GUEST COMMENT

A Dance of Death *or* A Celebration of Life?

One of the mysteries of our universe is the unique (?) set of conditions that enables a wondrously diverse and ever-changing 'web of life' to flourish on Planet Earth. Supported by a thin film of air, water, and soil, sustained by energy from the Sun, and nourished by the cycling of essential chemicals among living and non-living matter, life on Spaceship Earth has evolved over several thousand millions of years.

Is this but a transient phenomenon in the ten to twenty thousand million years' history of the universe? The origin of life on this planet is still hidden in the mist of past aeons. Its destiny over long reaches of time may be foreordained. Its future over a span of time—whether measured in decades, centuries, or millennia—may, to some extent, be a function of the behaviour of only one of the millions of species comprising the planetary 'web of life'. That species—the human one—seems to be unique in the high development of its brain with full capacity to reason. This makes possible foresight, as well as reflection—fallible, to be sure, but sufficient to chart a future course, to weigh options, and to assess benefits and risks.

Three Possible Scenarios

Every generation of humans believes that it faces a critical juncture in the course of human affairs, so comparing the gravity of decisions faced by successive generations is an act of futility, whereas assessing those that face this generation is in contrast a responsibility of our times. Reflection on contemporary world affairs leads us to consideration of three possible scenarios regarding continued human habitability of Planet Earth.

The first scenario recognizes ominously the awesome increment of destructive power associated with the development during this century of nuclear weaponry. The millionfold increase in the effectiveness of a single weapon between the formidable 'blockbuster' of World War II and the rocket-launched H-bomb may be only the starting point. Global implications were assessed during an international study by 300 scientists from 30 nations. Reported in 1985, and reaffirmed in 1988, their sobering conclusions indicated that the physical destruction from an exchange of nuclear weapons would impact the planetary biological life-support system in a manner that would place in jeopardy most of the world's human population—in non-combatant nations as well as in countries that were directly involved. While not necessarily resulting in the obliteration of the human species, this scenario would constitute a sharp punctuation in the narrative of life on Planet Earth.*

A second scenario is equally fearsome, but much more insidious. It takes into account the dramatic decrease within this century in the number of years required for a doubling of world population. It then reckons with the attendant exponential increase in the demands on the global life-support system—The Biosphere which includes the air, water, energy, minerals, and species diversity ungirding human existence. Although resilient, The Biosphere does not have limitless carrying-capacity. Moreover, the demands on components of The Biosphere are not uniform over the globe. They are strongly influenced locally by the degree of industrialization and the human population density. This 'gloom-and-doom' scenario envisions a more crowded, more polluted, more impoverished, more contentious, less healthy, and less happy, world than is compatible with human dignity. Although human habitability of Planet Earth would not be foreclosed, the conditions for that habitability would probably not be acceptable except perforce.

The stark outlooks implicit in the above two scenarios have given rise to the emergence of a small band of individuals who praise our third scenario. They began as 'despairing optimists'—to resurrect a phrase from the late René Dubos—and are now moving forward in a valiant attempt to *unleash the creative power of human reason.* Three initiatives—arbitrarily selected—are indicative of their approach. Each seeks to envision a scenario of a steady-state world with a stable human population in approximate balance with the life-support capacity of the rest of The Biosphere, with the basic needs of all being met, and with both intergenerational and intragenerational equity. An unrealistic dream? Possibly, but surely at least a vision—and from *Proverbs* we know 'Where there is no vision, the people perish.'.

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* In answer to our query, Dr Malone replied (*in litt.* 8 November 1988), 'The appropriate references are: *Environmental Consequences of Nuclear War, Vol. I: Physical and Atmospheric Effects* (SCOPE Report No. 28), A. B. PITTOCK *et al.* (Eds), Published on behalf of the Scientific Committee on Problems of the Environment (SCOPE) of the International Council of Scientific Unions (ICSU) by John Wiley & Sons, Chichester, England, UK: xi + 359 pp., illustr. (1985). [*See* also the review by Dr Arthur H. Westing in *Environmental Conservation*, **13**(3), pp. 281–2, 1986.—Ed.] The environmental effects of nuclear war: a new scientific consensus from SCOPE and the United Nations, by Sir F. Warner *et al.*, *Environment*, **30**(5), June 1988, pp. 2–45.'

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Chosen Initiatives

The first of these initiatives arose from a gathering early in 1984 of 75 scientists and national leaders from 20 countries to ponder the question: Can we meet basic human needs and nurture economic growth without undermining the natural resources and environmental integrity on which life, economic vitality, and international security, all ultimately depend? The conclusion that it *is* possible to stabilize population, improve the quality of food and shelter, save tropical forests and disappearing species, and still protect the environment, was supported by an action agenda which was subsequently expanded into a persuasive 538-pages' book, *The Global Possible*, published by Yale University Press in 1985.†

The second initiative was mounted later in 1984. The world scientific community acting through the International Council of Scientific Unions, shifted its focus from the frightening global environmental consequences of a nuclear war towards a positive, ambitious, long-term, international, interdisciplinary, research programme aimed at understanding the interactive physical, chemical, and biological, processes that regulate the total Earth system, the unique environment which it provides for life, the changes that are occurring in that system, and the manner by which these changes are influenced by human actions. One of the key motivations was to put in place an understanding of the planet's structure and metabolism that would permit *sustainable development* in The Biosphere.

Finally, in one of the most important books published during the 1980s, the uniquely independent, highly interdisciplinary, and markedly international, World Commission on Environment and Development brought forth in 1987 its report, *Our Common Future*, published by the Oxford University Press.** That work crystallized the growing conviction around the world that issues of human and economic development, of the quality of the environment, and of the integrity of the natural resource-base, are all highly interdependent and mutually supportive. A positive vision of the twenty-first century emerged, supported by a renewal of international cooperative institutions and collaborative activities. The need was emphasized to stress the moral—and practical—ethics of fairness and humanitarianism. Sustainable development was perceived to be the foundation for national and international security, taking the place of military power and armaments' competition.

Conclusion Maintaining Hope

Thus, human reason presents three options for society to ponder. The contrast between either the first or the second scenarios and the third, sharply identifies the issue of motivation. Is it not easier to mobilize the world's intellectual and material resources to work towards a hopeful vision of the future, than to marshall those same resources merely to obviate a scenario of doom and disaster? More than two centuries ago Immanuel Kant pointed out, in his *Critique of Pure Reason*, that the interest of both speculative and practical reason tends to centre around three questions: What can I know? What ought I to do? What may I hope? Scientific and technological thought is clearly shifting in the direction of responsiveness to *moral imperatives that are linked to hope.* This may well presage the emergence of the noösphere of V.I. Vernadsky, T. de Chardin, and others, as an evolutionary step. Can scientists, and kindred souls who look to human reason to help set a course for the future, provide a model that might be emulated by governments as they address the management of world affairs? If so, we could 'face the future with confidence' as Vernadsky urged. A Dance of Death is not inevitable: we can still opt for a Celebration of Life.

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† *See also* the review, by Professor Elisabeth Koutaissoff, of *Optimistic Outlooks: Latest Views on the Global Future by a Galaxy of International Experts*, published in our vol. **11**(4), page 380, 1984.—Ed.

** *See* the review, published in *Environmental Conservation*, **14**(3), p. 282, 1987, by Dr Martin W. Holdgate, now Director-General of IUCN, who had been the chairman of a major international conference on the theme of the preceding paragraph.