HISTORY OF SCIENCE

Chairperson: Gene Kritsky
Department of Biology, Tri-State University, Angola, Indiana 46703

Chairperson—Elect: Gene Kritsky
Department of Biology, Tri-State University, Angola, Indiana 46703

ABSTRACTS

Theory and Practice in the Career of William Lowe Bryan: Preliminary Notes. James H. Capshew, Department of History and Sociology of Science, University of Pennsylvania, Philadelphia, Pennsylvania 19104.——William Lowe Bryan (1860-1955) perhaps is best remembered for his long presidency of Indiana University (1902-37). His career as a psychologist is less well known; most historians of psychology have either ignored, dismissed, or misinterpreted his work by removing it from its social and intellectual context. Bryan's deep concern with philosophical and educational issues was evident throughout his life, and was clearly reflected in his psychological research on human skill learning. By using his work in psychology as a key to his social and intellectual views, Bryan's life can be understood in its rich historical context. Like other psychologists of his era, including William James and G. Stanley Hall, Bryan sought to reconcile the claims of science with traditional moral and religious belief. By recognizing the legitimacy of various epistemological approaches, he avoided direct confrontation between religious, scientific, and philosophical positions. This pluralistic stance was evident in his multiple roles as philosopher, scientist, educator, and churchman. Not content with narrow laboratory experimentation, Bryan centered his psychological investigations on the learning of life occupations, with their complex habit patterns and value systems. Occupations, he believed, provided the basis for social stability and progress, and in a changing world with increasing occupational specialization and stratification, education was becoming correspondingly important. Thus Bryan arrived at an intellectually satisfying justification for his role as an educator, and found a personal mandate for developing the university's science curriculum and professional schools.

Archaeoastronomy and Ohio Hopewell. Ray H. Hively, Department of Physics and Astronomy, Earlham College, Richmond, Indiana 47374.——When European settlers first explored central Ohio, they discovered numerous prehistoric earthworks typically located in river valleys. Some of these earthworks were more extensive than Avebury and required an effort in design and construction comparable to Stonehenge. Altogether, more than one hundred Ohio sites involving large earthworks, many of them geometrically regular, were known by 1900. Two of the most striking examples of such sites were the circle-octagon earthworks near Newark, Ohio (the Newark works) and near Chillicothe, Ohio (the High Bank works). Both examples are notable for their large scale (the Newark works cover some four square miles) and their remarkable geometrical precision. These earthworks are believed to have been constructed by Native Americans associated with the Hopewell culture between A.D. 0 and A.D. 500. The limited archaeological evidence available suggests that these sites were neither habitation sites nor forts but probably had a ceremonial or religious significance. A recent survey of the Newark works and an analysis of an earlier survey of the High Bank works suggests that these earthworks may have been constructed in part to celebrate and record astronomical and geometric regularities. Specifically, the circle-octagon con-

figurations of both sites conform to simple yet precise geometrical plans based on a common length (321 m). Moreover, the shape and orientation of the structures may be understood as an attempt to record the extreme (north and south) rise and set points of the sun and moon. The resulting structures could have been used to provide reliable solar and lunar calendars.

Wattle and Daub in Mediëval Construction. GERALD SEELEY, Valparaiso University, Valparaiso, Indiana 46383, RUDOLPH STOECKEL, Florida Institute of Technology, Melbourne, Florida 32901, and FRANK SWENSON, Tri-State University, Angola, Indiana 46703.——The kings and battles theory of history has, perhaps, obscured the fact that the great majority of medieval folk did not live in *palazzi* or *chateaux*. When we imagine the past we rarely situate ourselves in humble cottages, but those infilled, beamed structures protected many generations of the European population in both towns and in monostic settings.

Wattle and daub buildings are more than an ancient construction technique: their presence provides a benchmark against which our developing culture measured what it considered its progress. Even the pre-Christian Vitruvius, interested in more impressive masonary structures, contemptuously remarks that "as for 'wattle and daub' I could wish that it had never been invented". The Renaissance, perhaps echoing the classical attitude, incorporates "wattle" into its arsenal of inventive:

> But he that is with such a humor led
> I may be bold to terme a watle-head
> (George Wither, *Abuses*, 1613, Satire I. 127)

One might even argue that wattle (if not daub) has a legitimate iconographic ancestry. The motif of wattle appears in medieval manuscripts (*The Belles Heures of Jean Duke of Berry* Fo. 71.v) and plays a crucial role in Renaissance portrayal of man in emergent technology.

As a construction technique wattle and daub offered a simple method to protect the medieval folk from the elements. It utilized local building materials (twigs, grass, and mud) and was inexpensive compared to the technique used in masonry construction. In order to assess the insulating characteristics a model wall was built and experiments were completed to obtain the heat transfer characteristics. The results indicate that wattle and daub has about the same insulating qualities as dried brick.