

German Pharmacopoeias

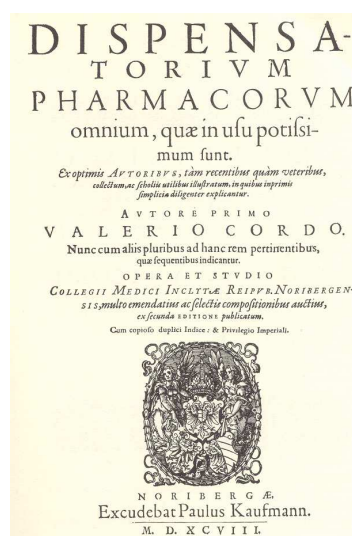
Christoph Friedrich, Marburg

Municipal Pharmacopoeias in the 16th Century

The first official German pharmacopoeias which had the force of law were urban pharmacopoeias which have emerged since the 16th century. They constitute their own distinct genre and according to Georg Edmund Dann they also represent a considerable portion of the medically acknowledged pharmaceutical treasuries.¹

Dispensatorium Norimbergense

It was in 1546 that a first pharmacopoeia has been printed in Nuremberg by Valerius Cordus (1515–1544), a humanistically educated medical doctor working in Wittenberg. Cordus – the son of Euricius Cordus (1486–1535), a professor of medicine in Marburg – received his baccalaureate degree at the Philipps University of Marburg in 1531 and studied medicine in Leipzig thereafter. Since 1539 he gave lectures on the *Materia Medica* at the University of Wittenberg which were very popular with the students. In 1542 he stayed in Nuremberg and was given the city's remunerative mandate to write a pharmacopoeia which he finished in 1543 in Nuremberg. Yet, it took some time before it went into print in 1546. The council commissioned Johannes Petreius, one of the most esteemed printers of Nuremberg, to print the dispensatory. In 1547 the council ordered the mandatory use of this dispensatory for Nuremberg's pharmacists.

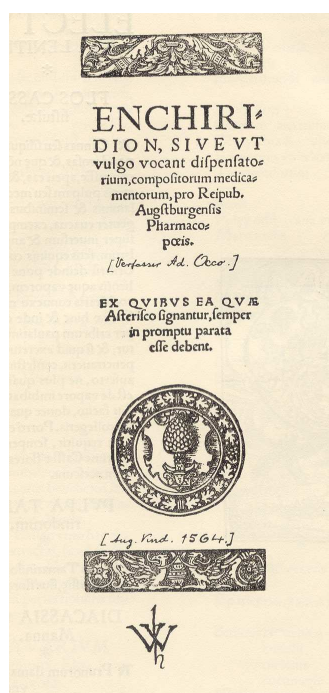


¹ Georg Edmund Dann: Zur Geschichte der Pharmacopoeen' des deutschen Sprachgebietes im 16. Jahrhundert. In: Deutsche Apotheker-Zeitung 100 (1960), p. 1491–1599.

However, the dispensatory displays very little of the humanistic education of the learned physician Cordus. He was predominantly oriented to authors such as Rhazes, Avicenna and Pseudo-Mesue as well as the 'Antidotarium Nicolai' written in Salerno. The formulary chapter does not really prove to be inventive: 766 'Simplicia' are included in 389 regulations. Among the 'Composita' there are 44 pill formulations and 42 for syrups granted a certain priority, followed by 38 'Confectiones aromaticae' and 29 'Confectiones laxantes et solventes', 29 'Condita' (i.e. drugs boiled in sugar water or honey), 29 'Trochisci', 27 'Olea cocta simplicia', 23 ointments and 15 emplastra. There are no Paracelsian formulations in this book.

Pharmacopoeias of Augsburg and Cologne

The second pharmacopeia in Germany, the so-called 'Enchiridion' (full title: 'Enchiridion, sive ut vulgo vocant dispensatorium compositorum medicamentorum pro Reipub[licae] Augstburgensis Pharmacopoeis') has been published in Augsburg in 1564. Four medical doctors from Augsburg and the pharmacist Hieronymus Kreher were the authors. The Enchiridion adopted 61 formulations from the Nuremberg dispensatory. It contained 614 regulations altogether, among them were 84 for syrups and juleps, 78 'Confectiones', 44 pills, 55 oils, 24 'Olea aromatica', 39 'Trochisci' and 39 'Emplastra' as well as 17 'Unguenta'. Among the 614 regulations there were 452 attached with an asterisk indicating that these remedies had to be kept in store constantly.



In 1565 the third pharmacopoeia was published in Germany: the Cologne dispensatory, the initiation of which is assumed to be inspired by the physician and anti-paracelsian Bernhard Dessen (1509/10–1574). The council appointed six physicians from Cologne as a commission. The final editorial work was done by the doctor Hubert Faber (around 1515–1566). The main parts of the book were written in 1564 when Cologne was ravaged by the plague. The first edition was printed by “Arnold Birckmann’s Erben” publishers. Like the pharmacopoeias of Nuremberg and Augsburg, the Cologne dispensatory defined standardized formulations for the ‘Composita’. However, their number was even more restricted in the Cologne dispensatory: it contained 315 ‘Composita’. There was an announced official norm for the quality of the basic ingredients – this is why 146 of 396 pages of the dispensatory deal with descriptions of the ‘Simplicia’ and their adulteration. In contrast to the Nuremberg and Augsburg pharmacopoeias, the Cologne work gave detailed instructions on how to prepare several dosage forms. Yet, the Cologne pharmacopoeia did not include any paracelsic medicine as well.

State Pharmacopoeias in the Late 17th and 18th Century

In connection with the reformed medicinal laws in many counties since the 17th century, numerous state pharmacopoeias were written in the last decade of the 17th and in the 18th century. According to the ideas of the German school philosophy of the 18th century – represented by Johann Heinrich Gottlob von Justi (1717–1771) and Joseph von Sonnenfels (1732/34–1817) – these state pharmacopoeias were intended to “make their people happy” and to “permanently guarantee the wellbeing of all and of the individual”, for instance by improving the supply of medicines. Many of the medicinal regulations issued since the end of the 17th century demanded that pharmacists had to prepare and store remedies according to the currently valid dispensatory. This made it mandatory for the medical administrations to produce their own pharmacopoeias, which also became a political question, because they were considered national symbols, as an expression of sovereignty, but also as a welcome subject for endeavours of unity. Smaller states often adopted the pharmacopoeias of politically close neighbours.

Although the Latin language had already lost its dominant role as ‘Lingua universalis’ in the 18th century, the pharmacopoeias were still written in Latin.

Dispensatorium Brandenburgicum

The publication of the 'Dispensatorium Brandenburgicum' in 1698 initiates a completely new epoch in the history of the German pharmacopoeia genre. State pharmacopoeias now replaced the merely city-issued pharmacopoeias. The exact title of this book is: 'Dispensatorium Brandenburgicum seu norma, juxta quam in provinciis Marchionatus Brandenburgici, medicamenta officinis familiaria dispensanda ac praeparanda sunt, serenissimi atque Potentiss[imi] Electoris Authorithate conscriptum et evulgatum a Serenitate Suae Electorali subjectissimo et devotissimo Collegio Medico maturandum.' It lists about 1000 remedies, among them 906 'Composita'. Apart from an introduction it also contains the medicinal decree signed by elector Friedrich Wilhelm in 1685 as well as the Apothecaries Oath and a tax.

In 1713 the second issue was released in the meanwhile established kingdom of Prussia. Further official issues followed in the years 1731, 1744 and 1781. The third official issue was not much different from the previous ones, but the tax was missing. The fourth issue of the dispensatory of 1744 contained a list of remedies that were mandatory to be stored in pharmacies of larger and smaller cities. The 'Dispensatorium Borusso-Brandenburgicum' from 1781 reduces the number of 'Composita' to 515, but lists 550 simplicia as a large number of simple drugs. In contrast to earlier pharmacopoeias the plant-based simplica were not arranged according to their parts – 'flores', 'folia' or 'radices' – but to their plant of origin in the system of Carl von Linné (1707–1778). Alongside the official pharmacopoeias also several private issues existed, among them the one from 1747 in more than 2000 copies spread nearly all over Europe.

Pharmacopoea Wirtembergica

In addition to the Brandenburg-Prussian pharmacopoeia in particular the Württembergian edition became of special importance in the 18th century. In 1741 the first issue of the 'Pharmacopoea Wirtembergica' was published, esteemed as one of the best pharmacopoeias of that time. Stefan Rothfuß researched on the history of this Württembergian pharmacopoeias in his doctoral thesis. In 1737 already the two Württembergian physicians Johann Albrecht Gesner (1695–1761) and Johann Wendel Bilfinger (1695–1756) had offered to write a dispensatory in addition

to an apothecaries act and to taxes. Gesner, who was the driving force completing the pharmacopoeia, had – in contrast to his colleagues who were also medical professionals – practical pharmaceutical experience: Before he started to study medicine, he had had a training and had also been working as a pharmacist. In 1739 physicians, pharmacists, surgeons, barbers and midwives were asked to hand in written proposals for the pharmacopoeia. In 1741 it was printed by Christoph Ehrhard (1684–1742). The first issue of the ‘Pharmacopoea Wirtembergica’, similar to the pharmacopoeia of Cologne from 1565, gave clear descriptions of the ‘Simplicia’, so we can see first standards emerging here. Simultaneously, ‘Simplicia’ became increasingly important in therapies.



The pharmacopoeia contains 867 ‘Simplicia’ that can be distinguished into 654 of plant and 94 of animal origin as well as 119 mineral drugs. On the opposite, there are 1228 ‘Composita’ and ‘Praeparata’, among them the most frequent composita ‘Aquae destillatae simplices’ (102 times) and ‘Olea’ (101 times). Every monography starts

with the official Latin name, followed by several trivial names and a description of the drug, details about medical indications and even technical uses.

The 'Pharmacopoea Wirtembergica' of 1741 contains the first beginnings of a chemical drug testing such as reactions in fire. Later issues followed in 1750, 1754, 1760, 1771, 1786 and finally in 1798. While the earlier publications were widely appreciated, Johann Bartholomäus Trommsdorff (1770–1837), among others, criticized the fifth edition from 1786, because it still contained a large number of ineffective remedies.

Until the last issue of the Württembergian Pharmacopoeia there are no hints that the storage of 'Simplicia' was obligatory in pharmacies. Instead, storage was bound to need and production of the 'Composita'. Only in the last issue of 1798 the 'Simplicia', treated as dispensable as 'Composita', were marked with an asterisk.

German Pharmacopoeias of the 18th and 19th Centuries

Dispensatorium Lippiacum

The 'Dispensatorium Lippiacum', the Lippian Pharmacopoeia, is considered to be a transitional pharmacopoeia, combining the style of the more elaborate dispensatory of the 18th century with that of the new pharmacopoeias of the 19th century. In the former county of Lippe, which became a sovereign principality in 1897, the medical system was reformed at the end of the 18th and the beginning of the 19th century by the medical doctor and government officer Johann Christian Friedrich Scherf (1750–1818). Although there have been only eleven pharmacies in the small district of Lippe, the ambitious Scherf wanted to have his own pharmacopoeia written.

The medicinal regulation legislated in 1789 prescribed a local pharmacopoeia instead of the 'Dispensatorium Brandenburgicum' which was valid until then. Since there was no Lippian pharmacopoeia at that time, Scherf was given order to write one. In 1792 the first part of the dispensatory, "the description of simple remedies and those which pharmacists do not prepare themselves, but buy from chemists", was printed. Two years later the second part followed. The 'Dispensatorium Lippiacum' contains 369 'Simplicia' and 540 'Praeparata et Composita'.

In 1799 the first and two years later the second volume of the second edition of the pharmacopoeia was published already, remaining valid until 1829. In doing so,

Scherf wrote the first pharmacopoeia in the German language at all. It contained 406 'Simplicia' and 606 'Composita et Praeparata' – altogether 1012 remedies – and it showed a simplification in the composition of galenic preparations.

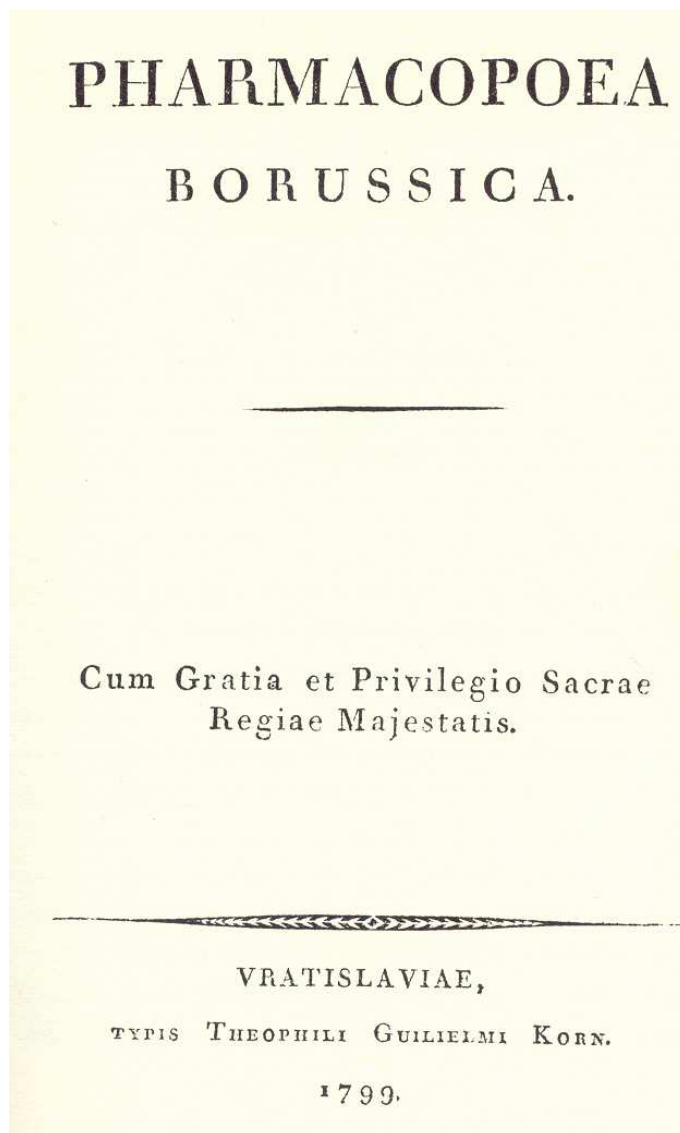
Scherf seems to be the first to emphasize highly effective remedies in a pharmacopoeia. For almost all chemicals there were notes about the water solubility and for some liquid preparations also indications of the specific weight. As one of the first pharmacopoeias the Lippian one contained regulations on tests of all remedies. These were not only related to chemical reactions but also to organoleptic tests and to the use of magnifiers. For the chemical tests the second edition prescribes 33 reagents which are "to be stored in a special room next to the laboratory, protected from light and air". In comparison to the Württembergian pharmacopoeia of 1771 the Lippian one has proved to be more modern. However, there are differences to the 'Pharmacopoea Borussica' from 1799. While the Prussian pharmacopoeia forwent all school-book-like explanations, the Lippian – predominantly addressing handcraft-savvy pharmacists in small towns – used the standard type of dispensatory and was thought to be its user's "all-encompassing work for study and reference". This is why very detailed regulations (magistral formula) were included.

Scherf's efforts to introduce his pharmacopoeia into other German states like Hessen-Darmstadt, Saxonia-Meiningen and Schwarzburg-Sondershausen remained unsuccessful. Although the distribution of this pharmacopoeia remained scattered, it belongs to the best of that time and documents the fact that the drug circulation in smaller states and in the countryside did not take place on a lower legal level.

Prussian pharmacopoeias

The 'Pharmacopoea Borussica', the Prussian pharmacopoeia from 1799, marks the beginning of a new epoch in the history of pharmacopoeias. The former pharmacopoeias had been written by medical professionals. The commission for the 'Pharmacopoea Borussica' in 1799 consisted of seven men, among them, with Martin Heinrich Klaproth (1743–1817), Sigismund Friedrich Hermbstaedt (1760–1833) and Valentin Rose the Younger (1762–1807), three pharmacists already. The commission had been ordered in 1797 by the Prussian king to work on a new pharmacopoeia. As mentioned in the preface, the obsolete remedies of the former dispensatory of 1781 were to be omitted and replaced by those proven in chemical and pharmaceutical

tests. At the same time it was intended for the new book to promote easier and more secure methods of production to pharmacists. While its predecessor, the 'Dispensatorium Regium Electorale Borusso-Brandenburgicum' of 1781, contained more than 1000 remedies, the Prussian pharmacopoeia from 1799 showed first attempts at using less drugs per remedy, with more than 300 remedies omitted. The first part, dedicated to the 'Materia pharmaceutica', i.e. the 'Simplicia', contained 321 monographies, the second part consisting of 'Praeparata et Composita' contained 384 monographies.



The Prussian Pharmacopoeia of 1799 used the new antiphlogistic nomenclature originating from France for the first time; Hermbstaedt had been campaigning for its implementation. Among other changes, 'Vitrolum Martis' became 'Ferrum sulphuricum'. The 'Pharmacopoea Borussica' had a formative influence on the terminology of all Prussian and German pharmacopoeias that followed. The use of

the modern nomenclature presumed clarity on the chemical composition of the remedies, which, in return, has given important impulses to pharmaceutical analytics.

The 'Pharmacopoea Borussica' of 1799 presents testing processes for some 'Simplicia' and explained their chemical compositions. Altogether, the Prussian Pharmacopoeia of 1799 is concisely short, underlining the law character, particularly since the 'Revised Pharmacist Order' of 1801 prescribed all pharmacists in the country to remain exactly within the regulations of the pharmacopoeia, referring to the production of pharmaceutical preparations and not to arbitrarily deviate from them. Finally, the pharmacopoeia also contained an obligatory list, known as 'Series Medicaminum', of all remedies that had to be stored in every pharmacy.

The second issue of the 'Pharmacopoea Borussica' was published in 1804, the third one in 1813, which underwent only minor changes. The 'Pharmacopoea Borussica' contains 318 'Simplicia' and 397 'Praeparata et Composita'. Its third issue shows monographies for 334 'Simplicia' und 398 'Praeparata et Composita'. The issue published in 1813 defines the exact content of the opium amount in certain opium-based remedies.

Larger changes were made in the fourth issue of 1827, which also recorded newer drugs like morphine, potassium iodide and diluted hydrocyanic acid as well as new chemical-analytical methods. Furthermore, the fourth issue contains details regarding the specific weight of different remedies as well as maximum dosages for remedies with strong effects – their overdoses were only allowed for pharmacists to use if physicians marked the dosage with an exclamation mark. The number of 'Simplicia' was 378, that of 'Composita' was 401 and the number of 'Reagentia' was 39.

The fifth 'Pharmacopoea Borussica' from 1846 did not undergo any significant changes. Even the number of listed remedies is almost the same.

The seventh issue of the Prussian Pharmacopoeia of 1862 has been officially accepted by the countries of the North German Confederation ('Norddeutscher Bund') in 1868. In composing this book, it was necessary to show consideration for the other countries joining under Prussian guidance. This motivated the 'Technical Commission for Pharmaceutical Interests', ordered to work on the book, to refrain from using manufacturing instructions for chemicals that were admitted to be purchased from industry.

The Bavarian Pharmacopoeias

Alongside the end of the 'Holy Roman Empire' in 1806, the kingdom of Bavaria had been founded, having a dominating position within the German states next to Prussia. In 1808 a state pharmacopoeia for Bavaria had been announced, but it could not be completed before 1822. The pharmacist and professor Johann Andreas Buchner (1783–1852) has given important impulses for the work on the pharmacopoeia, which, according to his opinion, should have been a code of law. Unfortunately, he was unable to realise his numerous proposals: after his calling to Landshut he discontinued his participation in the 'Commission for the Work on a Pharmacopoeia for the Kingdom of Bavaria'. He was replaced by the chemist Heinrich August Vogel (1778–1867). Among the pharmaceutical contributors were the head of the 'Royal Pharmacy' ('Königliche Hofapotheke'), Joseph Ludwig Ritter, and Edler von Brentano à Moretto (1773-1823) as well as the military pharmacist Franz Xaver Pettenkofer (1783–1850). A specialist for botanical questions was Carl Friedrich Philipp Martius (1794–1868).

The Bavarian pharmacopoeia is different from the Prussian one in the very detailed descriptions of the remedies and obviously the Prussian pharmacopoeia was not the example for the Bavarian commission. Another difference to the Prussian one was the list of reagents with detailed information about production, quality and use of 52 chemicals.

In 1856 the second 'Pharmacopoeia for the Kingdom of Bavaria' followed under the Bavarian king Maximilian II. Next to Heinrich August von Vogel, Carl Friedrich Philipp von Martius, Franz Xaver Pettenkofer who died in 1850 and his nephew Max (1818–1901) as well as Ludwig Andreas Buchner (1813–1897) worked on its completion. The second Bavarian pharmacopoeia considerably differed from the first one with respect to its extent, format and structure. Besides the Latin names of the remedies it was written completely in the German language. Instead of the old differentiation between 'Simplicia' and 'Praeparata et Composita' it uses a unified alphabet for all medications and drugs. In describing the drugs and recipes, the book contains plain facts, thus it could easily compete with newest pharmacopoeias in Germany and Austria.

In 1859 a slightly revised and updated second issue of the second Bavarian pharmacopoeia followed, remaining in effect until the first German 'Reichspharmakopöe' was published in 1872.

Pharmacopoea Badensis

After autonomous pharmacopoeias have been published in several German states such as Oldenburg (1801), Kurhessen (1806), Hamburg (1818), Saxonia (1820) and Bavaria (1822), the Baden pharmacists – who were ordered to use the 'Pharmacopoea Borussica' – aspired their own book of remedies. In May 1822 the professor of medicine in Freiburg, Karl Fromherz (1797–1854), presented a detailed plan for a Baden pharmacopoeia to the sanitary commission. Only those new medications should be included which proved to be effective. Fromherz considered complicated 'Composita' dispensable. For his book he proposed Latin as language, added by the respective German names. Fromherz wanted to add a list of the plants and minerals of Baden to the pharmacopoeia, following an idea of both the professor of medicine from Heidelberg, Johann Heinrich Dierbach (1788–1845), and the lecturer Johann Alexander Maximilian Probst (1812–1842). In his draft Fromherz laid special emphasis on the preparation of remedies, he thought they should best be described as detailed, accurate and precisely as possible. A restriction regarding the properties of the remedies was included in order to emphasize the law character of the pharmacopoeia.

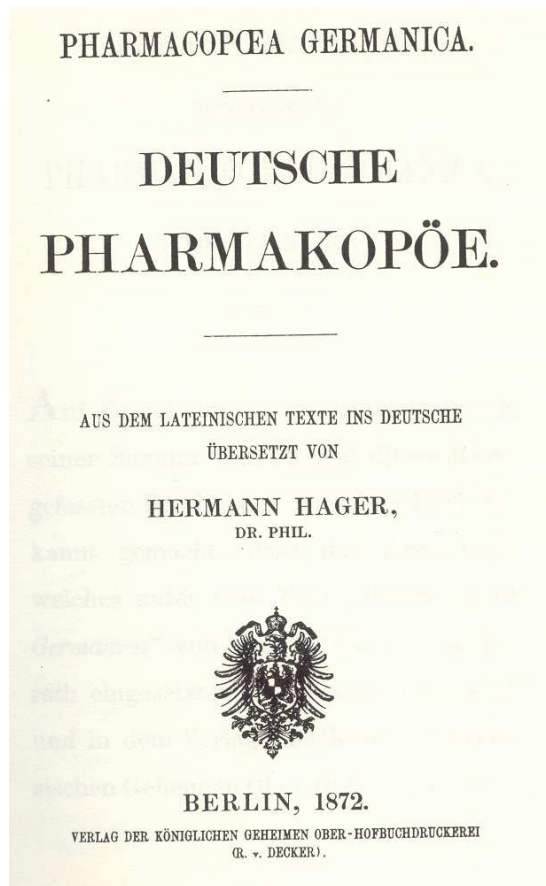
On 1st of November 1840 the 'Pharmacopoea Badensis' was introduced instead of the previous Prussian pharmacopoeia. It contained 822 medications, 345 of them belong to the group 'Materiae crude' and 477 to 'Praeparata pharmaceutica' including 'Praeparata mercabilia'. Furthermore, it describes the separate remedies in a broad and schoolbook-like form.

The German Pharmacopoeia

In 1885 the 'Allgemeiner Deutscher Apotheker-Verein' had demanded to write a draft of a national pharmacopoeia, the 'Reichspharmakopöe'. In 1865 the 'Pharmacopoea Germaniae' was presented. Its most significant change was translating the weights to the metric system. Three years later a second issue was published which was declared the pharmacopoeia of the Kingdom of Saxony in the same year. At its meeting in Berlin in 1869 the 'Commission for the Preparation of a Common

Pharmacopoeia in the North German Confederation', inaugurated by the Federal Council ('Bundesrat') did neither accept the seventh issue of the Prussian Pharmacopoeia nor the 'Pharmacopoea Germaniae' as a common pharmacopoeia. For this reason, a new pharmacopoeia had to be issued by the North German Confederation, the validity of which was extended to the united country from 1871 on.

By order of the Federal Council a pharmacopoeia commission was installed under the chairmanship of the Prussian 'Geheimer Ober-Medizinalrat' Dr. Karl Housselle (1799–1885). Members of this commission were five pharmacists, three physicians and two professors of pharmacy and chemistry each, with Ludwig Andreas Buchner (1813–1897) as the second chairman. As a result of intensive efforts the 'Pharmacopoea Germanica', the 'Deutsches Arzneibuch 1. Ausgabe (DAB 1)', could be legislated in 1872 and came into effect on 1st November. Among the more than 900 monographies one can also find alkaloids like chinine, atropine, caffeine and morphine as well as first organic-synthetic medications such as chloral hydrate, chloroform and iodoform, whereas the preparations resemble 50 per cent of the monographies. The tests of identity were mostly organoleptic; the low number of preparation orders shows that a large amount of chemicals was bought from the pharmaceutical industry.



Only ten years later the second issue of the 'Pharmacopoea Germanica' (DAB 2) was released including several analytical methods: next to the titrimetry – the category 'Liquores volumetrici' listed several "normal" solutions, volumetric solutions and indicators – also the definition of the specific weight, the solubility, the melting and boiling points were regarded. The number of remedies was reduced from 900 to 600.

The 'Editio altera' was already published unofficially in the German language in 1882. The third 'Deutsche Reichspharmakopöe' (DAB 3) of 1890 was officially published in German, while the drug and remedy names were still listed in Latin. The main reason for this was the intention to avoid mistakes through misinterpretation in standardised remedy denotations. The DAB 3 involves microscopic methods and increased purity standards. New drugs were cocaine, menthol, resorcin, antipyrine, phenacetine and sulfonal.

In 1883 the 'Deutsche Apotheker-Verein' created a commission for the revision of the pharmacopoeia under the chairmanship of Oskar Schlickum (1838–1889). The clinical pharmacist from Heidelberg, Gustav Vulpius (1839–1917), succeeded him. By decision of the Federal Council the Ministry of Health formed a commission, among the members were the professors Albert Hilger (1839–1905), Ernst Schmidt (1845–

1921), Friedrich August Flückiger (1828–1894), Vulpius, Max von Pettenkofer (1818–1901) as well as the Berlin pharmacist Karl Schacht (1836–1905) and Christian Brunnengräber (1832–1893) from Rostock. In 1894 a supplement to the DAB 3 was published containing additional monographies of remedies.

For the pharmacopoeia that followed afterwards regular supplements were published. The fourth 'Deutsche Reichspharmakopöe' (DAB 4) of 1900 was the last issue in this development and as such it marked the beginning of a new era. The Permanent Pharmacopoeia Commission ('Ständige Pharmakopöe-Kommission') – among their members were pharmacologists like Carl Binz (1832–1913) from Bonn and representatives of the pharmaceutical industry like Julius Friedrich Holtz (1836–1911) – tried to list exact testing instructions for each remedy, so that they could be conducted in regular pharmacist laboratories. These regulations also contained analyses of identity, purity and content as well as values.

The DAB 4 contains 627 monographies, among them 368 'Simplicia' and 238 'Composita'. Additionally, there are 21 monographies on dosage forms. Newly introduced were arecoline, diphtheria serum and tuberculin.

In regular cycles of ten years the DAB 5 followed in 1910. Like in the DAB 4 the professor of pharmacy in Braunschweig, Heinrich Beckurts (1855–1929), collaborated on it as well as other professors like Theodor Paul (1862–1928) from Munich and Ernst Gilg (1867–1933) from Berlin. Otto Anselminos (1873–1955), officer of the Royal Health Administration ('Kaiserliches Gesundheitsamt'), had influenced the involvement of international regulations on highly effective remedies in this new pharmacopoeia. The DAB 5 made higher demands on pharmacies by requiring the acquisition of equipment such as chemical scales and better microscopes for higher magnifications (60–500-fold). The DAB 5 contains 671 remedy monographies, among them 391 'Simplicia' and 248 'Composita'. Additionally, there are 32 monographies about dosage forms, among them pills for the first time.

World War I and its consequences lead to a delayed publication of the next pharmacopoeia 16 years later, although there had been a preliminary discussion about the DAB 6 in the National Health Administration ('Reichsgesundheitsamt') at the end of 1915. On 7th December 1917, the president of the

'Reichsgesundheitsamt' demanded pharmacists, physicians, veterinarians, dentists, the chemical-pharmaceutical industry and wholesale dealers to hand in their suggestions for the next DAB. These were discussed until 1921 by the pharmacopoeia subcommittee of the National Health Council ('Reichsgesundheitsrat'). The publication process was interrupted until 1924 due to the financial situation and could be completed in 1926. By decision of the National Council ('Reichsrat') on 1st July 1926 the new DAB 6 became effective from 1st January 1927 on. With its more than 900 pages it tied up to the innovations of the DAB 4 and the DAB 5. The pharmacopoeia was supposed to be more than a mere rule book. It contained 730 monographies including 440 'Simplicia', 253 'Composita' and 37 monographies on dosage forms. Several new drugs such as bromural, chloramine, colchicinum, glandulae thyreoideae siccatae and a monography about 'Tabulettae' were introduced and the list of reagents increased from 65 in the DAB 5 to 236.

The DAB 6 with its supplements (1931, 1934, 1954, 1959) had been effective for several decades and received own supplements in the GDR in 1954 and 1959.

It was in 1965 that it was replaced by the 'DAB 7-DDR' in the GDR – published as loose-leaf-collection with annual updates (eight supplements) – and in 1968 by the 'DAB 7' in the Federal Republic of Germany. The 'Second Issue of the GDR Pharmacopoeia' in 1975 – like its West German counterpart, the DAB 8 of 1979 – contained spectrophotometric test methods. While the East German second issue contained 850 monographies, the DAB 8 in the Federal Republic listed 568.

In 1987 the ninth issue was published in the Federal Republic of Germany, a composition of the DAB 9 and the 'Homeopathic Pharmacopoeia' (HAB 1) of 1986. In the DAB 9, tests of identity were performed via IR spectroscopy exclusively, while in tests of purity thin-layer chromatographical methods were pointed out. It includes 748 monographies.

The tenth issue of the 'Deutsches Arzneibuch' (DAB 10) of 1992 was valid in the entire united Germany. In the Federal Republic of Germany the European Pharmacopoeia had already been integrated in the eighth issue of the German Pharmacopoeia in 1979.

In the course of the cooperation between the East European countries in the 'Council for Mutual Economic Assistance' (COMECON), founded in 1949 to coordinate the national economies in the Soviet sphere of influence, one can observe a shift of certain monographies into the 'Compendium Medicamentorum', the COMECON pharmacopoeia.