

HISTORY OF SCIENCE

Chairman: R. E. GIRTON, Purdue University

D. Roller, Wabash College, was elected chairman for 1952

ABSTRACTS

The pioneer period in the study of Indiana vascular flora. RAY C. FRIESNER, Butler University.—The pioneer period in the study of Indiana vascular flora was carried on by three types of naturalists: (1) travellers who passed through the state or made only brief stays, collecting and observing, but moving to other centers for study and writing of their results. Such workers are illustrated by Andre Michaux (1795), Francois Andre Michaux (1802), David Thomas (1816), Thomas Nuttall (1818) and Alexander Phillip Maxmillian (1832-33). (2) Professional botanists of the general area but residing outside the state such as Constantine Samuel Rafinesque, residing in Lexington, Kentucky; John L. Riddell, and Alphonse Wood, whose Class Book of Botany was widely used in the later years of the pioneer period. (3) Men of other professions whose avocational interest did much to advance our knowledge of Indiana vascular flora. Dr. Asahel Clapp, physician of New Albany, was the most noteworthy in this last group.

Joseph Priestly, apostle of reason. RAYMOND E. GIRTON, Purdue University.—Joseph Priestley, English theologian, philosopher, and scientist was born in Yorkshire in 1733. His formal education was concluded at the Dissenters' Academy at Daventry where he studied for the ministry in an atmosphere of critical tolerance and freedom. Priestley served a half dozen churches in England and America including Unitarian congregations in Leeds, Birmingham, London, and Philadelphia. As the result of his reliance upon investigation supported by reason, he abandoned Calvinism and the Doctrine of the Trinity in religion, supported the causes of the American and French revolutions in politics, and carried out a great deal of experimental work in science which led to the discovery of oxygen and its production by plant life. Priestley's contribution to society, therefore, was his fearless use of reason in the pursuit of truth in these different fields of human activity.

Early experiments with the power of intelligence—a survey of ancient Greek science. W. E. HOWLAND, Purdue University.—The achievements of the Greeks not only in art and philosophy, but in many fields of science was truly astonishing as the record clearly shows, incomplete though it is. "How did it happen that they accomplished so

much?" is one of the puzzling questions of history, and another is "why was this period of scientific history followed by so long a one of relative inactivity?". A partial answer to the first of these questions appears to lie in the conditions of almost perfect freedom from the restraining hand of tradition that prevailed in these early Greek times. There are doubtless many reasons for the scientific blankness of the subsequent pre-Renaissance period of European history, but at any rate the Greeks are not to be blamed for the fact that they were followed blindly by those who came after them. The Greeks did not regard themselves as absolute authorities; the student questioned and corrected his teacher and apparently was encouraged to do so; think of Socrates. Their way was one of doubting and of actively using both the imagination and the reason. If a Greek had been heard to say, "Thou shalt not contradict Aristotle," he would have been laughed out of court. This particular stupidity was the invention of men whose minds with few exceptions were enslaved, who mouthed the words but missed the method, and above all the spirit of inquiry of early Greek Science.

The electrical researches of Francis Hauksbee. DUANE ROLLER and DUANE H. D. ROLLER, Wabash College and Harvard University.—Francis Hauksbee's 11 papers on the barometric light and electricity (1705-1709) have been studied to determine the experimental methods and modes of thought that he employed and that had the greatest effect on the progress of his work, to compare his methods with those of earlier and later experimentalists, and to trace the effects of his work on subsequent electrical researches. For some of his most important discoveries he has not received adequate credit. Various factual errors and misinterpretations of his work appear in practically all histories of science and textbooks that mention him at any length. Many textbooks do not mention him at all. Yet he was the most active and successful experimentalist of his age; he published 34 papers, all of them in the *Philosophical Transactions* and all within a period of 5 years. The present study is one of a series on early electrical concepts and methods financed in part by a research grant from the Indiana Academy of Science.

Josiah Willard Gibbs, an historical appraisal. ANDREW A. SHEROCKMAN, Evansville College.—This paper gives a brief biographical sketch of the life of Josiah Willard Gibbs, and an appraisal of his contributions to exact knowledge, to industry, and to education. This is the 75th Anniversary of the presentation of his third paper entitled "On the Equilibrium of Heterogeneous Substances," before the Connecticut Academy of Science. It is considered his most important contribution to physical science, and is largely responsible for the founding of physical chemistry.

The evolution of Indian implements for grinding corn. PAUL WEATHERWAX, Indiana University.—An examination of the implements used in ancient times for grinding corn in the various parts of the

maize-growing areas of North and South America shows some interesting lines of evolution. Proceeding from the simplest sort of rough stones, a series of variously shaped implements can be traced to the point where they are highly elaborated and have only a ceremonial significance.