

## EDITORIAL

### The History of Pharmacy and Medicine: Why be Interested in it?

**It is the speech of Prof. Bruno Bonnemain, the president of International Academy of History of Pharmacy in the TUMS-KHNMU International USERN Spring E-Course/ Day of History of Medicine – April 15, 2021:**

First of all, it is important to say what we are talking about. What I am about to say applies to the history of pharmacy but could also be said for the history of medicine. The history of pharmacy consists of “the knowledge of the past of the art of pharmacy in order to better prepare for the future”, according to the definition given by the Dictionary of the History of Pharmacy published in France in 2007. It brings together the study of the evolution of medicines, the study of the men, pharmacists or not, who discovered, manufactured, controlled and dispensed them, as well as the study of the patients to whom they were administered. It therefore deals with scientific and medical theories, pharmaceutical materials, pharmaceutical forms, classes of drugs, therapeutics, legislation, which is essential for a highly regulated profession, teaching, the sociology of pharmacists, their relations with other

Bruno Bonnemain<sup>1</sup>

1- Ph.D., President, International Academy of History of Pharmacy, Paris, France

**Correspondence:**

Bruno Bonnemain  
Ph.D., President, International Academy of History of Pharmacy, Paris, France

[bruno.bonnemain@wanadoo.fr](mailto:bruno.bonnemain@wanadoo.fr)

**Citation:**

Bonnemain B. The History of Pharmacy and Medicine: Why be Interested in it?, 2021. *Res Hist Med.* 2021;10(3): 133-136.



health professionals, society and charlatans, without forgetting the cultural environment. It is also a way to study the different ways in which the profession is practiced: pharmacy, of course, but also industrial pharmacy, hospital pharmacy or clinical biology. The history of pharmacy is closely related to the history of medicine, but also to the history of chemistry, botany, natural sciences, physiology, hygiene, etc. The multidisciplinary nature of pharmacy is naturally reflected in its history. The period covered is very broad, ranging from Neanderthal man chewing on purgative leaves to the contemporary era, with gene and cell therapy or even pharmacy in space. It is also intended for the general public to understand the history of certain practices and to provide accurate information on certain events of the past. From this point of view, it joins the history of science and technology and even the history of humanity in general. We can see for example its very particular and interesting evolution at the time of wars, sanitary crises or environmental catastrophes. It can therefore be seen that the history of pharmacy is an extremely broad field and that is its primary interest. Depending on his or her own interests and specific professional skills, the historian of pharmacy can choose the field that best suits him or her and will easily find the angle from which he or she wants to conduct his or her work. Personally, having worked for more than 40 years in the pharmaceutical industry, I am mainly interested in the history of this industry, which was born at the beginning of the 19th century and whose evolution has been linked to multiple environmental factors: the improvement of transportation as well as the discoveries of active principles of plants throughout the 19th and 20th centuries. Others, more specialized in the reading of Arabic, Latin or Greek texts, are more interested in the extraordinary journey of certain drugs between the different Eastern and Western civilizations. Others have focused their work on the discovery of useful plants for the art of healing both in our countries and in the New World, which is rich in useful plants such as cinchona, which led in 1820, two centuries ago, to the isolation of quinine by two French pharmacists, Joseph Pelletier and Joseph Bienaimé Caventou. This is therefore the first interest that I would like to emphasize here: the great diversity of possible approaches in the history of pharmacy. The second interest is to examine the evolution of the profession of pharmacist in the different civilizations that have crossed history. It seems natural today to separate the role of the prescriber, the physician, and that of the producer and dispenser of medicines, the pharmacist. And yet, this was not self-evident. It was in the Iraq of the Abbasid caliphs (750-1258) that a pharmaceutical profession, specialized in the manufacture and dispensing of medicines, appeared. It was immediately subjected to very strict regulations and closely monitored by the authorities. As early as the eighth century, the existence of *sayalida* who kept their dispensaries open was reported. The profession was already well regulated, since it was subject to inspection by the *muhtasib*, who was responsible for detecting any fraud in the quality of the products. The other pillar of this framework was the *Grabadin*, a term used by the Arabs to designate the collections of drug formulas that were later called antidotaries and then pharmacopoeias in the West. This separation between the roles of physicians and pharmacists was to be gradually established in other countries, very late in some cases, such as England and the United States, where this separation only took place at the end of the 19th century. The image of the pharmacist has evolved in parallel with the evolution of this



profession. At the limit of the magician in ancient times, the pharmacist has progressively had his scientific and technical training recognized, and teaching has become university-based, so that the pharmacist is the only health professional with long studies and daily contact with the population. It is therefore essential that historians recall that this scientific image of the pharmacist was built thanks to men and women who knew how to include essential scientific subjects such as chemistry, pharmacology, botany, biology, etc., in their pharmacy studies. This evolution of the pharmacist is also a way to approach the history of the increasingly severe regulation around this profession and medicines and to better understand its origin. While the production of medicines was in the hands of apothecaries, according to traditions transmitted through communities of trades and very long apprenticeships, the discovery of new and very effective medicines, the sharp increase in the needs of the world's population, and the improvement of means of transportation facilitated the emergence of the medicine industry. Relatively free during the 19th century, the regulatory constraints on the marketing of new products, both before and after they were put on the market, have continued to increase. While each country had its own regulations for pharmacists and medicines, there have been gradual attempts to harmonize regulatory constraints, whether at the WHO level or in multinational agreements such as the ICH. The historian of pharmacy can benefit from this knowledge of the evolution of regulations to propose avenues of improvement for the future. In certain situations, increasing regulation is certainly necessary but it is also a brake on innovation and the creativity of researchers. We can also see that the research model in the pharmaceutical industry has completely changed between the 1950s and today: unlike the blockbuster era when everything was done within the company, from research to final production, the current model centered on precision medicine has led to the outsourcing of many company activities in order to reduce the costs and risks associated with drug development. The health care relationship between the physician and the patient involves a central act: the prescription of a treatment, and most often of a drug. The history of medicine alone deserves a very important chapter in the history of pharmacy and medicine. Prescribing a drug is becoming more and more complex, and even more dangerous. There are many reasons for this: the multiplication of products and the interactions between them, the production of increasingly effective and therefore dangerous drugs, etc. This danger of medicine (*pharmakon*, in Greek, means both poison and medicine) is a constant in the history of medicine and pharmacy: the healer is an ambivalent character, both admired and feared, sought after and shunned, praised and condemned. And history shows that the use of medicine obeys fashions and influences from philosophical, religious or medical theories such as the theory of humours. It takes sometimes dramatic events to return to solid scientific approaches as was the case for cinchona, for example, imposed by the French king Louis XIV to his subjects in opposition to the theory of humours defended by the doctors of his time. It is therefore very interesting for historians of pharmacy to know more about the history of drugs in order to show the importance of a rigorous scientific approach to evaluate the true benefit/risk ratio of drugs. The history of pharmacies also the history of pharmaceutical forms. The creativity of inventors in this field has known no limits, driven both by scientific and technical developments, but also by external constraints. We can give some examples: until the beginning



of the 19th century, it was considered that a good medicine was often a bad tasting medicine, difficult to swallow. Progressively, people wanted to make medicines pleasant to consume, and in some countries they even produced candy medicines. Pharmaceutical forms were therefore invented with this objective in mind. Another example concerns the production of tablets, a form that was widely opposed by many pharmacists before the First World War who felt dispossessed of their profession as producers. The First World War revealed the interest of this pharmaceutical form that was easy to transport to the battlefields, very resistant and easy to administer. It finally took the major place we know today. The history of pharmaceutical forms is also the history of innovation at the service of the patient with the development of microencapsulated forms, as we are experiencing today with messenger RNA vaccines for COVID-19. These microencapsulation processes are the result of many years of work on liposomes and microspheres to better target drugs in the body. The history of its production of drugs is also an important aspect of the history of pharmacy, from raw materials to finished products, including excipients. It is the evolution of the drug industry, the equipment needed to produce it, the geopolitical distribution of this production. For example, it was during the current health crisis that some people discovered our dependence on countries like China and India for the supply of raw materials. But historians know that this situation was already the case for many Western countries such as France and England or the United States with regard to Germany at the time of the First World War. This led to a complete rethinking of the production of medicines at that time and favored the development of the medicine industry outside Germany. This episode also brought to light the economic aspect of medicine, a subject to be put in the context of the worldwide growth of health care expenses, another historical subject of great interest: how to fix the price of medicines? What weight to put in health expenditures in the budget of nations? This is a subject of study that regularly resurfaces when new, very expensive drugs appear or when old, inexpensive drugs disappear because they are not profitable.

**Conflict of Interest**

None.

