GUEST EDITORIAL

Stressing Desertification

Few things can be more conducive to ennui than preaching to the converted, and few forms of mistake more gratuitous than unfulfilled prophesy. The writer of an editorial on desertification for *Environmental Conservation* is delicately poised between these dreary manifestations of Scylla and Charybdis; he would have to be a literary Odysseus to avoid falling foul of either one or the other danger. It is calculated that, during the past 50 years, the Sahara has engulfed some 650,000 square kilometres of arable land, vast areas of India have been overrun by the Thar Desert, and the Atacama has swallowed thousands of square kilometres of northern Chile. Similar disasters have befallen large parts of the Middle East, Argentina, southern Africa, and parts of Siberia and China.* Many of these regions were once fertile: ancient Mesopotamia was a magnificent empire 4,000 years ago; important cultures existed in what are today the deserts of Sinai, Mali, and the Karakum. Probably no less than 9 million square kilometres (3.5 million square miles) of desert in the world today have been created by Man.

Of course, climatic vagaries or alterations may have been responsible for some of the adverse changes that have occurred—there is some dispute on this point. But it has been calculated that between 60 and 200 million tonnes of soil are being lost annually from the Sahara and blown into the Atlantic Ocean. Does drought feed upon drought by setting up positive feedback loops? Does Man accelerate such feedbacks when he overstocks or overcultivates the desert margin? We must conclude that the undeniable tendency for deserts to expand is largely due to the unwise response of human societies to the strains imposed by naturally occurring drought; and there is no convincing evidence that a lasting decrease in rainfall is in progress around the desert areas, although such desiccations have often occurred in the past.

Tendency to Grow

When once they have been created, deserts tend to grow. The air over the Thar may contain nearly 80% as much water as does the air over tropical rain-forests, but very little rain falls in the desert. This is because, instead of absorbing the sun's energy, the sandy or other bare surface reflects much of it. Vast quantities of dust block out so much of the sunlight that the land never heats up enough to trigger the rain-making mechanism. Instead, because of the dust, the air heats up above the desert surface and this inhibits rain.

Desertification is caused widely by overgrazing, felling trees for fuel, and bad agricultural practices. It is essentially a problem of poor countries, because poverty increases the risk of environmental degradation—affluent countries can afford to take the necessary counter-measures. Desert expansion can be checked and degraded lands rehabilitated only where there are both strong determination and political stability, because the remedial measures that would have to be adopted would undoubtedly prove most unpopular. They include population control or transfer to other activities, enforced emigration and education, and strong restraints concerning the use of land and water. Few, if any, existing governments would dare to tackle such inflammatory issues—indeed, no government in the Western world has yet devised a practical way of enforcing birth control!

The Remedies are Known

Even if we accept the unpalatable fact that much more of the Earth's land surface will undoubtedly be desecrated before the overall situation can begin to improve, there is no call for absolute despair. Much could yet be done. Cheap fuel might be provided for those arid lands that do not possess oil resources. Hills could be reafforested, dunes stabilized by planting trees and shrubs, livestock limited to restrict overgrazing, and irrigation works redesigned or improved.

Yes, the sociological, technological, and scientific answers are certainly known; but they would be expensive to bring into operation. Furthermore, the ecological remedy of multiple land-use—so that no individual parameter of the environment is subjected to more exploitation than it can reasonably be expected to withstand—presents little appeal to the unenlightened imagination. The direction of grandiose development corporations is concerned with immediate appearances rather than with lasting effects. It is certainly more enjoyable to travel hopefully than to arrive at a scene of desolation. At the

* Also parts of New Zealand, Venezuela, and the southwestern United States, as papers in this issue will indicate.—Ed.

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Fig. 1. *The Agulu Erosion, Anambra Province, Western Nigeria.*

Fig. 2. *An ecological disaster created by human activity during the past 70 years: Active desertification in the Agulu Erosion, Western Nigeria.*

same time, however, it becomes somewhat depressing to travel continually in the wrong direction—which, unfortunately, is exactly what we are doing today.

Desertification cannot be checked without massive injections of foreign or other aid or subsidies, as well as technical and scientific assistance. Unfortunately, much of the money that has been spent during the past 30 years has been wasted on costly but unsuccessful developmental projects. The East African Groundnuts Scheme, hurriedly initiated after World War II, was a blueprint for disaster such as has been repeated over and over again. Agricultural techniques that have brought prosperity to temperate regions often founder for unexpected reasons in the tropics. These unexpected reasons are all too often discovered only through bitter experience and far too late.

Sad Example

Only last year, I was taken to see the Agulu erosion in southwest Nigeria — a dramatic valley slashed across the countryside like a miniature Grand Canyon (Figs 1 and 2). In the far distance, a column of women with pots on their heads were winding their way slowly down to the spring at the bottom of the gully. Others, laden with filled water-pots, were returning by the same route. The journey took them more than an hour each way, which gives some idea of the size of the erosion. Nevertheless my guide, a research student from the University of Nigeria, Nsukka, told me of an old man in his village who can still remember, before erosion started, when there was a small market on a level with the top of the present canyon!

A few days later, I was invited to visit the multi-million dollar Anyangba Agricultural Development Project, embracing thousands of square kilometres of Benue State. Whilst there, we were shown a film of giant buttressed trees being felled and the ground levelled by bulldozers to make roads for the Land Rovers. 'Before long' the commentator announced 'even vehicles with two-wheeled drive will be able to get along them.' Meanwhile, the Agulu erosion has become a tourist attraction, with a road-sign reading 'Welcome to the Agulu Erosion'. How much longer, I wondered, will it be before travellers are welcomed to the Benue erosions?

The only practical means of combatting desertification is to appraise the administrators—from the Director of the World Bank and the President of the United States of America, to the governments of Third World countries and those who serve them—that small-scale schemes are generally far safer, more profitable, and less destructive of the environment, than are more spectacular, vote-catching and grandiose projects. The latter may produce short-term profits but, in the long run, they nearly always

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result in desert encroachment. It would be better to sponsor a thousand family allotments of 10 ha each than a single agricultural project of 10,000 ha!

Rehabilitation Possibilities

If I were asked to make any prophesy about the future of the world's deserts, it would undoubtedly be a gloomy one: and I should be most agreeably surprised if it were not fulfilled. It seems inevitable that desertification will continue to spread in the immediate future, and that most at least of the world's deserts will continue to expand. This is a very major part of much of the problem of the Third World. The population problem may, of course, be solved by thermonuclear warfare, from which only a few unfortunates would survive to envy the dead. It may equally well be solved by world starvation, accompanied by the misery, tyranny, and vice, that Thomas R. Malthus foretold in *An Essay on the Principle of Population as it Affects the future Improvement of Society* (1798, revised 1803). A third possible cause of a reduction in human population numbers might be the appearance of some uncontrolled new virus or stress syndrome.

Although I have predicted that desertification will increase, along with the human population of the globe, I am not so pessimistic as to believe that humanity will inevitably perish in a holocaust. Many things are possible for people who possess the technological capacity to send men to the Moon and bring them safely back to Earth. To make the desert blossom is technically possible.* At present, this may be economically unrewarding and have little of the political and emotional appeal of sophisticated rocketry. Arid regions are, however, well endowed with ultraviolet energy and some other aspects of fertility, and are by no means devoid of further resources—as we know full well.

There is some hope, therefore, that a change in the direction of economic pressures may result in a reversal of the world's present suicidal tendencies. Even if this viewpoint is unjustifiably optimistic, we still cannot discount the possibility that cultural values may change, as they have done so often in the past. Mankind is not so rational—or utterly irrational—as is often thought. Despite his greed, Man can also be gratifyingly compassionate. If this quality were universally extended towards other human beings, as well as to the endangered fauna and flora of the Earth, it would undoubtedly be possible to overcome the dangers inherent in the present paradox.

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* As the late Richard St Barbe Baker and others have long contended. — Ed.

EDITORIAL NOTES

Our Journal Changes

After prolonged planning and consultation, a predecessor journal, *Biological Conservation*, was launched in 1968. It soon engendered an active sister, *Environmental Pollution;* but as the need for an ecologically-based general environmental counterpart emerged, *Environmental Conservation* was founded in 1974 and *Biological Conservation* left in other hands. The careful planning that was put into the dual venture of *Biological Conservation* and then *Environmental Conservation*, has paid off to the extent that no major changes have been deemed necessary in the latter during its near-decade of existence. Now, however, we feel that the time has come to introduce a dignified categorization of substantial short communications and reports (as opposed to mere notes etc.) while at the same time effecting economies of layout and execution beginning with the present, Autumn issue of this year [1982].

Blank Spaces

In future, the principal papers in our Journal will continue to begin on a right-hand page but will not be backed by 'fillers'. The most obvious difference for our readers will be the blank spaces at the ends of the main articles, though every effort will be made by the typesetters not to end any paper with a page carrying only a few lines. This practice, long favoured in the past by commercial publishers and those of more lavish journals, has now become common for reasons of both expediency and economy. It will no longer be necessary for us to concoct 'last-minute fillers', and indeed the whole production process will be streamlined.

To compensate our readers and ourselves in the matter of much-needed space, the Publishers have generously undertaken to add 8 pages per issue to the regular allotment of 80, while increasing to 12 (exceptionally) the maximum number of 'extra pages' which we may add per issue on payment of 150 Swiss francs per page (always in groups of 4). Thus the minimum number of pages per volume is increased to 352 and the maximum permissible to 400 (apart from covers and 'prelims').

Short Communications & Reports (SCRs)

A second evident change in our Journal will be a special section, entitled 'Short Communications & Reports' (SCRs), and starting on a right-hand page in the manner of main papers and other sections. The Short Communications will usually be

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