

INTRODUCTION

A NEW AND SIGNIFICANT trend has become discernible in biology during the last decade. The excessive specialization which had prevailed in the recent past seems slowly to be giving way to a greater unity; a science of general biology appears to be emerging. In a way this trend represents a partial reversal of a historic tendency of much greater duration. For more than a century the field of biology was so extensive and growing so rapidly that no single investigator, no matter how broad might be his grasp, could keep abreast with the developments in all the numerous branches. The response of biology to this challenge was a subdivision of the general field into many disciplines, each endowed with its own materials, methods, and techniques. Instead of being biologists, most of us became systematists, physiologists, geneticists, embryologists, biochemists, pathologists, etc. Inevitably, secondary subdivisions have arisen in the course of time. Nobody could any longer be at home in, for example, the systematics of all animals or of all plants. The systematists split into mammalogists, ornithologists, entomologists, helminthologists, protozoologists, etc., and finally into specialists on separate families, genera, and even smaller groups. The genetics of, let us say, *Oenothera* threatened to become incomprehensible to those engaged in studies on the genetics of *Drosophila* or of man. This extreme compartmentalization of biological knowledge proved fruitful in that it led to an enormous accumulation of factual information; it has been deleterious in so far as it resulted in a lack of understanding between the representatives of the various disciplines and a consequent lowering of the efficiency of biological research. It stands to reason that the exigencies of the situation continue, and probably will continue, to demand that each biologist be a specialist in some small portion of the general field. During the last decade the conclusions reached by many of the specialists have begun to converge toward a set of general principles applicable to the entire realm of living matter. One can now hope that this will occur in increasing measure in the future. Biology, it seems, is no longer in its childhood; as a science, it is approaching maturity.

Obviously, it would be out of place to attempt to discuss here the results of the unifying trend in modern biology as a whole. Suffice it to

say that Dr. Mayr's *Systematics and the Origin of Species* is one of the manifestations of this trend. Dr. Mayr is an outstanding zoological systematist; his specialty is ornithology, and he is the foremost authority on the birds of Oceania and Indonesia. The results of his preoccupation with the subject matter of his special investigations are amply evident in his choice of examples in many chapters of the book. Yet it is equally evident that this book has not been written from the point of view of a specialist on the systematics of a certain group of animals inhabiting a certain part of the world. It has been written by a general biologist. Although this book contains a critical reassessment of the evidence furnished by zoological systematics regarding the course and the mechanisms of the biological evolution, that is not what makes it unique. Such critical reassessments have been published from time to time by many systematists and they are undoubtedly interesting and necessary. But Dr. Mayr's chief accomplishment in this book has been to correlate the evidence and the points of view of modern systematics with those of other biological disciplines, particularly genetics and ecology. A correlation of this sort has been necessary for some time; even in the recent past there existed a notorious lack of mutual comprehension between the systematists on one hand and the representatives of the experimental biological disciplines on the other. That this lack of mutual comprehension was due in part to an unfamiliarity with each other's factual materials and methods, and in part to a sheer misunderstanding of the respective points of view, was felt by many systematists as well as by experimentalists. But it remained for a systematist of Dr. Mayr's caliber, possessing a wide familiarity with and a perfect grasp of the apparently conflicting disciplines, to demonstrate conclusively that this conflict is spurious.

TH. DOBZHANSKY

Mount San Jacinto, California
July, 1942