HISTORY OF SCIENCE

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ABSTRACTS

On the Value and Use of Antique Scientific Apparatus. JOSEPH J. BELLINA, JR., Saint Mary's College, Department of Chemistry and Physics, Notre Dame, IN 46556.—Many schools whose histories extend into the 19th century have collections of apparatus which may be a valuable resource for education in science. This very old, but frequently ignored equipment can be refurbished and used to interest students in science. The simplicity and quality of construction of these devices make them especially useful for lecture demonstrations or hallway displays. I will describe my experiences with equipment which was originally purchased by Saint Mary's College and by the University of Notre Dame between 1860 and 1895. The discussion will include information on collecting, identifying, refurbishing, displaying, storing, using, and if necessary, disposing of these valuable and attractive pieces of equipment.

Back to the Archives for a Lecture. DONALD J. COOK, Chemistry Department, DePauw University, Greencastle, IN 46135.—Modern day chemistry classes cannot be taught at a pace which allows the instructor to present much of the historical observations and facts which were the basis for the science. Today much must be abbreviated or omitted in any chemistry class in order to satisfy the pertinent knowledge of the subject. In order to still give the student a historical feel for the long range development of the science and the many small steps necessary before long strides could be taken in chemistry, the author proposes that during each academic year the undergraduate student be exposed to one or two lectures which illustrate some unique story in the development of chemistry. To find these materials the lecturer is referred to the departmental archives and historical publications. Illustrations will be taken from the following list: 1) the legacy of Priestley and Lavoisier; 2) Dalton, Gay-Lussac, Avogadroe, and Cannizzaro; 3) Mendeleev's Periodic Chart; 4) Wöhler and Liebig; 5) the LeBlanc Process and the Solvay Process; 6) Kekule and the Benzene Ring; and 7) Pasteur and Molecular Asymmetry.

How Museum Exhibitions, Artifacts, and Innovative Programming Can Make Science History Come Alive! VIRGINIA V. HAMM, Indiana State Museum, 202 N. Alabama, Indianapolis, IN 46204.—In February of 1987, the Indiana State Museum hosted the exhibition MAGNIFICENT VOYAGERS: The U.S. Exploring Expedition, 1838-1842, a wonderful chronicle of the first scientific exploration voyage sponsored by the U.S. government in 1838. The purpose of the voyage was to gather scientific specimens from around the world and to map and chart the

islands, lands, and seas. America intended to join the European scientific community! The specimens collected became the base collection of the Smithsonian Museum of Natural History. This exhibition allowed visitors to step back in time and see the world through the eyes and diaries of the participants. The Educational programs about Seashells, Seachanties, Volcanos, Storytelling, Map-reading, and Urban Voyaging (orienteering) drew in serious and avocational scientists, families, school children, teachers, scouts, and historians. These and other exhibition enhancing programs are making science history come alive!

The Challenge of the Mind...Engineering Education, Then and Now. NILS I. JOHANSEN, P.E., Engineering Technology, University of Southern Indiana, 8600 University Boulevard, Evansville, IN 47712.—Engineering and science education needs to be relevant. One of the best ways to assure this is, in the author's opinion, to draw upon lessons from history. Today's engineers and scientists need to be aware of the past so they can chart a course for the future. The presentation traces the development of engineering education through the writing of Georgius Agricola (1556), examples of engineering work of the Renaissance, and some of the large engineering projects of yesterday and today. The presentation is a sample of some of the issues and stories covered in the author's courses in engineering and specifically a course in history of engineering.

A History of Physics Course as a Capstone Course in Liberal Arts Curriculum at I.S.U. L. GENE POORMAN, Department of Physics, Indiana State University, Terre Haute, IN 47809.—The history of physics course at I.S.U. is designed as a capstone course for the liberal studies curriculum. The course material includes selected topics from Stonehenge to quarks. Students write three papers: 1) contributions of Physics Nobel Laureates to society, 2) correlation of society and a big idea in physics, and 3) the role of physics in man's environment. The culmination event is a learned paper delivered in a learned way to the class.

The Search for a Knowledge Base in Education: The Failure to Incorporate Communications Science Into Science Teaching. JOHN RICHARD SCHROCK, Division of Biology, Emporia State University, Emporia, KS 66801.—In 1972, Benjamin Bloom underscored the lack of any recognized body of knowledge in education comparable to the paradigms that drive the successful science enterprise. The last twenty years have seen educational "innovations" rise and fall in five-year cycles, including the audio-tutorial lab and computerized bio-education movements based with Indiana scientists. Communications science and sensory biology have the potential to explain the effectiveness of most "innovations" but current efforts to proclaim a knowledge base for pedagogy are exclusing communcations science and reality-based science inquiry.