

EDITORIAL

Energy-use and The Biosphere*

You have surely all heard the jingle about the old woman who lived in a shoe—she had so many children, she didn't know what to do. That in miniature is *practically* our world's increasingly unhappy predicament now—especially if we focus our attention on humans and their needs and, most of all, their hopes and aspirations. For although the basic requirements of humans for energy from food have scarcely changed through the ages, their aspirations have increased out of all bounds and, with them, their overall use of energy.

As a result of this often wasteful, even profligate, use of energy, more and more fossil fuels and other non-renewable resources have been tapped—widely to impending or actual depletion—while the human-inhabited parts of our world have become increasingly congested or at least polluted. If we think of this in terms of The Biosphere, as many of us believe we now should do in order to preserve a global perspective and act accordingly, we have a profoundly worrying situation—especially for those of us who, whatever our ages and life-expectancy, *need* to think of our world as continuing without further avoidable drastic environmental deterioration.

In case any of you are not familiar with the term of *Biosphere*, at least in the sense in which we use it, it is the region of our planet and its surrounding atmosphere in which life exists naturally. Thus it ranges from the deepest strata of Earth in which any microorganisms exist, right up to the highest levels of the atmosphere to which living spores or any other form of life may be wafted by natural means. The Biosphere thus encompasses all regions of the world in which plants or animals or microbiota occur naturally—including humans, which comprise an integral and increasingly influential part of it. But although our species may dominate many parts of the world, it does not control The Biosphere, which must be safeguarded against any evil tendency at all costs.

As long as hominids were evolving gradually in the manner of other living things, The Biosphere was able to contain them in the course, as it were, of its normal existence. But gradually evolving ape-like hominids developed a unique feature, the human brain, which enabled them to record, plan, and build—in short, to change increasingly large parts of the world primarily in their own interest. Meanwhile they developed modern medicine and some beliefs that human life is somehow sacred and should be multiplied more and more—so that we now have that old woman's predicament of too many children practically world-wide. And although at present there may be enough food, available energy, and even space, in the world, such that distribution rather than shortage may be the problem, it cannot always be so, at least if humans go on multiplying and yet are to have any desirable sort of life.

The Biosphere Threatened

Now what is the effect on The Biosphere, our only true and hitherto infallible life-support? In recent years the effect has emerged quite shockingly in several ways, such that we now have a wide range of menaces to The Biosphere. Not only have we the appalling threat of nuclear holocaust due to the insane buildup of stockpiles of the most powerful weapons of destruction ever known, but now also the expectation of widespread temperature-climate changes due to the 'greenhouse effect' of the buildup of heat which cannot escape owing to the presence of certain gases in the atmosphere—in turn due largely to too much burning of carbonaceous materials. As an example: in my own student days the carbon dioxide content of the atmosphere was approximately 0.028%, whereas it is now something like 0.035%—a rise of some 25% from the earlier 28 parts in 10,000. This 'greenhouse effect' is authoritatively predicted already before the end of the next century to increase ambient atmospheric temperatures sufficiently to put practically the whole of the North American wheat belt out of any such agricultural productivity!

In other ways, too, over-use of energy for fuel by ever-increasing numbers of people is changing the face of the Earth's land—the part of The Biosphere which we humans mainly inhabit—gradually but inexorably through deforestation and devegetation that often result in desertification. This, too, is widely due to woodcutting and -burning, while in a different manner it could prove that another serious threat to The Biosphere—that to the ozone layer in the stratosphere, without which life could scarcely have evolved on

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Earth and could surely not be maintained at all equitably—is in part a function of energy-use. At least there appear to be links between stratospheric ozone depletion and the ‘greenhouse effect’ of atmospheric warming.

So you see that some of the most stupendous problems of The Biosphere are energy-related, and that we should consider them on a fully global, biospherical scale if selfishly indulgent, but generally intelligent, Mankind is to tackle them effectively and save the world for itself and Nature.

But now the old woman, living in our modern Biosphere, knows much more of what to do—at least if we synonymize her with what the women’s libbers call humankind—but yet seems quite lamentably incapable of persuading her children sufficiently into the course of overdue altruism to effect what is necessary. To put matters bluntly, people simply will not give up their selfish gains and comforts sufficiently to save the situation and ultimately the world from the kind of fate that now looms more and more ominously as possible or in some sectors almost inevitable.

World Campaign and Council For The Biosphere

Some years ago a like-minded group of us, representing several continents and a wide range of different scientific interests, instituted a World Campaign for The Biosphere and founded a supporting World Council For the Biosphere of which I have the honour to be President. Our main objects are to watch over the welfare of The Biosphere, to pronounce on any dangers thereto which we can see or foresee, and to warn governmental and other planners and decision-makers of actions that are needed, or alternatively need to be avoided, to safeguard The Biosphere as the only lasting home at once of Mankind and Nature. Our Council consists of eminent leaders in their various fields of scientific or other endeavour, studiously avoids partisan political or other outside pressures, and is totally independent in its activities, decisions, and recommendations.

Some of the items which The World Council For The Biosphere needs to watch most closely are obvious—such as burgeoning human populations, long-overdue limitation of their wasteful use of finite raw-materials, and of course due conservation of such of those materials as remain. Even more urgent is the need to counteract the continuing crazy build-up of nuclear capacity to destroy our world and conceivably all life on Earth—though it is thought that some primitive forms, living in deep ocean troughs, would survive even an all-out nuclear war. But some other dangers to The Biosphere are more subtle or even obscure—such as the already-mentioned ‘greenhouse’ warming of the atmosphere, and the thinning of the stratospheric ozone shield which may also be energy-linked. Another is the widespread dying-back of trees from various causes, of which the ozone progenitors in automobile exhaust when acted on by sunlight may well be little understood but actually the worst.

Although it will probably take far worse calamities than those of Bhopal, Chernobyl, and now Bâle, or even the widespread death of our forests, to waken us effectively into full-scale action, it seems that, with more and better environmental education and concomitant understanding, we may yet be in time to save the world from the currently all-too-evident possibilities of an unhappy end at least to our human life as we know it. Thus it seems that greatly improved and expanded environmental education, based on sound research and practical testing, may well constitute our brightest ray of light and hope for the future.

May I therefore, in conclusion, express the ardent hope that COPER—Centre International de Coopération pour les Energies Renouvelables—will heed well all environmental lessons and projections but otherwise go right ahead, along solar-hydrogen energy system and other environmentally desirable lines of endeavour, hand-in-hand always with pertinent education and the latest, duly tested research findings. To me as an interested observer when possible of the entire-world scene, it is gratifying to see such developments as COPER—namely one that copes, and not merely with horses which I believe is or was the commonest usage of the word—as a very worthy indication that the old woman is now at last imparting wisdom to some of her children as she gets still older. In this increasingly harsh world it may well be those alone who will survive!

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