

The history of the Danish pharmacopoeias

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In Denmark, the pharmacy service developed gradually from the middle of the 16th century. Pharmacies were regulated by the king and had a right and a duty to procure, prepare, store, and distribute medicines in order to heal, mitigate or prevent disease in the population.

Dispensatorium Hafniense 1658

In 1658, Denmark got its first official formulary, *Dispensatorium Hafniense*. The Dispensatory of Copenhagen was intended for the pharmacies of the capital. At that time, Copenhagen had three pharmacies, but within the year of the publication of the dispensatory, a fourth pharmacy was established in Copenhagen.

Although the dispensatory was only intended for the pharmacies of Copenhagen, it was, however, stated to be obligatory for all pharmacies in Denmark some years later in connection with the Medical Ordinance of 1672.

Dispensatorium Hafniense bears the name of Thomas Bartholin on the title page. Thomas Bartholin (1616-1680) is one of the great names of the scientific life in Denmark in the 17th century. As a professor of medicine at the University of Copenhagen, he was the leading man at the Faculty of Medicine, and although no less than ten of the physicians and professors of medicine in Copenhagen are mentioned in the preface as co-authors, it is above all his work.

The title copper shows the flower goddess Flora sitting in front of the moats of Copenhagen. Referring to the growing tendency in using domestic plants for medical use in the 17th century, it is quite interesting to notice that four plants from the Kingdom of Denmark – at that time, Denmark, Norway, and Iceland – are used as ornaments in the shields in each corner of the copper plate: scurvy grass, cloudberry, gentian, and angelica.

636 formulas for prepared medicines are described in the dispensatory, and a number of preparations are also mentioned by their designations; the total number of medicaments is consequently approximately 800. A comparative research of the dispensatory and *Pharmacopœia*

Augustana 1640 shows that Bartholin's work mainly consists of a copy of the *Pharmacopœia Augustana*.

As a compilation, the dispensatory had its professional importance by its collection and descriptions of pharmaceutical preparations, but it had brought no news of professional interest to physicians and pharmacists.

Therefore, it was natural that the question of a revision of the dispensatory was soon brought up. Several attempts to replace it were made, but without success until 1772. The absence of an up-to-date pharmacopoeia implied that physicians and pharmacists consulted foreign pharmacopoeias, particularly the various editions of the *Pharmacopoeias* of Augsburg and Württemberg.

Pharmacopœia Danica 1772

The first edition of *Pharmacopœia Danica* was published in 1772. Now the Danish pharmacies had at last obtained an up-to-date pharmacopoeia and, by this, a replacement for the *Dispensatorium Hafniense*.

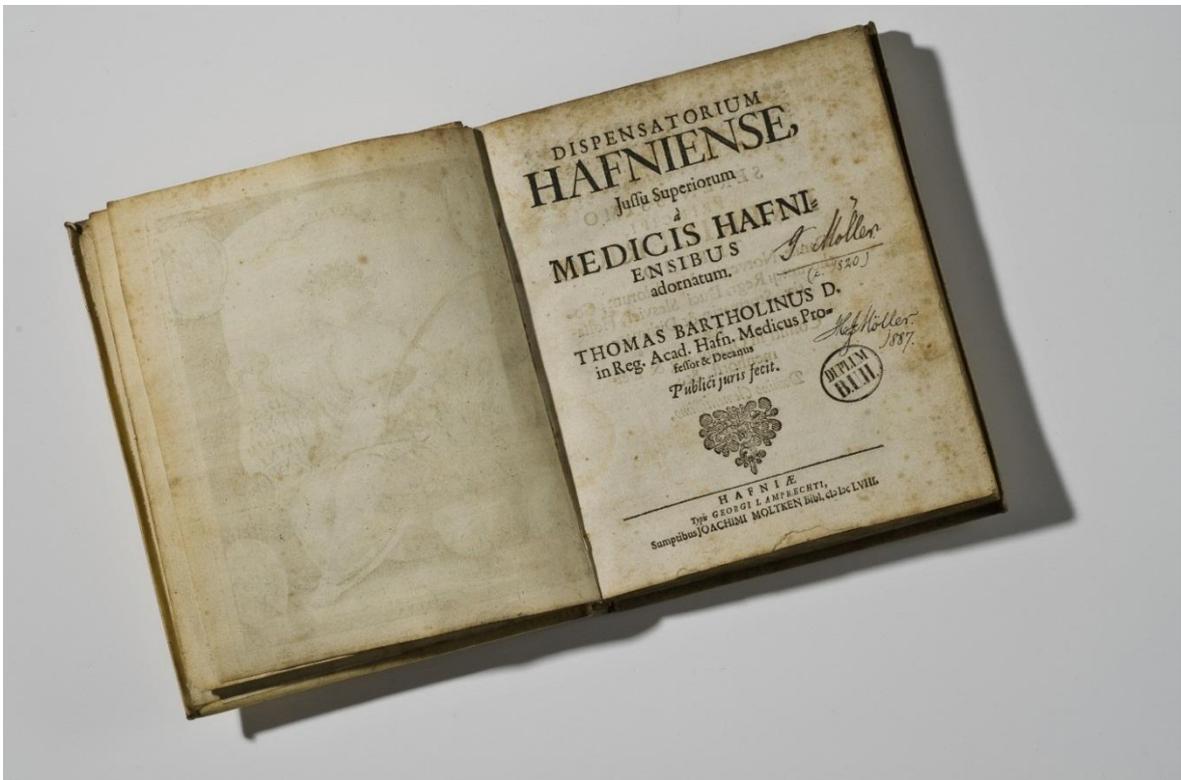
The pharmacopoeia was composed by the Collegium Medicum, established in 1740 as the National Board of Health. The real primus motors behind the preparation of the work were Johan Just von Berger (1723-1791), court physician, Christian Gottlieb Kratzenstein (1723-1795), professor of physics and medicine at the University of Copenhagen, and Joachim Dietrich Cappel (1717-1784), pharmacist at the Royal Frederik's Hospital Pharmacy in Copenhagen.

The pharmacopoeia laid the foundation of a Danish pharmacopoeia tradition: to set down general rules for the preparation, storage, quality, and control of medicines, to lay down standards for raw materials, and to work out formulas for the composition and preparation of specific medicines. The number of raw materials was about 580, and the number of prepared medicines about 640.

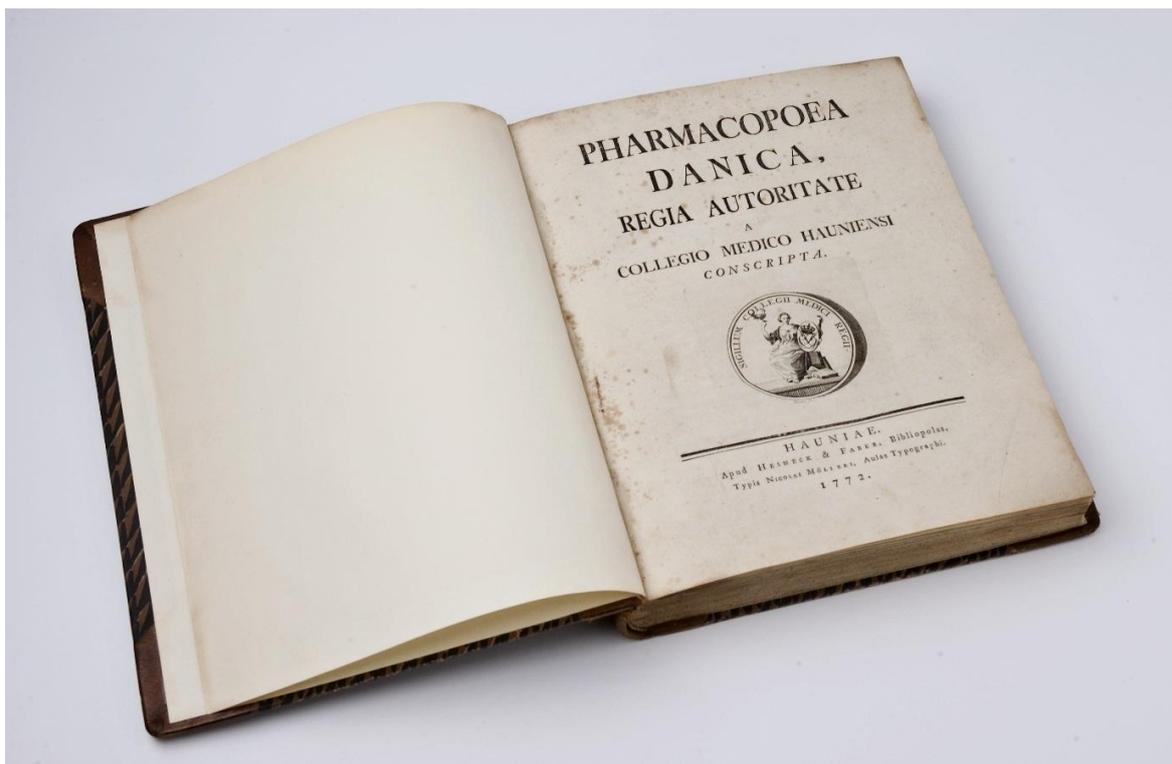
The pharmacopoeia has been praised on several occasions, also in foreign countries, but we do not know of any comprehensive estimate of the book. However, an examination of mono-



Dispensatorium Hafniense 1658, the title copper



Dispensatorium Hafniense 1658, the title page



Pharmacopoea Danica 1772

graphs as special as the chemical ones established that, in this respect, the book has derived profit from the empirical knowledge of the time and has employed chemicals as raw materials and in prepared medicines in a valuable way. In this respect, the book is quite equal to other European works of the time, and in certain fields, it has served as a model.

On the other hand, the pharmacopoeia contains prepared medicines which were, even at the time, characterized as obsolete, and in the preface of the pharmacopoeia, it is frankly admitted that some of the official preparations belong under popular medicines. It must be acknowledged, however, that the pharmacopoeia has supplied a need in the pharmaceutical literature, and, if only for that reason, may have been given a particularly hearty welcome.

An evidence of the favourable reception that the pharmacopoeia was given outside Denmark is the publication of a German version, *Deutsches Apothekerbuch nach der Pharmacopoea Danica ausgearbeitet mit vielen Zusätzen*, edited by Johan Christian Traugott Schlegel and printed in Gotha in 1776, and also a reprint of the pharmacopoeia, published in Leipzig and Frankfurt in 1786.

Pharmacopoea Danica 1772 was the first of a

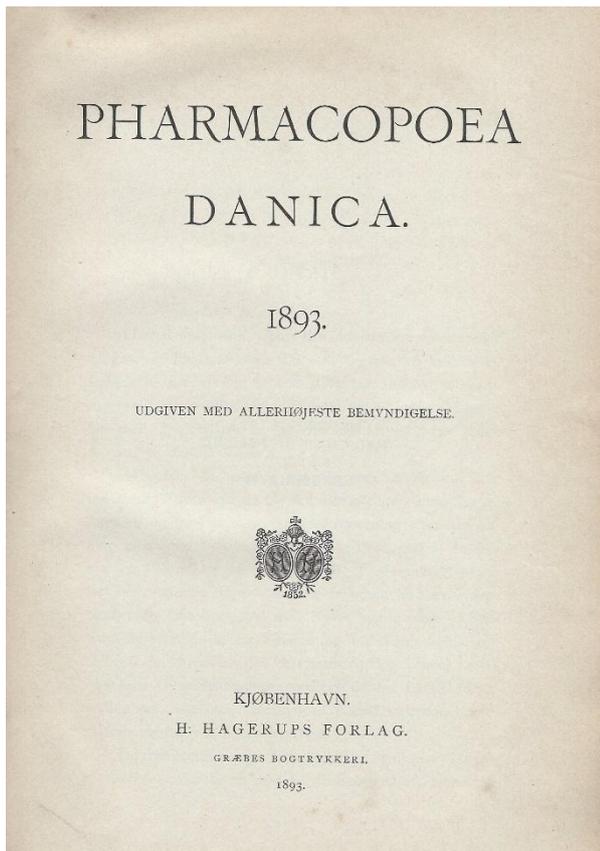
long series of Danish pharmacopoeias of the same name, 9 in all.

The later editions of the Pharmacopoea Danica

The following editions of *Pharmacopoea Danica* did not succeed in maintaining the standard of the pharmacopoeia from 1772, at least *Pharmacopoea Danica 1805, 1840, and 1850* gave rise to strong criticism. Characteristics of these editions are a gradual reduction of the number of drugs, a simplification of the formulas and an increasing number of chemicals which are often described without stating the way of preparation. This evolution was a natural thing, partly on account of the development of the medical and natural sciences, partly on account of the growing chemical industry.

The pharmacopoeia from 1850 was replaced by *Pharmacopoea Danica 1868*, the first one since 1772 which was met with satisfaction on publication.

The following one, *Pharmacopoea Danica 1893*, brought the evolution which had removed the descriptions of the preparation of chemicals from the pharmacopoeias to a conclusion. This was furthermore the first Danish pharmacopoeia



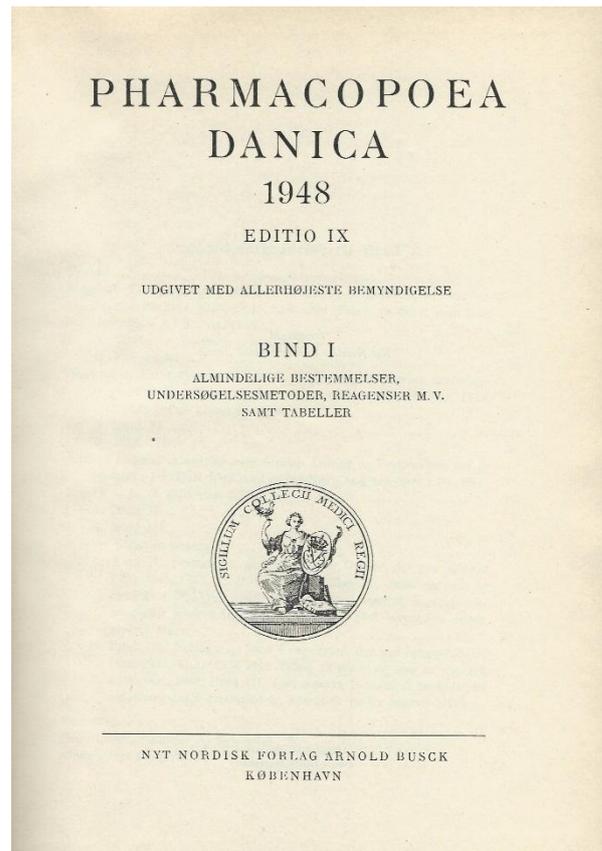
Pharmacopoea Danica 1893

printed in Danish, all the preceding editions being in Latin. The authorities had taken this decision because by this time, Latin had lost its importance as international scientific language, and because the language of the pharmacopoeia increasingly contained Latinized pharmaceutical terms, called “pharmacist Latin”. Furthermore, this pharmacopoeia was one of the earliest pharmacopoeias describing tablets as a medicine form.

Tabletæ – Tablets

Small lozenges, prepared of powdered medicinal substances, generally without a binder. If tablets are to be prepared of slightly soluble ingredients, the powder should be mixed with 1 to 2 per cent carrageen or 10 per cent sugar.

In the following century three editions of the pharmacopoeia were issued, namely *Pharmacopoea Danica 1907*, *1933*, and *1948*. *Pharmacopoea Danica 1948* was a work of a high standard,



Pharmacopoea Danica 1948

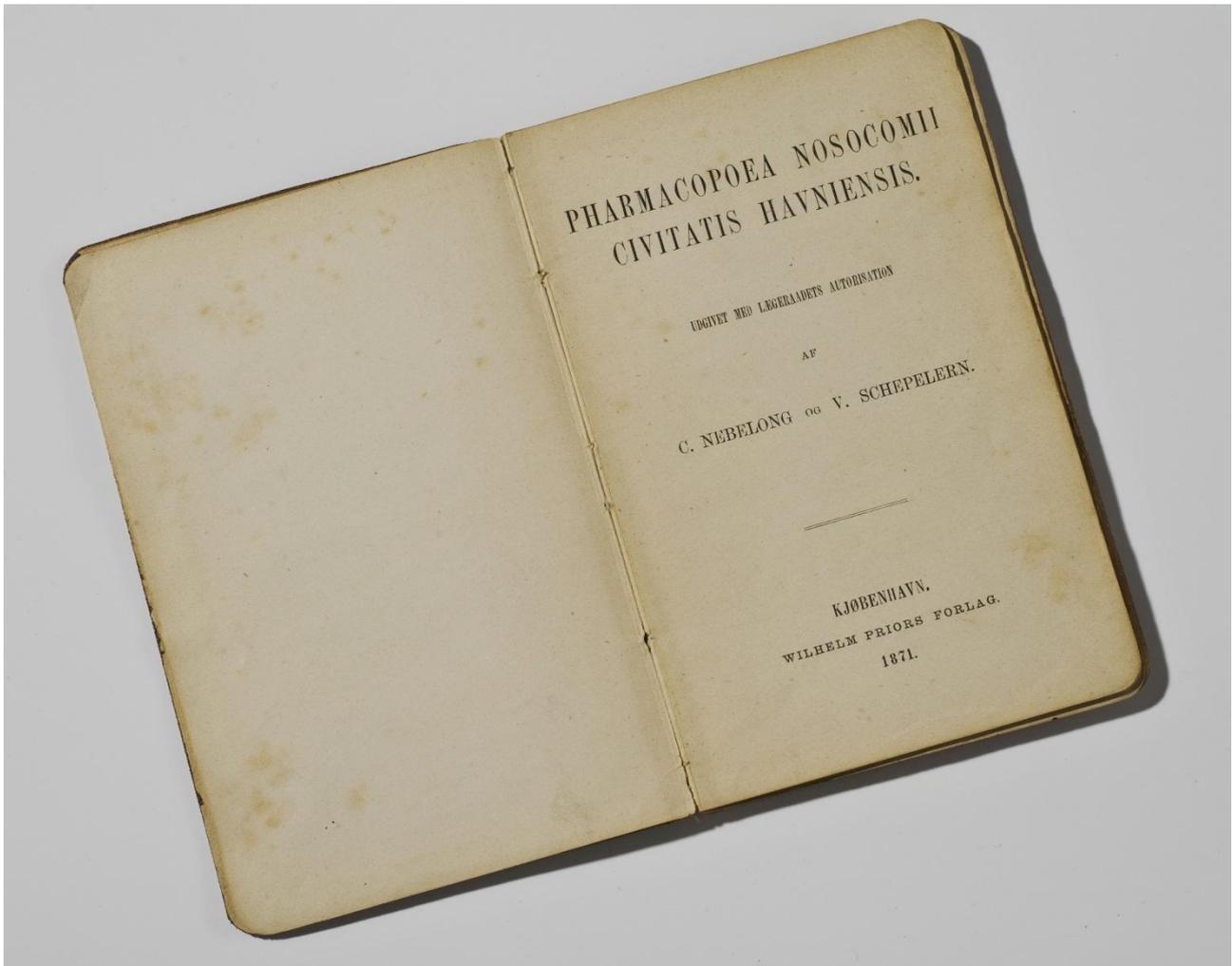
as regards the descriptions of the pharmacopoeial tests even of a high international standard.

The pharmacopoeias from 1805 to 1907 were worked out under the auspices of the Royal Health Panel, established in 1803 as the National Board of Health, and the following pharmacopoeias from 1933 and 1948 under the auspices of the National Board of Health, established in 1909.

It is characteristic of the long series of Danish pharmacopoeias that the formulas for the composition and preparation of medicines are written with special reference to the possibility of making these medicaments in every Danish pharmacy.

The national pharmacopoeia tradition came to an end when the Nordic countries introduced a joint pharmacopoeia, *Pharmacopoea Nordica 1963*, worked out by the Nordic Pharmacopoeia Council.

After Denmark became a member of the European Union in 1973, Denmark joined the *European Pharmacopoeia* in 1978.



Pharmacopoea nosocomii civitatis Havniensis 1871

Special pharmacopoeias

At the end of the 18th century, institutions and authorities began to publish special pharmacopoeias: hospital pharmacopoeias, pharmacopoeias for the poor people, and military pharmacopoeias.

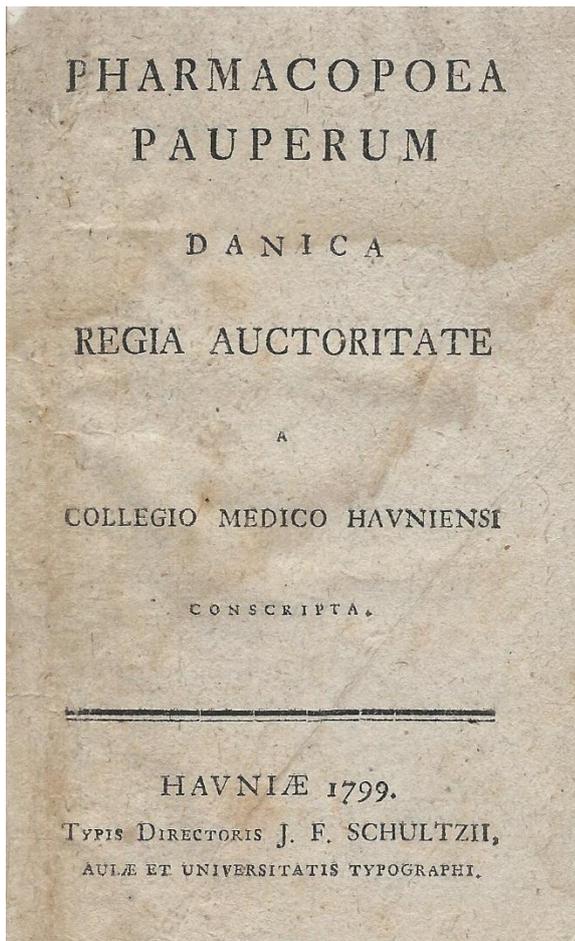
Established in 1757, the Royal Frederik's Hospital in Copenhagen issued a hospital pharmacopoeia, *Pharmacopoea in usum nosocomii Fredericiani Hafniensis*, in 1788 and again in 1841. Similarly, the General Hospital of Copenhagen, established in 1769, published a hospital pharmacopoeia, *Formulae medicaminum selectae nosocomii communis*, in 1846.

After the establishment of the Municipal Hospital of Copenhagen in 1863, the hospital began to compose hospital pharmacopoeias. The first edition was published in 1871 with the title *Pharmacopoea nosocomii civitatis Havniensis*.

The pharmacopoeia was for the hospital physicians' use and also for the general practitioners' outside the hospital. New editions of this pharmacopoeia were published in 1873, 1881, 1887, 1893, 1900, 1908, 1913, and 1922.

These hospital pharmacopoeias got a status as *Pharmacopoea Danica*'s unofficial supplement by virtue of their high quality, large spread and frequent updating.

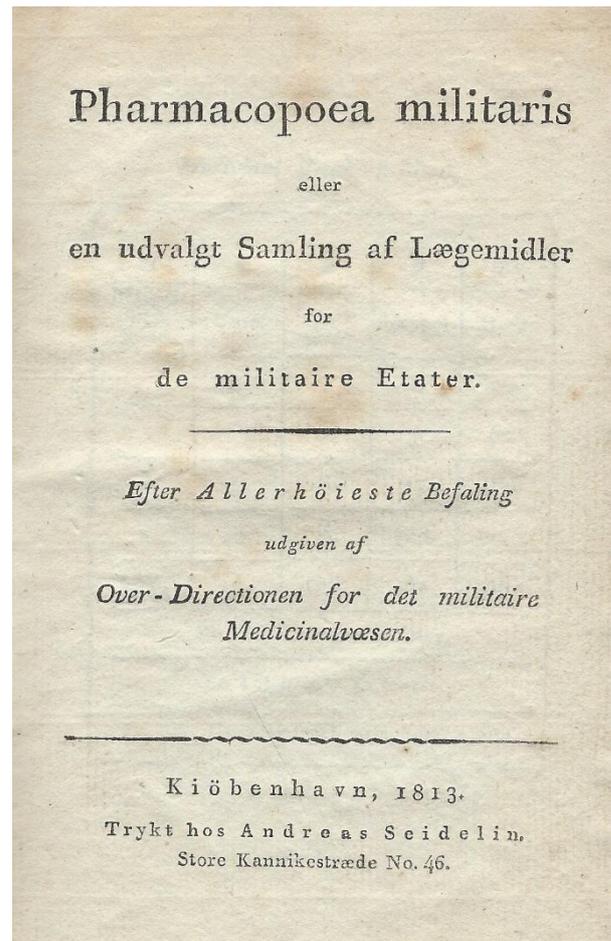
In connection with a reform of the service to the poor people in Copenhagen in 1799, the Collegium Medicum composed a pharmacopoeia for the poor people, *Pharmacopoea Pauperum 1799*. According to the preface, the pharmacopoeia contained all necessary raw materials and prepared medicines which, for the greater part, could be obtained at cheap prices. When physicians prescribed medicines at public expense, they



Pharmacopoea Pauperum 1799

should choose among the medicaments listed in the pharmacopoeia for the poor people. A new edition of the pharmacopoeia for the poor people followed in 1828, and a third and last edition was published in 1843.

In 1812, it was decided to reform the medicine supply to the military. Up till then, the military physicians had supplied the army and the navy with the necessary medicaments themselves at fixed medicine money, but now it was decided that the Royal Orphanage Pharmacy of Copenhagen should establish a military pharmacy to manage the future medicine supply to the army and the navy in Copenhagen, and also that the General Direction of the Military Medical Service should compile a military pharmacopoeia for both fighting services. The Royal Orphanage Pharmacy was renamed the Royal Military & Orphanage Pharmacy, and the ordered military pharmacopoeia, *Pharmacopoea militaris*, was issued in 1813. Compared with the national pharmacopoeia, the military pharmacopoeia was characterized by



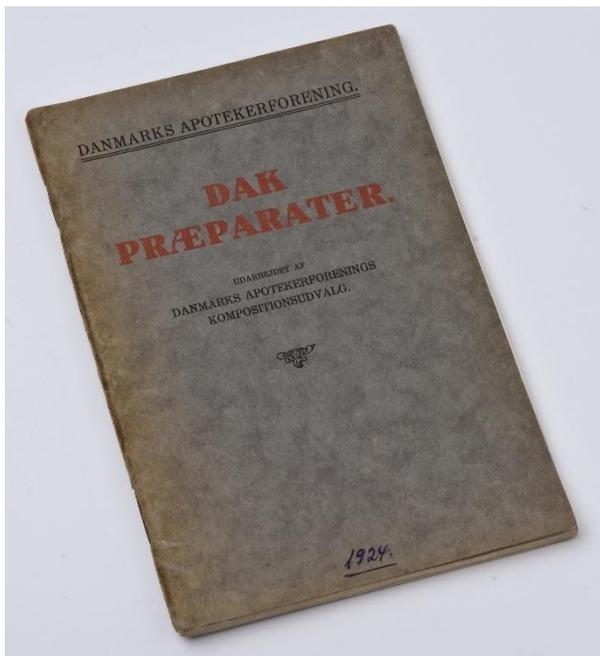
Pharmacopoea militaris 1813

a limitation of the number of medicaments and by a simplification of the compositions. These facts were caused by the economic considerations and the duty of the military physicians themselves to prepare the simple medicaments. The subsequent editions of the military pharmacopoeia were published in 1840, 1857, and 1869.

DAK's formularies

The establishment of a pharmaceutical industry in the late 19th century and its expansion during the 20th century resulted in a steady increase in the sale of pharmaceuticals from the pharmacies. This development led to a fear of erosion of their right to prepare medicines among the proprietor pharmacists.

On this background, the Association of Danish Pharmacies (Danmarks Apotekerforening) took the initiative in improving the competitive power of the pharmacies opposite the pharmaceutical industry. The association set up a committee, the



DAK Præparater 1924

Composition Committee of the Association of Danish Pharmacies, abbreviated DAK Committee, and established a laboratory, the Control Laboratory of the Association of Danish Pharmacies, abbreviated DAK Laboratory. The committee and the laboratory should develop medicines, DAK Medicines, which could replace the pharmaceuticals. The DAK Medicines should be prepared in every Danish pharmacy, packed and labelled identically for all pharmacies, and sold under special names with addition of the trade mark DAK.

At the beginning, the DAK Committee and the DAK Laboratory developed about 40 medicaments as substitution preparations. In 1924, the Association of Danish Pharmacies published the formulas of these medicaments in the form of a book with the title DAK Preparations 1924 – *DAK Præparater 1924*.

The operation of the DAK Committee and the DAK Laboratory increased in the following decades and new editions of DAK Præparater with a growing number of formulas for substitution preparations were issued, namely *DAK Præparater 1927, 1934, 1935, 1939, 1944, 1950, and 1963*.

Until the end of the 20th century, the operation of DAK braked a complete transfer of the medicine manufacture from pharmacies to the pharmaceutical industry.

The manufacture of medicines in pharmacies in Denmark came to an end in 1990, owing to a political decision.

References

Bærentsen K. De uorganiske kemiske monografier i Pharmacopoea Danica 1772 [disp.]. Theriaca; vol 15. Copenhagen: Dansk Farmacihistorisk Selskab, 1970.

Bærentsen K. Dispensatorium Hafniense i historisk belysning. Dispensatorium Hafniense in the light of history. Postscript to: Bartholin T. Dispensatorium Hafniense, Jussu Superiorum à Medicis Hafniensibus adornatum. Hafnia: J. Moltken, 1658. Facsimile. Copenhagen: Dansk Farmacihistorisk Selskab, 1966: 1-29.

Bærentsen K. E Regno Minerali Ph. D. 1772. Farmaceutisk Tidende 1957; 67: 549, 561, 577, 589. Republished in: Theriaca; særtryksamling nr. 1. Copenhagen: Dansk Farmacihistorisk Selskab, 1958.

Bærentsen K. Historiske noter om Dispensatorium Hafniense 1658. Archiv for Pharmaci og Chemi 1958; 65: 1003-16.

Bærentsen K. Nogle træk fra de augsburgske farmakopeers historie. Farmaceutisk Tidende 1965; 75: 89-93. Republished in: Theriaca; særtryksamling nr. 4. Copenhagen: Dansk Farmacihistorisk Selskab, 1966.

Bærentsen K. Pharmacopoea Danica 1772 i historisk belysning. The Pharmacopoea Danica 1772 in the light of history. Postscript to: Collegium Medicum. Pharmacopoea Danica. Editio 1. Hauniae: Heineck & Faber, 1772. Facsimile. Copenhagen: Dansk Farmacihistorisk Selskab, 1972: 1-23.

Bærentsen K. Pharmacopoea Danica 1772. Nogle træk af farmakopeens forhistorie og beskrivelser af bogens enkelte afsnit. Farmaceutisk Tidende 1956; 66: 345, 373, 393. Republished in: Theriaca; særtryksamling nr. 1. Copenhagen: Dansk Farmacihistorisk Selskab, 1958.

Gotfredsen E. Pharmacopoea Pauperum. Medicinsk Forum 1948; 1: 269-72.

Hauberg P. Vor ældste Farmakope. (Dispensatorium Hafniense 1658). Farmaceutisk Tidende 1932; 42: 870-8.

Jensen VG, Schæffer A. The History of Pharmacy in Denmark. A Survey. Theriaca; vol 6. Copenhagen: Dansk Farmacihistorisk Selskab, 1960: 19-25.

Kruse PR. De danske militærfarmakopeer. Dansk Medicinhistorisk Årbog 1996; 24: 59-69. Republished

in: Theriaca; vol 32. Copenhagen: Dansk Farmaci-historisk Selskab, 2000: 65-76.

Kruse PR. De københavnske sygehusapoteker og deres faglige betydning. Dansk Medicinhistorisk Årbog 2005; 33: 163-70.

Kruse PR, Møller N. Apotekervæsenets historie i Danmark. Copenhagen: Danmarks Apotekerforening, 2001: 50-62.

Lindemark O. Det 19. århundredes danske farmakopeer og deres forfattere. Archiv for Pharmaci og Chemi 1978; 85: 1301.

Møller KO. Arbejdet bag den nye Farmakopé. (Pharmacopoea Danica 1948). Medicinsk Forum 1949; 2: 133-41.

Møller KO. Historien om den nordiske farmakopé. Copenhagen, 1968.

Reimers F. Den danske farmakopé i 50 år. 10 sider af den danske farmakopés udviklings historie. Dansk Tidsskrift for Farmaci 1962; 36: 212.

Reimers F. Fra den permanente Pharmacopoe-commission til Farmakopénævnet. Et bidrag til det danske medicinalvæsens historie. Copenhagen: Danmarks Apotekerforening, 1978.

Reimers F. Nordisk farmakopé-samarbejde før Nordisk Farmakopénævn. Archiv for Pharmaci og Chemi 1965; 72: 91-106, 127-51. Republished in: Theriaca; særtryk-samling nr. 4. Copenhagen: Dansk Farmaci-historisk Selskab, 1966.

Therkelsen TJ. Vedrørende Pharmacopoea Danica 1772. Farmaceutisk Tidende 1933; 43: 611.

Zeuthen HR. Danske Farmakopeer indtil 1925. Formel-samling og Oversigt. Copenhagen: F. Bagges kgl. Hofbogtrykkeri, 1927.