and economists working in the field. I believe that biologists also must weigh in on the global health crisis. They need to expand the domain of the philosophy of biology to questions of global health, global community, and global environment. A number of biologists are attempting to do precisely this. Primatologist Jane Goodall, also the U.N. Peace Ambassador, is a case in point. She addresses the global health problem not only from the angle of world official but also from the angle of scholar-philosopher. Her book *Harvest for Hope* (2005), in which she relates biology, human ancestry, and the worldwide food and ecological-environmental problems, demonstrates how a biologist can engage the larger social community. Farmer, an anthropologist as well as a medical doctor, also has taken on the scholar-philosopher role by formulating the global health crisis in terms of a human rights crisis. We see that an individual can play numerous roles from each of the three perspectives.

The scientist has a respected place in the dialogue on global health. Philosophically minded scientists can relate the details of human disease, destruction of the environment and biosphere, and human and animal behavior to the crisis at hand. In addition, scientists can predict the future

trends of the global crisis. Evolutionary biologist Edward O. Wilson has been a motivating force on environmental issues and protection of all life on earth. His book *The Future of Life* is a classic example of where science, philosophy, and politics can intersect to better determine the precise details of problems facing the planet (Wilson 2002, 149–89). The blossoming science-religion dialogue is becoming a powerful player in providing the philosophical and theological insights by which we can assess and resolve the problems facing global health and the global environment. Scientists in the science-religion dialogue have contributed to an emerging “theology of disease.” A case in point is the symposium section of the June 2004 issue of *Zygon* (39:2), where Philip Hefner, James Moore, Gayle E. Woloschak, and others address the crisis of HIV/AIDS from both a biological science and theological-philosophical stance as well as from a pastoral approach.

Scientists have related the need for a healthy environment and proper treatment of all life forms on earth to the theologian’s perspective of the world’s being a gift from God to humanity—but a gift that is to be cared for, not exploited (see Southgate et al. 1999, 377–81; Wilson 2002, 155–60). Alternatively, some Buddhist scholars have viewed the environment as co-originated; the very existence of the ecosystem is related to individual human beings in a complicated series of relations, and each should have an ethic of mindful awareness and care for life in its entirety (Brown 2004, 885–900). Other scholars are bringing issues of evolutionary biology to a better understanding of animal species, treatment of them, and the way human beings treat each other (Howell 2003, 179–91; Goodall 2005). Still others are addressing the health crisis by introducing the scientific basis of these problems so as to thwart superstitious beliefs in poorer areas of the world (Budenholzer 2003, 143–45). There are scientists debating the theological implications of new technologies (Barns 2005, 179–96; for an excellent review see Southgate et al. 1999, 329–87). Scientists engaged in the science-religion dialogue use the tools of philosophy and theology to construct a global environmental ethics that clearly is applicable to the concerns of international leaders in the global health crisis. In light of this, the scholar-philosopher is a major role by which biologists can make a greater impact on the dialogue concerning global health and the international actions needed to better it.

The scientist as scholar-philosopher will likely also shed light on many of the ethics and social justice issues we face. A case in point is the recognition, after completion of the human genome project, that the world’s human races are interconnected at the DNA sequence level. Geneticists engaging ethics have revealed how closely people on one continent are related to people on another—how people in the first world are biologically related to people in the third. Provocatively, many of these same geneticists have argued that there is little variation at the DNA level that

would be the biological basis of differences between races and even that genetic evidence will aid in the eventual elimination of the racial stereotypes that have divided cultures throughout human history. Such stereotypes are more a socially constructed phenomenon than a true major demarcation at the level of genetic material (Dietrich 2001; Disotell 2000, 9–24; Lewontin 1982; Cavalli-Sforza, Menozzi, and Piazza 1994; Sterelny and Griffiths 1999, 9–10).

Even during civil war or emerging international conflict the scientist can bring to the public's attention certain issues so as to change foreign policies for the better. For example, scientists have spoken out against fungal pathogen use in certain areas of South America as an attempt to defeat the drug trade. In Columbia, during crop dusting, the government sprays fungal species, such as *Fusarium oxysporum*, that target specific coca plants in an attempt to stop cocaine production in the region (Simons 2004, 13–14). Unfortunately, these same fungal organisms also have infected other plants, livestock, and human beings residing in the crop-dusted areas, inflicting ecosystem destruction and causing human illness (2004, 234, 240, 245–46). Such poorly designed political activities can be brought to the public's attention by scientists in the field who not only know fungal biology but also maintain a philosophical and human-rights perspective. These insights can allow the scientist as scholar-philosopher to introduce new possibilities of ethical action in a world that is plagued by inequality. Scientists, by taking on a philosophical role, can provide a link between age-old traditions such as the world's religions and the problems of environmental ethics that confront us. Given that there are clear ways in which philosophically minded scientists can enhance the goals of human rights activists, relief workers, and global leaders to better understand and tackle the third world health and poverty problems, there ought to be continual dialogue and interconnection between these participants in the debate.

THE SCIENTIST AS STATESMAN

In my argument for an expanded role for experimental investigators, I also suggest a political role—the scientist as statesman. Upon first reflecting on this possibility, one might react with skepticism, given the suggestions of the expanding roles previously mentioned and the already difficult workload of experimental researchers. Nevertheless, this additional activity is not as difficult as one might imagine. Scientists have a number of possibilities from which they can choose to expand their influence in the political arena, and some of these possibilities handle quite well Farmer's warning that it is challenging for individuals with reduced agency—as opposed to collective forces—to promote change.

The scientific community already has in place an “architecture” by which experimental investigators can engage third world health issues—and, for

that matter, any issue concerning science and society. A number of international scientific societies and academies devote a wing of their organizations to science-and-society problems. An example is the Genetics Society of America, which keeps a list of active members involved in some of its committees. One of these is the Joint Steering Committee for Public Policy (JSCPP), which is specifically concerned with increasing the budget of the National Institutes of Health (NIH) and other science grant agencies. The JSCPP contains its own subcommittee, the Congressional Liaison Committee (CLC), which consists of members who do much of the national campaigning and lobbying for the directives that the JSCPP introduces to the community. Both the JSCPP and the CLC have been powerful motivating forces for sounding the alarm on budget issues relating to scientific research in America. They have been largely responsible for the successfully lobbying of the U.S. Congress for major increases in the NIH budget. Recently, the JSCPP and CLC were instrumental in the passage of a House bill that eventually expanded the NIH budget by \$600 million (Fiscal Year Budget 2007, reported 18 May 2006 at www.jscpp.org). Such activity has led to the continuation of many experimental research programs in the United States and has made the U.S. the world leader in biomedical research. Furthermore, these activities have protected U.S. national security interests, helped jumpstart the U.S. economy in a number of high-tech areas, and allowed many scientists to apply their research to the issues of third world health. Increased funding also has made it possible for scientists from underprivileged nations to journey to the United States and engage in research going on in U.S. laboratories, thus strengthening the bonds of first world and third world experimental investigators.

The JSCPP and CLC are not the only advocates for science-and-society interests. The American Association for the Advancement of Science also has been a motivating force in this arena, as have the American Academy of Arts and Sciences and the National Academy of Sciences. Societies such as the New York Academy of Sciences (NYAS) even act as watchdogs for human rights abuses of scientists in areas of the world where researchers are facing governmental persecution (see the NYAS Web site, www.nyas.org, for examples of these human rights projects). The activities of these organizations have excelled at bringing concerns about the environment, science education, disease research and epidemiology, and other issues to the public's attention. They also have shaped public policy by providing the scientific guidance needed by our nation's lawmakers.

As a result of this already established structure in the scientific community, it is possible for experimental investigators to engage the larger world of human rights and third world health by acting in solidarity with each other on ideas that can be expressed and publicized through their societies. In order for this to happen, individual scientists must support new initiatives concerning global health policy and support their colleagues who are

actively engaging the issues. Ultimately, scientists will not only collaborate with each other, but their collective forces will collaborate with the front line: the medical doctors, government officials, and human rights and relief workers already in the field.

The scientist as philosopher can make contributions to the human rights discussion and help guide the community of collaborators working on the problems in a practical, not just theoretical, sense. The active philosophical mind can introduce new ways of seeing the problems the third world faces. The societies can devote sections of their journals specifically to third world health issues and articles introducing novel strategies for implementing reforms. These philosophical responses can be starting points for global resolution. Rather than despairing that the third world crisis lacks any possibility for cure, scientists, in dialogue with other experts, can dissect each problem and discover its causes with the intention of putting forward new approaches for resolution. This has been the case for a number of health issues already. The eradication of smallpox, the fight against polio, and the slowing of the HIV epidemic in some areas are examples of where such dialogue has been successful. Scientific collectives can introduce their concerns to younger generations of scientists in America's universities. Students of science and medicine have the potential to be a powerful collective force of action in their own right. The abundance of new ideas, vitality, sense of purpose, and determination that student activists can bring to the war on world poverty and disease must not be underestimated. Students also can infuse their mentors with new energy and inspire the older generation of scholars to work harder. This reciprocal inspiration can be a great ally in the third world health fight and the movement for social justice for the poorest of the poor.

CONCLUSION

Mother Teresa, perhaps the greatest role model for human suffering relief workers, repeatedly said that we human beings cannot do great things, but we can do small things with great love. Individuals cannot cure all of the world's problems with a single major all-encompassing effort, but if, in every small action we perform, we have a vision of justice, mercy, charity, and humility about what we as individuals are capable of doing, we can accomplish much even with small actions.

The friend of a colleague went to Calcutta one year to visit Mother Teresa. During his time there, she asked him to hold a sick child. After a while, he noticed to his great dismay that the child had died in his arms. Shocked, he complained to the nun, asking why she had not referred the sick child to a medical doctor. She responded that she was well aware that the child was dying, and she had wanted the child to die "with love"—in the arms of someone who cared. This is an example of a person doing a

small thing that had a greater impact than he could ever have imagined. I believe Mother Teresa would have seen the scientist's role as that of saint, performing the will of God by living a life of dedication, purpose, and exploration, living the life of the Christian activist—a life of prayer and also of research, a combination of the spiritual, rational, and social. In this perspective, we need the ultimate intention of charity in our activities—an intention that is more hierarchical and substantive than what we would normally have in our daily activity.

The medical doctors in the field working with the poor spend many hours tending the most needy. Many spend sleepless nights worrying about some patient who is suffering without enough medicine. Governmental officials in their daily activity spend hours confronting the troubles of their nation, in some cases even wars. Many spend sleepless nights worrying about some critically needed resolution. Peace ambassadors travel extensively and try to compel the world toward a better way of sanity and tranquility. Many spend sleepless nights agonizing over lost opportunities. Scientists work diligently to find cures for the world's most deadly diseases while also trying to push the envelope of human knowledge to new frontiers. Many spend sleepless nights worrying about grants, failed experiments, or questions that appear to have no answers. All of these people need to remember Mother Teresa's "We cannot do great things, but we can do small things with great love." With a greater sense of purpose and a more charitable understanding of how to treat our neighbor and our world, we can accomplish many "small things" as persistent, hard-working, dedicated individuals, even if we are confined by "reduced agency." As a collective, those many small things can become more meaningful, more charitable, more substantial, more productive, more helpful things—indeed, *great* things.

- This article is dedicated to Lee A. Goeddel -

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