

A wide host of instruments are mentioned, and a brief description of their characteristics is given. The book provides a fine cross-section of the types of measuring instruments available, and deals to a lesser extent (though adequately) with some of the more common recording instruments.

However, I do not feel that this book could serve as an adequate textbook in an engineering science curriculum, because it does not deal with fundamentals and basic theory in sufficient depth to be useful to students working towards professional degrees; nor does it deal with modern usage of instrumentation systems. It does not, for example, dwell in depth on the more recent transducer developments; methods of tape recording and signal processes are not mentioned and, more importantly, the book does not deal with the control potential of instrumentation systems. In my opinion, the future of instrumentation—at least for the professional engineer—lies not in the measurement functions of instruments, but in the signal processing and control potential.

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Science and Archeology

Archaeology and the Microscope. The scientific examination of archaeological evidence. Leo Biek. Lutterworth, London, 1963. 287 pp. Illus. 45s.

Leo Biek, a physical chemist, is head of the Ancient Monuments Laboratory, Ministry of Public Buildings and Works, London. He and his small group try to keep just ahead of the bulldozers and other earth movers which, in advance of road building, pipelines, and urban expansion, are disturbing many of the still buried archeological sites of Great Britain. I have seen Biek's crowded workshop where heaps of rusted iron, bone fragments, potsherds, and artifacts made of all kinds of materials are brought for examination. The title of the book is figurative; the chapter headings are whimsical; the contents are in a way autobiographical. Biek tells how, with the help of experts from almost every branch of science and technology, he tries to wring from the scraps and oddments that are re-

covered from excavations every last bit of information they will yield. The book abounds in examples of knowledge gained from chemical analysis, radiocarbon analysis, chromatography, magnetic dating, and x-radiography.

The author is concerned with the basic philosophy behind the gathering of facts and their interpretation. He has a special interest in the effect of earth environment on both organic and inorganic materials and is concerned with such questions as why human and vegetable remains survive in some soils and almost completely disappear in others. In chapter 6, "Polyphenols ubiquitous," he tells of a pre-Conquest site in the Hungate district of York and of a Roman well in the Chew Valley where artifacts, especially those of iron, are surprisingly well preserved. This seems to be the result of the presence of tannates and phosphates in the soils. There is a long discussion of the relationship between podzolic profiles and the survival of artifacts. The last chapter is a summary of the modern scientific tools and investigative techniques now available, and Biek makes clear to the archeologist the kind of aid and assistance that he can expect from his scientific colleagues. The book is interesting reading. There is a good bibliography and an author index.

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Cuzco to Pizarro

Empire of the Inca. Burr Cartwright Brundage. University of Oklahoma Press, Norman, 1963. xviii + 396 pp. Illus. \$6.95.

Empire of the Inca, volume 69 of the excellent series entitled "The Civilization of the American Indian," is a history of the Inca from their earliest legendary arrival in Cuzco to their final overthrow by Pizarro in 1533. Apparently the author, professor of history at Florida Presbyterian College, has not hitherto concerned himself with Peruvian studies, but his book is based on a complete and fresh evaluation of the primary sources, the Spanish Chroniclers. In his notes on sources, he states that he has generally eschewed reference to secondary works, with the major exception of those of John Howland Rowe. The result is an excellent

and very readable history that considers the eight early, rather sketchily known reigns and continues through that of Viracocha Inca; following this the great Pachacuti and his successors are given a detailed treatment. To supplement the historical account, there is a chapter on basic forms of Peruvian religion and another on Peruvian creation myths that are important for an understanding of the ways in which the later Emperors took advantage of religious beliefs and mythology in strengthening their power and prestige.

Brundage, following Rowe, although quite independently, uses what might be called the short chronology of Inca history, in which the real expansion of the Empire does not begin until about the middle of the 15th century. This chronology, in contrast with those in vogue 30 years ago (which were based on historically less reliable sources), seems to have been now fully accepted by Peruvianists in this country. It is not only historically the most logical and believable chronology, but is strongly supported by archeological findings.

One of the factors that makes for readability of this highly scholarly work is the treatment of notes on the sources used by the author. They fill 61 pages, arranged by chapters and topics, all at the end of the book; thus the notes do not obtrude as footnotes or other distractions in the text, yet they fully document it. There is also a useful genealogy of the Inca dynasty, a list of dates of major events, and an index.

In summary, this is an important and most welcome addition to the literature on the Inca, and one that can be read with pleasure by anyone with an interest in the American Indian.

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Social Anthropology

The Structure of Chin Society. A tribal people of Burma, adapted to a non-western civilization. Illinois Studies in Anthropology, No. 3. F. K. Lehman. University of Illinois Press, Urbana, 1963. xx + 244 pp. Illus. Paper, \$3.

The mountainous and other relatively inaccessible parts of Southeast Asia are inhabited by peoples, some of whom are not well known, with cultures that