Preface

The idea that a course ought to be designed to meet the special needs of its students is something of a novelty in higher education. In the dim but not too distant past, the groves of academé were noted mainly as a tranquil haven where the scholar could pursue his specialty through reflection and research. Unfortunately, he was also apt to take this opportunity to inflict his special interests on the helpless captives in his classroom, often without regard to differences in their backgrounds, interests, and objectives.

The idea of a biology course that is tailored to the interests, objectives, and needs of the English, social science, or art major has been frowned upon as lacking in "academic respectability," a term that even its users are unable to define but which is often related to (1) the degree of incomprehensibility and (2) what the professional biologist-specialist deems important.

It would be premature to say that this situation has radically changed. But there are some indications that more thought is being given to the needs of the student who is not a biology major, who more than likely "hates science" with a passion, and who signed up for biology because of some degree requirement or because someone told him that it is easier than physics.

These signs are welcome and long overdue, but there are those who fear with some justification that the academic world may be too quick to worship at the altar of a new god called *Relevance*. In some quarters the rush to be relevant has resulted in a course which appears to be a blatant appeal for student attendance and student approval. A course in "environmental biology" in which the instructor proclaims to a supposedly surprised class that the Hudson (Niagara, Mississippi, Ohio, etc.) River is polluted, and spends a semester exhorting the students to chase the evil-doers from the land, is not a biology course. All too often it becomes a propaganda session in which various aspects of the obvious are stated and restated.

This book is based on a one-semester course which the author teaches to nonmajors. Like the course, it attempts to promote an appreciation of biology as a science which is indeed relevant to many of the important issues that involve the future of man and of the planet that we call home. This book is firmly based, however, on the premise that a student can best arrive at an appreciation of the larger issues related to biology through a study of related basic principles. It seems unlikely, for example, that one can intelligently approach environmental problems without some awareness of at least the basic principles of ecology. Similar statements can be made about other issues related to genetics, abortion, population growth, racial differences, and so on.

The style, content, and level of sophistication are frankly directed toward the nonmajor. On the other hand, an emphasis on ease of comprehension should not prevent a consideration of some of the traditionally "difficult" topics such as those related to the general field of molecular biology. If such topics as DNA and energy transfer are approached with care, the nonmajor can gain a useful degree of understanding as well as a grasp of the significance of the principles involved.

It may seem trite to point out the need for an "enlightened citizenry," but we can no longer ignore the fact that the problems of man and his planet make it doubly important that people who are not biologists have an appreciation of major biological concepts. The major objective of this book, therefore, is to help the student attain a degree of biological sophistication through the study of a few selected basic principles, with applications to the larger issues of which they are a part.

There has been an attempt to organize this book on a logical sequential plan so that principles learned in earlier chapters will be useful to understanding those concepts taken up in later chapters. A special chapter on chemistry is not included; instead, a review of necessary chemical principles is brought in only where they are needed as part of a biological concept.

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