Book Reviews

The Species Concept in Palaeontology. Systematics Association publication No. 2: A symposium. P. C. Sylvester-Bradley, Ed. Systematics Association, London, 1956. 145 pp. Illus. $2.

In 1940 the Systematics Association published its first symposium, *The New Systematics.* It is true, as some critics have commented, that the origins of the new systematics can be traced back another century or so, and no doubt some enterprising classicist will produce an ancient Greek forerunner. Nevertheless, that publication did signalize and stimulate a true revolution in the science of systematics—a change, to state it in the briefest possible terms, from the classification of idealized, fixed types (typology) to the classification of real, varying populations. Since 1940 the new point of view, with its new methods and results, has become usual among students of living organisms.

Now, the second symposium of the Systematics Association demonstrates, among other things, how far the new systematics has affected the study of extinct organisms and to what extent different problems appear in this field. Eighteen paleontologists and zoologists, all but one of whom (Newell) is British, have contributed to the discussion. Almost all of them make the point, implicitly at least, that paleontological systematics is inherently more complex and difficult than neontological systematics. There is, in the first place, the added dimension of time. There is, moreover, a whole series of special difficulties related to paleontological sampling, which are here well discussed by Rhodes, Newell, and George, among others.

Apart from such useful treatments of methodological problems and a few oddities, such as Haldane's washing his hands of the stated topic, the main issues seem to be two: the applicability of population concepts to fossils and the problems that are connected with classifying lineages through time. The interplay of questions that bear on the first and broader of these issues is somewhat obscured by organization and terminology. The body of the book is divided into sections labeled "Theory" and "Practice," a distinction that is seldom valid in science and is rejected by some of the authors here involved. In fact, the distinction achieved is not between theory and practice but between two purposes and attitudes. The nominal "theoreticians" are interested in fossils as organisms, including their "practical" applications. The nominally "practical" students are interested in stratigraphy more than in organisms as such. It is not surprising, then, that the writers on "theory," notably Thomas, Rhodes, Westoll, Newell, and Joysey, are unanimous in welcoming population concepts in systematics, while the writers on "practice," notably Arkell and Eager, mainly support a type systematics. Indeed, this is no question of theory and practice but the same issue that has been fought out since 1940 (and before) in neontology between population systematics and typology.

This issue is somewhat compromised, not only by the false tendency to equate typology with "practical" paleontology, but also by the foreword of the chairman (White). He remarks: "It is true that there is a satisfactory degree of unanimity among those . . . often unembarrassed by prolonged or wide practical experience . . ." and "Fresh breezes are doubtless blowing through the musty halls of orthodox paleontology, but some of us may be forgiven for thinking that in places the amount of wind is excessive"—statements that contributors to the symposium may find discourteous and readers will surely find unjustified. There is a further ambiguity in the usages throughout the book of the term *morphospecies,* which sometimes means a real, biologically significant population that is recognized on morphological evidence and, sometimes, an idealistic grouping on the basis of resemblance to an arbitrary type, with consequent haziness of logical grasp of the differences between these two concepts. In spite of editorial bias and of some logical confusion among their opponents, it is clear from the book as a whole that, in paleontology as in neontology, the typologists are now the old guard still fighting a lost battle. It is even clear, although here not perhaps as fully demonstrated as it could be, that the supreme argument of the typological stratigraphers is flatly fallacious. Population systematics is demonstrably superior for the most fully practical stratigraphic applications.

The problem of ancestral-descendent species (if such they should be called) successive through time is peculiar to paleontology and is here considered at some length, especially by Thomas, Rhodes, Westoll, Newell, Joysey, Kermack, and George. There is not complete agreement, but there is a consensus that there are available sensible criteria for specific subdivision of these continua and that the units so achieved may be arbitrary but are not, as has been claimed, "unreal."

Authors not previously named are Parker, Ager, Parkinson, Melville, Smout, McKerrow, and Sylvester-Bradley, who has supplied a stimulating introduction. There are a meager index and a good glossary. The latter, as glossaries so often do, raises the question whether some terms are really necessary.

It is not likely that the Systematics Association's second symposium will achieve the fame and influence of the first. This book is, nevertheless, another important milestone, indispensable for all paleontologists, zoologists, and evolutionists.

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Metallurgy of Chromium and Its Alloys. vol. II of *Chromium.* Marvin J. Udy, Ed. Reinhold, New York; Chapman & Hall, London, 1956. 402 pp. Illus. $11.

The metallurgy section of the monograph on *Chromium* represents the efforts of a number of eminent contributors, each of whom is a recognized expert in his particular field. The result is a comprehensive coverage of the various phases of the extractive metallurgy of chromium and of the properties of chromium, its alloys, metallurgical uses, and its uses in refractories.

The section on the extractive processes for chromium covers these methods very well and goes into great detail about the prevailing commercial processes, thus providing the reader with full information about the subject. For one concerned with the pure metal, however, the information which is included is somewhat meager.

The physical properties of the metal are given in excellent detail; thus, the book is excellent for purposes of reference. Also, the behavior of chromium in various steels, cast irons, high temperature alloys, electrical resistance alloys, and nonferrous alloys is described in detail by competent specialists in these several fields of endeavor. However, current investigations concerning chromium-base

alloys—a subject of considerable current interest—receive but scant attention.

The characteristics of chromite which are responsible for its refractory properties, as well as the processing of the ore to refractory products and the specific applications, are discussed in excellent detail in the final section of the monograph. The volume is thus a handy reference book for those interested in furnace linings and similar applications.

From an editorial standpoint, it is apparent that the individual chapters are by different authors. Some are excellently well edited, while others need more careful editing and proofreading.

In general, this is an excellent treatise, though it is somewhat weak, for a 1956 publication, in its coverage of the most recent developments.

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Energy and Structure in Psychoanalysis. Kenneth Mark Colby. Ronald Press, New York, 1955. ix + 154 pp. Illus. $4.50.

Books on psychoanalysis usually deal with its clinical theory; the most comprehensive one, Fenichel's, indicates this limitation by its title, *The Psychoanalytic Theory of Neurosis*. There exists, however, a fragmentary—yet consistent—general theory of psychoanalysis, which comprises the premises of the special (clinical) theory, the concepts built on it, and the generalizations derived from it. Since this general theory deals with what in Freud's time was *beyond* the scope of academic psychology, and since in relation to the clinical one it is a metatheory, it was named *metapsychology*. It is hardly ever mentioned in books written for nonspecialists; even books written for the specialist seldom do more than touch on it.

In the battle fought over the special theory, the foundations Freud laid for the general theory were scarcely noticed by the antagonists, and its adherents seem to have been too busy to systematize, develop, or use it. Only since the late 1930's has interest in it slowly revived. It is quite possible that the gap between experimental psychology and psychoanalysis, which has remained unbridged in spite of ever-increasing rapprochement, mutual interest, and much earnest work on both sides, is due in part to the undeveloped state of the general theory. It has happened before that the integration of two branches of a science was delayed until the theory of one or both reached a sufficient level of generality. Be this as it may, the special (clinical) theory of psychoanalysis remained all but intractable to the methods of experimental psychology, although the weight of amassed observations is such that the validity of the core of this theory can no longer be questioned.

Kenneth Colby's small volume focuses on the general theory. It is directed "not only to psychoanalysts, but to all theoreticians of those fluid borderlands between the psychological, biological, and sociological sciences" (p. v) and calls general attention to those rarely studied writings of Freud, which are the major sources of this general theory: the "Project for a scientific psychology," the seventh chapter of *The Interpretation of Dreams*, "On narcissism: an introduction," and "The unconscious." The book has two further merits. First, it tackles some of the thorniest problems of metapsychology: for example, the relation between energy and structure, and that between thought (meaning) content and function. Colby's treatment of both of these suggests interesting theoretical possibilities. Second, for the few who are conversant with metapsychology, there are many ideas, intuitive perceptions, and hints between the lines.

Considering that this volume has—as it were—no predecessors, it is a bold undertaking. It is to be hoped that it will be read, that it will stimulate specialists to work in metapsychology, and nonspecialists to begin to discover a different aspect of psychoanalysis from that to which they are accustomed.

Yet the volume's importance is matched by its inadequacies. It consists of two parts: one attempts to review Freud's metapsychology and the models it is built on, the other to suggest a different model replacing Freud's.

The weaknesses of the first part are rooted in its being scarcely more than a preparation for the second. The presentation of Freud's metapsychology is, to say the least, incomplete. For example, only two of his "Papers on metapsychology"—"On narcissism: an introduction" and "The unconscious"—are even mentioned. The work of other students of metapsychology fares no better: outstanding ones like Hartmann, Kris and Loewenstein merit only two references; Hartmann's major study, "Ich-Psychologie und Anpassungsproblem" ("Ego psychology and the problem of adaptation," is not referred to. Ill-informed passages and misunderstandings are embarrassingly frequent. Still the book gives the impression of serious intent handicapped by lack of tradition rather than by carelessness or malintent.

The principal aim of the book—to replace Freud's outdated and mechanical models with a modern and dynamic one—is not realized. While Freud's theory is mechanical in its trappings and dynamic in its core, Colby's is dynamic in its intent but becomes mechanical in its execution. Yet Colby does introduce the reader to Freud's reflex, tension-reduction, and id-ego-superego models as well as to his own cyclic-circular model. The topographic reflex model represents the course of excitation, in the psychic apparatus, from perceptual stimulation to motor action. The economic tension-reduction (pleasure principle) model represents the tendency of psychological processes to prevent and to reduce tension accumulation. The structural id-ego-superego model is familiar. Colby's own model is an attempt to replace these three models by a single one and to cope more adequately with the problem all these models are designed to solve: the integration of motivations and past experience with current environmental input. It is not possible to discuss here the many cogent points Colby makes in regard to the nature of this integration or to analyze the shortcomings of his treatment of Freud's models or the inadequacies of his own model. The book's main weakness can be revealed, however, by raising the questions: What can we gain by replacing the models of a theory which has not yet been systematized and whose limits of usefulness have not yet been explored? Can one, under these conditions, hope to demonstrate which model is more parsimonious or more powerful? What can be taken as an answer to these questions in Colby's book is singularly weak. And yet, even in this respect there is something to be said for his bold attempt: it might contribute toward weakening an orthodoxy which discourages attempts to take a new look at Freud's theories.

To the specialist, the book as a whole conveys two emphases. It stresses the need for unfettered theoretical speculation and the need to keep in harmony with the conceptions of present-day science (particularly physics). Both these emphases are justified.

But in regard to the first emphasis, Colby fails to show how the empirical data of psychoanalysis can impose discipline on free speculation. This lack will certainly limit the impetus the book can give to systematic theory-building in psychoanalysis, and it may well repel the nonspecialist, leading him to the conclusion that this general theory, just like the special one, lacks that ingredient of cohesion and discipline which makes theories amenable to empirical decision.

The second emphasis consists of frequent references to specific concepts of present-day physics, but no attempt to introduce them systematically to the specialist is made. The nonspecialist in turn may be taken aback, both by the frequency of these references, which may sound to him like lip service, and by the lack of exposition, which may make him wonder how well-digested these concepts