

The Closed Compulsory Community of American High Schools

James S. Coleman has written a peculiar book at once filled with considerable insight and almost glib oversimplification. According to a statement on the dust jacket, *Adolescents and the Schools* (Basic Books, New York, 1965. 135 pp., \$4.50) is an attempt to develop "... a philosophy of secondary education in greater accord with the world in which we live." Actually the book is nothing of the sort. It consists of some reasonably perceptive observations that can help one to understand certain parts of secondary education.

The argument may be briefly stated. Modern, American, middle-class adolescents live in a society in which most actions that demand responsibility are denied to them. Their economic needs are met, they need not, indeed they cannot work around the home, nor are they responsible for anyone. Secondary schools which ought to rectify this lack of experience are unfitted to do so, partly because of the ways in which they have evolved. At the turn of the present century, secondary schools were primarily college preparatory schools available to a limited number of the age group. Teachers were oriented toward the subject that students would study in college. Then there was a change, and high school became the common experience for a large proportion of teen-age population, many of whom would not attend college. And with this change came a change in curriculum and a change in teaching style. Presently, however, college preparation has again come to preoccupy secondary schools, but with complications. High schools have become the total community of adolescents, and the situation is intensified by the fact that the schools represent a compulsory experience.

But secondary schools do differ from each other. In some, academic values are stressed, while in other schools they are not. Some are richly endowed, and some are not. In some, exceptional teaching goes on, while in others the

teachers are custodians. The significant point is that these differences do not correspond to the factors that logically ought to be determining. For example, a well-supported high school that sends most of its graduates on to college seems to have less regard for academic values than a small rural high school. In relatively advantaged high schools, football, popularity, good looks, and having a good time are judged more important by students than good grades and academic achievement. Athletics in particular seem important because they represent community achievement for the only community the adolescents know.

In some respects such a closed community might seem to be the ideal device for teaching the young to cope with secondary and tertiary relationships with people. It has many of the attributes of a simple society, but with a difference. It is a compulsory closed society that coexists with the world of adolescents outside of school, a society in which, given the general affluence, they are free to do as they will, buy what they wish, and use time as they think best—all without being responsible to anyone. In the face of such competition the school is at a serious disadvantage in its attempts to capture the students' interest.

Somehow high schools must blend the characteristics of an open society with some elements of demand for responsible behavior. Students must be free to carry out actions and to make mistakes. The environment must be structured so that they can experience the congruences of their mistakes. But actions must be small and inconsequential so that consequences are not too severe. The environment must provide obstacles which, when overcome, will produce learning. Typically, high schools have not been thus organized.

When Coleman talks of the school in a social setting, when he examines such experiments as that of Summerhill, and when he generalizes from his

own studies of ten high schools, one has the feeling that he is on solid ground. But when he enters the quagmire of educational economics, one has the conviction that Coleman has embraced only one part of the contemporary economic wisdom and that his presuppositions can be seriously challenged. For example, his predictions about the slow increase in jobs as compared with the increase in young people available for jobs have thus far not been realized. Nor have his fears about the effect on the job market of automation. One also wonders whether his notion that students stay on in school for a Master's degree because the Master's provides additional training required by the labor market is warranted by the evidence. There is the general counterargument that tax cuts and the general productivity of the economy are creating more jobs each year and that such things as the war on poverty will eventually train even people from the least advantaged levels to take such jobs. In a word, the chapter on the economy and secondary education is of the "running scared" school.

As to his prescription that the young need to learn to assume responsibility, there can but be general approval. And hopefully the school might develop techniques to accomplish this.

Unfortunately, Coleman is a little vague on the ways his ideas might be put into operation.

LEWIS B. MAYHEW

*School of Education,
Stanford University*

Biochemistry

The Amino Sugars. The chemistry and biology of compounds containing amino sugars. vol. 2A, *Distribution and Biological Role*. Endre A. Balazs and Roger W. Jeanloz, Eds. Academic Press, New York, 1965. xxviii + 591 pp. Illus. \$22.

Distribution and Biological Role, volume 2A of *The Amino Sugars*, represents the first published part of a projected four-volume treatise on amino-sugar-containing compounds. It is subdivided into 20 chapters that differ widely in scope and in quality; 19 authors contributed to this volume which, according to the editors, represents a "systematic review which includes all living systems, organized ac-

cording to tissues and organs, and represents a pioneering effort on the part of the authors." It should be stated that the volume also contains a 45-page chapter by Nathan Sharon, much of it in the form of catalogs on the distribution of amino sugars in microorganisms, plants, and invertebrates. The rest, in a total of 415 pages plus an additional 128 pages of bibliography and index, deals mainly with mammalian organs and tissues.

The book is intended "for the newcomer to the field as well as for the expert." It has all the advantages and all the shortcomings of a book written by several authors, with varying experience and competence, in a field of interest to the most diverse groups, who apply a great variety of techniques to complex chemical and biological problems. The editors have faced a very formidable task in assembling the contributors and editing the contributions, a task met with in any comprehensive treatise written by a large number of authors. In general, the choice of authors has been good. Some of the contributions are outstanding examples of expertness, thoroughness, and critical evaluation: chapter 24 (by Pearce) on skin; chap-

ter 31 (by Schubert and Hamerman) on cartilage, tendon, and intervertebral disc; chapter 33 (by Muir) on blood vessel walls; chapter 35 (by Hakomori) on blood cells and hemopoietic organs; chapter 36 (by Svennerholm) on nervous tissues; and chapter 37 (by Balazs) on eye and ear. Some of the authors have chosen the easy road and have provided a recital of the published work which is reminiscent of *Annual Reviews*. Thus, the reader is left on his own in evaluating the evidence and the varying degrees of competence on which to base his additional reading.

The index and bibliography will be very helpful, and they appear to contain only a few errors. The gestation time of the chapters varied considerably—at least that is indicated by the literature quotations of the text with cut-off dates of 1962 to 1964, although the majority of the chapters contain appended literature references up to 1964.

In summary, the book has great merits and has the advantage of being unique in this field.

KARL MEYER

*College of Physicians and Surgeons,
New York 10032*

The Nord School of Lignin Chemistry

Lignin Biochemistry. Walter J. Schubert. Academic Press, New York, 1965. x + 131 pp. Illus. \$8.

Lignin is one of the major constituents of the cell wall of woody tissues of higher plants, but despite intensive study by many distinguished organic chemists, its structure has not been fully defined. There is more or less general agreement that some simple phenyl propane compounds may constitute monomeric units, but the nature of the linkages involved in forming higher molecular weight structures is not certain. There have been several "schools" of lignin chemistry in the past 40 years or so; the names of Freudenberg, Klason, Hibbert, Erdtman, Brauns, and Nord come to mind. This monograph is essentially representative of the Nord school, of which the author, Walter J. Schubert, has been a prominent member.

The basic and formidable difficulty faced by all lignin chemists has been that all methods of isolation yield modified preparations, usually in low yield,

and that classical degradative procedures result in an array of simple compounds, the relationship of which to native lignin is unclear. Nord introduced the study of "enzymically-liberated" lignin obtained by extraction of fungally decayed wood. Although preparations from different sources are not identical, various criteria indicate similarity in basic structure.

This volume reviews succinctly and persuasively the lignin problem in the context of Nord's biochemical approach. There are four chapters: Chapter 1 presents a general discussion of the chemistry and isolation of lignin; chapter 2 deals with the aromatization process in micro-organisms through the shikimic-acid pathway; chapter 3 interprets this in terms of the phenomenon of lignification in the higher plant—the genesis and conversion of the "lignin building stones"; and chapter 4 discusses the microbial degradation of lignin—the identification of intermediate and final products and the enzymes involved.

This unpretentious but appealing

book brings together theories of lignin structure and biogenesis that are plausible and reasonably well supported. It is, however, a criticism of the state of our knowledge that it is still necessary to resort to such unchemical terms as "primary building stones" for the monomeric compounds that in some unexplained way are linked together to form the lignin macromolecule.

A. G. NORMAN

*Department of Botany,
University of Michigan, Ann Arbor*

Endocrinology

The Parathyroid Glands: Ultrastructure, Secretion, and Function. Pieter J. Gaillard, Roy V. Talmage, and Ann M. Budy, Eds. University of Chicago Press, Chicago, 1965. xii + 353 pp. Illus. \$15.

The Parathyroid Glands: Ultrastructure, Secretion, and Function, edited by Pieter J. Gaillard, Roy V. Talmage, and Ann M. Budy, contains papers presented at the second symposium on the parathyroid glands held in Noordwijk aan Zee, the Netherlands, 25 to 29 August 1964.

The book will be of interest to all students of endocrinology and will serve as a useful reference source for those working in the field. In general, the subject matter is timely and represents a concerted effort on the part of the participants to make public their most recent developments. The indexing, referencing, and editing are excellent, but the book falls short in two areas. The photographic reproductions, although adequate for superficial perusal, are generally poor. And, the text of the discussions has been deleted in favor of brief, rather sterile summaries by the editors.

In his introduction, Franklin McLean briefly discusses notable advances in parathyroid research and gives a perspicuous summary of the contributions of the symposium.

Although the book is divided into seven sections with separate category headings, the subject matter deals with four general areas: the ultrastructure and the histochemistry of the parathyroid glands, the chemistry and regulation of secretion of parathyroid hormone, the hypocalcemic hormone(s), and the mode of action of parathyroid hormone.

There are 23 papers. Some of the