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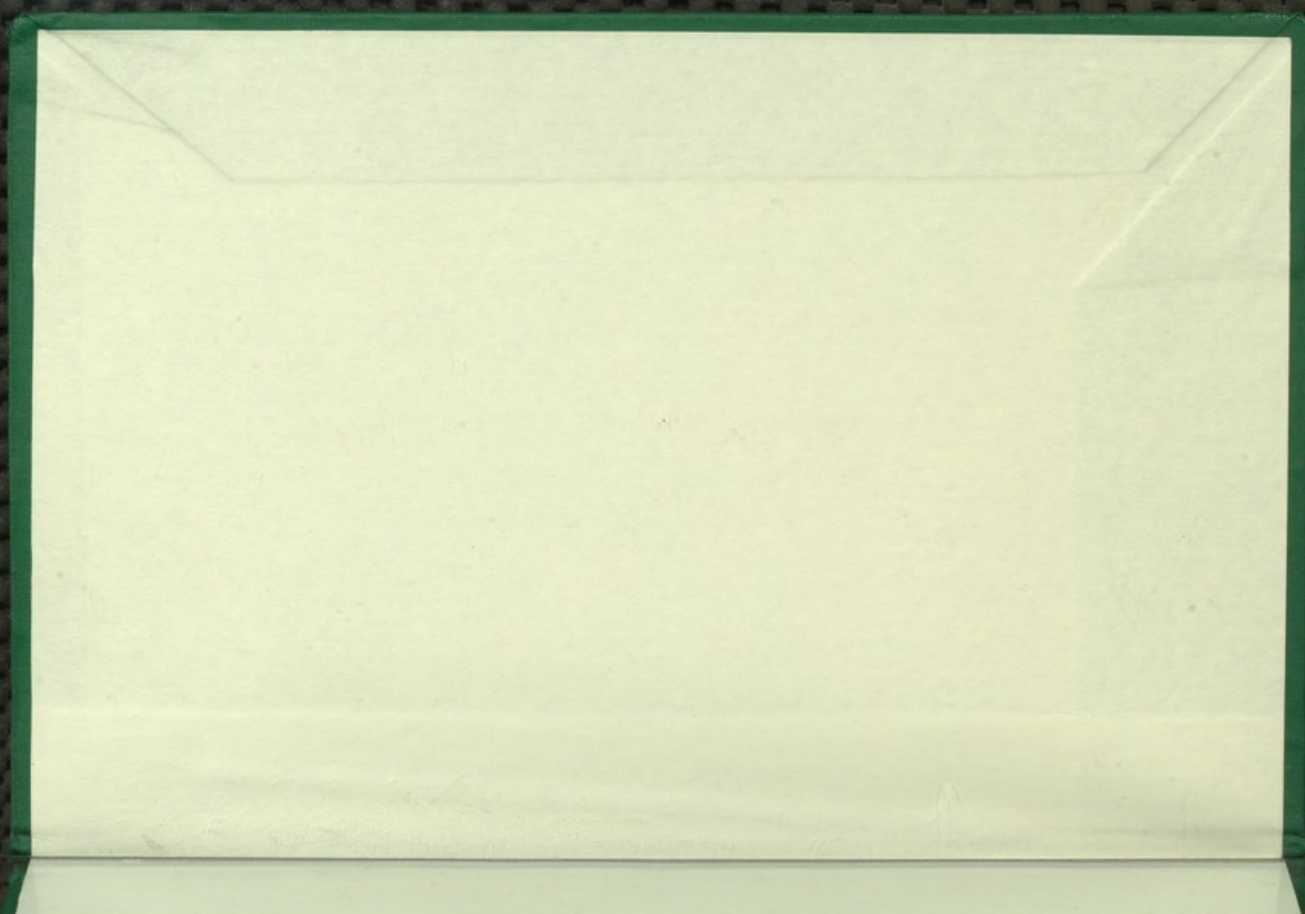


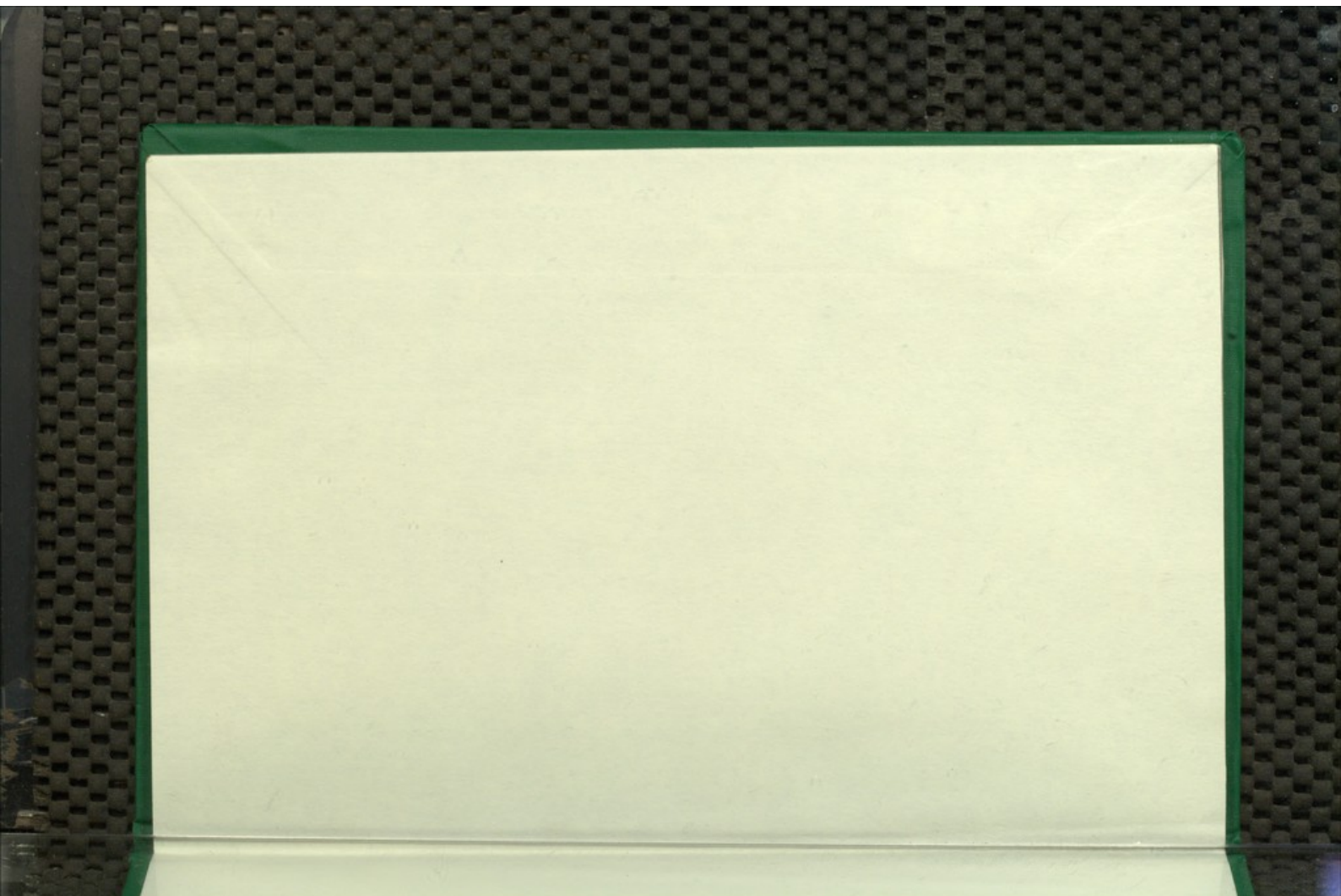
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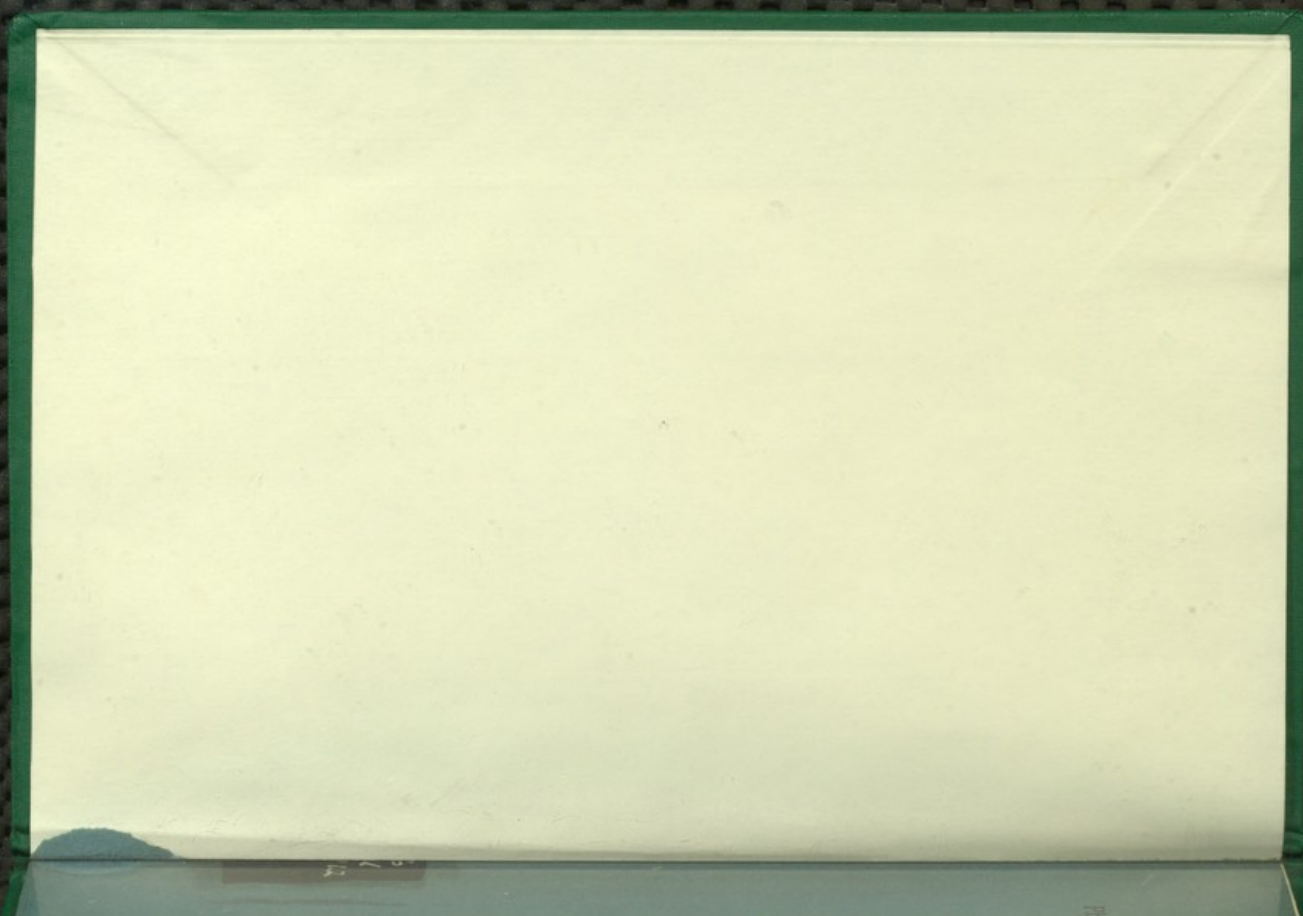


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GEORGE URDANG

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GEORGE URDANG

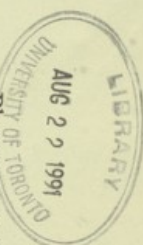
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Pharmacopoeias as Witnesses of World History

GEORGE URDANG*

It is not very likely that the members of the Florentine College of Physicians who at the end of the fifteenth century compiled a new formulaire, were aware of the fact that they were opening up a new era of European pharmacy. This modest compilation, published in 1498 under the title *Nuovo Recipeario*, is considered the first European official pharmacopoeia, i.e., the first pharmaceutical standard adapted to the needs of a certain political unit and made obligatory for the physicians and pharmacists of this unit by the authorities concerned.

It took about half a century until the example of Florence was followed in the more or less sovereign German Imperial Free Cities of Nuremberg (*Dispensatorium Pharmacopolitarum . . . aulhorre Valerio Cordo*, 1546), Augsburg (*Enchiridion sive . . . dispensatorium . . . pro Reipub. Augsturgensis Pharmacopoeis*, 1564) and Cologne (*Dispensarium usuale pro pharmacopoeis indyiae Reipublicae Colonensis*, 1565), in the Spanish municipalities of Barcelona (*Concordia Pharmacopolitarum Barcinonensium*, 1535) and Saragossa (*Concordia Aromatariorum Creiutinis Castragustae*),¹ and in the Italian duchy of Mantua (*Antidotarium Mantuanum*, 1559).

It was for the sake of uniformity in the preparation of drugs and the adaptation of the formulas concerned to the special needs and resources of the political units involved that the official pharmacopoeias came into existence, and these reasons have undoubtedly remained predominant up to the present. Besides, however, we know that, for instance, the issuance of the Augsburg and Cologne standards so shortly after the appearance of the Nuremberg dispensatory was to a very great measure due to scientific enlounement and difference of opinion as to the scope of a pharmacopoeia. That these incentives increased steadily in the course of time can easily be proved, and they were activated and given their opportunity by another and very potent factor: the rising nationalistic ideology. An own pharmacopoeia became gradually a matter of national ambition, a part and a proof

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¹ Rafael Folsch y Andorra, *Die pharmakologische Geschichte der Pharmazie in Basel* (1934), *Neuere offizinellen Pharmakopoeien und der Arznei-Mittelschicht*, 1934, pp. 212-223.

of national sovereignty and unity. It is by no means unlikely that, for instance, the *Antidotarium Mantuanum* of 1559 owes its existence not so much to some urgently felt necessity as to the desire of Guglielmo Gonzaga, Duke of Mantua from 1550 to 1587, not to be outshone by the Medicean Cosimo I, Duke of Florence, under whose government the second edition of the Florentine pharmaceutical standard had appeared in 1550.

THE FLORENTINE PHARMACOPOEIAS

There is scarcely any better example of the way in which political history has been evidenced on the frontispieces and title pages of pharmacopoeias from the end of the fifteenth to the end of the eighteenth century than the Florentine *Receptario* or, as it was called since 1550, *Ricettario*. The title page of the *Receptario*, published in 1498, was conspicuous by its simplicity (Fig. 1). It carried nothing but a laconic statement of the character of the book reading in English translation as follows:

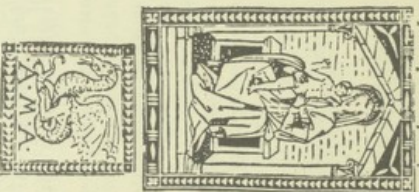
New Formulary Compiled by the Most Renowned College of the Distinguished Doctors of Art and Medicine of the Magnificent City of Florence.

The colophon, after giving the date of publication (January 10, 1498), the name of the printing company (*compagnia del draglio*)² and the names of two men active in the final preparation of the book (master Hieronymo and master Lodovico dal pozzo toscanello), concludes with the interesting statement that the *Receptario* was brought out "at the request of the executive officers of the guild of the apothecaries." It is the seal of this guild and the mark of the printing company³ which appear beneath the colophon.

Nowhere in the book are there any of the dedicatory prefaces or phrases so common in those times of autocratic government. The reason is that early in 1498 there was nobody in the city of Florence to whom such a dedication could properly (and safely!) be directed. The Medici family, whose members had lorded over the republic for about a century, had been driven out and were living in exile, their coat of arms chiseled away from their palace at the order of the "Signoria" (Executive Council), while the power of the monk and religious reformer, Girolamo Savonarola, who had grown into the actual leadership of Florence since 1494, was

² "Two books only are certainly known to bear the signature of this firm, the Marcullus of 16 November 1497 (I A 18045 — book number of the British Museum) and the Ricettario of 10 January 1498 (I B 18060)." Catalogue of Books printed in the XVth Century now in the British Museum, London 1930, Part VI, p. 691.

6. *MPredito Nella inclyta citta di Firenze per la compagnia del Drago ad. x.
di Uirano. M. CCCC. LXXXVIII. Emendato & corretto per madio Hieron
mo di madio Loloico medico & epulano fioratino di pozzo tofina
nelli: Ad istita della Signori Conioli della unanimita della fpetuli: el
regno della quale si pone in quella prefente chirta.*



UNOVO RECEPTARIO COMPOSTO DAL
FAMOSSIMO CHOLLEGIO DEGLI
EXIMII DOCTORI DELLA AR
TE ET MEDICINA DNL
LA INCLITA CIR
TA DI FIREN
ZE

FIG. 1. Title Page and Colophon of the Florentine *Receptario* of 1498.

rapidly fading. As a matter of fact, it was in the very year of publication of the *Receptario* that Savonarola was condemned to death and perished at the stake. The uncertainty of the political situation is mirrored by the deliberate and almost fearful neutrality of the title page of the first European official pharmacopoeia.

When about half a century later, in 1550, a second edition of the Florentine pharmaceutical standard appeared — from now on known as *Ricettario* — the political circumstances in Florence had changed considerably, and the title page of the new book tells the story with all possible eloquence. It is stated that this edition had been prepared by the College of Physicians on order of the *Duca Di Firenze* and it is now the duke who is honored by flattering superlatives (*illustrissimo et excellentissimo*) instead of the physicians and their college. Even the printer calls himself proudly *Stampator Ducale*.

It was the inglorious Alexander de' Medici who in 1532, through fortunate circumstances rather than his own merit, became the first Duke of Florence, a dignity which, after Alexander had been assassinated in 1537, was taken over by Cosimo de' Medici, called Cosimo I. The political changes between 1498 and 1550 are illuminated not only by the text but still more by the coat of arms printed on the title page of the new standard, by its fact as well as its kind.

The original coat of arms of the Medici showed six simple red balls without any distinction among each other on a field of gold³ and there was no diadem of any kind. In the new arms, there is not only a coronet surmounting the blazon but some other details previously lacking. The most remarkable and lasting of these new features is represented by the three royal lilies of France in the uppermost ball which were inserted into the blazon of the Medici by Louis XI of France (1423-1483)⁴ and received a special meaning and emphasis by the marriage of Catherine de' Medici, in 1533, to the French Dauphin, later King Henri II of France. Of individual rather than of lasting importance is the chain of the Imperial Order of the Golden Fleece which surrounds the blazon and was granted to Cosimo I by the Emperor Charles V. The dove beneath the crown finally may symbolize the peaceful trade of the merchant-ancestors of the present heir or his intention to reign peacefully.

Some remnants of democracy were still noticeable in the book of 1550. It was still the *Ricettario Del Arte, Et Universitate De' Medici, Et Spetiali Della Citta Di Firenze*, and the dedication preceding the formulary proper was directed to the officers of the guild. When only seventeen years later, in 1567, a third and completely revised *Ricettario* was issued, this last trace of democracy had disappeared. The book of 1567 was not the work of a

³ "There is no foundation for the story that the Medici were originally doctors . . . The story is an entire fable . . ." (G. F. Young, *The Medici*, New York, 1923, Vol. I, p. 20).

⁴ *Ibidem*, p. 149.

more or less independent body of physicians and apothecaries anymore. It was not only compiled at the order of the Duke, but also by individuals (twelve) who, although presented by the whole body of the Florentine guild of physicians and apothecaries, were to be elected by the prince or, as the title page puts it, *Dodici Reformatori partiti di tal Arte, et eletti da loro Altezze Serenissime*. Furthermore, the book contains a dedication to the Duke full of submissive phrases, and the fact that in the meantime Cosimo I had added Siena to the territory under his rule, becomes evident by the new title *Duca et Principe di Fiorenza et Siena* together with the predicate *Altezz Serenissime* (His Most Serene Highness) quoted above. The edition of 1567 was printed with a permit not only of the Duke but also of his papal protector Pius V (Pope from 1565 to 1572), a fact intimating the intention of helping this formulary to a more national use on the Italian peninsula.⁵

It was this edition that for the first time included the beautiful Renaissance frontispiece which was to be the distinguishing artistic mark of the Florentine *Ricettario* until the end of the seventeenth century. The coat of arms at the bottom of the engraving lacks two features present on the title page of the edition of 1550 (Fig. 2). After a period of conquest there was apparently no space anymore for the dove of peace which is replaced by a large Florentine lily.⁶ The Imperial Order of the Golden Fleece has likewise disappeared. The House of Medici had grown too powerful to allow a display of a distinction bestowed upon its head by another sovereign, be it the emperor himself. Even the coronet surmounting the blazon, a rather simple diadem in 1550, is changed into a more ornamental headgear. Only two years later, in 1569, the diadem was to become still more distinctive and distinguishing.

At this time the House of Medici was at the height of its political power and glory. The territory that Cosimo I had brought under his rule comprised the whole of Tuscany and, in 1569, he had achieved the recognition of his enhanced position among the princes of his time by having the title of Grand Duke of Tuscany bestowed upon him by Pope Pius V.⁷ *Gram Duca, et Principe di Toscana* is the title by which the title page of the *Ricettario* of 1573, a reprint of the book of 1567 with changes only on

⁵ As to details see A. Corradini, *La prima farmacia italiana*, Ann. Univ. di Med., c. Chirurg. 1887, columns: 3, 179, 184, 311; column: 11.

⁶ The Florentine lily as well as the French fleur-de-lis represent the title, but where the French one shows only the leaves, the Floren-

tine one shows both, the leaves and the flower.

⁷ The title "Grand Duke" as the designation of a prince ranking between a Duke and a King appeared here for the first time in history.

frontispiece and title page, refers to Cosimo I. In the papal bull creating the new rank, the shape of the grand ducal crown was carefully laid down:

This ordered that the crown of Tuscany was (unlike the French, Spanish, and other crowns) to be "radiated like that of the Eastern kings, alternate with the Florentine lily." It was a royal crown with the points curving outwards, intended

EL RICETTARIO
DELL'ARTE, ET
VNI'ERSITA' DE
MEDICI, ET SPETIALI
DELLA CITTA
DI FIRENZA.

RIVEDUTO DAL COLLEGIO
DE MEDICI PER ORDINE DEL
SIO ELEUTERISIMO ET ECCEL-
LENTISSIMO SIGNORE
DUCA DI FERRARIE.



Stem of the Florentine Ricettario of 1550.
From the original in the Library of the
M. D. L.

FIG. 2. Frontispiece of the Florentine
Ricettario of 1550.

to represent the blades of the iris. In the centre of the front was a large red Florentine lily: thus making the crest of Florence's ancient Republic the chief jewel of the royal crown.⁸

It was this crown that from now on, beginning with the reprint of the book of 1567 issued in 1573, replaced the ducal coronet on the frontispieces of the *Ricettario Fiorentino* showing the arms of the Medici.

A brief explanation of other significant parts of this famous frontispiece may not be out of place. The sign of the Florentine apothecaries (the Virgin with the Child on her right side) which formed a part of the

⁸ G. F. Young, *Id.*, Vol. II, p. 198.



FIG. 3. Frontispiece of the Florentine
Ricettario of 1573.

colophon of the first (1498) edition reappears, this time, however, not in the form of a conventionalized seal but as an individual piece of art. Of the two figures flanking the booktitle the one to the right is characterized as a pharmacist by the spatula and the ointment box in his hands, while the man to the left, exhibiting his learning by an open herbal, is to represent medicine. It is an amusing accident that the letters M.D. are placed on his pedestal. In this case they do not mean Doctor of Medicine. They represent the Roman notation for 1,500 to be completed by the numerals for 73 on the other pedestal, together signifying 1573, the year of issuance of this edition (Fig. 3).

As pointed out above, the last edition of the *Riortario* to show the Renaissance frontispiece appeared in 1696. It was not until 1789 that another official Florentine pharmaceutical standard was issued, and its title page evidences clearly the dawn of a new time. Since the House of Medici had become extinct in 1737, their coat of arms naturally had no place on the title page anymore. It could, however, have been replaced by that of the Habsburg princes who succeeded the Medici as Grand Dukes of Tuscany. Instead it is supplanted by an engraving showing Asclepius and Hygieia, the patrons of health and public welfare, and breathing the spirit of the Enlightenment preceding the French revolution just looming on the horizon. If it would not be for the printer's calling himself *Stampatore Granducale*, nothing on the title page of this book would remind the reader of a princely government (Fig. 4).

ROME, VENICE AND THE ITALIAN KINGDOM

It is significant of the comparatively quick changes of the political situation in the Italian states that arose and declined between the sixteenth and the nineteenth centuries, that the official pharmacopoeias issued by the governments concerned passed through several editions only in very few cases. The Florentine *Riortario* was one of these cases. The standards issued in Rome and in Venice were others.

It was in 1583 that the first edition of the *Antidatarium Romanum*, compiled by the *Collegium Medicum* of the Eternal City and dedicated to the Pope Gregory XIII, made its appearance. New editions, reprints, and translations — the original was written in Latin — were issued during the following century; the last one coming out in 1683. The eighteenth and the first half of the nineteenth centuries passed without a new enterprise of this kind. Apparently in this most international city the need for an own official pharmaceutical standard was not felt strongly enough to be realized.

Only when the political independence of papal Rome was seriously threatened, in 1868-69, a new Roman pharmacopoeia, the *Codice Farmaceutico Romano, teorico, pratico, compilato e pubblicato per ordine di sua santità Papa Pio XI*, appeared. It could not save the Eternal City from losing its sovereignty and becoming the capital of the new Kingdom of Italy.

RICETTARIO
FIORENTINO
NUOVAMENTE COMPILATO
E RIDOTTO ALL'USO MODERNO
DIVISO IN DUE PARTI
PARTE PRIMA
REGNO D'ITALIA



FIRENZE MDCCLXXIX.
PER GIACOMO CARLO STAMPAIONE GRANDUCCHE
CON APPROVAZIONE.

Fig. 4. Title Page of the Florentine *Ricettario* of 1779.

ROMA
TIRATA IN TUTTE LE BIBLIOTECHE
1822

Fig. 5. Title Page of the First Edition of the *Farmacopea Ufficiale* of the New Italian Kingdom (1822).

Papal Rome's international character was based on its being a center of faith and church politics leaned toward the past. The internationality of Venice was based on its being a center of trade and trade politics tended to look forward. It was for this reason that Venice and not Rome achieved one of the foremost places in the history of early European printing. Some years before the issuance of the Florentine *Ricettario*, there appeared in Venice two of the most renowned unofficial formularies of the Renaissance period, the *Lumen Apothecarium* of Quiricus de Augustis de Thertona (1495 and 1497) and the *Laminare Majus* of G. G. Manlio de Bosco (1494, 1496 and 1499),⁹ and were reprinted at the same place in quite a number of editions. From Venetian printing presses came modified reprints of the

⁹ According to A. C. Klebs, *Incunabula, Quiricus de Augustis in Turin in 1492 and in Otrius, Vol. IV, 1938, pp. 65 and 220, there appeared earlier editions of the book of Bosco's Laminare Majus in Favia in 1494.*

Florentine *Ricettario* and the official Mantuan standard of 1559 mentioned above was printed in Venice. Was the fact that Venice did not decide upon an official pharmacopoeia of its own until the early seventeenth century due to the circumstance that it was a center of pharmaceutical literature, making the appearance of a series of official books by rival city republics a prerequisite for the awakening of Venetian nationalistic pride in this field? Anyway, the first official *Venetian Pharmacopoeia sive de vera pharmacia conficiendi et praeparandi methodo . . . libri duo*, commonly called *Pharmacopoeia Veneta* did not appear until 1617. It was followed by new editions in 1667, 1730 and 1781. In contrast to the Florentine standard which appeared in the vernacular from the very beginning, the language of all editions of the *Pharmacopoeia Veneta* was Latin. The fact that in 1790 the Venetian republic broke with this old tradition and issued an official formulary in Italian, the *Codice farmaceutico per lo stato della serenissima repubblica di Venezia*, proves that at this time the rising tide of Italian nationalism had overcome the aristocratic resistance of this republic of nobles.

The legal authority of this *Codice* did not last very long. The seizure of the republic by the Austrians in 1798 followed in 1814-15 by the creation of a Lombardic-Venetian Kingdom within the frame of the Austrian monarchy, made the *Pharmacopoea Austriaca* the official pharmaceutical standard up to 1859 in Lombardy and Venice and up to 1866 in Venice alone.

"In many of the Italian states the dispensatory published by Orosi under the title '*Farmacologia teorica e pratica, ovvero Farmacopoea Italiana*' was used as a standard authority; later also the '*Farmacopoea Nazionale e Generale, Materia Medica e Terapiæ*' by Ruata."¹⁰ The book of Giuseppe Orosi, published for the first time in 1851, lived to see four editions. The formulary of Ruata was published in 1883 and followed by an appendix in 1884. Although the success of these private books proved convincingly the need for a modern national pharmacopoeia and in spite of the fact that a commission for the compilation of such a standard had been appointed soon after the creation of the new Italian Kingdom, it was not until 1892, i.e., after more than twenty years, that the *Farmacopoea Ufficiale del Regno D'Italia* was issued (Fig. 5). According to Charles Rice "repeated changes had been made in the personnel of the commission" before results could be obtained. In all probability it was the still existing cleavage between North

¹⁰ Charles Rice, *The Study of Pharmacy*, Vol. 13, p. 88. Introduction, in *The Pharmaceutical Era*, 1895.

and South Italy which was at the bottom of the differences of opinion among the individuals concerned.

GERMANY

As in Italy, there has always been difference of opinion between North and South in Germany. But in contrast to Italy, there has been in Germany a willingness and talent to organize and to be organized which, in the case of a national pharmacopoeia, united the German pharmacists even before political unification had taken place. As pointed out above, in Italy it was single individuals, Orosi and Ruata, who before and even after the establishment of a unified Italy compiled private books which they called *farmacopea italiana* or *farmacopea nazionale*. In Germany it was organized pharmacy, representing the whole profession, that in the sixties of the nineteenth century in anticipation of the political development created a work intended by its authors and promoters to constitute a pharmaceutical standard to be legally enforced by all German states and thus binding all German pharmacists. This attempt was all the more remarkable as it showed the pharmacists to be ahead of the governments of the individual German states which still issued new editions of their state pharmacopoeias (Hessia in 1860, Hanover in 1861, Prussia in 1862).

It was on the basis of a resolution adopted in 1861 at a meeting of the *Allgemeiner Deutscher Apothekerverein* (General German Pharmaceutical Association) that eminent pharmacists from Bavaria (2), Prussia (2), Hanover (1), Thuringia, more specifically Saxe-Weimar (1), Württemberg (1) and finally from Austria (2) compiled a book which appeared in 1865 at Halle under the promising title *Pharmacopoea Germaniae* (pharmacopoeia of Germany).¹¹ The political events that followed only one year later, in 1866, were not favorable for the adoption of the new book by all of Germany, as they deprived one of the states represented on the pharmacopoeial committee, Hanover, of its sovereignty and made it a Prussian province, and terminated Austrian participation in the political development of Germany proper. Thus the book was officially enforced in Saxony only and, when a new edition was issued in 1867, the names of the two Austrian members of the original pharmacopoeial committee were no longer listed. Thus this edition already anticipated the "*kleindeutsche*" (in literal translation "small German," i.e., Germany without Austria) solution of the problem of German unification which became a political reality

¹¹ A. Adlung-G. Urdang, *Grundriss der Geschichte der deutschen Pharmazie*, Berlin, 1935, p. 334.

in 1871. As indicative of the growing domination of Germany proper by Prussia even before the establishment of the new empire, may be mentioned the fact that from 1863 on the majority of the German states adopted the Prussian pharmacopoeia as their legal pharmaceutical standard. After 1866 only Bavaria and Württemberg retained their own books while, as stated above, Saxony adopted the *Pharmacopoea Germanica*.

When the first official pharmaceutical standard of the new German union appeared in 1872, only one year after the establishment of the *Deutsches Reich*, it was properly called *Pharmacopoea Germanica* (German pharmacopoeia) and not *Pharmacopoea Germaniae* (pharmacopoeia of Germany). It was, by the way, for the same reason that the new emperor was given the title *Deutscher Kaiser* (German emperor) and not *Kaiser von Deutschland* (emperor of Germany).

In the preface of the *Pharmacopoea Germanica* of 1872 the reader is told that the book "is not a new one in the proper sense of the word nor was this by any means intended." The preface goes on to say that "the idea was to collect the formulae contained in the pharmacopoeias of the individual states in a somewhat critical way, and to remodel the *Pharmacopoea Borussica* as well as the *Pharmacopoea Germaniae* paying attention simultaneously to the standards that were used in Southern Germany."¹²

AUSTRIA

In Austria, which until 1866 was one of the most important parts of the old, i.e., pre-Napoleonic German Empire and the rival of Prussia as a dominating power in Germany until 1866, the development of the pharmaceutical standards reflects the political situation step by step. Until the end of the Habsburg monarchy in 1918, Austria had been the empire of a dynasty rather than of a people (or of peoples), with its center in Vienna. The first formulary to be declared official in any part of Austria was the *Dispensatorium pro Pharmacopoeis Viennensibus in Austria* (1570), which by the way, was never printed and had to be copied by the Viennese apothecaries. When, in 1616, the Viennese medical faculty was confronted with the task of deciding upon a new official formulary, they refrained from compiling a book of their own and made an internationally known formulary, the *Pharmacopoeia Augustana*, edition of 1613, the legal pharmaceutical standard for Vienna and the Austrian provinces. It was supplemented in 1618 by an appendix, the *Catalogus Medicamentorum Composi-*

¹² *Pharmacopoeia Germanica*, Berlin, 1872, p. VI.

torum. Up to 1722 all subsequent editions of the *Pharmacopoeia Augustana* remained in force.

In 1729, the first official pharmacopoeia to be compiled in Austria appeared under the title *Dispensatorium Pharmacuticum Austriaco-Viennense* clearly indicating the role of Vienna as the focus of government and culture for all of Austria (see Fig. 6). This book passed through six further

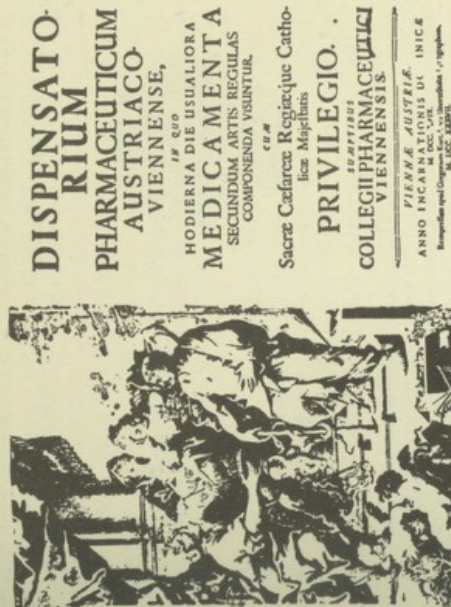


FIG. 6. Frontispiece and Title Page of the Second Edition of the *Dispensatorium Pharmacuticum Austriaco-Viennense* (1729).

editions until 1770. In the meantime, the many countries gained by the Habsburgs through marriage and inheritance primarily and administered as "provinces" of their incoherent empire had shown signs of discontent with what they regarded as overcentralization. When, in 1774, a new official pharmaceutical standard was issued, its title no longer referred to Vienna. It was named *Pharmacopoea Austriaco Provincialis*, placing all the "provinces" of the empire on the same footing. The last editions of this standard were issued in 1794 (Latin) and 1795 (German). It was followed in 1812 by the first *Pharmacopoea Austriaca*. Again this name was significant. The last emperor of the Holy Roman Empire of the German Nation,

England proper, Wales, Scotland and Ireland, had the advantage of having at their disposal rather modern official standards used previously in the territories concerned: the London Pharmacopoeia (first issue 1618, last issue 1851), the Edinburgh Pharmacopoeia (first issue 1699, last issue 1841) and the Dublin Pharmacopoeia (first issue 1807, last issue 1850).

It is significant of the political situation at 1618, the year of publication of the first of these standards, the *Pharmacopoeia Londinensis*, that James I, the first of the English sovereigns to call himself King of Great Britain and Ireland and simultaneously King of Scotland (under the name of James VI), restricted himself to commanding "all" and singular Apothecaries within this our Realme of *England* or the dominions thereof, that they and every of them . . . do not compound, or make any Medicine" in another manner as "set downe by the said booke."¹⁴ He did not impose it upon his Scottish subjects or submit it to the respective Scottish authorities for acceptance. There was naturally still less an idea of making the book official in Ireland.

It was not until 1858 (Medical Act, 1858, Sect. LIV) that it was considered opportune to publish and legally enforce a British Pharmacopoeia instead of the standards which "have hitherto been in use in England, Scotland, and Ireland."¹⁵ When the first edition of the new book made its appearance in 1864, its preface frankly stated that

of the several functions conferred on the General Medical Council of the United Kingdom by the Medical Act of 1858, not one has caused the Council more anxiety than the preparation of the British Pharmacopoeia . . . To reconcile the varying usages, in pharmacy and prescriptions, of the people of three countries hitherto in these respects separate and independent, — to consult the prepossession of three important public professional bodies, which have ruled long and ably over this branch of Medicine . . . has been no light task.¹⁶

It remains to be seen whether, under the given circumstances, there will not be a Dublin, or Irish, Pharmacopoeia once again.

That the *Pharmacopoeia Londinensis* of 1618 was the first original pharmaceutical standard to be official not for the territory of a city republic or Imperial Free City, Duchy or Grand Duchy, but for the whole of a nation, testifies to the fact that England proper was unified and its administration centralized to an extent not known by the rest of the contemporary European nations. Even in Spain and in France it was more than a

¹⁴ "A briefe of his MAJESTIES royall

Proclamation . . .", issued on April 26, 1618,

in George Urdang, *Historical Introduction to*

Pharmacopoeia Londinensis of 1618", *Madi-*

son, *Wis.*, 1944, p. 25.

¹⁵ British Pharmacopoeia, London, 1864,

pp. V and VI.

¹⁶ *Ibidem*, pp. XI and XII.

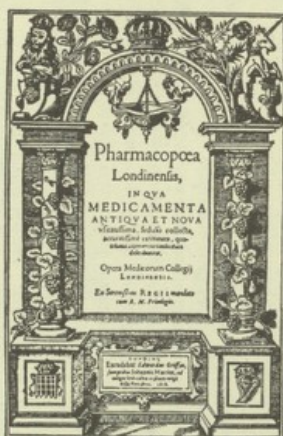


FIG. 9. Title Page of the First Issue of the London Pharmacopoeia 1618 (Dated May 7, 1618).



FIG. 10. Title Page of the Second Issue of the London Pharmacopoeia 1618 (Dated December 7, 1618).

BRITISH PHARMACOPŒIA

PUBLISHED UNDER THE DIRECTION OF THE
GENERAL COUNCIL
OF
MEDICAL EDUCATION AND REGISTRATION
OF THE UNITED KINGDOM
Pursuant to
THE MEDICAL ACT, 1858.



LONDON:
PRINTED BY THE GENERAL COUNCIL, PRINTED BY
SPOTTISWOODE & CO., NEW-STREET SQUARE, E.C.

FIG. 11. Title Page of the First Edition of the British Pharmacopoeia 1864.

century later that the political situation made the issuance of national pharmacopoeias possible or advisable.

SPAIN AND FRANCE

The first Spanish Pharmacopoeia to be enforced for the whole of Spain was according to Rafael Folch y Andreu¹⁷ the *Pharmacopoeia Matritensis* of 1739. This late appearance of a Spanish national pharmacopoeia had its reason in the fact that until the Spanish war of succession (1707-1714) Catalonia, Aragon and Valencia had still retained some degree of autonomy. For instance, a *Pharmacopoea Catalana* still appeared in 1686. The first Spanish pharmaceutical standard to bear the title *Pharmacopoeia Hispanica* appeared in 1794. It is significant that this book was issued during the short period of cultural blossom around 1800 which the country enjoyed under Florida Blanca, prime minister to Charles IV of Spain.

In France the cultural autonomy of the large cities of the country found its expression in local official pharmacopoeias until the second half of the eighteenth century, the *Pharmacopoeia Lugdunensis*, the official pharmaceutical standard of the City of Lyon, published as late as 1778. There was, naturally, a tendency to make the *Codex Medicamentarius Parisiensis*, the first edition of which appeared in 1638 while the last one was issued in 1758, the national standard, and it became indeed, to quote J. Bergounioux, "grâce à la réputation et au rayonnement de sa [the Parisian] Faculté, le guide pharmaceutique officieux du Royaume."¹⁸ It was, however, not until the French Revolution had brought about complete centralization of the governmental administration that, by the law of Germinal 21 of the year XI (April 11, 1803), Article XXXVIII, the legal ground was laid for a pharmacopoeia to be obligatory for the whole of France.

The stormy events of the following decade, the period of the rise and the fall of the empire of Napoleon I culminating in the restoration of the Bourbon Kingdom, apparently did not allow the realization of the project. When, in 1816, the book then in progress was declared to be the future official French pharmaceutical standard by the newly established Bourbon King Louis XVIII, he referred to "l'article 38 de la loi du 11 Avril 1803, qui a prescrit la rédaction d'un nouveau Codex ou Formulaire."¹⁹ This reference to a law of the republic was undoubtedly in contrast to the general

¹⁷ R. Folch y Andreu, *l.c.*, p. 215.

¹⁸ J. Bergounioux, *Les éditions du Codex Medicamentarius de l'Ancienne Faculté de Médecine de Paris*, Bull. de la Soc. d'Hist. de la Pharm. No. 57 (1928): 78.

¹⁹ *Codex Medicamentarius*, Paris, 1818, p. VII.

attitude of the restored royal government. The royal ordinance quoted was signed by the king as "donné en notre château des Tuilleries, le huit août, l'an de grâce dix huit cent seize, et de notre règne le vingt deuxième." This kind of dating used in all official royal proclamations of this time is highly interesting. Pretending that Louis XVIII had reigned during all the time after



FIG. 12.

FIG. 12. Title Page of the First Edition of the Parisian *Codex Medicamentarius* (1618).

FIG. 13. Title Page of the Leipzig 1819 Reprint of the First Edition of the French *Codex Medicamentarius* (1818).

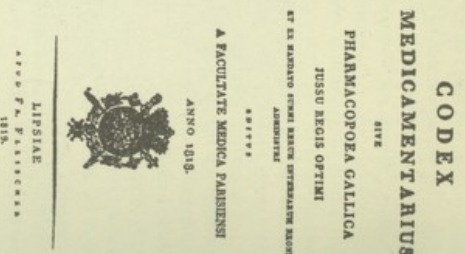


FIG. 13.

the death of the unfortunate son of the decapitated Louis XVI and thus trying to eradicate all that had happened during the first French Republic and the Empire of Napoleon I, this dating presents historical evidence for the well known phrase that the Bourbons had forgotten nothing and learned nothing while in exile. It was in 1818 that the book appeared bearing on its title page the title *Codex Medicamentarius sive Pharmacopoea Gallica*, the royal French coat of arms, and the obligatory reference to the royal printing privilege, "Jussu Regis Optimi."

The second edition of the *Codex* appeared in 1837 under the reign of

the so called "Citizen-King" Louis-Philippe of Orleans, and the fact that this *Codex* was issued in the vernacular instead of the traditional Latin, setting an example soon followed everywhere in continental Europe and in the United States of America likewise, testifies to the liberal tendency within the administration. There is no coat of arms, no reference to royal permission on the title page, the title reading *Codex, Pharmacopée Française*,

CODEx,

PHARMACOPÉE FRANÇAISE

PAR ORDRE DU GOUVERNEMENT
M. LE PRÉSIDENT DE LA FACULTÉ DE MÉDECINE,
ET DE L'ÉCOLE SPÉCIALE DE PHARMACIE DE PARIS.



PARIS
BECHET JEUNE,
LIBRAIRE DE LA FACULTÉ DE MÉDECINE DE PARIS,
4, RUE DE L'ÉCOLE DE MÉDECINE.

Fig. 14. Title Page of the French *Codex* of 1837.

CODEx

MEDICAMENTARIUS

PHARMACOPÉE FRANÇAISE

PAR ORDRE DU GOUVERNEMENT
M. LE PRÉSIDENT DE LA FACULTÉ DE MÉDECINE,
ET DE L'ÉCOLE SPÉCIALE DE PHARMACIE DE PARIS.



PARIS
A. B. BAILLIÈRE ET FILS
ORDRE DU GOUVERNEMENT

Fig. 15. Title Page of the French *Codex Medicamentarius* of 1866.

Rédigée par Ordre du Gouvernement par une Commission Composée de M.M. les Professeurs de la Faculté de Médecine, et de L'Ecole Spéciale de Pharmacie de Paris. Furthermore, there is no special dedication to the king nor any phrase of reverence or flattery in the preface.

When, in 1866, the third edition of the *Codex* was issued, the regime of Louis-Philippe (1830-1848) and the second republic following it (1848-1852) had long ceased to exist. Again the title page refers to an "*Ordre du Gouvernement*." That this "*Gouvernement*" was quite a different one, however, is evidenced by the fact that the seal of the *Ministère de L'Instruction Publique* shows the Imperial coat of arms adopted by Napoleon I and now used by his nephew, Louis Napoleon, or as he called himself after his ascendance to the throne, Napoleon III. It was the great apothecary-chemist and statesman, Jean Baptiste Dumas who, in his capacity as President of the Pharmacopoeial Committee wrote the preface to the new book. It

mirrors this epoch in French politics that he overdid himself in flattering the emperor who, as Dumas put it, "par son rôle dans le monde, avec les grands desseins que Sa Majesté poursuit dans l'intérêt des peuples, et qu'elle accomplit chaque jour avec une gloire immortelle, en vue du progrès de la civilisation générale."²⁰

CODEX

MEDICAMENTARIUS

PHARMACOPŒIA

PHARMACOPŒE FRANÇAISE

1830

PAR ORDRE DU GOUVERNEMENT

UNITED STATES OF AMERICA.

1830.



AUTHORITY OF THE MEDICAL SUPPLIES AND COLLATERAL.

PARIS

G. MASSON, ÉDITEUR

Lithographe de l'Académie des Médecines
10, Boulevard des Capucines, 10, Paris, 17, France

Fig. 16.

Fig. 16.

Fig. 16. Title Page of the French *Codex Medicamentarius* of 1834.

Fig. 17. Title Page of the First Edition of the *Pharmacopœia* of the United States of America (1820).

There are no such flowery phrases in the preface to the fourth edition of the *Codex* published under the Third Republic in 1884, and it is the sign and the symbols of the République Française which greet the reader in the seal of the *Ministère de l'Instruction Publique et des Beaux Arts* adorning the title page.

THE NETHERLANDS AND BELGIUM

That the intricate history of The Netherlands, of Belgium and Holland, has been mirrored in the pharmaceutical standards of these countries is

²⁰ *Codex Medicamentarius*, Pharmacopœe Française, Paris 1866, p. XXXVIII.

easily understood, especially as since the sixteenth century this industrious area has become one of the international drug trade and transit centers as well as famous for its institutions of learning and its printing presses.

It was at Antwerp that the modified edition of the dispensatory of Valerius Cordus, which was to become the basis of a host of later ones printed at Amsterdam, Leyden, Lyon, Naples, Nuremberg, Paris and Venice, was prepared by the apothecary Pieter Coudenbergh, and printed for the first time by the renowned printer Christoph Plantin in 1568. It went through a series of editions and remained the official Antwerp pharmaceutical standard for about a century. Almost all of the bigger cities in the Low Countries, the present Belgium, as well as in the present Holland, at one time or another issued official pharmacopoeias. For the territory which was under Austrian rule after the peace of Rastatt (March 7, 1714), the *Dispensatorium Pharmacuticum Austriaco-Viennense*, reprinted in Brussels in 1747, and since 1774 the *Pharmacopoea Austriaca Provincialis*, reprinted at Louvain in the same year, were given the authority of legal standards. A translation of the latter into Dutch was published in 1781 at Rotterdam under the title *Apothek der Oosterryksche Staaten*.

It was the establishment of the Batavian republic (1795-1806) that, for the first time, gave the country a national pharmacopoeia. A decree of the "Duodecimviri reipublicae gerendae" of July 29, 1803 proclaimed that "there shall be one pharmaceutical code for the entire Batavian republic according to which all pharmaceutical stores shall be administered" ("Sit universae Reipublicae Batavae unus Codex Pharmaceuticus, ad cuius normam pharmacutiae officinae omnes instituantur").²¹ This book, considered to be "by far the best pharmacopoeia of its time"²² appeared in 1805 in Amsterdam, bearing the title *Pharmacopoea Batava*.

This standard remained in use during the shortlived Kingdom of Holland (1806-1810), under Louis Bonaparte, one of the brothers of Napoleon I, the French domination of the Low Countries (1810-1815), and finally the first eight years of existence of the Kingdom of the Netherlands comprising Belgium and Holland and created by the so called Congress of Vienna in 1815. In 1823 the *Pharmacopoea Batava* was replaced by the first official formulaire to bear the title *Pharmacopoea Belgica*. An official Dutch edition (translation from the Latin original into Dutch) appeared in 1826 under the title *Nederlandsche Apothek*, and it is significant that in the Latin edition King Wilhelm I is called "*prospiciens optimus universi Belgii Rex*,"²³

²¹ *Pharmacopoea Batava*, Amsterdam, 1805, ²² *Pharmacopoea Belgica*, The Hague, 1823, p. XXIV.

²³ p. IV.

²⁴ Charles Rice, *Id.*, p. 68.

while the Dutch translation refers to him simply as "onze geliefde Koning"²¹ (our beloved King).

In consequence of the Belgian revolution of 1830, an armed protest of the Catholic Belgians against what they thought to be the predominance of the Protestant Dutch within their common realm, Belgium and Holland were separated once again, and in 1831 Belgium became an independent kingdom under Leopold of Saxe-Coburg. It took in both countries more than twenty years before new official formularies were issued, the *Pharmacopoea Belgica Nova* (1854) and the *Pharmacopoea Nederlandica* (1851). It is interesting that the latter and all its following editions continue to carry on their title pages the coat of arms of the royal House of Orange that adorned the *Pharmacopoea Belgica* of 1823 and the *Nederlandische Apothek* of 1826, while the *Pharmacopoea Belgica Nova* and its successors bear on their title pages the coat of arms of the new Belgian kingdom. The official numbering of the present Belgian pharmacopoeia takes its start from the *Pharmacopoeia Belgica Nova* of 1854 and not from the *Pharmacopoea Belgica* issued in 1823.

POLAND, RUSSIA AND FINLAND

Like the Kingdom of the Netherlands, another creation of the Viennese Congress, so-called Congress Poland, was only shortlived. Alexander I of Russia, adopting the title of a King of Poland, granted the part of the old Polish realm that had fallen to him in 1815, a liberal constitution and full autonomy. It was during this epoch, in 1817, that the first official Polish pharmaceutical standard, the *Pharmacopoeia Regni Poloniae* appeared. In the preface to the book, the authors explain the situation as follows:

In so far as the kingdom of the fathers in time past has been without an own pharmacopoeia and such a book can no longer be missed in the reborn realm, we have prepared this very work under the Auspices of the Most Merciful Monarch, Restorer of the Fatherland and Supreme Protector of the Sciences and Arts, and upon order and authority of the Ministry of the Interior and Public Education . . . (*Qua olim Partium Regnum carerat Pharmacopoeia propria, ea ne diutius regeretur denique, sub Auspiciis Clementissimi MONARCHAE, Patris Reformationis, Summæque Literarum et Artium Protectoris, jussu et auctoritate Ministerii Administrationis rerum internarum et disciplinæ publicæ, operè hæc curavimus . . .*)²²

This pharmacopoeia did not live to see another edition. When in consequence of the unsuccessful Polish revolutionary attempts to regain full independence, the successor to Czar Alexander, Nicholas, in 1832 de-

²¹ *Nederlandische Apothek*, The Hague, 1816, p. V.

²² *Pharmacopoeia Regni Poloniae*, Warsaw, 1817, p. V.

prived Poland of autonomy and degraded her to the status of a Russian province, there was no room anymore for such a proof and symbol of national sovereignty as an independent official pharmacopoeia. It took more than a century until, in 1937, another official Polish pharmaceutical standard was issued, this time for all of Poland, i.e., not only for the Polish territory formerly under Russian rule, but also for the parts which in 1817 had been under Prussian and Austrian domination.

It was, after all, Western civilization that expressed itself in the official European pharmacopoeias, and until quite recently Poland as well as Russia were at the receiving rather than at the contributing end of this civilization. As to beaux arts and belles lettres the political conditions from the end of the eighteenth to the beginning of the twentieth century offered a kind of incitement of oppositional forces resulting in a production of remarkable standing and originality. For the sciences and in particular medicine with its correlates, hygiene and public welfare, the possibilities were very restricted. While Poland tried to disprove this fact, very probably just because of her being bound to her big Eastern neighbor politically, Russia admitted it. Although the Russian Academy of Science at St. Petersburg already issued a *Pharmacopoea Rossica* in 1778 (reprinted in 1782), and the Russian Imperial Medical College residing at the same place published another formulary under the same title in 1798 (reprinted in 1803), these books were legally enforced only with limitations. It was not until 1866 that an official Russian pharmaceutical standard, the *Rossiiskaya Pharmacopoeia*, was issued and made obligatory without any limitations. It is significant that an official formulary for the use in the Russian army appeared as early as 1765.

Starting its pharmacopoeial history almost the same way and at the same time as Poland, another borderstate of Russia, Finland, was more lucky as to its continuation. Although under the political control and the cultural influence of Sweden for centuries, Finland had always retained some kind of political autonomy and when the Swedes had to cede the country to the Russians in 1809, the Russian Emperor Alexander I granted Finland a free constitution and fundamental laws, and it became a semi-independent Grand Duchy with the emperor as Grand Duke. There developed a strong tendency towards a national civilization, and it was undoubtedly in consequence thereof that in 1819 the first *Pharmacopoea Fennica* was issued "*cum gratia et privilegio Sæcæ Imperialis Majestatis*" notwithstanding or, as far as the Russian consent was concerned, even because of the fact that only two years earlier, in 1816, a new and excellent Swedish

pharmacopoeia (5th edition) had been published. It testifies to the consistency with which the Finns resisted all later attempts at russification that there was no interruption in the issuance of modernized editions of their national pharmaceutical standard. The fifth edition appeared in 1914, and the publication of a sixth one in 1937 proved to the world that Finland intends to carry on her national and cultural tradition.

As this survey has been dealing with official pharmaceutical formularies only, it may seem that there is no room for the Pharmacopoeia of the United States of America which never has been an "official" pharmaceutical standard in the sense in which this term has generally been understood. It is, however, world history as mirrored by pharmacopoeias that represents the real topic, and the historical fact of democracy as a working principle has certainly been mirrored by the Pharmacopoeia of the United States in a unique and convincing way. In an article on "The Place of Latin in the Official Standards of Pharmacy,"²⁴ this writer described the very special character of the United States Pharmacopoeia as follows:

From its very beginning, the United States Pharmacopoeia has been first, a private undertaking of American medicine and, in the course of development, of pharmacy and medicine. It was with justified pride that a reviewer of the first (1820) edition wrote in the Medical Repository: "France, by command of her Monarch has furnished her *Codex*, but it remained for American Physicians to frame a work which emanates from the profession itself, and is founded on the principles of Representation. It embodies a *Codex Medicum* of the free and independent United States . . ."²⁵

The Federal Food and Drug Laws of 1906 made the United States Pharmacopoeia as well as the National Formulary the legal standards for drugs, thus granting these private books legal recognition. This recognition, however, has not interfered with the preparation of these books by organized pharmacy and medicine, and has left entirely to the sense of responsibility of these professional groups the manner of dealing with the subject matter concerned . . .

SWITZERLAND

There is another country representing a union of more or less autonomous political units, in which the development took a somewhat similar course: Switzerland. As in the United States of America, it was the voluntary work of an organized group of professionals, in this case the *Schweizerische Apothekerverein* which, appearing for the first time in 1865 under the title *Pharmakopoea Helvetica*, gradually gained general recognition. Its second edition (1872) was legally introduced by the majority (all but three)

²⁴ Bull. National Formulary XII, 1944: 105. Philadelphia, 1940, p. 242.
²⁵ Krenner-Urlaub, *History of Pharmacy*.

of the individual Swiss political units (cantons), and its third edition (1893) was declared the official Swiss Pharmacopoeia by the federal authority, the *Schweizerische Bundesrat*, obligatory in all of Switzerland with the exception of the canton of Glarus which had refused recognition and — a significant sign of the genuineness of the Swiss democratic system — had her way. The fourth and the fifth editions (1907 and 1933), finally, were



FIG. 18. Frontispiece and Title Page of the *Pharmacopoeia Helvetica* of 1771.

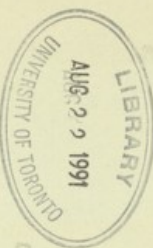
adopted by all cantons and were, therefore, declared official for all of Switzerland. In contrast to the procedure in the United States of America, the Swiss federal government has a hand in the appointment or confirmation of the members of the pharmacopoeial Committee responsible for the preparation of the official standard.

The title *Pharmacopoeia Helvetica* had already been used for a predecessor of the modern bearer of this designation, namely for a book appearing in 1771 and prefaced by the famous physician, polyhistor and poet Albrecht von Haller (1708-1777). Although widely used, this excellent work was

never legally enforced in all or even the majority of the Swiss political units. There is a frontispiece in the book of 1771 showing the coat of arms of the thirty-two autonomous areas constituting the Swiss republic. It discreetly intimates the difficulties standing in the way of a simultaneous adoption of the same standard throughout the country.

OUTLOOK

At present we are at the threshold of a new period in world history. The trend seems to be towards greater unification. The extent to which this will be realized in the fields of politics and culture will undoubtedly be mirrored by the pharmacopoeias to be issued in the future, by their appearance as well as by their contents.



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