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Introduction to Physiological Psychology

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tained through scientific methods. On page 215, the hilarious remark about work being "not merely an occupational therapy for exiles" must needs endear itself to readers with an ear for deeply humanizing humor, but may as well hurt their apprehensive sensibilities as harking back, if ever so slightly, to a long-abandoned conception of work.

As for the lurking danger of assertiveness let it be said that this has been transcended by the rare blend of what the French mean by *naïveté* plus depth. This *naïveté* stems from sureness of inner conviction and singlemindedness of purpose, the resultant of which is joyous serenity. Does not Nietzsche's *Zarathustra* extol such singlemindedness? Depth is no less evident in the little book. Out of all possible contacts with St. Thomas, the author singles out a phrase borrowed from Dionysius' *Areopagita*: "To suffer divine things..." This is, nucleo, a compendium of the spiritual life, and here, too, that is, in contemplation, is enfolded "the secret of spiritual motherhood in the Church".

It is by knowing her sources, both at the experiential and reflective level, that Sister Mary Jane's book achieves something of the unity of thought and consistency of development we used to admire, not so very long ago, e.g. in the wisdom tract of the *Summa*. Her book is a witness in its own right; may it serve to make ever more meaningful the "Chiaroscuro of Christian life!" One final observation: on page 235 we read: "Next to Christ and Mary, the virgin-bride is called to lead the procession of Christians who are ascending on high with Christ, the Bridegroom. In the vanguard, if she truly listens, she already hears festive music from the banquet hall..."

Reading these lines one cannot help asking: Should "Christ's comings" that precede the parousia and "are multiple in their manifestations", should they be expressed in univocal and categorical language, which, after all, is too harsh and divisive an instrument to impart the ineffable? Or how would it compare with symbolism of the bible? But then, considerations of style, hermeneutics, and analogy seem to exclude such a comparison.

SISTER MARIA BRUNO, OSB

INTRODUCTION TO PHYSIOLOGICAL PSYCHOLOGY

PHYSIOLOGICAL PSYCHOLOGY. By Clifford T. Morgan. New York: McGraw-Hill, 1965.

Most of us who took a course on physiological psychology ten years ago, or earlier, were initiated in such matters by the Second edition of Morgan's *Physiological Psychology*. The book had been

written in collaboration with Dr. Elliot Stellar and published in 1950. It was a work that could claim with some justice to be "a textbook for undergraduates...and a reference work for graduate students and workers in psychology, physiology, and medicine." However, when our turn came to teach the subject, it became apparent that Morgan and Stellar's text had grown outdated in the space of a few years. It is for this reason that we welcome the third edition of Professor Morgan's *Physiological Psychology*; more so when McGraw-Hill has made it available in an inexpensive edition through Kogakusha Co., Ltd., (Japan), in one of its International Student Editions. Like the first edition, originally published in 1943, the third edition is a one-man's enterprise — a rather surprising fact, when one realizes the tremendous complexity of the literature in recent years. Nevertheless, to Professor Morgan's credit, his book remains one of the best introductions to the area.

Superficially, one notices readily the improvement in format. The text is more readable and seems to be more spaciouly distributed, even though there are barely three additional pages (564 pp. in the second edition; 567 in the third). This economy of space was accomplished by deleting unnecessary or outdated facts, and by condensing whole sections (e.g., the section on "Activity Rhythms" and those that follow, extended over 13 pages in the second edition, but occupy only 6 pages in the third), or even whole chapters (e.g., chapters XIII, XIV, and XV dealing with, "The Motor System", "Reflexes", and "Coordination", respectively, have been fused into one single chapter: Chapter 9), and reduced from 66 to 33 pages. Moreover, the illustrations have been made more attractive by setting them against a half-tone, gray background. Thus clarity of presentation is gained, when, for instance, a graph describing functional relationships is used. In that case, the coordinates can be drawn in a lighter tone, while the actual map of the function can be drawn in a darker tone than the background, providing a pleasant contrast (e.g., compare figure 63 of the second edition with figure 79 of the third). All illustrations retained from the earlier edition have been completely redrawn. The book itself has been thoroughly revised. Dr. Morgan has fastidiously reorganized the material within the chapters and rewritten sentences (People are fairly well agreed now..." became, "It has long been well agreed,..."; "In talking about..." became, "In discussing..." And so on). Finally, although the overall organization is essentially the same, the Third edition has 20 chapters, where the Second had 24.

Predictably, the changes in content are few in the introductory chapters, (the main purpose of which is to present basic, well established facts) and in the chapters dealing with sensory processes. Sensory processes were the preoccupation of an earlier psychology, and were extensively explored during the last century and the earlier half of the present one. Consequently, there is little that we know

now — at a general level — which we did not know then, or twenty years ago.

When we come to topics related to Emotion, Wakefulness, Hunger, Thirst, Learning, it is an altogether different story. The technology of the neuro-physiological laboratory has developed enormously, but mostly recently, and the consequent knowledge we presently possess in those areas, in terms of their cerebral correlates, has been gained principally within the last thirty years, e.g., interest on the Lymbic system and its involvement in emotional behavior dates back to a paper by Papez on, "A proposed mechanism of emotion", published in 1937; the specification of the activity of the Reticular Formation during wakefulness, attention, etc., can be easily dated as 1949, the year of publication of Moruzzi and Magoun's classic paper; the discovery of hypothalamic control of eating behavior was made during the 1940's; the so-called "pleasure centers" were described only in 1954. And so on. The chapters dealing with these topics have been brought up to date. Possibly, the only chapters where the advances have not been well presented, are those dealing with learning (chapters 16-18). Here, for instance, the "Proceedings of the First Conference on Learning, Remembering, and Forgetting" is not even mentioned (The Conference took place in 1963 under the Chairmanship of K.H. Pribram), and the important work of H. Hyden, the Swedish scientist, is only briefly noted in one reference to a 1961 issue of *Scientific American*. The material on Learning serves to dramatize how unwieldy the field of physiological psychology has become, and how broad and complex for any single man to master.

Chapter 9 (Motor Functions) may give the beginner some trouble: here the material is finely outlined, but a good overview of the involvement of the main systems (pyramidal, extrapyramidal, laberynthine, etc.) and what is known of their interactions, is not offered. The result is that one gets lost in details.

One deficiency of Professor Morgan's book has always been its scarcity of illustrations. The Second edition had an average of 7 illustrations per chapter, varying from 2 to 18 (162 figures in all). Topics related to neuroanatomy identify areas where one picture is worth one thousand words, yet, verbal description has been preferred to graphic presentation. This fact may encourage memorization without understanding, unless the instructor has access to a good set of supplementary references.

In general, however, Dr. Morgan has done a very effective job of rewriting and editing a work, which as was pointed out earlier, remains one of the best introductions to the field of physiological psychology for undergraduates, although the book cannot be considered a reference for graduate students and workers in psychology, physiology, and medicine. (Preface to the Third Edition, p. viii). It is an

excellent text, no doubt. Most of the basic facts have been assembled and organized so as to present a very adequate overview of the subject (possibly, the only hardly relevant slip, occurs in p. 105, where it is said that, "sedatives depress the threshold of neurons...", where it ought to be said that "sedatives *increase* the threshold of neurons thus reducing nervous activity"). But the work itself is one of modest scope, and the treatment of topics is far from comprehensive. The number of references remains in the neighborhood of one thousand, and there is a heavier reliance on secondary sources (Compare this work with that non-textbook written by S. Grossman, "*A Textbook of Physiological Psychology*", and the difference is obvious!).

Dr. Morgan's *Physiological Psychology* is a carefully written, carefully edited work. It is strongly recommended for the student, who, although not committed to becoming an experimental, or a physiological psychologist, is simply curious to know what the field of physiological psychology is all about.

LEONEL CAMPOS

ECONOMIC DILEMMA OF ASIAN COUNTRIES

ASIAN DRAMA: AN INQUIRY INTO THE POVERTY OF NATIONS By Gunnar Myrdal. New York: Twentieth Century Fund, 1968. Volumes I, II, III, 2,221 pp.

This book has already been described as a monument and a mine. It is prodigious, erudite and critical. One tends to agree with J.K. Galbraith that it deals with "perhaps the most important subject facing the human race today." More to the point is the competence with which the subject is handled. Gunnar Myrdal is widely regarded as the "world's top social scientist." This work occupied ten years of his life; he was assisted by a highly qualified team and their efforts cost over a quarter of a million dollars.

It is so big a book that one tends to read it topically, like an encyclopedia. Instead of an over-all review, what is offered here is a comment or two. One of the book's splendid features is a series of Appendices, each one an expert and fuller treatment of a subject already considered in the text, but with pertinence far beyond Asia. Among the topics covered are Planning, Economic Models, Population, Income per Capita and Tropical Climate.

This last is a very model of compression. Though it has little new to say to students of Ellsworth Huntington, for others it can be a revealing introduction to a subject whose importance here can