

group, lower in ability measures, progressively lower in achievement measures, lower in peer popularity, and most disturbed in MMPI profile. Negro girls share in the general Negro deficit in intellectual measures—a deficit that is present from the beginning of the school years—but by the age of 14 they approach the scores of white boys on the overall Stanford Achievement Test battery. At about age 11, white boys seem to drop in school achievement for motivational reasons; Negro boys are off the track from the beginning.

Interviews with mothers of kindergarten-age children suggest some plausible reasons for race differences in children as they approach school. According to their mothers, many more of the Negro children were unwanted—especially the boys. The interviews also show Negro mothers as more confident in the value of whippings, less likely to use praise, and less tolerant of a child's self-assertiveness in his contacts with adult authority. Had the resources been available to supplement the mother interviews with systematic home observation, conjectures in this area would rest on firmer ground.

In the sphere of personality, the book provides the first systematic and reasonably comprehensive data on a definable Negro population, and the comparable data on white children are, of course, an essential aspect of their value. The MMPI indices suggest a degree of disturbance among the eighth-graders not indicated by teacher ratings and other sources—especially on the part of Negro boys. There are, of course, serious problems of which the authors are well aware in interpreting the personality profiles of members of a Southern rural subculture in terms of white Minnesota norms. The authors suggest, plausibly, that there is indeed underlying disturbance, which does not emerge in problem behavior in the generally unstressful and unchallenging Millfield environment. Transplanted to the ghetto street corner, the same predispositions would be expected to have more serious behavioral consequences.

A controlled before-and-after evaluation of an experimental kindergarten program—the first free kindergartens in the state—showed perplexing results dependent on the intellectual measure used. On the Stanford-Binet, white kindergarten children showed gains over their nonkindergarten controls, but Negro kindergarten children did not. But on the Primary Mental Abilities, the gain of Negro kindergarten children

over their controls was much greater than that of the whites; the rate of gain of Negro kindergarten children matched that of the white kindergarten children. One is grateful for the authors' employment of more than one measure of ability; one is perplexed by the lack of agreement between measures; and one regrets that the study was not extended to follow the children into their school years.

The news value of the Baughman-Dahlstrom findings also lies in what they did *not* find. They did not find evidence for matriarchy in the rural Negro family. Although the extended family pattern was more frequent among Negroes than among whites and father substitutes were also more common, Negroes were more likely than whites to see the male adult as the predominant source of authority. But there was pervasive evidence from several sources that the Negro male is devalued by the people most significant to him from early boyhood on; male authority in the family as compensatory may be especially arbitrary and unwelcome.

They also did not find evidence for deflated self-concepts among the children. The children's interview statements about themselves were markedly positive, especially the Negroes'. The unrealistically high educational and occupational aspirations, in which the children, especially the Negro girls, agree with their mothers, also do not directly accord with low self-esteem; and the authors, with due tentativeness, prefer an explanation based on the shieldedness of the Millfield educational setting to one in which defensive distortion figures.

The authors' recommendations for social policy stem from their findings. In view of the pronounced deficits of Negro children from the very beginning of elementary school, they call for extension of kindergarten training wherever there are substantial numbers of disadvantaged children, and for experimentation with home visit programs for still younger children. (The book describes a trial run of such a program in some detail but does not evaluate it formally.) In view of deficiencies observed in the elementary schools, they call for professionalization of the teacher role, the addition of educational specialists, and the attraction of men to elementary teaching. They also call for new curriculum development to make the children more aware of their enviroing biracial society and of how to maximize its opportunities and mini-

mize its limitations. The fact that most Millfield children would like to stay in the area but expect to leave—virtually no one, black or white, sees a future in farming—leads the authors to support an experimental program of industrial development in the rural South. With characteristic caution, they recommend that all innovations be carefully evaluated in pilot version. They stand on principle for school integration, but see no realistic basis for expecting effective local initiative from either blacks or whites to bring it about.

Here, then, are unwelcome facts, about race differences that we are bound to evaluate on a dimension of better or worse, superiority or inferiority, differences that a democratic society must be committed to try to reduce by the intelligent extension of opportunity. Here are more helpful facts, about correlates of these differences, which suggest directions in which remedy may be sought. Here is a fine example of basic research on a socially important topic that deploys quite modest resources in ways that subsequent research can confidently build on. Here is a study of children in the rural South that has much broader relevance.

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Rumford Republished

Collected Works of Count Rumford. SANBORN C. BROWN, Ed. Vol. 1, *The Nature of Heat*. Belknap Press of Harvard University Press, Cambridge, Mass., 1968. xiii + 507 pp., illus. \$10.

The works of Benjamin Thompson, Count Rumford, were last published, by the American Academy of Arts and Sciences, between 1870 and 1875. The appearance of the first volume of a new edition, published with the cooperation of the Rumford Committee of the Academy, was therefore to be welcomed. That new edition is, however, essentially a reprint of the 1870-75 edition, and this has imposed limitations and anomalies on the text. The material has been regrouped so that volume 1 now contains only papers described as relating to "The Nature of Heat," and a new paper, improperly excluded from the previous edition as "redundant," has been added. Sections 2 and 3 of the previous "Experimental Investigations Concerning Heat" have,

however, been omitted from this edition without explanation, and many (though not all) of the earlier footnotes have been left unchanged from the previous format, to confuse the unwary reader. The new plates are photographic reproductions of the originals, but the "increase in faithfulness of reproduction" over the relithographed plates of the 1870-75 edition is offset by a reduction in legibility. A brief preface primarily repeats material from omitted prefaces of the earlier edition, and an index, badly needed in that earlier edition, has been added, but is too perfunctory to aid in a conceptual analysis of Rumford's work.

Given the difficulty of obtaining a copy of the 1870-75 edition, it is almost invidious to complain of this solution to the problem. Nonetheless, one cannot help mourning what appears to be a lost opportunity. What were, as measured against modern standards for the history of science, defects in the earlier version are not corrected in this reprinting. Previous inconsistencies in the chronological grouping of papers are not improved by the substitution of a consistent topical arrangement which separates chronologically congruent papers on such related topics as light, chemistry, and heat. Many of the papers of the earlier edition were, in effect, entirely new versions artificially created by putting together from Rumford's English, French, or German renderings of his papers those portions thought by the previous editors to be the most mature statements of his position. Even with a complete bibliographical description of sources, republication of such papers does not reliably represent Rumford's work.

What was needed was in fact a completely new edition of all of Rumford's work, edited in compliance with the latest scholarly standards. The editor of this reprinted edition, Sanborn Brown, is noted for his recent studies of the life and work of Rumford. To join this man and this occasion only to reproduce the results of outmoded scholarship is a waste of resources which, moreover, will likely have a long-term effect in forestalling the appearance of any competing edition. Must it now be nearly another century before the substantial and scholarly edition worthy of Rumford can be published?

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Xenobiotics

The Biochemistry of Foreign Compounds. DENNIS V. PARKE. Pergamon, New York, 1968. x + 274 pp., illus. \$10. International Series of Monographs in Pure and Applied Biology: Biochemistry Division, vol. 5.

This book is in part an updating of R. T. Williams' classic monograph *Detoxication Mechanisms*, which was published in 1959. The latter dealt almost solely with the chemical fate of xenobiotics following their administration to animals. Accordingly, a significant amount of space in Parke's book is allotted to a qualitative and quantitative treatment of the biological fate of drugs, pesticides, food additives, and industrial chemicals. It is not, however, nor was it intended to be, as encyclopedic in this regard as *Detoxication Mechanisms*.

The book offers a somewhat novel and refreshing approach to the problem of biological fate in that it does not limit itself to the chemical forms and relative amounts in which foreign compounds are excreted from the animal body, but attempts to describe the total biological handling of foreign compounds from their entrance into to their departure from animal organisms. Thus, general principles of absorption, penetration across various biomembranes, tissue distribution and localization, and routes of excretion are briefly outlined. The central role of hepatic microsomal enzymes in the chemical alteration of foreign compounds and the physiological factors known to affect their activity each receive a chapter's attention.

The major deficiency of this book is that Parke's desire to be concise exposes him to the dangers of superficiality. For example, the effect of protein binding on the renal clearance of foreign compounds receives only four lines in the text, and, considering the information currently available, the cytological origins and chemical composition of hepatic microsomes and the role of microsomal electron transport and cytochrome P-450 in the mechanism of drug metabolism receive rather scanty attention.

However, for the novice in the field, Parke's book should serve as a useful compendium of information about several related but, for some reason, systematically segregated areas which have heretofore been covered only in scattered review articles.

Investigators working actively in the field might also find the work useful

as a brief review. The latter group, however, should probably be apprised of another recently published work, *Principles of Drug Action*, by A. Goldstein, L. Aronow, and S. M. Kaplan (Harper and Row, New York, 1968, \$18.50). This book, which covers many of the same areas as Parke's, although with a slightly different orientation, is more inclusive, more detailed, and more sophisticated in its analyses and discussions.

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Excited Gas

Active Nitrogen. A. NELSON WRIGHT and CARL A. WINKLER. Academic Press, New York, 1968. xii + 602 pp., illus. \$27.50. Physical Chemistry Series.

It may seem that such an apparently simple and circumscribed topic as the phenomena that occur in pure gaseous nitrogen subsequent to its excitation by an electrical discharge could hardly fill a book of 602 pages; even if the subject of active nitrogen could be clarified by such an exposition, does this specific topic deserve an elaborate clarification? The unfortunate but just answer is—it depends.

An extensive discussion of active nitrogen is justified if this phenomenon is presented as a specific example of the general phenomena of chemiluminescence, chemionization, energy transfer in collisions as well as energy migration within molecules, and the role of internal energy of reactants in a chemical reaction and the relationship of the internal states of products of chemical reactions to the internal states of the reactants.

The book *Active Nitrogen* by Wright and Winkler constitutes the necessary working papers for the preparation of the book envisioned in the previous paragraph. It is a very large and necessary amassing and cataloguing of previous results which will be of great value to researchers. However, the book is noncritical (and consequently nonselective) and seldom embeds observations in a general context. There is very little clarification of the phenomena associated with active nitrogen. More serious, there is little general discussion linking observational material with mechanistic deductions.

The bibliography of 1529 items in-