

INTRODUCTION

In our times of unprecedented change, biologists are well aware of the rapidly growing ability of their fellow human beings to alter the face of the earth through technology. But they are equally aware that these alterations can bring about far-spreading and often destructive changes in the web of life that is stretched so thinly over the surface of our planet. Our technology has outpaced our understanding, our cleverness has grown faster than our wisdom.

Technology produces more than physical change. With his new-found powers man has also radically altered part of his own biology: on a worldwide basis, his average length of life has nearly doubled during the last few decades. In many regions of the earth this rise in life expectancy has not increased human happiness; rather it has multiplied human misery. To achieve a decent life for the living generation, further change in our biology may be needed: we may have to reduce fertility as reckoned on a worldwide basis to levels below any previously attained. To meet the needs of human life and human dignity, there must also be a vast increase in productivity, and this will be doubly true for the generation that will be born before the end of this century.

Because of our limited understanding of the relationships among living things, we are limited in our ability to predict the effects of technical change or to help the technologists conserve the values and utilize the abundance of the world of life. Our goal should be not to conquer the natural world but to live in harmony with it. To attain this goal we must learn how to control both the external environment and ourselves. Especially we need to learn how to avoid irreversible change. If we do not, we shall deny to future generations the opportunity to choose the kind of world in which they want to live.

Greater understanding will make it possible for man to respond to opportunity as well as to react to need. To gain such understanding is the underlying purpose of the International Biological Program.

This program has three related objectives: human welfare, scientific advance, and international scientific cooperation. These three objectives cannot be separated. Biologists can

contribute uniquely to human welfare only by advancing scientific understanding, and the basic premise of the International Biological Program is that the growth of understanding will be accelerated by international cooperation among the world's biologists.

To be effective the program should focus on problems whose solution most depends on international cooperation in biological research. Accordingly we are concerned with conserving and expanding the world's biological resources to better serve human needs, with the quality of the natural environment as a realm of human happiness, with nutrition as a basis for human health, and with the biological aspects of the problem of balancing human fertility and natural resources. Our scientific objectives are also limited. Our basic interest is the development of scientific ecology in its broadest sense. We believe we should give special emphasis to the genetics and dynamics of populations, to the factors that control biological productivity, to the ways in which plants, animals, and especially men, adapt to their environment, and to the changing distribution of living things in the sea and in the air and on the land. If scientific opportunities are to be created for the future, scientists of different countries will need to cooperate in preserving natural areas as well as in research.

Because most of the land surface and many of the most interesting problems lie within the territories of less developed countries, international cooperation in the scientific development of these countries is not only desirable in itself but is also essential to attain the scientific objectives of the IBP. These objectives will be achieved only if there is a free exchange of scientists for research and training among different countries, and a broad and rapid flow of scientific information.

New methods must be developed and old ones greatly extended. In the past, ecologists have studied particular limited communities; now, work on a few large-scale systems is needed to test and extend our understanding. New techniques for worldwide biological surveys (perhaps by satellites as well as in other ways) are needed to improve our description of the biosphere. Greater comparability of methods of measurement