

THE AUSTRIAN MILITARY PHARMACOPOEIAS and the MEDICINE SUPPLY to the IMPERIAL ARMY

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INTRODUCTION

Austrian military pharmacy did not exist until the end of the 18th century. In earlier times, barber surgeons treated the wounded soldiers and carried only basic medical supplies to the battlefields. Since the 15th and 16th century, civil apothecaries occasionally accompanied Austrian military leaders and sovereigns as personal pharmaceutical attendants to look after their elaborate and well-equipped medicine chests. In the 17th and at the beginning of the 18th century, records cite some apothecaries who went along with the troops to take care of the needed pharmaceutical products.

In the middle of the 18th century, it was common usage that civil pharmacies supplied the troops with medicines. In 1756, the seven-year-long war with Prussia started and a larger supply of medicines became necessary. Gerard von Swieten, the personal physician of the Empress Maria Theresia and head of the public health service convened all apothecaries of the Viennese apothecary board and obligated them to produce and to deliver medicines to the army at low costs. The apothecaries had to observe a specific catalogue which listed all the drugs and preparations needed by the troops. The apothecaries were not very content, because there were hardly any financial benefits from this business. In 1778, at the outbreak of another war with Prussia, the war council addressed the Viennese apothecary board to supply again the medicines to the Austrian army. The board signed a one-year contract agreeing to deliver medicines at half the price of the apothecary tax. The contract obliged the board members to purchase all necessary goods from the merchant Franz Wilhelm Natorp, a situation, which they did not approve of but needed to accept. Further quarrels about delivery and price of the medicines resulted in the appointment of F. W. Natorp, who led a consortium of apothecaries, as the main supplier of medicines to the army. Gradually, F. W. Natorp squeezed the board out of business. In 1779, he was even granted the sole right to deliver medicines to all military hospitals. Tensions between the apothecary board and the public authorities escalated. The disclosure that board members had supposedly delivered falsified medicinal products and medicines of low quality to the armed forces enraged Emperor Joseph II to such an extent that, in 1782, he even disbanded the apothecary board and closed the involved pharmacies. Concurrently, he also approved the opening of numerous new pharmacies in Vienna. The Viennese apothecary board was not reappointed until 1796.

The medical service in the Austrian army was poor until the reign of Emperor Joseph II who introduced great changes in the medical services and in the education of the medical personnel of the Austrian army. He ordered the construction of military hospitals not only in Vienna but also in Milan, Mantua, Theresienstadt (Terezin), Königgrätz (Hradec Králové), Lemberg (Lwów), Budapest, Brünn (Brno) and Olmütz (Olomouc). In 1780, Vienna and all province capitals had their own military medicine depots where the troops could acquire the medicines.

Until the 18th century, the medical personnel of the army consisted of barber surgeons who had practical experience in surgery but lacked knowledge in anatomy and internal medicine. The physicians educated at the university knew little about surgery and, therefore, preferred to treat civil patients. Joseph II was aware of the problem that there was a need for a well-trained medical staff in the army. In 1775, a school for barber surgeons, located in the military hospital in Gumpendorf¹, started to teach the treatment of internal diseases and the knowledge about pharmaceuticals. The course lasted six months but this measure did not improve the situation. In 1779, the personal physician of Joseph II, Johann Alexander von Brambilla, became the head of the Austrian military medical service and initiated a two-year's extension of that course. Since 1781, all field surgeons had to attend that course. As the school in Gumpendorf became too small, Joseph II ordered the construction of another building. The new Medico-Surgical Military Academy (Joseph's Military Academy) opened in 1785 and provided profound education in internal medicine and surgery to the military medical staff. J. A. von Brambilla was its first director and head of all military medical affairs. The statutes of the academy demanded, that a specific medical topic should be raised each year to be solved by an open contest allowing military surgeons and physicians from the Austrian empire and abroad to participate. The winner of the competition received a highly paid prize.

An order for the military medical staff, dated 1788 and 1789, regulated the production and delivery of field medicines in peacetime and wartime, and included a catalogue of simple medicinal products and complex medicines. According to this order, all field pharmacies and depots for field medicines were under the supervision of the head of the medical staff officers J. A. Brambilla. The professor for chemistry and botany at the military academy, Josef Jakob Edler von Plenck was the appointed director of the field pharmacies. The merchant F. W. Natorp, who was the army's medicine supplier at that time, had to report on the medicines in stock once a year to J. A. Brambilla. Regarding the pharmaceutical staff, he was obliged to give an account to J. A. Brambilla and J. J. von Plenck twice a year. Each main army and

¹ At that time, Gumpendorf was located outside Vienna. Today, it is one of Vienna's districts.

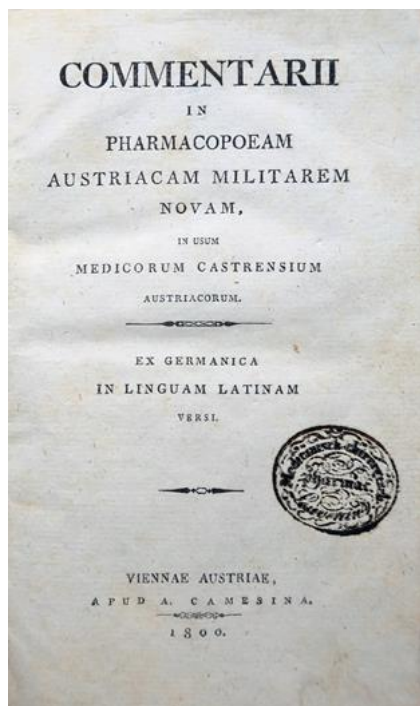
battalion was equipped with a field pharmacy, which was bound to store all simple medicinal products and complex medicines listed in the medical catalogue of 1788 and 1789.

In August 1793, at the outbreak of the war against France, F. W. Natorp withdrew suddenly from the contract with the Austrian army. As no suppliers were found to take over F. W. Natorp's business at the same conditions, Emperor Franz II decided not to rely any longer on private suppliers. He ordered to establish a military state institution to produce and deliver medicines to the armed forces. On March 1, 1794, the institution, called "Medikamentenregie" (Pharmaceuticals Head Office) started the business according to the plans of the Viennese apothecary Martin Lessner and, subsequently, took over all medicine depots of F.W. Natorp. M. Lessner became the first director and served as the head of the institution until his death in 1810.

In 1794, critics turned up regarding the medical education in the military academy. Similarly, the instructions for producing and delivering medicines to the troops, last amended in 1789, were scathed. The concerned authorities demanded a change in the medical curriculum and a revision of the prescribed drugs and formulated medicines. They approached the problem by starting an open contest in which physicians from all over the empire and foreign countries could participate. On March 26, 1794, the Viennese newspaper "Wiener Zeitung" published the contest questions and national and international medical journals announced them as well. The pharmaceutical questions related to topics such as deleting obsolete drugs and formulated preparations and/or including new medicines as well as finding preparations suitable for use in the battlefields. The Military Medical Commission evaluated the 41 proposals and awarded the best five contributions. Based on the useful proposals, the commission worked out a military pharmacopoeia, a commentary for military physicians, a catalogue, which listed all pharmaceuticals to be stored in field pharmacies, and a tax. Subsequently, the medicines of the provisional pharmacopoeia were tested in the main military hospital in Vienna during a few months. As the results of the tests proved the necessary efficacy of the medicines, the first Austrian military pharmacopoeia, *Pharmacopoea Austriaco-castrensis*, became effective on February 1, 1796.

THE MILITARY PHARMACOPOEIAS (1795-1919)

Six military pharmacopoeias were issued until the end of the Habsburg Monarchy. In 1795, the first Austrian military pharmacopoeia, Pharmacopoea Austriaco-castrensis, was published. In 1800 and 1805, there were two reprints of the first edition². The following five editions appeared in 1820, 1841, 1859, 1872 and 1891. The first three editions were written in Latin, the following ones in German language.



PHARMACOPOEA AUSTRIACO-CASTRENSIS (1795)

The first military pharmacopoeia was a small booklet of 102 pages. It started with the privilege of Emperor Franz, in German language, which granted the sole right to Albert Anton Patzowsky, typographer and bookseller, to print and sell the pharmacopoeia, the commentary and the catalogue of medicinal products including the tax. A list of contents followed the privilege.

The first chapter treated 97 crude drugs (of plants and of animal origin), as well as minerals and chemicals, all listed in alphabetical order. Each entry for the plants or animal drugs cited the drug name in Latin and in German, the scientific name of the plant or animal, as well as the used plant parts or animal parts, also mentioning the respective preparations. The entries for the chemicals and minerals also appeared in Latin and German.

² In 1800, a Latin translation of the commentary was also published.



An index followed, listing the names of 74 formulated preparations, given in alphabetical order according to the Latin name, adding the German name after each citation. The pharmacopoeia included a list of seven simple drugs and chemicals, which were of sole use in veterinary medicine. A table of pharmaceutical weights preceded the comprehensive section of the formulated preparations. The monographs of that section appeared in alphabetical order and specified their ingredients, their amounts and production methods.

The pharmacopoeia contained two tables. The first one informed about the solubility of 14 salts in one ounce of water at 10 degree Réaumur. The second table referred to the amount of mercury, antimony and opium in nine

specified formulated preparations.

A consecutive catalogue listed 153 crude drugs and formulations in alphabetical order, which the field pharmacies were obliged to hold in stock. Another list of fourteen items referred to products such as butter, eggs, milk, lemons etc., which the military physicians had to obtain from the hospital wards. The closing chapter contained the *Formulae medicinales*, 59 preparations used for the treatment in field hospitals, garrison hospitals and hospitals of regiments. Those last mentioned medicines had already been in common use before the military pharmacopoeia was compiled.

COMMENTARY TO THE FIRST MILITARY PHARMACOPOEIA (1795)

The whole commentary was written in German language. The commentary started with a copy of the printing privilege of Emperor Franz followed by a foreword, which accounted for the necessary changes in the pharmacopoeia compared to the medical catalogue of 1788 and 1789. Furthermore, the foreword pointed out the need for reforms in health care and hygiene in order to improve the environment of the soldiers. The subsequent introduction handed out advices in hygiene and in the methods of disease prevention, especially addressing the inexperienced young military physicians.

The commentary comprised four sections. The first section referred to the type of medicines, which should be in stock in a field pharmacy. Such a pharmacy should not contain all the

luxury preparations of a town pharmacy, but store only essential medicines of high efficacy. The medicines should be easy available, cheap, easy to transport, simply to prepare, resistant to heat and cold and without disagreeable taste. Simple medicines were preferred to complex preparations, dry ones to liquid medicines.

The first section comprised three indexes. The first index listed 286 crude drugs and complex preparations, which had been in stock in the field pharmacies according to the medical catalogue of 1788 and 1789. In addition to that index, a subsequent list enumerated all those 114 crude drugs and 23 complex preparations, which had been previously necessary to produce all the medicines of the outdated medical catalogue, but had not been named before in the quoted medical catalogue. The third index listed 154 crude drugs and formulated preparations of the former medical catalogue, which were not introduced into the new military pharmacopoeia giving the reasons for their deletion. All indexes of this section enumerated the medicines in alphabetical order according to the Latin name.

The second section specified the remaining 92 crude drugs and complex preparations of the medical catalogue of 1788 and 1789. Each monograph indicated the uses, the side effects and, if necessary, cited the doses to administer.

The third section listed 48 novel medicines, including 21 crude drugs of mainly plant origin, which the field pharmacies had to provide henceforward. Each monograph explained in detail the reasons for having incorporated the new medicine and gave advice for the treatment, the use and the doses to apply. The third section closed with an index of 59 crude drugs and preparations, not yet incorporated in the pharmacopoeia due to missing scientific investigations.

The fourth section named complex preparations, which had undergone some changes or were deleted. The recipes of seventeen medicines were modified in accordance with the amended edition of the *Pharmacopoea Austriaco-provincialis* of 1794. Additionally, the commentary mentioned seven deleted preparations, and nine improved recipes of the *Formulae medicinales* (= *Formulae nosocomiales*). The commentary closed with two attachments. The first one comprised two lists, one specifying all the obsolete surgical instruments, and the other one enumerating the new instruments to use. The second attachment gave information about bandaging material and how to reduce their costs.

PHARMACOPOEA AUSTRIACO-CASTRENSIS (second edition, 1820)

The second edition showed some modifications in the number, nature and names of simple medicinal products and complex preparations due to new scientific findings. It also adopted the nomenclature of Gren and Lavoisier as mentioned in the introductory chapter. Some monographs indicated the specific weight of several liquid preparations, which was a novelty in an Austrian pharmacopoeia at that time. The second edition omitted the table of apothecary



weights and the list of those products, which had to be acquired from hospital wards. In contrast to the first edition, no German commentary was published.

The index of simple medicines (Index medicaminum simplicium) enumerated 107 crude drugs and chemicals, arranged in alphabetical order according to their Latin denomination. Each entry cited the product's name in Latin and German, and specified the vegetable drug or animal drug by its scientific name, mentioned the used parts of the crude drugs, including the grade of cutting or crushing, and named the formulated preparations. In comparison to the first edition, the second edition omitted 11 simple products and introduced 19 new crude drugs and minerals. In some cases, the remaining items

were subject to modifications such as changes in chemical denominations or in used plant parts.

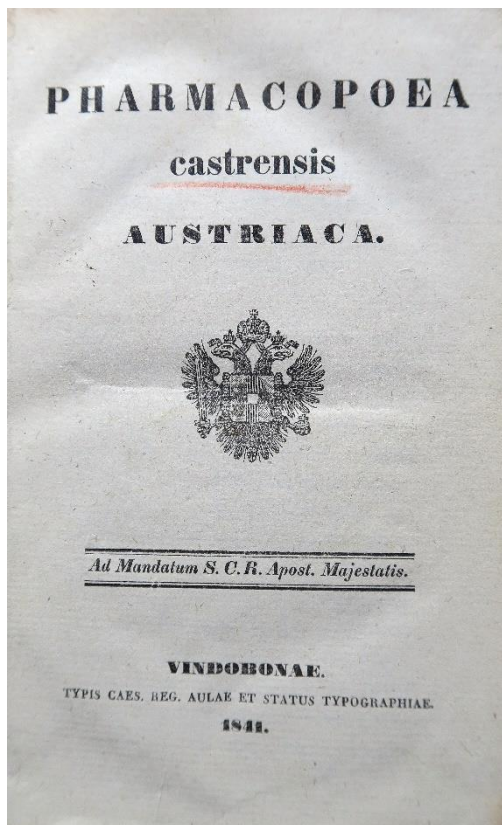
The main section of the pharmacopoeia consisted of 114 formulated preparations and all the chemicals, which had to be manufactured. Thirty-three complex medicines of the former edition were sorted out, 64 new preparations were added. Several preparations underwent modifications or got new names. Some monographs dealing with liquid acids, alcoholic solutions and syrups indicated the specific weight of the respective fluid.

The subsequent index listed 162 items, crude drugs, chemicals and complex preparations, which the military physicians could obtain from the military pharmacies. They were not allowed to prescribe other items than those mentioned in that index. Each entry also cited the German name.

The chapter on the Formulae nosocomiales was also subject to some changes. It listed 60 preparations, but only about half of them remained from the former edition.

The two tables of the previous edition were still included but showed some modifications. The table indicating the amount of mercury, antimony and opium in complex preparations showed a change in preparations and counted only seven products instead of nine. The table on the solubility of salts in water listed more substances, 25 instead of 14, referring to a changed testing temperature at 15 degree Réaumur. The index of veterinary products extended to 18 items but excluded five products from the former list.

PHARMACOPOEA AUSTRIACO-CASTRENSIS (third edition, 1841)



The third edition did not differ substantially in their appearance from the previous one. However, it updated the crude drugs, minerals and formulated preparations according to the state of research at that time, and incorporated new tables and an index of reagents.

The Medico-Surgical Military Academy in Vienna accounted for the introductory chapter commenting on the different sections of the issue. A newly inserted table of contents (Conspectus Pharmacopoeae) listed the different subjects and indicated the corresponding pages. The first chapter explained in detail the civil weight system and the pharmaceutical weights and informed about their conversions into grams. There was also a passage

referring to the specific weight of liquids, stipulating the use of Professor Meissner's aerometer at 14 degree Réaumur.

The index of simple products (Pharmaca cruda) enumerated 131 items providing more information about the single products than the previous editions. Each entry of the crude drugs indicated the drug name in Latin and German, the scientific name, the used parts, an elaborate list of the specific preparations and, separately, cited the names of the Formulae nosocomiales, which contained the respective simple product.

The subsequent section comprised 131 monographs of all formulated preparations and all those products, which had to be manufactured. The monographs, listed in alphabetical order

according to their Latin names, indicated the synonyms, the German names, the composition of each complex medicine and the production methods.

The next chapter referred to 68 *Formulae nosocomiales*. Each entry cited the Latin and German name, the compounds, and gave a short information how to produce the medicine.

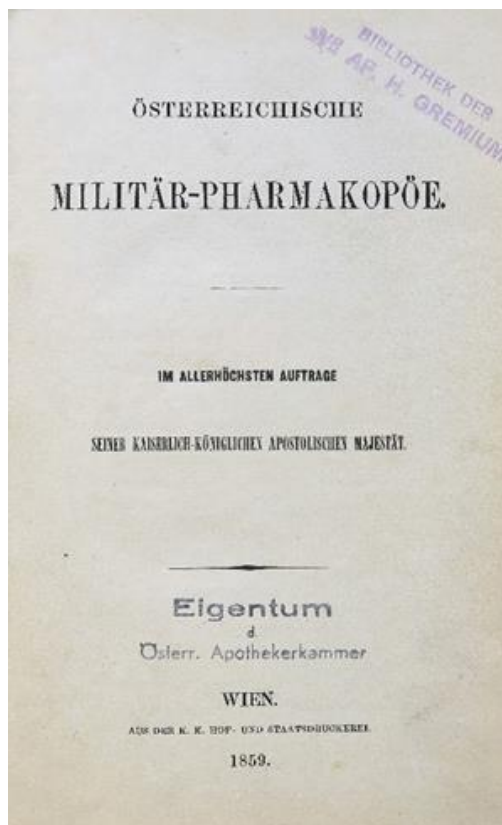
The pharmacopoeia contained four tables. The first table specified the amount of highly effective substances—hydrocyanic acid, mercury, iodine, opium and antimony—in each one of the enumerated complex preparations. The second table listed 38 salts indicating their solubility in one ounce of water at 15 degree Réaumur. The third table enumerated the specific weight of 24 liquid preparations at 14 degree Réaumur. The last table mentioned 31 simple products and complex preparations be used as reagents.

The pharmacopoeia comprised three more indexes. The first one referred to all the products, which the army physician could obtain from the field pharmacies; an attached appendix quoted two more products restricted to navy use. The second index specified various products that the military physicians should obtain from the hospital wards. Those products were not included in the former index. A list of 89 simple products and complex preparations for veterinary use followed. All three lists did not only cite the Latin denominations but also mentioned the German names. The pharmacopoeia closed with two subject indexes, one in Latin, the other one in German.

AUSTRIAN MILITARY PHARMACOPOEIA (fourth edition, 1859)

This edition represented a completely revised pharmacopoeia at the state of science and, for the first time, was published in German. In 1853, Emperor Franz Josef authorised the responsible authorities to revise thoroughly the latest military pharmacopoeia. The wars of 1848/49 had shown that the delivery of huge amounts of necessary medicines to the fields had created great problems. Not all of the preparations could have been stored adequately, and quite a number of the carried medicines were inappropriate for the needs in the battlefields. Therefore, it was inevitable to reassess the medicines delivered to the warzone. As the military pharmacopoeia also applied to members of the military institutions and to the population at the military borders, different medicines were necessary in peace and in wartime. In consequence, the fourth edition of the pharmacopoeia marked all medicines by an asterisk, which were not applicable in the warzone but of sole use in peace.

A table of contents preceded the first chapter on general instructions. Those instructions specified the pharmaceutical weights and the civil weights, the latter only applied for purchases of medicinal simple products and in accounting. The instructions also defined the assessment of the specific weight of liquids and mentioned some prescription habits. Additionally, the introduction contained the notification that all medicines marked by an asterisk referred to medicines for exclusive use in peacetime.



The fourth edition did not list anymore the simple medicinal products and formulated preparations in different chapters but enumerated all 232 pharmaceuticals in one chapter, being arranged in alphabetical order according to their Latin name. This was a novelty, which had already been practised in the fifth edition of the civil Austrian Pharmacopoeia of 1855. Furthermore, the monographs were updated to the latest findings in chemistry and medicine. In the

course of the 19th century, the production of chemicals had started to drift from pharmacies to the quickly developing chemical industry and new testing methods were necessary to guarantee the identity and quality of the purchased pharmaceuticals. Therefore, the monographs of the pharmaceuticals included information how to identify the products and mentioned new methods to scrutinize their quality and purity. New instructions for the proper collecting time of plants were included to secure that the plants yielded the highest content of their active compounds when being harvested. The monographs also informed about the adequate storage of the medicines in order to avoid any loss of their efficacy.

The third chapter treated 74 *Formulae nosocomiales*, which represented common medicines used in military hospitals and in military medical services. This section included 30 new recipes and omitted 24 obsolete preparations of the former edition.

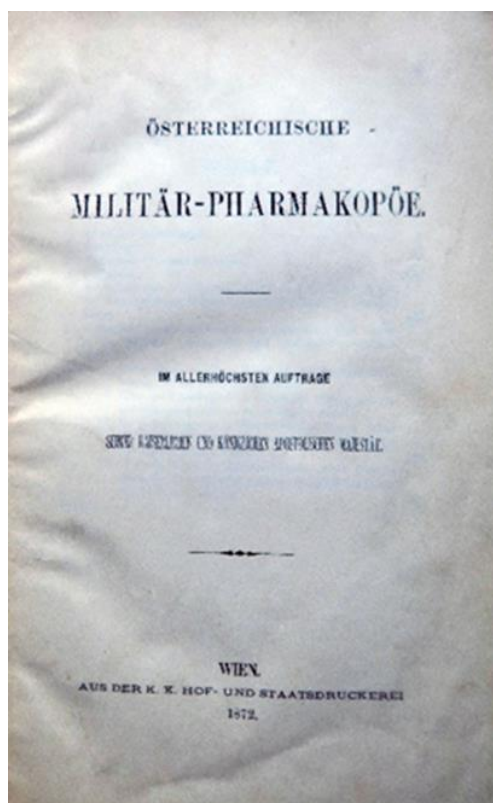
The following two indexes referred to crude drugs, chemicals and complex preparations, which the military physicians obtained from the military pharmacies and from the hospital wards. The first index comprised 154 items, one of them for the navy. The second index enumerated 21 items, still including leeches for bloodletting. Two subsequent lists counted the products, which the military veterinaries should gather from the military pharmacies (66 products) and the hospital wards (nine products).

A list of 21 poisons and their antidotes followed this section. The subsequent chapter contained 29 reagents, specified their manufacturing methods and listed various laboratory devices.

The fourth edition showed three tables. One referred to the solubility of substances in one ounce of distilled water at a temperature between 10 and 18 degree Celsius. The second one informed about the amount of water necessary to dilute ethyl alcohol at 15 degree Celsius to receive a diluted alcohol of a determined specific weight. The third table indicated the conversion of the most common European pharmaceutical weights into the Austrian pharmaceutical weight system and into French grams. The pharmacopeia closed with a subject index.

AUSTRIAN MILITARY PHARMACOPOEIA (fifth edition, 1872)

In 1867, the Ministry of War addressed the concerned authorities to scrutinize again the medicines of the military pharmacopoeia for their efficacy and their usage in wartime and peace. The modifications proposed by the military medical staff were taken into consideration and were compiled in an amendment to the fourth edition. Due to the introduction of the conscription in 1868, a large number of physicians entered the army who were only acquainted with the civil Austrian pharmacopoeia. Therefore, before publishing the new edition of the military pharmacopoeia, the military authorities awaited the newest edition of the civil pharmacopoeia, released in 1869, in order to harmonize the contents of both



pharmacopoeias. Finally, the fifth edition of the military pharmacopoeia was published in 1872 and became effective on January 1, 1873.

The fifth edition had omitted all indexes regarding the veterinary products and the table on poisons and their antidotes. The asterisk, which marked all the medicines for sole use in peace, remained in the new edition.

The pharmacopoeia started with a table of contents. The first chapter contained various general instructions. The most important novelties referred to the changed weight system and to the new volume units. One table illustrated the new metric weight

system and a second table showed the conversion of the pharmaceutical weights and the Viennese civil weights into grams. Another passage indicated the new metric system for liquids. The exclusive use of the metric system for producing medicines did not apply until January 1, 1876, the date for the implementation of the new metric system in the whole empire.

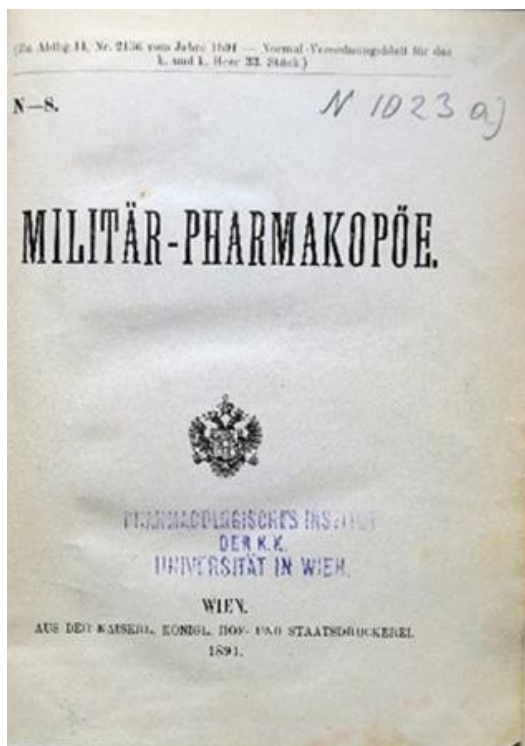
The second chapter comprised 206 pharmaceuticals in alphabetical order according to their Latin name. The number of products had decreased compared to the former edition. Each monograph also mentioned the German name and gave instructions how to identify the product and to check its quality and purity. In case of a complex preparation, the text specified the composition and preparation method. In contrast to the former editions, the names of the underground plant organs distinguished between roots, rhizomes and bulbs, and did not collectively subsume them under the term “root”. The denomination of the chemical compounds had changed due to a new perception of chemical bonding, the type theory. This theory based on four different types as sources of all compounds, the hydrogen type, the water type, the ammonium type and carbon type. The theory supposed that one or more radicals substituted partially or completely the hydrogen atoms in the different types.

The third chapter included 77 preparations used in the military hospitals (*Formulae nosocomiales*), cited in alphabetical order. Forty-eight preparations remained from the former edition, six modified preparations replaced eight obsolete ones, and 25 new medicines were added. Each entry cited the Latin and German name and informed about the composition and the preparation of the medicine.

The fourth chapter listed 47 reagents according to their German names and contained an index of numerous laboratory devices necessary for testing. Two subsequent indexes enumerated all those pharmaceuticals, which were allowed for prescribing and which the military physicians could get from the military pharmacies (134 items) and the hospital wards (24 products).

The pharmacopoeia included four tables. Table I listed the former pharmaceutical weights and their gram equivalents as well as vice versa. Table II enumerated the metric volume system and their equivalents in the old Austrian liquid units and vice versa. Likewise, the correlations between the Austrian linear measures and the metric measures were indicated. Table III showed the solubility of different chemicals in water at room temperature. Table IV listed the specific weights, which resulted from diluting ethyl alcohol with water at 15 degree Celsius. A subject index of Latin and German names, one amendment and corrections of the text closed the pharmacopoeia.

AUSTRIAN MILITARY PHARMACOPOEIA (sixth edition, 1891)



The sixth and last edition started with a table of contents, followed by the chapter on general instructions, which included among others new requirements for the proper storage of the medicines, especially for poisonous substances. The second chapter treated 210 updated simple medicinal products and complex medicines, listed in alphabetical order according to the Latin denomination. The monographs informed about the composition, the preparation mode and the requirements for proper storage. Differing from the previous editions, extensive comments on the products themselves and on the methods for identification and quality control complemented the

text. All underground organs of plants bore again the name “root”.

The third chapter treated 60 hospital medicines (Formulae nosocomiales), which only partially retained the medicines of the previous edition.

There were two new indexes referring to aseptic bandaging material and disinfectants. The subsequent two indexes listed all products, which the military physician was allowed to prescribe and which he had to acquire from the military pharmacies (138 products) and the hospital wards (20 products).

The last chapter specified 47 reagents, an acidimetric solution, an alkalimetric solution, an 0,1N silver nitrate solution and an extensive list of laboratory devices.

The last edition included five tables. The first one indicated the maximum doses for adults, which the physician could only exceed by adding an exclamation mark. The second table listed the solubility of 42 substances in distilled water. The third table specified the amount of absolute alcohol in alcohol of different specific weights, given in percentage by weight and volume. The fourth table showed the symbols of the elements and their atomic mass. The last table enumerated the molecular weights of all the chemicals mentioned in this edition. A subject index closed the pharmacopoeia.

THE MEDICINE SUPPLY TO THE IMPERIAL ARMY

In 1808, a medical military doctrine and its amendment of 1815 reorganised the medicine supply to the army. The leading institutions– the Pharmaceuticals Head Office, called “Medikamentenregie”, the main depot and the laboratory– were located in Vienna, which purchased the crude drugs and simple products and prepared the complex medicines according to the valid military pharmacopoeia. The different provinces had set up depots in the capitals, which obtained the necessary medicines from the main depot in Vienna. The provincial depots delivered the medicines to the army hospitals and the troops. Each garrison hospital and field hospital ran a military pharmacy where the doctors obtained the needed medicines. In peace, garrison pharmacies were also established outside the hospitals. The pharmacies attached to the field hospitals were mobile and moved by carriages. Their staff consisted of one senior pharmacist, two subordinate pharmacists and two laboratory assistants. There existed also mobile army medicine depots, one main depot and two branches, which supplied the troops in the field with medicine. The branches were set up 8 to 10 miles behind the front, while the main depot was farther away from the battlefield.

In 1853, new regulations for the military medical service became effective. The Pharmaceuticals Head Office still supervised the military medicine depots, classified as immobile depots in peacetime and mobile ones in wartime. The immobile depots comprised the main medicine depot in Vienna, 10 depots in the provinces, located at the General’s Headquarters, 36 military pharmacies set up in garrison hospitals, garrisons, fortresses, and four pharmacies located in facilities for the sick and invalid.

The mobile depots during wartime comprised the army depots and the field pharmacies. The field pharmacies employed one senior pharmacist, one subordinate pharmacist and one laboratory assistant. The staff of an army depot consisted of seven persons, one chief pharmacist, one senior pharmacist, one subordinate pharmacist and four laboratory assistants.

In 1855, an amendment was released introducing some organisational changes. The immobile depots in peacetime consisted then of the following institutions:

- The Pharmaceuticals Head Office, the main depot and the laboratory in Vienna.
- Large medicine depots, each running a garrison pharmacy, located in Prague, Pest, Lemberg (Lwiv) and Verona.
- Small medicine depots, each running a garrison pharmacy, set up in Agram (Zagreb), Hermannstadt (Sibiu), Temesvár (Timișoara), Zara (Zadar), Brünn (Brno) and Graz.
- 15 pharmacies in fortresses and in garrisons with a minor scope.

- 3 pharmacies in facilities for the sick and invalid.

In wartime, the mobile depots consisted of field depots and field pharmacies. The Land Compondand Command of the imperial army determined their number and position according to the requirements at that time.

In 1870, new regulations were disclosed. In peacetime, the Pharmaceuticals Head Office supervised the main depot and the laboratory in Vienna, 23 pharmacies in garrison hospitals, 10 garrison pharmacies and a pharmacy in the home for the sick and invalid. The pharmacies in the garrison hospitals and the garrison pharmacies supplied the troops, the smaller hospitals and the field depots nearby. During war, each army or smaller units were furnished with medicines stored in field depots. Each field hospital had its own field pharmacy.

In 1878, the pharmacy in the facility for the sick and invalid in Tyrnau (Trnava) changed into a garrison pharmacy and, in 1892, another garrison pharmacy opened in Klausenburg (Cluj). New orders, released in 1894, turned the military pharmacies located in garrison hospitals to subordinate hospital institutions, while the Pharmaceuticals Head Office supervised the pharmacists. The garrison pharmacies were then subordinate to army hospitals at the place of their location. Similarly, the field pharmacies and the pharmacies of the reserve hospitals were under the command of the respective hospitals.

This organisation remained more or less valid until the beginning of the World War I. The Pharmaceuticals Head Office and the main depot in Vienna supplied the Austrian army with medicines until the end of World War I.

After having lost World War I, the Habsburg Empire collapsed in November 1918 and the imperial Austrian army dissolved. Austrian military pharmacy had ceased to exist. As a large number of wounded soldiers still needed to be treated, the military hospitals continued to operate for some time. Until the end of March 1919, all military pharmacies and depots had shut down and the majority of the military pharmacists had retired. The remaining military pharmacists of hospitals became civil hospital pharmacists or resigned. In September 1919, the Pharmaceuticals Head Office, its well-equipped laboratory and the main medicine depot in Vienna united and turned into a socio-economic undertaking.

REFERENCES

Ganzinger, Kurt (1953): Die Österreichische Militär-Pharmakopoe 1795. In: Österreichische Apotheker Zeitung 7 (23): 377-383.

Ganzinger, Kurt (1959): Aus der Geschichte der Militärpharmazie. I. Von den Anfängen bis zum Ende des 18. Jahrhunderts. In: Österreichische Apothekerzeitung 13 (6): 114-117.

Ganzinger, Kurt (1959): Aus der Geschichte der Militärpharmazie. II. Von der Errichtung der ärarischen Medikamentenregie bis zur Schlacht von Königgrätz. In: Österreichische Apothekerzeitung 13 (7): 133-138.

Kirchenberger, Salomon (1890): Kaiser Josef II. als Reformator des Österr. Militär-Sanitätswesens. Ein Beitrag zur Sanitätsgeschichte des k. und k. Heeres. Verlag von Carl Graeser, Wien. 385.

Kirchenberger, Salomon (1895): Organisation des Militär-Medicamentenwesens. In: Geschichte des k. und k. österreichisch-ungarischen Militär-Sanitätswesens. Verlag Josef Safar, Wien, S. 240-255.

Kirchenberger, Salomon (1895): Geschichte des k. und k. österreichisch-ungarischen Militär-Sanitätswesens. Verlag Josef Safar, Wien.

Kuderna, Ingrid (1997): Die Militärpharmakopöen und die Militärpharmazie in Österreich bis 1918. Dissertation, Universität Wien.

Nowotny, Otto (1992): Ein Beitrag zur Geschichte der Militärpharmazie. „Kurze Norma samt dem Catalogo deren in den Kaiserl. Königl. Feld-Apotheken befindlichen Medicamenten, nach welcher sich sowohl die Feld-Medici als Chirurugi in ihren Verschreibungen genau zu richten haben. Wien 1756“. In: Österreichische Apotheker Zeitung 46 (19):

Pharmacopoea Austriaco-Castrensis, Typis & impensis Alb. Ant. Patzowsky, Viennae, 1795.

Pharmacopoea Austriaco-Castrensis, Schaumburg & Compagnie. Viennae, 1800.

Erläuterungen der neuen Österreichischen Militär-Pharmakopöe zum Gebrauche der Österreichischen Feldärzte, Carl Schaumburg und Comp. Wien, 1800.

Pharmacopoea Austriaco-Castrensis, Typis Caes. Reg. Aulae et Status Typographiae, Viennae, 1820.

Pharmacopoea castrensis Austriaca, Typis Caes. Reg. Aulae et Status Typographiae, Vindobonae, 1841.

Österreichische Militärpharmakopöe, k.k. Hof- und Staatsdruckerei, Wien, 1859.

Österreichische Militärpharmakopöe, k.k. Hof- und Staatsdruckerei, Wien, 1872.

Militär-Pharmakopoe, kaiserl. Königl. Hof- und Staatsdruckerei, Wien, 1891.

FURTHER READING

Moerchel, Joachim (1984): Das österreichische Militärsanitätswesen im Zeitalter des aufgeklärten Absolutismus. Europäische Hochschulschriften , Reihe III, Geschichte und ihre Hilfswissenschaften, Bd. 233, Peter Lang, Frankfurt am Main, Bern, New York, Nancy, S.

Nowotny, Otto (1994): 200 Jahre österreichisches Militärapothekenwesen. 1. Teil. In: Österreichische Apotheker Zeitung 48 (45): 965-968.

Nowotny, Otto (1994): 200 Jahre österreichisches Militärapothekenwesen. 2. Teil. In: Österreichische Apotheker Zeitung 48 (46): 990-994.

Rehor, Thomas (2011): Mörser und Pastillen. Die k. u. k. Militärpharmazie im Ersten Weltkrieg. Diplomarbeit, Universität Wien.

Schilder, G. (1900): Die Entstehung des österreichischen Militär-Apothekenwesens und seine Entwicklung im XIX. Jahrhundert. In: Pharmazeutische Post 33 (26): 384-385; (27): 400-401; (28): 410-411; (29): 421-422; (30): 434-435.

Schilder, G. (1925): Die österreichisch-ungarische Militärpharmazie seit dem Jahre 1900 und ihr Wirken im Weltkriege. In: Pharmazeutische Post 58 (36): 293-297; (37): 301-305; (38): 310-311.

Senft, Em. (1903): Das neue Laboratorium der k. u. k. Militär-Medicamenten-Direction. In: Pharmazeutische Post 36 (1): 2-8.