

HISTORY OF DRUGS: A TEACHING PROPOSAL AT UNIVERSITIES

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In the book, *Common Sense of Science*, the author J. Bronowski wrote, “The purpose of science is to describe the world in an orderly scheme or language which will help us to look ahead.” An orderly scheme means history which must connect with the sequential logical events. The current cumulative knowledge about drugs is vast and appears fragmentary. The study of the history of drugs and chemicals is essential for the proper utility of these substances by the population at large. Since the 1950s, our knowledge of medicine and pesticides increased greatly. Students in general are not familiar with the fascinating historical events and scientific stories associated with natural or synthetic substances. It is important to note that plants containing morphine, THC, hyoscyamine, physostigmine, pilocarpine, tubocurarine, digoxin, ephedrine and reserpine were used by various cultures for centuries before pure active therapeutic constituents were isolated and chemically characterized. Template molecules were synthesized. Parallel to these developments, the science of anatomy, physiology, biochemistry and pharmacology advanced. Better testing methods developed. Causes of many diseases were better understood. Drug laws were instituted. Pharmaceutical industry flourished. Class presentations should include the panoramic view of when, where, who, how and why drugs were developed. The course outline is presented below:¹

- I Human Migration and Botanical Legacy From Ancient Cultures, Drugs and Diseases, exchange by Globetrotters. Discovery of circulation of blood – Harvey, 1628 A.D.
- II The Discovery of Natural Therapeutic Agents (~1600-1800)
- III Hypnosis, Hypnotics & Anesthetics For Surgery.
- IV Foundations of Experimental Pharmacology by Fontana, Cure for Kidney Stones, Magendie and his students, Christison, et al. (1700-1850)
- V Neuro-Functional outline of the Nervous System - Langley, et al., Sherrington.
- VI First half of Twentieth Century: Landmark Developments. Abel, Chemical transmission, Aspirin, Chen, Psychedelics, WWII – Fractionation of Plasma, Sulfa Drugs, Antibiotics, Insulin, Easson-Stedman Theory, Drug receptors, Quantitative Pharmacology, Nobel prizes in Chemistry, Medicine or Physiology.
- VII Second Half of the Twentieth Century: Contributions of Ariens, Stephenson, Gaddum, Schild, Axelrod, Furchgott, Trendelenburg. Discovery of action of Reserpine, Chlorpromazine, Catecholamines, DCI and Adrenoceptors.
- VIII Golden Age of Pharmacology and Drug Industry.
- IX Structure and Function of receptors, Gilman, Lefkowitz, Changeux.
- X Pesticides and hidden health problems. Role of FDA and EPA.
- XI Biotechnology and Anticancer Therapy.
- XII Rise of neutraceuticals, back to Nature, Laws, Ethics, Advertising, Information Overload and Sensible Healing Medicine.

The Ohio State University has been gifted with its association with the wellknown historians C.D. Leake, George Paulson, John C. Burnham, Robert Buerki and Glenn Sonnedecker. Their contributions along with other important references can be used to present the lectures for the development of science talents globally.

1. Patil, PN., Gulati, OD. and Balaraman, R. (Editors) *Topics in the History of Pharmacology*, P. 294, Shah Prakashan, Ahmedabad, India 2005.