

An Outline History Of Pharmacy

PART II. RENAISSANCE TO TWENTIETH CENTURY*

Paul Cassar M.D., D.P.M., F.R.Hist.S. (Lond.), D.Litt. (Hon. Causa)

Hon. Fellow of the University of Malta

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In the field of pharmacy, the School of Salerno produced the *Antidotarium parvum* by Nicolas of Salerno which is a collection of formulae, probably compiled in the eleventh century. It contains a reference to the ingredients that were employed to produce an early form of surgical anaesthesia. This was the *spongia somnifera* consisting of a mixture, in water, of opium, mandrake and henbane. A rag was soaked in it and applied to the nostrils of the patient to put him to sleep and render him insensitive to the pain of surgical operations.⁽¹⁾

State control of the exercise of pharmacy came into being about 1240, when Frederick II, the Holy Roman Emperor and King of Sicily, introduced the licensing of sellers of drugs by the Medical School of Salerno; rules prohibiting physicians from owning a pharmacy; and regulations fixing the prices of medicaments. From these initial legal enactments stemmed the various laws controlling the pharmaceutical profession of our own days.

By the end of this same 13th century we come across some of the titles and denominations by which the present day pharmacist was referred to (in France) — *speciarius*, *apothecarius*, *piperarius* and *aromatarius*.⁽²⁾

Herbals. Pharmacopoeias

A basic feature in the development of the *materia medica* of pharmacy was the evolution of the *herbal* or *herbarium*, the earliest of which is that of Dioscorides already mentioned who flourished in AD 60. These herbals were the precursors of the science of medical botany. They described the plants or "simples" used in therapy, the manner and time of collecting them or "simpling" and of preserving them for the preparation of "compound" medicines.

By 1491 the *herbal* appeared in print with woodcut illustrations meant to help in the identification of plants. It became quite popular by the 16th and 17th centuries such as that of Otto Brunfels, a physician of Berne, printed at

Strasburg in 1530-36.⁽³⁾

The herbals were the forerunners of the pharmacopoeias. Among the earliest published pharmacopoeias were those of Augsburg in 1564, of France in 1608 and of London in 1618. By the end of the 18th century the principal cities and countries of Europe had their own pharmacopoeias — Bruxelles (1702), Sweden (1705), Madrid (1738), Switzerland (1771) and Russia (1780).⁽⁴⁾

The Renaissance

The Renaissance, which began about the end of the 14th century and reached its climax two hundred years later, was marked by a spirit of inquiry and the discovery and exploitation of the Americas by Spain in the 15th and 16th centuries. Hitherto unknown vegetable sources were imported into Europe from these new lands to enrich the practice of pharmacy. Three of these items were still in use until fifty years ago: (a) the bark of *Myroxylon pereirae*, from Peru, hence known as Peruvian or Jesuits' bark which yielded a balsam that was used as an expectorant; (b) the bark of *Cinchona succirubra*, containing quinine, which was employed in powder form against malaria and other fevers. It was known as Countess' Powder, after the Countess of Cinchon, who was said to have been cured of a fever by its administration; (c) from Brazil came the dried roots of *Ophelis ipecacuanha* whose chief constituent is emetine and which was being used by 1672, especially in France, as a remedy for dysentery.⁽⁵⁾

Along with these effective drugs, however, traditional *materia medica* still included substances that had no therapeutic effect but were

Fig. 1 opposite page
The frontispiece of John Zwelfer's *PHARMACOPOEIA REGIA* published in Nuremberg in 1675. It is one of the earliest pharmacopoeias to be issued.

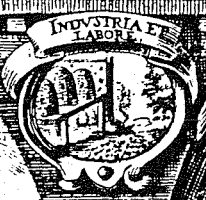


DEVS CREAVIT
 MEDICVM ET DE
 TERRA MEDICA-
 MENTA VIR PR-
 VDENS AVTEM NŌ
 CONTEMNIT
 ILLA.
 Eccles. cap. 38.

CUIUS
 BREVIARII

QUI EST
 SUPERIUS
 EST SICIUT
 JUFERRI

ANIMADVERSIONES
 IN
 PHARMACOPOEIAM AVGV-
 STANAM EJVSQVE MANTISSAM
 TERTIVM REVISÆ.
 CVM
 PŒBENDIS CE' ANNEXA.
 QVIBVS ACCESSIT
 PHARMACOPOEA REGIA
 NOVA LOCVPLECTATA & ABSOLVTA.
 ADJECTA
 MANTISSA SEBEGYRICA.
 CVM
 CURA
 JOHANNIS ZWEIFERERII.
 M. D.



S V B J E C T A M E D I C I N E



K. Hasgrader, figural.

Maurit. Lang. sculp.

merely the relics of medieval folklore and superstition. Among them we find **Theriac**, a mixture of numerous ingredients including the flesh of vipers; powdered human skull, parts of birds and lizards; elephant's teeth; horns and genital organs of the stag; oil of scorpions; and intestines of the wolf mixed with myrrh.⁽⁶⁾

Although several of these ingredients were discarded by the 18th century, the pharmacist continued to rely on such components until the emergence of the discipline of pharmacology in the last quarter of the 18th century. One of the earliest attempts to determine on a rational basis the therapeutic action of a plant; to establish in which parts of the plant was concentrated its active principle; and how best to prepare and dispense it to retain its activity, was made by Dr. William Withering of Birmingham who in 1785 published his ten year study of the plant **Digitalis purpurea** under the title of **An Account of the Foxglove**. However, in spite of Withering's endeavours, it took one hundred and fifty years before digitalis came to be employed effectively owing to difficulties of standardisation.⁽⁷⁾

By the early 19th century such active principles as morphine, codeine and atropine were isolated from the crude drug in 1804, 1832 and 1833 respectively; others were synthesised in later years in the laboratory such as salicylic acid (1860), chloral hydrate (1869), phenacetin (1888), aspirin (1899) and veronal (barbitone or di-ethyl barbituric acid) (1903).⁽⁸⁾

Patent medicines

The chemical processes involved in the isolation and synthesis of active principles eventually led to the rise and expansion of (a) the patent medicine and (b) the pharmaceutical industry.

The words "patent medicines" originated as a legal term first used in England in 1624 in connection with a law that was enacted to grant monopolies to encourage new industries. Many of the early patent remedies were useless. They were promoted by quacks and char-

latans who sold them in the form of powders, lozenges, balsams and tinctures for the relief and "cure" of fevers, gout, renal colic and as nutritional food supplements. Their composition was kept secret but their main ingredients were alcohol, opium, licorice, etc. It was only in the early years of the present century that laws were passed to ensure that the public was not deceived on matters of health such as The Pure Food and Drug Act of the USA.⁽⁹⁾

The Pharmaceutical Industry

The pharmaceutical industry evolved in Germany and Switzerland at the turn of the century and in Great Britain mostly after the First World War, sometimes with the cooperation and help of research workers in academic circles. Thanks to this development were produced the arsenical compound Atoxyl in 1907, the first effective drug against trypanosomiasis (syphilis and sleeping sickness), Salvarsan (1910) against syphilis, Insulin (1921), for diabetes; Prontosil (1932) against streptococcal infections; Vitamin B₁ (1936); Penicillin (1944); Reserpine (1953); Chlorpromazine (1955) and the hypoglycaemic oral agents (Tolbutamide or Rastinon after 1950).⁽¹⁰⁾

To give an idea of the progress registered in the production of new synthetic medicaments by the pharmaceutical industry, it has been estimated that of the one hundred-and-fifty drugs most commonly prescribed to-day, only twenty-two were known forty years ago (1946).

On the other hand, these achievements led to the decline in the preparation and dispensing of medicines by the individual pharmacist working alone in his modest shop-cum-laboratory; yet his professional status and his role in the protection and promotion of our health has not diminished or become redundant because the production of new drugs on an industrial scale has not been without adverse effects both economically and healthwise, so that to-day the pharmacist, like the medical practitioner, must be on the alert for dangers arising from overdosage whether accidental or self-induced; interactions between various medicines; side-effects and hypersensitivity reactions; addictive properties; and unexpected harmful manifestations which may occur even after years that the medicament has been on the market and administered to thousands of patients.⁽¹¹⁾ The phar-

Fig. 2 opposite page

The frontispiece of the revised pharmacopoeia of John Zwelfer published in Nuremberg in 1675. It is dedicated to King Ferdinand III, Head of the Holy Roman Empire.

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macist, thanks to his/her direct personal relationship with the patient or relatives is in an ideal position to bring the above risks to the knowledge of the client and to tender the necessary cautions and advice.

In this context I would suggest that with the traditional mortar and pestle, as the emblems of the art and science of pharmacy, be incorporated the word VIGILO as the motto of the modern pharmacist.

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baugh and B.B. Hale⁽¹⁶⁾ 1953 who worked with rabbits which were subjected to experimentally induced acute radiodermatitis by radiating locally the shaved backs with 11,000 and 28,000 rep of beta radiation from Sr⁹⁰, Rovatti and Brennan⁽¹⁷⁾ 1959 who used rabbits subjected to thermal contact burns with a hot steel plate and Goff and Levenstein⁽¹⁸⁾ 1964 who carried out carefully controlled experiments where they measured the effects of topical preparations including Aloe vera extract upon the healing of skin incision wounds using measurements of the tensile strength of the healing wound as indication of rate of healing. In all these cases results showed that aloe vera pulp, mucilage on preparations dé-

rived from it have a beneficial effect on the healing of these different types of skin wounds.

Though the author's results confirm the beneficial healing effect of Aloe vera mucilage they are far from being statistically significant on their own. The number of areas treated was too few and only description rather than photographic evidence is presented. Whenever possible any difference between treated and untreated area were confirmed by colleagues.

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