

much that is horrible in modern life. Needless to say, science shows that it is not neutral on this matter. Whether the subject is approached with the mathematical aloofness of an anatomist, or the clinical intimacy of a psychologist, the ultimate evaluation is inevitably the same—"biological equality."

Ours is the period in which is occurring a fundamental mutation, the anthropologist tells us, the third of three which have had and will have far-reaching and long-enduring consequences. The first came with the development of tools and the use of fire, the second with the invention of food raising, and now the third springs from the production of power and the scientific method. Like the earlier two, the most recent must be adjusted to the biological and psychological needs of man if his culture is to be enduring and successful. Basically that is the anthropological problem of our day. To help us achieve the necessary adjustment, collaborators go on to discuss in terms of their disciplines, their findings as they relate to relevant, basic, and troubled aspects of mankind—resources, population, minorities, communities, colonial administration, internationalism, social habits, communication, etc. Two essays are devoted to the American Indians, a choice of subject that loses its first surprise when we learn that there are fifteen millions of them in the Western hemisphere and when we recall that, of all our minorities in the United States, the oldest is the least thought about.

Topics such as these are treated too often in modern literature, both factual and imaginative, in a spirit of defeatism and despair. And yet permeating these studies there is a sense of optimism and hope, rays that appear as the writers refer to such things as the development of a Western conscience, the success of America in the Philippines, the growing realization of the nonsense of anti-racism, the use of social engineering in colonies. In the context of this volume perhaps the most encouraging fact is the anthropological sense of the cultural, biological, and psychological unity of mankind. This idea is expressed a dozen ways throughout the text, buttressed too by scientific evidence.

The two great hopes for the world lie in the tremendous will to peace that now exists and in the use of the knowledge and techniques for the proper control of ourselves that science has discovered. Maybe, while the physical anthropologist continues to search for "the missing link" of evolution, the cultural anthropologist can help show men of good will ways to forge the missing links they want to hold together in strength and decency.

Urbane Comment in Lucid Prose

SHAKESPEARIAN COMEDY AND OTHER STUDIES. By George Gordon. New York: Oxford University Press. 1944. 154 pp. \$2.50.

Reviewed by MARGARET WEBSTER

THIS "slim volume" by the late Professor George Gordon is entitled, a little misleadingly, "Shakespearian Comedy." Of the dozen lectures and briefer extracts contained in it, four deal with various aspects of the comedies, and another with the Clowns. There is a somewhat pedestrian chapter on "The Tempest," and a more stimulating one on "Othel-



lo," a "Note on the World of Lear," and an extremely fascinating paper on "Shakespeare's English."

You would know, I think, without a foreword to tell you so, that all but one of these "essays" were delivered in the form of lectures at the Universities of Oxford and Cambridge. They are redolent of "dreaming spires," of green lawns and grey cloisters, of old panelling and old port and the Senior Common Room. They are courteous, dignified, just, mildly ironic, of the old school—and not such a bad school either—of urbane comment in smooth and lucid prose. They are chamber music criticism, gravely presented in a cap and gown. The Professor, so his eminent editor Sir Edmund Chambers tells us, was a humorist. The epithet is a little lusty for so reticent a wit. "We still form reading parties which are no more successful than that other Reading Party in 'Love's Labours Lost,' and often enough for the same reason. Every College in this University (Oxford) was originally such an attempt, and the result is now known." (An appreciative chuckle from the caps and gowns.) "It is an amusing, though illogical and perhaps blasphemous game to plant mothers in these plays, and guess what happens. . . .

The Rosalinds, Portias, and Beatrices, of course, need no mothers, nor do they seem to desire them. Most of them have fathers, who are preferred to mothers by Shakespeare and other dramatists, because, I suppose, they are less in the way. It is one of the advantages of a father from this point of view, that he is out so much." (Respectful laughter from attentive youth.) This wit is not even a rapier; it is a feather duster.

Sometimes, however, the weapon sharpens. There is a succinct little piece, one of the best, on that form of portmanteau criticism which has divided Shakespeare's work into handy pigeonholes or "Periods"—In the Workshop, On the Heights, In the Depths, and the Period of Repose. Against the last-named Professor Gordon protests, "not angrily," he says, "for that itself would be un-Shakespearian," but with something approaching acerbity. "You are to picture a still handsome, if elderly, man, after all these oscillations—these singings and burnings—writing, with a tired smile upon his lips, and a balance at the bank, somewhere about the years 1610 or 1611, 'A Winter's Tale' and 'The Tempest.'" Shakespeare, he points out, was at this period a man forty-six year of age; he suggests to the undergraduates (of Cambridge this time) that they recall the men of forty-six they know; or "better still, go up to one of them and tell him your idea." See if he appreciates this picture of "amiable senility."

In another piece this punctilious duellist turns upon those assiduous moles of scholarship who are perpetually trying to identify the exact location of Prospero's Island in "The Tempest." He remarks with truth that any such specific localization, whether it be Lampedusa or Cuttyhunk, declares the whole play a failure and misses exactly that impression of magic and dream which the dramatist has tried to make upon us. In more serious vein ("somewhat arid" he himself declares it, and goes uncontradicted) he analyzes and attacks the definitions of comedy and laughter evolved by Meredith and Bergson. He is at pains to give "Shakespeare's answer"; but somehow, perhaps inevitably, comes no nearer the blazing gusto of Shakespeare himself than a dried primrose, pressed between the pages of an old and weighty volume, comes to the living flower.

Encountering the fair sex, the Professor doffs his cap and makes a deep bow, as might be expected. He encourages this writer by demanding that more Shakespearian criticism be written by women—but, naturally, on the

Women, not, for instance, on Falstaff, whom no woman could possibly be expected to understand. But to the Women they should apply "those powers of analysis peculiar to their sex." In this respect he lauds the four published lectures of the great actress Ellen Terry, who writes of the heroines "as if she had lived and talked with them." Of course, she had; or rather, through her, they themselves had lived.

But this is one of Professor Gordon's very few acknowledgements of the theatre for which these plays, all thirty-seven of them, were alone written. In his description of the Clowns he admits the evolution of "clowning" strictly in terms of its great protagonists, such as Richard Tarleton and Shakespeare's own Will Kempe. He thinks that the Clowns themselves were originally strictly "ad lib" actors, and cites the earlier stage direction "Enter Clown, say something, EXIT." And he writes on them with warmth and understanding—as he does, indeed, of the women of the comedies also, despite his chivalrous assumption of masculine inferiority. But this book is not for the actor, nor for those actively concerned with the rough-and-tumble of the stage. The people of the plays, as he describes them, are curiously not-alive, despite his loving care for them; they wear a shadowy livery; they cannot answer back. By the same token, there is little in this book that fires the mind or shakes it; there is much that is pleasing, even illuminating, in a mild and sunset way.

But if you love the English language, read his final chapter. If you are amused or interested to learn the degree to which Shakespeare is responsible for your everyday speech, remind yourself that he invented—literally invented—such essentials of your conversation as the words "hurry," "disgraceful," "exposure," and "fair play"; that "militarist" was coined fresh from his mind, and disappeared from the language again until 1860. Enjoy this brief and rich analysis of the riotous language-making of the Elizabethans, who begged, borrowed, stole, and created from the whole wealth of the ancient worlds, "and the rich East to boot," who knew few rules and kept still fewer. Mourn, perhaps, the loss of the Elizabethan verb "to prorump." "The meeting prorumped": how much bolder and more vivid than "The meeting broke up in disorder!" And salute again Shakespeare's genius for word-creativity on so great a scale that he seemed, as Professor Gordon says, "to be doing the work of a whole people" in heaping together that turbulent and lavish language which is our own tremendous, and horribly neglected, heritage.

Multi-Dimensional Thinking

SCIENCE IN PROGRESS. Fourth Series. Edited by George A. Baitzell. New Haven: Yale University Press. 1945. 304 pp. \$3.

FACT AND FICTION IN MODERN SCIENCE. By Henry V. Gill, S.J. New York: Fordham University Press. 1944. 131 pp. \$2.50.

Reviewed by HARLOW SHAPLEY

"IT may be true in some mystical sense that God thinks multi-dimensionally, whereas men can only think in linear syllogistic series," writes one of the eminent contributors to this book. Said otherwise, and perhaps more clearly, the world and man and his antics are difficult to explain, almost incomprehensible to those who seriously meditate them, but if we could think and analyze multi-dimensionally, that is, not as now with one weak thought following another and depending on it—the one-track method—but by boiling our coördinated thought processes simultaneously in all directions, the universe would yield to full comprehension, the supernatural would perish, and we would all be gods.

Perhaps even now we are working slowly towards two-dimensional and three-dimensional thinking in some of our modern mathematical theories of the physical universe. Perhaps also in non-mathematical fields, where emotion, intuition, and reasoning are intermingled. It would be of interest to explore the phenomena of inspiration and the occasional flashes of genius, as well as alleged divine revelations, from the standpoint of incipient multi-dimensionality of the evolving human mind. But this reviewer is uncommonly one-tracked, one-directional, at the moment, and must follow through with comments on an extraordinarily attractive volume dealing with Science in Progress.

The prestige of the National Sigma Xi Lectures is such that the top scientists of America participate in the

program which each year takes to the various colleges and universities several recognized experts talking and conferring in expertly moderated language about their own expertness in the solution of mystery. This year, for instance, nearly a hundred institutions of higher learning are dividing among themselves five outstanding peripatetic scientists, who are reporting on earthquakes, cancer research, genetical investigations, and the like. To tell of one's own technical contribution, the wise teller surveys also the work of his predecessors, provides a bird's-eye view of his subject. Every two years these National Sigma Xi Lectures are processed by the authors into chapters of a nicely printed and illustrated volume. This one is No. 4, and it reeks with high authority. It attains the height set by its three predecessors.

The late George Birkhoff, one of the world's greatest mathematicians, brings many a charming phrase and many a provocative thought into his chapter that bears the forbidding title of "The Mathematical Nature of Physical Theories." One of his adroit concepts has been quoted at the beginning of this review, and many others could be detached from the closely and elegantly reasoned analysis. The ancient Greeks, for example, conjectured that nature is mathematical, and the scientific developments since then have served to establish this conjecture. But we overlook too often that mathematics is the subjective part of Nature; it is the language of Nature. These two aspects, Mathematics and Nature, "are as intimately related as are the two sides of a single coin."

In spite of its cabalistic shorthand of equations and formulas, mathematics is largely number, counting, sequences, and above all, natural logic. A implies B, and B implies C, therefore A implies C, and to save time and energy we are often willing to forget all about intermediate B. We attain compactness, and approach what the mathematicians call "elegance." This simple and basic concept is illustrated by Birkhoff (slightly helped by the reviewer): a child touches a hot stove (that is process A) and experiences pain and burn (process B). Process C follows promptly (let's say it is an impetuous spanking). The infant mathematician promptly reasons that A implies C, and abstains thereafter from hot stoves to avoid hot spankings, thus perhaps demonstrating that the juvenile logic exceeds the parental.

The Principle of Sufficient Reason, and Birkhoff's feeling that a background of space and time is fundamental

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