sions: automation is neither something entirely new nor yet just another name for something old; it will create some short-lived social dislocations but on the whole more jobs and higher-level jobs; it will create the need for major changes in the education of technologists, scientists, and managers; and the speed of its introduction will largely be controlled by the availability of technologists and managers equal to its demands, are a fair, judicious and objective summary of our knowledge and experience to date and are well supported.

But the limitations which this booklet sets for itself deprive it of some of its usefulness. In the first place, it is primarily concerned with automation in manufacturing industry. Yet the impact of automation on clerical work and on distribution is, we already know, much greater than on manufacturing work. The speed with which automation is being introduced outside of manufacturing is also very much greater. And the social and economic impact of automating the flow of information and ideas —as against the handling of physical things—is also likely to be very much more marked.

But even within the application of automation to manufacturing, this publication largely restricts itself to discussing automation as the application of new techniques and new tools to the production of already existing and already designed products. But our experience shows that the very least that automation demands is the redesign of these existing products rather than the mere replacement of preautomated by automatic tools for the same design. More important even, automation will make possible, may indeed demand, the design of entirely new products. Above all, it demands, as does every basic method of work, the rethinking and redesign of the business and its organization, its objectives, its risks, and its management. It is in this area that the major challenge of automation lies. It is in this area also that the major social, economic, and educational impacts will arise.

It is understandable that a publication like the present one which is clearly written for the layman—whether manager or engineer—decided to stay away from these subjects. In the first place, they would have involved fairly difficult discussions of such highly abstract matters as mathematical information theory, operations research and synthesis, or the logic of decision-making. Second, here we deal with matters which are still in the exploratory stage, still the subject of "speculation" rather than of performance. Yet tomorrow's technologist and manager will have to understand these areas—even if he himself need not be an expert in the new theoretical and conceptual knowledge required. That the ability and the skill of technologists and managers are likely to be the "controlling factors" in the speed with which automation is being introduced, and are likely to prevent any "automation revolution" from occurring overnight, is largely because "ability and skill" of technologists and managers mean, above all, understanding and knowledge of new conceptual and theoretical knowledge.

A major feature of this booklet is an extensive bibliography—the best that I have seen so far. Particularly noteworthy is the full coverage of the Russian contribution to the field.

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New Concepts in Flowering-Plant Taxonomy. J. Heslop-Harrison. Harvard University Press, Cambridge, Mass., 1956. 135 pp. Illus. $1.25.

As W. B. Turrill explains in the foreword to this little book, it is an "account of the impact of experimental and other intensive studies on orthodox plant taxonomy." It begins with a historical account of the development of what has come to be called "classical taxonomy." Here the author concisely but critically outlines the development of orthodox taxonomy and poses the problems that are to be considered in more detail.

There is a summary of the basic and pertinent facts of genetics as they bear upon variation in the phenotype, together with a discussion of how genetic effects can be distinguished from those of the environment. The breeding system or genetic system is discussed in relation to taxonomy and the population concept; and the conclusion that the "breeding system prevailing in any group of plants is always of enormous taxonomic importance" is adequately demonstrated. Then follow examples of the study of, and the means of study of, ecological differentiation of populations, geographical variation, reproductive isolation, and cytological variation. Various types of variation patterns are characterized and related to the factors influencing or accomplishing reproductive isolation or its breakdown. Cytological variation at various levels is discussed with familiar examples.

Finally, categories that have been proposed by various workers in experimental disciplines are examined, and these are compared with those of orthodox taxonomy. Possibly here the distinctions between "experimental" and "classical" taxonomy are overemphasized. There is, of course, important and useful work which bridges the gap, and I suppose that the majority of taxonomic work in the future will continue profitably to combine techniques and concepts from both approaches. In pointing out that classical taxonomy customarily deals with the *products* of evolution, while experimental taxonomy seeks to understand the details of the *process,* Heslop-Harrison, it seems to me, has put his finger on what is the basis for the most serious conflict between the two approaches. The question of whether any "categories" in the usual sense, even those of the experimentalists, can express the process of evolution has not been satisfactorily answered.

Although the "experimental" taxonomist, and probably even the modern "classical" taxonomist, will find little that is new in this book, he will undoubtedly appreciate the concise and general treatment of material elsewhere brought together only in the necessarily much more extensive *Variation and Evolution in Plants* by G. L. Stebbins. It should be an especially valuable adjunct to the teaching of taxonomy at even the lowest level. And nonbotanists should welcome it also as a painless introduction to some of the newer concepts in flowering-plant taxonomy.

There are a glossary and an index, together with a short list of suggestions for further reading. The book was first published in 1953 by William Heinemann Ltd., London, and is now issued by the Harvard University Press under the 1956 date but printed in Great Britain apparently without change.

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Modern Views on the Secretion of Urine. The Cushny memorial lectures. F. R. Winton, Ed. Little, Brown, Boston, 1956. 292 pp. Illus. $8.50.

This book represents the compiled series of lectures given at University College, London, in the summer of 1955 to honor A. R. Cushny, who held the chair of pharmacology at that institution from 1905 until 1918. The ten lectures which go to make up this volume might be regarded, as the editor points out, "as modern views on various aspects of the secretion of urine." They were given by present and former workers at University College on the 50th anniversary of Cushny's appointment to the chair of pharmacology.

It is not until one sees papers by these outstanding persons that one realizes what a weight of study of urinary secretion has centered around University College Hospital. The lectures here presented also attest to the diversity of approaches to the subject, manifested by the several authors. These range from