DIRECTION OF SOLUTION FLOW AND THE FORMATION OF MINERALS

IN a moving solution the field of environment and any resulting chemical activity are asymmetric with respect to a plane normal to solution movement. Crystal products formed in the laboratory in a moving stream of solution display a number of features peculiar to each end of the polar axis of flow. Mineral and ore specimens show similar asymmetric features which may be recognized in one mineral species and also by the relations between two or more species. The idea is also extended to larger scale geological bodies where the same principle of asymmetric development of mineral bodies (ore deposits) should obtain.

The problems differ in open space fillings and replacements, but the principles of asymmetric development, linearity, linear distortion and stoss and lee effect are common to both. Investigation is continuing in the interrelation of these features and the structural relations of both open space fillings and replacement deposits.

W. H. NEWHOUSE

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SCIENTIFIC BOOKS

SCIENCE IN THE SOUTH

Scientific Interests in the Old South. By THOMAS CARY JOHNSON, JR. viii + 217 p. New York and London: D. Appleton-Century Co., Inc., For the Institute for Research in the Social Sciences, University of Virginia. 1936. Price $2.50.

THIS is a source book of details derived from an extensive and exhaustive review of available sources, books, periodicals, newspapers, catalogues and ephemeral publications of universities, colleges, academies, seminaries, museums and other educational enterprises south of the Mason and Dixon line prior to the Civil War. The author's theme is the refutation of the summary indictment by Morrison in "The Oxford History of the United States," volume 2, page 15, of the "non-existent intellectual life" of the South, due to the cultivation of cotton, the neglect of men and the blight of human slavery. The data assembled tend to support his defence, for they display a wide-spread and active interest in the physical, chemical and medical fields, and a considerable though desultory activity in the natural sciences. An outstanding center of scientific activity was Transylvania College, with its impressive catalogue of scientific apparatus and book bills listing a very complete collection of early nineteenth century memoirs. "It passed its zenith in 1826." Charleston was another brilliant center of scientific interest. Here the Elliott Society of Natural History started off in its *Proceedings* (1859) with a fine display of productivity only to be snuffed out by the war. New Orleans, with its considerable infusion of French blood at a period of intellectual activity in Paris, also became noted for its interest in scientific matters.

The arrangement of the material does not facilitate consultation from a scientific approach except by way of the index. The subject-matter is grouped under such headings as "in college halls, among the people, sweet Southern girls, the glory that was Charleston, the glamour of New Orleans, and scattered scientists." This aroma of a social and historical approach to the subject pervades all the chapters. Details of evidence of educational interest abound, but a synthesis of accomplishment in the several disciplines of the sciences is not achieved. There is a noticeable absence of evidence of sustained scientific activity by productive investigators in scientific fields. The publications cited at considerable length from De Bow's *Review* (New Orleans, 1846–1880) are mainly of a general or popular nature, or are reviews of publications elsewhere. The *Southern Review* (Charleston, 1828–1832), the *Southern Quarterly Review* (New Orleans, Charleston and Columbia, S. C., 1842–1856), and the *Literary Messenger* (Richmond, 1834–1864) all contained some scientific articles of this general character indicating a wide-spread interest in science, but there is nothing in the South comparable to the American Philosophical Society of Philadelphia, the Linnaean Society of New York or the American Academy of Arts and Sciences of Boston. The early interest of the South in these organizations fell off in later years, and no local academies of significance were originated locally in the South.

The author cites with just pride the scientific eminence of Dr. William Charles Wells, of Charleston, South Carolina. This pioneer is cited for his anticipation of the theory of natural selection. Wells undoubtedly owed much to Dr. Alexander Garden, his Charleston mentor and correspondent of the Royal Society of London. He also utilized his medical knowledge of tuberculosis and malaria gained in native Carolina as data for his concept of natural selection operating differentially upon white and Negro races of man. But Wells was educated in Edinburgh, and was driven out of the States because of his vigorous loyalist sympathies. Later he was a member of the medical faculty in London and a member of a coterie of leading intellectuals, including the Hunters, Baillie and others. He