

## Approach to History, Use of Resources, Evaluation Techniques, Overall Philosophy

John Scarborough

First the preliminaries that will signal my approach to the history of pharmacy. As many of you know, I have a dual educational and training background in medicine and in classics and ancient history, and I regard pharmacy in antiquity and the Middle Ages (both East and West) as basically inseparable. Good Byzantine physicians (e.g., Alexander of Tralles of the sixth century) are excellent practitioners in almost all regards including the compounding of drugs (anyone wishing proof of this bald statement need merely look up the Theodor Puschmann edition of Alexander of Tralles [in Greek and German]), and dosage forms, drug preparation (frequently “on the spot” as Galen says), timing of administration, and the actual units used in weights and measures are too obvious to miss. All of this signals my approach to history as a whole and the history of pharmacy and medicine in particular: to comprehend many if not most of the particulars of a particular author (e.g., my favorite Dioscorides of Anazarbus of the first century), one must also know the history of the time and culture in which the practicing physician/pharmacist functioned. Dioscorides is an exception, I am well aware: he demands that the good doctor must also be a field botanist, must do his on-the-spot research on what works and what doesn’t in spite of the local tales he hears and may even record. His method of what John Riddle has labeled a drug affinity system for the classification of drugs was followed by few physicians, although the diarrhea-of-the-pen Galen grants great respect to the accuracy of observations of the great Anazarban. Most importantly, however, it is Dioscorides’s acute observations of what transpired when given drugs are adminis-

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tered for particular diseases or afflictions, and repeated expediences of this kind will allow him to record in his *Materia Medica* of A.D. 70 that “I have witnessed its success” or maybe some less enthusiastically, “I have not observed many beneficial outcomes from use of this pharmakon.” One famous example is what Dioscorides thinks about the opium poppy (*Papaver somniferum* L.). His description is the best before Mattioli (whose Renaissance commentaries on Dioscorides were the last and best of that genre produced before the overwhelming numbers of new plants streaming into Europe from the New World and Asia made the “old” botany of Theophrastus absolutely inadequate and Mattioli’s several editions in the sixteenth century simply added to the mass of data, rather than clarifying it), and in my research on the opium poppy (and a number of other aspects of Greek, Roman, Byzantine, and classical Arabic pharmacy) has shown me that pharmacy was a constantly changing aspect of the medical profession. Pharmacy becomes separated—no surprise this—once market regulations were established in Muslim countries in the Middle Ages (the famous *hisba* rules): officials were charged by the sultan or caliph to ensure that the customer was, indeed, buying what the seller said he was purchasing; again, however, even the *hisba* rules indicate a widespread knowledge of drugs and exotic foodstuffs. Pharmacy and medicine are interlocked until a few of the northern Italian city-states began to issue certificates to “spicers” (perhaps as early as the thirteenth century), but both Muslim and Byzantine hospitals each had their own “pharmacists’ shop,” in which drugs were prepared on demand by chief physicians. Byzantium’s Pantokrator Xenon of the twelfth century is, perhaps the most famous. According to the *Typikon* (“rule book”) of the monastic order which ran the hospital, one finds not only specialists who could repair hernias, gynecological and obstetric care, quasi-sanitary practice (e.g., beds were cleaned once a month), but also clear identification of what today would be called “house officers” who directed matters of drugs, their compounding, and their supply from local sources or procured as exotics from far-flung trade. One reads of a chief pharmacist (the *epistekōn*) and his two assistants—or apprentices, the *perissoi*. There are additional texts in Arabic also demonstrating similar “house officers” in the Muslim hospital (a *maristān*) and one can trace the gradual separation of pharmacy from medicine as fewer and fewer doctors followed Dioscorides’s maxims or the painstaking medical botany so beautifully published in four editions of commentaries on Dioscorides in the sixteenth century. The new chemistry of Lavoisier demolished the venerated Aristotelian elements, the new botany of Linnaeus replaced the

medical botany of both Theophrastus and Dioscorides, so that by the nineteenth century, one begins to discern faint outlines of a pharmacy “profession,” blown large after Pasteur’s proofs of fermentation and Koch’s postulates demonstrating how one disease could be reproduced and then reintroduced into patients and experimental animals. Pharmacy as a profession certainly existed in antiquity, if one chooses to include the rhizotomoi (“rootcutters”) used as folk medical sources by Theophrastus, or the pharmakopolai (“drug sellers”) often mentioned in Greek and Latin texts as hawking their wares in special stalls set aside for them in the forum (Latin west) or agora (Greek east). Drug fraud was rampant, so the best defense was to know what you were looking for, much as we see folk squeezing oranges in the market today.

All texts (Greek, Latin, Arabic in the original; French, German, Italian, etc. for modern interpretations) which mention or focus on drugs of whatever variety are my sources, so that if I choose to study laudanum in the nineteenth century, my scope will include who used it and why, and why the medical profession so valued it even knowing its addictive properties. The new botany after Linnaeus, the new chemistry after Lavoisier, and the revolutionary aspects of microbiology after Pasteur, the discovery of vitamins, and the use of antibiotics (one could, of course add many more specifics for the period after 1850 or so) are all part of this, so that my students receive a most important lesson about science as a whole and pharmacy in particular: It is always—as Aristotle noted—always in a flux of change as new data flow into a study. More evidence means shifting dogmas, new plants in the sixteenth century meant attempts to “fit” the old with the new (which failed), and microbiology shifted that focus in the nineteenth century, much as is molecular genetics shifting our views in the late twentieth century. Change. What today is science fiction, tomorrow could and may be accepted dogma, in turn challenged as seems to be the function of science in its truest form, first enunciated in ancient Greece.

My resources for teaching the history of pharmacy from dim antiquity through the twentieth century are simple: from my own research, I have prepared a set of “lecture notes” which are given to each of our 150 students, and those notes form the core of the course. I obtain occasional evaluations (both written and oral), and shift emphases as such seem warranted. The “lecture notes” obviate overhead projectors or other mechanical means, since the student has before him the who, what, when, where, and why I think why. It seems to work.