turns to social, political, theological, and personal, as well as scientific, problems which affected the main figures of his story—men such as Hariot, Bacon, Boyle, and Newton. Rapidly sketching in the background, Kargon turns to the Northumberland group of savants, among whom Thomas Hariot (1560–1621) emerges as the chief character. Called the reviver of atomism by an associate, Hariot appears as an interesting figure who attempted to use the analogy of the machine to explain phenomena and who relied on matter and motion for physical explanation. After tracing the relationship of these atomists with the "Cavendish circle," Kargon leads us on to well-known figures of the scientific revolution. It is of special interest that Robert Boyle's corpuscular hypothesis is shown to be far more derivative than is commonly thought. This bears out other recent studies which have resulted in similar conclusions about Boyle as an innovator.

Yet, if Kargon opens a new approach to 17th-century atomism here, he does not grant sufficient recognition to the chemists' concepts of matter in this period. In Francis Bacon's view the natural magicians and the chemists offered the major alternative philosophies for those who were disenchanted with Aristotelian thought. And although atomism was hardly a major pillar of support of traditional alchemy, we find a change occurring in the early 17th century. The important English mystical alchemist Robert Fludd (1574–1637) called for a new philosophy (1617) and set up a series of key questions which must be answered. Among them was the question whether it might not be true that all things are composed of atoms. A few years later Fludd was able to answer that they probably were. And with an interest in 17th-century intellectual history similar to that of Kargon, McGuire and Rattansi [*Notes and Records of the Royal Society* **21**, 108–43 (1966)] have shown that the attempt to clothe theologically unrespectable concepts with the mantle of a *prisca theologia* affected this field as well. The early 17th-century scholar Isaac Casaubon identified the traditional first atomist, a Phoenician named Mochus, with the Biblical Moses. It was an assertion to be repeated by men no less respected than Sennert, Gassendi, and Boyle.

As we shift our emphasis from internal to contextual history we open a floodgate of new relationships which influenced the rise of our scientific age. The complexity of the process becomes ever more evident, and although Kargon appreciates the need to broaden our studies of key concepts in this crucial period, he has not gone far enough. We have here a useful first step toward a much-needed reappraisal, but there remains much to be done.

ALLEN G. DEBUS
Department of History,
University of Chicago,
Chicago, Illinois

Infant Nutrition

Utilization of Nutrients during Postnatal Development. P. HAHN and O. KOLDOVSKY. Pergamon, New York, 1967. 189 pp., illus. $8.

Late effects of early malnutrition or of other environmental factors, to name among these only maternal deprivation, are at present in the forefront of biomedical and social research. The irreversibility of such effects, when it occurs, is based on imprinting and specific adaptation.

The present book, by authors at the Institute of Physiology, Czechoslovak Academy of Sciences, deals with postnatal development of processes related to food intake and utilization. Inasmuch as it is extremely difficult to carry out long-term observations on man, rats with their relatively short life-span were mostly used. However, in a special chapter the energy metabolism in the human fetus and newborn is discussed by V. Melichar and M. Novak of the Institute for the Care of Mother and Child, Prague, with reference chiefly to their own investigations.

Infant rats utilize both endogenous and exogenous fat in preference to other substances. The fat content of rat milk is about 12 to 20 percent. It is noteworthy that in the experiments of the authors both prematurely and normally weaned rats when permitted to choose consumed a diet the major constituents of which were very similar in composition to rat milk. Proteins are used mostly for growth. Carbohydrates play a less important role than later in life. Even in newborn infants administration of free fatty acids obtained from the cream of breast milk raises the concentration of glucose in the blood.

Fat seems to be the main energy source for the human infant also. In the opinion of the authors it seems justified to feed lipids in the amounts and proportions found in breast milk, if artificial milk mixtures are used very soon after birth. With infant formulas relatively low in fat and high in glucose and, especially, in protein, energy is obtained also from excess protein; such a diet might therefore place an additional burden on the infant.

Premature weaning, with a sudden change to a low fat mixture, produces lasting effects in rats, demonstrable even in 1-year-old animals. In such animals spermiogenesis is impaired, conditioned reflexes are elaborated at a slower rate, and the memory trace of such a reflex is also retained for a shorter time than in rats weaned normally. Prematurely weaned female rats fed an atherogenic diet later in life have much higher serum cholesterol concentrations than do normally weaned animals. Even in premature weaning a high-fat diet appears to prevent all these changes.

Development during early postnatal life is accompanied by many new adaptive processes, and the final adult picture is the result of interaction between environmental and internal, chiefly hormonal, factors.

"It may well be asked whether similar conditions prevail in man. . . . It appears that long-range longitudinal studies in man could be of immense value and the work devoted to such studies must be well worthwhile."

The reviewer fully concurs.

PAUL GYÖRGY
Philadelphia General Hospital,
Philadelphia, Pennsylvania

Books Received

Advanced Accounting: An Organizational Approach. Norton M. Bedford, Kenneth W. Perry, and Arthur R. Wyatt. Wiley, New York, ed. 2, 1967. 840 pp. Illus. $10.95.

Advanced Engineering Mathematics. Erwin Kreyszig. Wiley, New York, ed. 2, 1967. 918 pp. Illus. $11.95.

Advances in Enzymology: And Related Areas of Molecular Biology. vol. 29. F. F. Nord, Ed. Interscience (Wiley) New York, 1967. 649 pp. Illus. $18.75. Nine papers.

The American Influence on English Education. W. H. G. Armytage. Humanities Press, New York, 1967. 128 pp. $3.

The Analysis and Design of Pneumatic Systems. Blaine W. Andersen. Wiley, New York, 1967. 314 pp. Illus. $13.50.

(Continued on page 973)