NOTES AND REPORTS

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On 30 October 1951, the World Health Organization published volume I of the Pharmacopoea Internationalis *in separate English and French editions. A Spanish edition is in preparation.*

To mark this historic event, Professor G. Urdang was invited to contribute this account of the origins, nature, and development of pharmacopoeias.

THE DEVELOPMENT OF PHARMACOPOEIAS

A Review with Special Reference to the Pharmacopoea Internationalis

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It has become customary to refer to a pharmacopoeia as the " pharmacist's Bible ". Like most metaphorical descriptions, this expresses only a half-truth. While the " book of books " which we call the " Bible " breathes eternity that may be differently interpreted but cannot be changed, the very usefulness of the pharmacopoeia is determined by the periodical changes it has to undergo to keep pace with the latest progress in the sciences on which it is based.

Nevertheless, since the first introduction of legally enforced standards, pharmacopoeias have been to the pharmacist the most obvious source of and check on his professional responsibility.

1. Terms Used for Legally Enforced Pharmaceutical Standards

It was comparatively late that the term " pharmacopoeia " (or " pharmacopoea ") became the generally recognized designation for an official book of pharmaceutical standards. The term is supposed to have been used for the first time in the 2nd or 3rd century A.D. by the Greek writer, Diogenes Laertius. What he understood by φαρμακοποιία, however, was the preparation of medicines as such, not the title for a book dealing with medicines. Composed of the words φαρμακον (charm, poison, drug) and ποιεῖν (to make), the new term had as good an etymological pedigree as possible.

In 1548 there appeared at Lyons a book by Jacques Du Bois (latinized Sylvius), a famous French physician and ardent Galenist (1478-1555), which bore the title *Pharmacopoeae, libri tres.* Thus, the term of Diogenes Laertius was revived in a modified sense that proved to be fruitful. In 1560 the German physician, Bretschneider-Placotomas, called his formulary, which was printed at Antwerp, *Pharmacopoeia in compendium redacta,* and at Basle, in 1561, the Alsatian physician, Anutius Foesius, published his *Pharmacopoea mediomatrica* (pharmacopoeia of Metz).

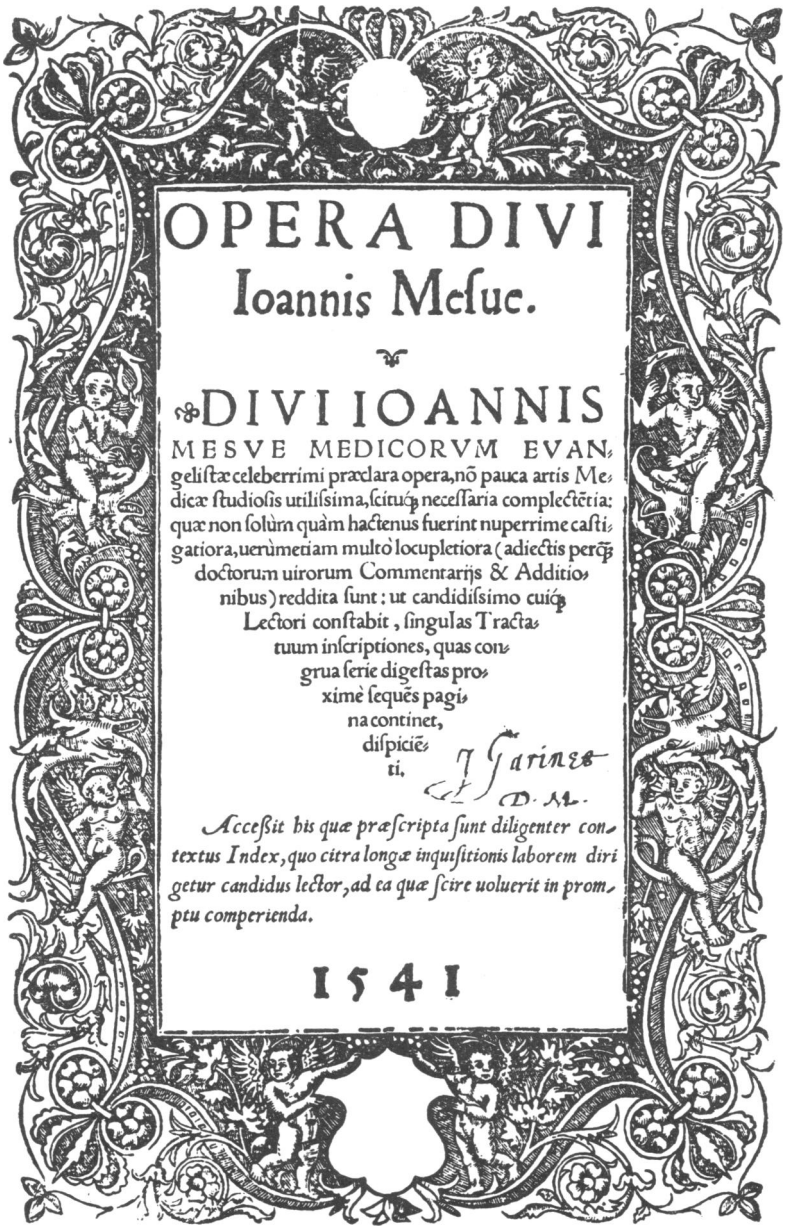
All three works were private publications without any official character. It was not until 1573 that the term " pharmacopoeia " was used as the designation of an official pharmaceutical standard. It appeared in the title of the second edition of the book issued as the legally enforced pharmaceutical guide for the pharmacists and physicians of the City of Augsburg. While the first edition, issued in 1564, bore the title *Enchiridion, sive ut vulgo vocant dispensatorium, compositorum medicamentorum, pro Reipub. Augstburgensis pharmacopoeis,* the title of the second edition was *Pharmacopoeia, seu Medicamentarium pro Republica Augustana.* Although the terms " antidotarium " (from the Greek αντιδοτος (given against)) and especially " dispensatorium " still survived, the designation " pharmacopoe(i)a " became predominant from the end of the 16th century onwards. Used originally for all kinds of formularies, issued with and without official recognition, it gradually gained the distinctive quality of an official term for a legally enforced book.

2. Sources and Precursors of " Pharmacopoeias "

2.1 *Sources*

As sources for the legally authorized pharmaceutical standards we may, until the late 18th century, consider the entire literature on drugs of the Graeco-Roman and the Arabian period. This includes publications written in Western Europe, especially in Italy, from the early Middle Ages until the late 15th century. Hence, everything pertaining to pharmacy in the books of the Hippocratic Corpus (5th to 3rd centuries B.C.), of Pliny

FIG. 1. TITLE-PAGE OF THE "OPERA DIVI" OF JOANNIS MESUE



OPERA DIVI
Ioannis Meſue.

DIVI IOANNIS
MESVE MEDICORVM EVAN-
geliſtæ celeberrimi præclara opera, nõ pauca artis Me-
dicæ ſtudioſis utiliſsima, ſcituq; neceſſaria complectẽtia:
quæ non ſolùm quàm hactenus fuerint nuperrime caſti-
gatiora, uerùmetiam multò locupletiora (adiectis perq;
doctorum uirorum Commentarijs & Additio-
nibus) reddita ſunt: ut candidiſsimo cuiq;
Lectori conſtabit, ſingulas Tracta-
tuum inſcriptiones, quas con-
grua ſerie digeſtas pro-
ximè ſequẽs pagi-
na continet,
diſpiciẽ-
ti.

J Jarines
D. M.

*Acceßit his quæ præſcripta ſunt diligenter con-
textus Index, quo citra longæ inquiſitionis laborem diri-
getur candidus lector, ad ea quæ ſcire uoluerit in prom-
ptu comperienda.*

1541

(1st century A.D.), of Galen (130-201 A.D.), and of the later Graeco-Roman compilers served as source material. As to the simple drugs, the book of Pedanios Dioscorides (1st century A.D.) on materia medica was extracted by the compilers of the legally enforced pharmacopoeias until the end of the 18th century. It was supplemented in this respect by the *Circa Instans* or *Liber de Simplici Medicina*, compiled by the Salernitan, Matthaeus Platearius (12th century). Of the Arabs, it was especially Rhazes (865-925) and Avicenna (980-1035) whose treatises furnished material for the later pharmacopoeias.

2.2 *Precursors*

There was a group of books written mainly after 1000 A.D. (with one remarkable exception, namely, the formulary compiled in the 1st century A.D. by the Roman, Scribonius Largus) which not only have been used as sources by the compilers of the " pharmacopoeias " to an even greater extent than the Graeco-Roman and Arabian treatises mentioned in section 2.1, but have to be regarded as precursors of the legally enforced formularies. As a matter of fact, in arrangement and way of presentation, these mediaeval and early postmediaeval books resemble so much the first " official " pharmacopoeias, that it is primarily the legal sanction which marks the distinction. The most important of these precursors were :

(*a*) The *Compositiones medicamentorum* (1st century A.D.) of Scribonius Largus. This was the first, and for a long time the only, general formulary devoted primarily to pharmaceutical activities, i.e., consisting mainly of a list of formulas for compounded drugs with explanatory annotations and descriptions of some simple drugs.

(*b*) *Antidotarium Nicolai* (about 1100, enlarged and commented upon about 1150 by the Salernitan, Matthaeus Platearius). In all probability it was this book that was referred to as the standard to be followed in the law of Frederick II separating pharmacy from medicine in the Kingdom of the Two Sicilies (1240).

(*c*) *Antidotarium Nicolai Myrepsi* (13th century A.D.). The author of this book was a native of Alexandria who practised medicine in Byzantium.

(*d*) Antidotarium or *Grabadin* of Pseudo-Mesue (see fig. 1). This was probably written in the 13th century in Italy by a European having full knowledge of the drug armamentarium of the Arabian world and presenting it in a way most adequate for the needs of the western world of his time. As a matter of fact, the *Luminare majus* of the Italian apothecary, Joannes Jacobus Manlius de Bosco, which was written in the second half of the 15th century and given legal force in Nuremberg in the early 16th century (1529), was essentially a commentated edition of Pseudo-Mesue's *Grabadin*. There was no official or unofficial pharmaceutical book of formulas up to the late 17th century that did not lean heavily on the " divine " Mesue.

3. Conditions for Establishment of Pharmacopoeias

There have been from the beginning of recorded history various groups of people dealing in and preparing drugs. But, in principle, drug preparation and the practice of medicine were in the hands of the same practitioners, and it is hard to say whether in modern terminology they were to be regarded as physicians dabbling in pharmacy or as counter-prescribing pharmacists. In any case, under such conditions the literature written for and used by these people had to furnish information on both medical and pharmaceutical subjects. At the height of the development of Graeco-Roman lay medicine, the physicians were even admonished by prominent representatives of public opinion, as well as by their outstanding colleagues—for instance, by Pliny in the 1st century A.D. and by Galen about a century later—to prepare their drugs themselves and not to trust the drug-sellers. The *Compositiones* of Scribonius Largus, the only known compilation of this period mainly devoted to pharmaceutical activities and resembling the later formularies, likewise contains a warning against the dubious practices of the " pigmentarii ". Hence the book was certainly not written for the benefit of these more or less irregular drug-vendors, but rather for the information of those (wives and servants) supposed to have prepared the medicines under the guidance and supervision of the physician.

A literature destined to be used by, and even made obligatory for, a group of pharmaceutical specialists could not be expected until such a group existed and had grown into general recognition. Hence the issue of official pharmacopoeias was based on two presuppositions :

(1) the separation of medicine from pharmacy, at least as a matter of principle, and

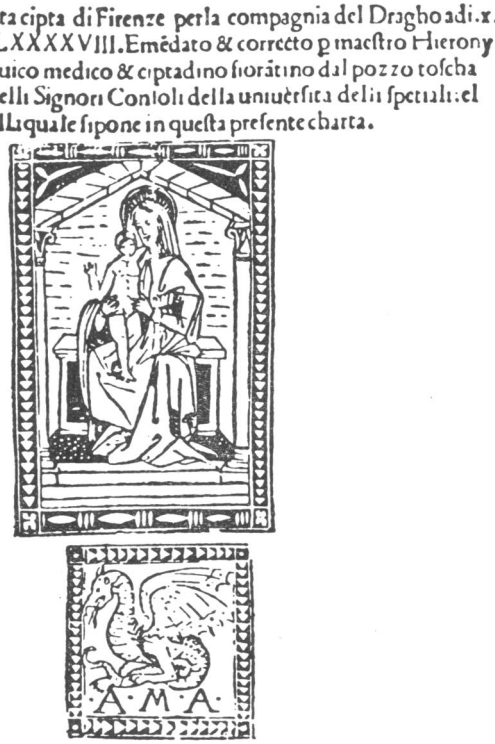
(2) the existence of a public-welfare system of which pharmacy was made an inherent part.

Rather uncertain and occasional beginnings of such a system can be found in Byzantium. These beginnings became more definite from the 8th century onwards in the countries under Arabian domination, and were given their Western European sanction in the health and hygiene legislation promulgated in the Kingdom of the Two Sicilies and concluded in 1240 with the law of Frederick II of Hohenstaufen concerning the separation of pharmacy from medicine. It was this law that, for the first time on European soil, at least as far as a large political unit was concerned, decreed governmental inspection of the pharmaceutical shops, supervision of the work done by the pharmacists, and the use of a certain formulary according to which medicaments were to be prepared. It seems only natural that this formulary was the *Antidotarium Nicolai* compiled at Salerno about 1100 and enlarged and annotated by Matthaeus Platearius in 1150. Since, however, there is no historical evidence confirming this assumption, only the fact that in 1240 a kind of legalized pharmaceutical standard was referred to can be stated with certainty.

4. Reasons for Issuing "Official" Standards of Pharmacy

It seems amazing that more than 250 years had to pass after the promulgation of the law of Frederick II, King of the Two Sicilies and Emperor of Germany, before the first official pharmacopoeia of which we have

FIG. 2. TITLE-PAGE AND COLOPHON OF THE FLORENTINE "NUOVO RECEPTARIO" OF 1498



historical evidence was published : the Florentine *Nuovo Receptario* (see fig. 2). The explanation lies in the fact that the idea of the responsibility of the State for the health and the general welfare of its citizens, of which Frederick II had been a pioneer, found only slowly its practical recognition.

Was it lack of other pertinent literature which caused the issue of " official " pharmaceutical standards ? It does not seem so. The Antidotaria *Nicolai Salernitani* and *Nicolai Myrepsi*, together with the *Grabadin* of Pseudo-Mesue and the commentaries to these books (among which the *Compendium aromatariorum* of Saladin de Asculo, Physician-in-Ordinary to the Prince of Tarentum about 1450, merits special mention), served the purpose of instructing the pharmacist about the drugs then known, their preparation and their preservation. From the early 16th century on, several privately compiled formularies were issued. Therefore, it was not so much the lack of literature as the different views expressed in the non-official works that caused a demand for a standard book of reference. Hence it may be permissible to suggest the following general definition :

A pharmacopoeia in the modern sense of the word is a pharmaceutical standard intended to secure uniformity in the kind, quality, composition, and strength of remedies approved, or at least tolerated, by the representatives of medicine within a particular political unit and made obligatory for this unit, especially for its pharmacists, by the authorities concerned.

This desire for uniformity has remained the primary, but by no means the only, reason for the issue of " official " pharmacopoeias. There have been other reasons. In earlier days, for instance, it was thought that drugs originating in a certain country had an especially beneficial relation to the bodies of the residents of their common habitat. Until now, an important reason has been the desire of meeting not only special health needs but also economic needs of the area concerned by including products of its own soil and industry, and excluding, as far as possible, products of foreign origin. Scientific emolument, and differences of opinion as to the scope of a pharmacopoeia, have been further reasons for the issue of separate standards.

" 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 pharmacopœia became gradually a matter of national ambition, a part and a proof 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." [9]

In the preface of the *Pharmacopoeia Londinensis* of 1618 (see fig. 3), the reasons for the issue of this first Anglo-Saxon pharmaceutical standard, imposed by King James I on 20 March on " all and singular Apothecaries

within this our Realme of England or the dominions thereof", are stated as follows :

" We do perceive, however, that many national groups did not content themselves with the old masters, with Mesue, Silvius, Nicolaus and the others but wanted their own antidotarium. . . . Why should not the citizens of London have their own ? Like unto a suitable garment, the appreciation of which does not arise so much from its being precious, but from its being appropriate and well-adapted to English bodies. Furthermore, too much variety is more apt to confuse than to instruct us. . . . How long could the poor pharmacists endure in our country, if they were thrown, as it were, into various currents, tossed a thousand times hither and thither ? . . . Thus the same preparation has been subjected to as many concepts as there are apothecary shops . . . We propose to stabilize this fluctuating state of pharmacy . . . by means of this little book as by means of an anchor, firmly cast." [7]

5. Various Types of Pharmacopoeias

5.1 *Early official pharmacopoeias*

There have been differences of opinion as to the " officiality " of the *Nuovo Receptario* compiled by the " Doctori Della Arte et Medicina Della Inclita Cipta Di Firenze " and published in 1498. The argument of those doubting this " officiality " is that " the most important proof, the objective [documentary] evidence of the legal validity is missing." [4] However, this argument does not take into consideration the power of self-administration delegated to the guilds within the political system in the Florentine Republic before the Medici introduced their more or less autocratic regime ; the *Nuovo Receptario* was compiled " ad istatia delli Signori Consoli della universita delli spetiali " [a] and bears the seal of the guild as the obvious sign of its " officiality ".

It is remarkable that this first pharmaceutical standard for a particular political unit was not written in Latin—the language of the learned—but in the vernacular, i.e., Italian. It was, however, translated into Latin (in 1518 by Antonius Guarnerius) and was thus made available to those interested all over the western world.

The " officiality " of the early pharmaceutical formularies issued in Barcelona (1511 and 1535) and in Saragossa (1546) respectively, has not been accepted by most historians. The guilds in Spain did not enjoy the broad privilege of setting, within their sphere of activities, rules that were legally binding, and there is no evidence of the legal enforcement of these early Spanish books by the respective municipal authorities. Hence the *Dispensatorium... authore Valerio Cordo,* issued in 1546 in, and given legal sanction for, the German Imperial City of Nuremberg has to be regarded as the first of the recognized legal standards after the *Nuovo Receptario.* In his excellent essay on the *Dispensatorium... authore Valerio*

[a] " at the instigation of the officers of the guild of apothecaries "

FIG. 3. TITLE-PAGE OF THE " PHARMACOPOEIA LONDINENSIS " OF 1618

Cordo, Lutz [4] presents a new and striking evaluation of this early pharmacopoeia.

Like its Italian predecessor this book represented Graeco-Roman-Arabian wisdom, but it was enlivened by the critical spirit and personal experimental experience of its author (1515-1544). With its selection of formulas and its brief but clear annotations as to important simple drugs, medical uses of the compounds, etc., it met the needs of the practising pharmacists to such an extent, especially in the version edited by the Antwerp apothecary, Peter Coudenberg, in 1568, that it was copied and reprinted again and again until the end of the 17th century. Such editions, in all about forty, appeared, outside Nuremberg, in Antwerp (until 1662 at least twelve), in Leyden (thirteen between 1551 and 1652), in Lyons (eight between 1549 and 1680), in Naples, in Paris, in Tubingen (in both the last-mentioned cities as early as 1548), and in Venice. The book was translated into Italian (Venice, 1558) and into Dutch (Amsterdam, 1592). The physicians and pharmacists in Antwerp found Coudenberg's modification of the book so practical that, at their request, it was legally enforced by the municipal authorities and remained the official pharmaceutical standard of Antwerp for more than a century. In the City of Nuremberg the last (fourth) official edition of the book was published in 1666.

The second German official pharmacopoeia was published in 1564 for the territory of the Imperial City of Augsburg. Although much more comprehensive than the book of Valerius Cordus, the *Enchiridion . . . pro Reipub. Augstburgensis pharmacopoeis* was, like its German predecessor and the *Nuovo Receptario*, a simple book of formulas, not even including the brief annotations or remarks as to the medical uses of the preparations listed which were contained in the book of Cordus.

Hence these three early official pharmaceutical standards represent the unpretentious type of pharmacopoeia, which was devoted exclusively to the immediate practical use by the pharmacist as far as the compounding of the most frequently prescribed "composita" was concerned. Although there were some scanty annotations concerning the medical uses of the compounded drugs and brief information on some individual "simplicia" and their adulteration, on the whole no explanations were given. There was no attempt at general instruction or display of knowledge.

5.2 *Combinations of textbook and formulary*

Such an attempt was made for the first time in the second edition of the Florentine book, *El Ricettario* of 1550, which contained an informative section of 118 pages. It was followed by the *Dispensarium Coloniense* of 1565, by the later editions of the *Pharmacopoeia Augustana*, and by the *Pharmacopoeia Londinensis* issued on 7 December 1618 (the book issued on 7 May of the same year had still been an unpretentious formulary).

It was this type of pharmacopoeia, combining textbook and formulary, which became predominant in Europe until the end of the 18th century, reaching a climax in the several 18th-century editions of the *Pharmacopoea Wirtenbergica.*

" When in 1746 the revisors of the fifth edition of the London Pharmacopoeia issued that simplified revision, they inserted with pride the following statement in the *Narrative of the Proceedings of the Committee Appointed by the College of Physicians to Review Their Pharmacopoeia.*

" ' The committee recommend this work with the greater zeal, that our college may have the honor to be the first medical society in Europe, which shall have duly undertaken this reformation. '

" Hence in 1746 the medical and pharmaceutical world was told that a pharmacopoeia is not ' a regular treatise of the art of pharmacy, but only a register of the medicines, the apothecary is to be furnished with'. The authors of this pronouncement were unaware of the fact that it was not a new truth they had found and realized but a revival of the principles upon which the first issue of the *Pharmacopoeia Londinensis* of 1618 was based." [8]

The return to simple purposefulness, however, was not undebated. The idea of a pharmacopoeia as a combination of textbook and formulary was expressed in a statement by the American physician-pharmacist-manufacturer, E. R. Squibb, when, in 1876, he suggested that the United States pharmacopoeia be revised so as to be more than " a mere skeleton, requiring the dispensatory as a commentary ". [5]

In general, regular and better education of the pharmacists, the replacement of undefined (and hardly definable) drugs by well-investigated ones and by products of modern research, and an expanded scientific literature have outmoded the textbook-formulary combination. Our modern pharmacopoeias, being books of standards rather than collections of formulas, do not offer but presuppose adequate instruction.

6. Victory of Science over Empiricism

The simplification of the pharmacopoeias, which started in the middle of the 18th century, was accompanied by a simplification of the materia medica which reflected scientific, and particularly chemical, advances.

Pharmacopoeias are of necessity more or less conservative, and in the 16th and early 17th centuries most of the physicians and pharmacists were still ardent Galenists. Hence it was comparatively late that the internal use of chemicals, as advocated by Paracelsus (1493-1541), was recognized in official pharmacopoeias by the inclusion of some products of the art of chemistry. There was until 1613 no official pharmacopoeia containing more than a few chemicals for external use and gradually growing numbers of distilled waters and oils then regarded as " chymical ". There has come down to us a draft of 1589 for a planned London pharmacopoeia providing for " Extracta, Sales, Chemica, Metallica ". This draft, however, was never followed up, and we do not know which individual drugs falling

into one of the four categories listed were considered for admission in the planned book. [6]

The sixth edition of the *Pharmacopoeia Augustana*, issued in 1613, was the first official pharmaceutical standard to list chemicals for internal use. This and later editions secured worldwide distribution for this work, and in 1618 it became the official pharmaceutical standard for Vienna and the Austrian provinces. It was supplemented by a collection of formulas published as a *Catalogus Medicamentorum Compositorum*. Until 1722, all subsequent editions of the Augsburgian standard were given legal force in Austria. In quite a number of German principalities without a pharmacopoeia of their own, the book was referred to as the one to be followed by the pharmacists. In other countries it was used as a pharmaceutical book of reference until the late 18th century.

To the British goes the credit for the first sincere attempt at critically sifting the mass of simple and compounded drugs that had come down from antiquity, especially from the Arabs, and had been transferred from one epoch (and its pharmacopoeias) to the other.

The first *Pharmacopoeia Edinburgensis*, which appeared in 1699, i.e., about 80 years after the first edition of the *Pharmacopoeia Londinensis*, was, thanks to the elimination of at least some of the outmoded material, "more concentrated than almost any other dispensary". In the second edition, issued in 1722, the authors went still farther on their way to purification.

From this time onwards, a competition for up-to-dateness developed between the compilers of the Edinburgh pharmacopoeia on the one side and their London colleagues on the other. The elimination from the *Pharmacopoeia Londinensis* of 1788 of the most famous of all the "composita" of old—of theriac and mithridatum—was of symbolic as well as of factual importance, and signified a decisive victory of science over tradition within the history of pharmacopoeias. In the same edition, the terminology of Linnaeus was introduced for the materia medica synonyms. That had, naturally, been done before in the Swedish pharmacopoeia which, enjoying the co-operation of Linnaeus (1707-1778) and of the great apothecary-chemist, Scheele (1742-1786), in the late 18th century, and of Berzelius (1779-1848) in the early 19th century, has at all times shown the most progressive pharmaceutical standards.

As to the modern chemical nomenclature (based on Lavoisier's oxygen theory and offered to the world in the famous pamphlet published by Guyton de Morveau in co-operation with Lavoisier, Berthollet, and Fourcroy in 1787), the credit for having been the first official pharmaceutical standard to adopt it goes to the *Pharmacopoea Hispana* published in 1794. It was, however, the acceptance of this nomenclature in the first edition of the *Pharmacopoea Borussica*, backed by the authority of the famous pharmacist-chemists, M. H. Klaproth, S. F. Hermbstädt, and V. Rose, jr., that gave the signal for general recognition. In Great Britain the

Pharmacopoeia Edinburgensis followed the Spanish and Prussian example in 1803, the *Pharmacopoeia Londinensis* in 1809.

The further development of the official standards of pharmacy followed closely, although not always very quickly, the progress of the sciences concerned and gave steadily increasing consideration to the situation created by the development of a large-scale pharmaceutical industry based on the application of science. It seems almost incredible that it was not until 1827 that the *Pharmacopoea Borussica* (fourth edition) permitted the purchase of chemicals " which can be purchased genuine from industrial plants and the preparation of which by the apothecaries is not without some danger and inconvenience ", and that it was as late as 1862 that, in the seventh edition of the same book, the Prussian apothecaries were allowed to purchase all products " the preparation of which by the apothecary would be inexpedient ", leaving, however, to the latter the full responsibility for everything dispensed by them to the public.

7. Pharmacopoeias as Witnesses of World History

The idea of official pharmaceutical standards was first realized in the city-republics of the Renaissance period. The reason for this phenomenon is obvious. It was in these political units, wealthy as well as open-minded because of their worldwide trade connexions, that the ideas of civic responsibility, as stated and propagated by the humanists, found a receptive soil. With the growth of princely power and of political unification and consolidation leading to the development of states larger and more powerful than the city-republics (and in many cases amalgamating the latter), the city pharmacopoeias gradually disappeared and were replaced by state pharmacopoeias, every change in the political structure being mirrored by the official standards of pharmacy.

A most remarkable example of this expression of political changes by the pharmacopoeias is offered in the Low Countries. Almost all the bigger cities in this area, the present Belgium as well as the present Holland, issued official pharmacopoeias at one time or another. For Antwerp, as stated in section 5.1, Peter Coudenberg's revised edition of the *Dispensatorium... authore Valerio Cordo* was the official pharmaceutical standard for about a century. For the territory under Austrian rule after the peace of Rastatt (1714), the *Dispensatorium Pharmaceuticum Austriaco-Viennense* (1729), reprinted at Brussels in 1747 and at Louvain in 1774, was given the authority of a legal standard. A translation of the 1774 reprint into Dutch was published in 1781 at Rotterdam under the title *Apothek der Oosterryksche Staaten.* In the wake of the French revolution (1789), a " Batavian " republic was established which was in existence from 1795 to 1806. The result with regard to pharmacy was the first national pharmacopoeia for the whole territory of the Low Countries, the *Pharmacopoea*

Batava, issued in 1805 at Amsterdam. It remained in force during the period of the " Kingdom of Holland " under Louis Bonaparte (1806-1810), the French domination of the Low Countries (1810-1815), and the first eight years of existence of the " Kingdom of the Netherlands " established in 1815 by the Congress of Vienna. In 1823 the *Pharmacopoea Batava* was replaced by the first official pharmaceutical standard to bear the title *Pharmacopoea Belgica*. Its translation into Dutch appeared in 1826 for the Dutch part of the Netherlands under the title *Nederlandsche Apotheek*. After Belgium and Holland were separated, in 1831, they still retained for about twenty years the books issued in 1823 and 1826. It was not until 1851 that the *Pharmacopoea Neerlandica* was published for Holland, and not until 1854 that the *Pharmacopoea Belgica Nova* appeared for Belgium.

The congruity between the fundamental ideology of a political unit (on which the constitutional framework is based) and its materialization in daily life has found a most significant expression in the origin and development of the *Pharmacopoeia of the United States of America* (USP). It offers a most impressive realization of the idea of free enterprise and of adequate representation. Published in 1820, not by the authority of the Government but, as the title-page proudly pronounces, " by the authority of the Medical Societies and Colleges ", i.e., as a private venture, the book has remained a private undertaking up to the present day, and since 1910 has been issued " by the authority of the United States Pharmacopoeial Convention ". That the fathers of the United States pharmacopoeia were very well aware of what they were doing becomes obvious from a review published in the first medical journal to appear in the USA, the *Medical Repository*, soon after the publication of the 1820 USP.

The reviewer wrote :

" 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."

Being a private enterprise, the *Pharmacopoeia of the United States of America* has never been an " official " pharmaceutical standard in the sense in which this term has generally been understood. The Federal Food and Drug Law of 1906 and its successor, the Food, Drug and Cosmetic Act of 1938, have made the *Pharmacopoeia of the United States of America* and the *National Formulary*—a supplementary standard issued by the American Pharmaceutical Association since 1888—the legal American standards for drugs, thus granting these private books legal recognition as far as the trade in drugs in general is concerned. As to the legal validity of the book in and for pharmacy in particular—making, for instance, the presence of a copy of the newest edition and all supplements obligatory in each pharmacy—it is left to the legislation of each of the individual states of the union to decree it.

A study entitled " Pharmacopoeias as witnesses of world history ", dealing with the most important European countries, appeared in 1946 in the *Journal of the History of Medicine and Allied Sciences.*[9] Table I lists the first editions of national pharmacopoeias.

8. Compilation of Pharmacopoeias

Until the late 18th century it was mostly physicians who undertook, or at least supervised, the compilation of the official pharmacopoeias. The most remarkable exception, according to Folch y Andreu,[2] was offered in Spain, where the early local pharmacopoeias (Barcelona, Saragossa, and Valencia as well as the second edition of the official standard for Madrid issued in 1762) were prepared by the respective pharmaceutical associations and submitted to the medical associations for their approval.

This medical monopoly naturally did not mean that pharmacists were not asked for their advice and co-operation. As a matter of fact, this has been the case from the very beginning of the appearance of official pharmacopoeias. Since the Florentine *Nuovo Receptario* (1498) was prepared at the instigation of the guild of " spetiali ", it can be assumed that the members of the guild made suggestions which were given consideration. Of the second edition of this standard, the *El Ricettario* of 1550, we know that its preparation was supervised by a committee consisting of two physicians and two pharmacists.

To take Great Britain, and the *Pharmacopoeia Londinensis* in particular, as an example, the preface of the very first edition (1618) mentions the fact that " some of the most experienced apothecaries " were asked for their advice on matters of a more or less technical nature. In 1785, the College of Physicians of London officially invited the Society of Apothecaries to co-operate in the revising of the London pharmacopoeia (which appeared in 1788) in order " that it should be as correct and free from errors as possible, and that all the formulae should be such as can be easily prepared by the gentlemen of your Society ".

After the replacement in 1864 of the London, Edinburgh, and Dublin pharmacopoeias by one book, the *British Pharmacopoeia*, representatives of the Pharmaceutical Society of Great Britain were given a prominent and well defined place in the Pharmacopoeia Committee of the General Medical Council, and in 1926 a permanent Pharmacopoeia Commission was created in which pharmacy and medicine have equal representation.

In France the medical faculties and societies, which, in the 17th and 18th centuries, issued the local pharmacopoeias which preceded the national book of 1818, guarded somewhat jealously the monopoly of directing the compilation of these standards. But, like their brethren in other countries, they took advantage of the technical knowledge of the pharmacists. This is evidenced, for instance, in the preface to the *Codex medicamentarius*

TABLE I. FIRST EDITIONS OF NATIONAL PHARMACOPOEIAS *

Date	Title	Remarks
1573	*Ricettario Fiorentino*	Made official for the Grand Duchy of Tuscany, the previous editions being official only for the City-Republic of Florence. It was followed by similar books for other Italian states.
1618	*Pharmacopoeia Londinensis*	Made official for the " Realme of England or the dominions thereof "
1698	*Dispensatorium Brandenburgicum*	The first official pharmacopoeia for a large political unit on German soil. It was followed in the 18th and 19th centuries by similar books for other German states.
1699	*Pharmacopoeia Edinburgensis*	Made official for Scotland
1729	*Dispensatorium Pharmaceuticum Austriaco-Viennense*	
1774	*Pharmacopoea Austriaco-Provincialis*	
1812	*Pharmacopoea Austriaca*	
1772	*Pharmacopoea Danica*	
1775	*Pharmacopoea Svecica*	
1778	*Pharmacopoea Rossica*	The use of other pharmacopoeias by the Russian pharmacists was explicitly permitted.
1866	*Rossiiskaya Pharmacopeya*	
1794	*Pharmacopoeia geral para o reino, e dominios de Portugal*	
1876	*Pharmacopea Portuguêza*	
1794	*Pharmacopoea Hispana*	
1805	*Pharmacopoea Batava*	For the Batavian Republic existing from 1795 to 1806 and comprising the whole of the " Low Countries "
1807	*Pharmacopoeia Collegii Medicorum Regis et Reginae in Hibernia*	The so-called " Dublin Pharmacopoeia "
1817	*Pharmacopoeia Regni Poloniae*	In 1937, a new edition was published for the revived country
1818	*Codex medicamentarius sive pharmacopoea Gallica*	
1819	*Pharmacopoea Fennica*	
1820	*Pharmacopoeia of the United States of America*	
1823	*Pharmacopoea Belgica*	For the Kingdom of the Netherlands existing from 1815 to 1831 and comprising the whole of the " Low Countries "; a translation into Dutch appeared in 1826 under the title *Nederlandsche Apotheek*.
1837	*Pharmacopoea Graeca*	
1851	*Pharmacopoea Neerlandica*	For the present Holland

*** The term " national pharmacopoeias " refers to books of pharmaceutical standards made official for political units other than city-republics or municipalities.**

TABLE I. FIRST EDITIONS OF NATIONAL PHARMACOPOEIAS * (continued)

Date	Title	Remarks
1854	*Pharmacopoea Belgica Nova*	For the present Belgium
1854	*Pharmacopoea Norvegica*	
1862	*Pharmacopoea Româna*	For Roumania
1864	*British Pharmacopoeia*	
1865	*Pharmacopoea Helvetica*	First edition official for all but three cantons ; third edition (1893) official for all cantons except Glarus ; fourth edition (1907) official for the whole of Switzerland
1871	*Pharmacopoea Hungarica*	
1872	*Pharmacopoea Germanica*	
1874	*Nueva Farmacopea Mexicana*	
1881	*Pharmacopoea Serbica*	
1882	*Pharmacopoea Chilena*	
1886	*Pharmacopoea Japonica*	
1888	*Pharmacopoea Croatica-Slavonica*	
1892	*Farmacopea ufficiale del regno d'Italia*	
1898	*Farmacopea Venezolana*	
1898	*Farmacopea Nacional Argentina*	
1926	*Pharmacopeia dos Estados Unidos do Brasil*	
1933	*Pharmacopoea Jugoslavia*	
1937	*Pharmacopoea Estonia*	
1940	*Türk Kodeksi*	
1940	*Pharmacopoea Latviensis*	
1942	*Pharmacopoea Paraguaya*	
1947	*Pharmacopoea Bohemoslovenica*	

* The term " national pharmacopoeias " refers to books of pharmaceutical standards made official for political units other than city-republics or municipalities.

seu pharmacopoea Parisiensis of 1758, which, in English translation (from the Latin original), reads as follows :

" . . . In order not to neglect anything, the [medical] faculty has invited to participate in the work the Parisian pharmacists considered as most experienced in dealing with medicines who, with all possible eagerness, have examined faithfully the suggested formulas for [compounded] drugs as to the most serviceable way of preparation and, after having diligently repeated the operations as often as has seemed necessary, have led the whole thing to a happy and convenient success."

The law of " Germinal 21 of the year XI " (11 April 1803), which furnished the legal basis for the French national pharmacopoeia of 1818

FIG. 4. TITLE-PAGE OF THE " CODEX MEDICAMENTARIUS SIVE PHARMACOPOEA GALLICA ", 1818

CODEX

MEDICAMENTARIUS

SIVE

PHARMACOPOEA GALLICA

JUSSU REGIS OPTIMI

ET EX MANDATO SUMMI RERUM INTERNARUM REGNI ADMINISTRI

EDITUS

A FACULTATE MEDICA PARISIENSI

ANNO 1818.

—the *Codex medicamentarius sive pharmacopoea Gallica* (see fig. 4)—provided for a committee composed of professors of the Parisian medical faculty and of professors of the Parisian school of pharmacy. Hence, from the start, there was a healthy equilibrium established between medicine and pharmacy in the preparation of, and responsibility for, the French national pharmaceutical standard.

Following the development of a drug therapy based on the application of the fundamental sciences — especially of chemistry, physics, and biology — the preparation of pharmacopoeias all over the world has developed into a teamwork in which medicine and pharmacy have become partners ; the responsibility for the scientific-technical part rests with pharmacy while medicine remains responsible for the admission and omission of drugs, and for all matters calling for medical judgement, such as pharmacodynamics, posology, and diagnostic tests. Since the USA represents the only greater political unit in which the way of preparing a legally recognized pharmaceutical standard has not been dictated by governmental rule, it offers the best example of the gradual shift. From the second (Philadelphian) edition of the USP (1831) on, the pharmacist's part in the revision work increased steadily in importance as well as in volume until, in 1878, organized American medicine left the responsibility for the continuation of the USP to the American Pharmaceutical Association. In 1900, this responsibility was given a solid basis in a permanent organization founded by the American Pharmaceutical Association and called the United States Pharmacopoeial Convention. Given the full co-operation of organized American medicine and all groups within the sciences, government, and industry interested in up-to-date drug therapy, the United States Pharmacopoeial Convention has succeeded in approaching the highest ideals of co-operative endeavour in this field.

There appeared in 1926 in the *Chemist and Druggist* [1] an article entitled " The process of compiling pharmacopoeias in twenty-three countries ", which gave for that time, and still gives, a comparatively adequate picture. The countries under consideration were : Argentina, Austria, Belgium, Croatia-Slavonia, Denmark, Finland, France, Germany, Greece, Hungary, Italy, Japan, the Netherlands, Norway, Portugal, Roumania, Russia, Serbia, Spain, Sweden, Switzerland, the United States of America, and Venezuela. The following is quoted from the summary given in the article :

" Of these twenty-three pharmacopoeias, two are due to private initiative — United States and Venezuela — that is to say, no Government department was responsible for their compilation or publication, although they are recognized as the official standards. In all the other twenty-one countries the enforcement of the national pharmacopoeia pertains to the State, . . . and the same applies to the appointment of the members of the several pharmacopoeia commissions . . . Only Spain departs somewhat from this general rule, inasmuch as a private body—the Royal Academy of Medicine—is entrusted with the preparation of the pharmacopoeia, but the draft is subject to ministerial as well as Royal approval. Leaving out of consideration Serbia, where the pharma-

copoeia of 1908 was a bureaucratic production, the total number of effective members of the pharmacopoeia commissions of twenty-two countries, responsible for the editions actually in force, aggregated 352, of which the medical profession claimed 129 (professors and medical practitioners), while teachers of pharmacy and Government pharmacists numbered 79, and pharmacists in business totalled 88. In ten countries the co-operation of all those interested in this work was sought, and in some extensive use was made of the services of individual pharmacists and manufacturers ; . . . "

The main difference between the situation in 1926 and today seems to be the fact that now it is not in the minority but in the majority of the countries, if not even in all of them, that " the co-operation of all those interested in this work " and especially the " services " (scientific and technical) of manufacturers are sought.

9. The Way to International Unification

Pharmacy, like medicine, being an organized human attempt to meet elementary human needs not restricted to nationality, creed, or environment, is by its very nature international. Hence there has been, from the very beginning of communication between the peoples of the world, a great eagerness in just these fields to learn from each other and to adopt whatever seemed to be worthwhile. This fact explains why medical and pharmaceutical books belonged to the first (and most numerous) products of the printing-press after the invention of movable type, and why formularies like the *Dispensatorium... authore Valerio Cordo* were reprinted and distributed for a whole century all over the world. Does that mean that the scientists and practitioners in the respective countries were willing simply to accept as a whole what was offered to them in the books of their foreign colleagues, and recognized these books as their legal codes ? The available evidence shows that it does not. When the Antwerp authorities made the dispensatory of Cordus the City's official pharmacopoeia, it was the version of the Antwerp apothecary, Peter Coudenberg, not the original work, which was adopted.

Wherever we know of the adoption of the official pharmaceutical standard by another territory, the motivating factor was to a very great extent of a political nature. The temporary use of the Swedish and Danish pharmacopoeias in some German areas resulted from the political situation of the period concerned, which had made these territories parts of Sweden or Denmark. When in the second half of the 18th century one of the British official standards, the Edinburgh pharmacopoeia, was in use in Hanover, it was undoubtedly at least influenced by the fact that the House of Hanover had become the Royal House in Great Britain and the Elector (" Kurfürst ") of Hanover was simultaneously King of England, Scotland, and Ireland. Even so, it was a German reprint of the official Scottish standard with a voluminous appendix by the Hanoverian professor Baldinger which was used on German soil, and it was this appendix which added

to the book a particular flavour and usefulness for the pharmacists in the area concerned.

The need for unification, or at least for the avoidance of the dangers and inconveniences resulting from the lack of uniform standards, led comparatively early to encyclopaedic reference works, of which the most important and most widely used were the *Pharmacopoea Medico-Physica* (1641) of the German physician, J. C. Schröder, the *Corpus Pharmaceutico-Chymico-Medicum Universale* (1697) of his colleague, J. H. Jungken, and the French pharmacist Nicolas Lemery's *Pharmacopée Universelle, contenant toutes les compositions de pharmacie qui sont en usage en médecine, avec un lexicon pharmaceutique* (1697). All these books, offering surveys rather than definite formulas and rules to be followed, were naturally never given legal force anywhere.

It was the idea of an international pharmacopoeia to be agreed upon by representatives of pharmacy everywhere, and recognized by the authorities in the respective countries, that furnished the primary incentive to the establishment of the International Pharmaceutical Congresses, the first of which was held in Brunswick in 1865. Through these Congresses (and, since 1912, through the daughter organization—the Fédération Internationale Pharmaceutique) this idea has been kept alive and has become the basis of agreements in the direction of a more or less fargoing unification of the contents of the national standards.

A definite step in this direction was taken when, at the International Pharmaceutical Congress held at Chicago in 1893, the discussion on the international pharmacopoeia was limited to the problem of the unification of potent medicines. The following passages are quoted from Dr. C. H. Hampshire's introduction to the interim report of the Technical Commission of Pharmacopoeial Experts of the League of Nations Health Organization.[3]

" In 1902, a Conference called by the various Governments was held [at Brussels] and the First International Agreement for the Unification of the Formulae of Potent Drugs was drawn up. This Agreement was ratified in 1906, and considerably influenced the national Pharmacopoeias subsequently published.

" A Second International Agreement was produced at a Conference held at Brussels in 1925, and was completed in 1929. . . .

" In response to the frequently expressed desire of pharmacopoeial workers in various countries to the effect that this Agreement should be revised and extended to cover a limited International Pharmacopoeia, the Health Organization of the League of Nations set up, in 1937, a Technical Commission of Pharmacopoeial Experts. This Commission, which was formed after negotiation with the Belgian Government and in liaison with the International Pharmaceutical Federation, . . . was charged with the duty of preparing a draft of a new International Agreement to be submitted to the various Governments through the Belgian Government.

" The first meeting was held at Geneva in May 1938, . . .

" The members agreed that the best method of achieving the objects desired would be to prepare a draft Agreement including ; *(a)* General Rules relating to Nomenclature, Strengths of Galenicals and other medical and pharmaceutical matters, *(b)* a

Table of Usual and Maximal Doses, *(c)* monographs on important drugs which are common to a number of the national Pharmacopoeias."

A second meeting of the pharmacopoeial experts was held in Geneva in 1939 ; quoting again from Dr. Hampshire's introduction to the interim report : [3]

"Work on the drafting of monographs and on certain of the problems which need experimental investigation for their solution has been continued by the British and American members, so far as the difficulties of war-time have permitted."

At the third session of the Interim Commission of the World Health Organization, held in Geneva in April 1947, it was decided to set up an expert committee on the unification of pharmacopoeias to continue the work of the Technical Commission of Pharmacopoeial Experts of the Health Organization of the League of Nations.[10] In 1948, the First World Health Assembly approved the establishment of a pharmaceutical section within the WHO Secretariat as well as of the Expert Committee on the Unification of Pharmacopoeias, and also resolved that an international pharmacopoeia should be published in English, French, and Spanish.[11] The seven members appointed to the committee—Professor H. Baggesgaard Rasmussen, Professor I. R. Fahmy, Professor R. Hazard, Professor D. van Os, Professor H. Flück, Dr. C. H. Hampshire (*Chairman*), and Dr. E. Fullerton Cook—were from Denmark, Egypt, France, the Netherlands, Switzerland, the United Kingdom, and the United States of America respectively.

Under the auspices of the World Health Organization, the experts have, since 1947, held eight sessions, at which an enormous amount of work has been carried out. At the fifth session,[14] which took place in Geneva from 26 September to 5 October 1949, the almost completed preparations for an international pharmacopoeia were surveyed and approved. The first fruits of the committee's untiring labour—based not only on knowledge but also on a strong belief in, and enthusiasm for, the goal to be achieved—will be published in October 1951, and will be presented to the Member States of WHO and the national pharmacopoeia commissions, in particular, and to the world at large in the first volume of a book entitled *Pharmacopoea Internationalis* (Ph. I.) (see fig. 5 and 6).

The last three sessions [13, 15, 16] of the committee [b] have been devoted mainly to the consideration of the material to be included in the second volume of the Ph.I. which, it is hoped, will appear shortly after volume I. A number of monographs for this volume—including some on certain of the newer drugs, such as antibiotics—have already been approved by the committee.

Until now, all sessions except the sixth have been held in Geneva—the headquarters of WHO. The sixth session was held in New York in April 1950, and was attended by Dr. D. Mayoral Pardo, Professor of Pharmaco-

[b] Between the seventh and eighth (last) sessions, the name of the expert committee was changed to : "Expert Committee on the International Pharmacopoeia". — ED.

FIG. 5. TITLE-PAGE OF THE "PHARMACOPOEA INTERNATIONALIS", VOLUME I

BULLETIN OF THE WORLD HEALTH ORGANIZATION
SUPPLEMENT 2

PHARMACOPOEA INTERNATIONALIS

EDITIO PRIMA

Volumen I

INTERNATIONAL PHARMACOPOEIA

FIRST EDITION

Volume I

WORLD HEALTH ORGANIZATION
PALAIS DES NATIONS
GENEVA
1951

FIG. 6. A PAGE FROM VOLUME I OF THE " PHARMACOPOEA INTERNATIONALIS "

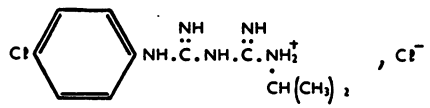
ethanol (50 per cent.) R ; melting-range of the crystals, after drying at 100°, 236° to 240°.

Melting-range. Of the higher-melting form, 127° to 131° ; melting-temperature of the lower-melting form, about 121°.

Specific rotation. Determined at 20° in a 2.0 per cent. w/v solution of the substance, dried over sulfuric acid R for four hours, in dioxan R, +172° to +182°.

Storage. Progesterone should be kept in a tightly-closed container, protected from light.

PROGUANILI HYDROCHLORIDUM



$C_{11}H_{16}N_5Cl$, HCl Mol. Wt. 290.2

Proguanil Hydrochloride is N^1-4-chlorophenyl-N^5-*iso*-propyldiguanide hydrochloride. It contains not less than 98.0 per cent. of $C_{11}H_{16}N_5Cl$, HCl.

Description. Colourless, fine crystals, or a white, crystalline powder ; odourless ; taste, bitter.

Solubility. Soluble in about 80 parts of water ; more soluble in hot water ; soluble in ethanol (95 per cent.) R ; practically insoluble in chloroform R and in ether R.

Identification

A. To 10 ml of a saturated solution in water add 5 drops of iodine TS ; an orange-brown precipitate is produced.

B. To 10 ml of a saturated solution in water add 5 drops of potassium ferrocyanide TS, previously rendered slightly acid to litmus TS by the addition of dilute nitric acid R ; a white precipitate is produced which dissolves on the addition of a few drops of dilute nitric acid R.

C. To 10 ml of a saturated solution in water add 5 drops of potassium dichromate TS ; a yellow precipitate is produced which dissolves on the addition of a few drops of dilute nitric acid R.

logy and Therapeutics, National University of Mexico, and Dr. C. A. Morrell, Director, Food and Drugs Division, Department of National Health and Welfare, Ottawa, Canada, as well as by the seven experts originally appointed to the committee. Dr. C. Heymans—Professor of Pharmacology and Toxicology, University of Ghent, Belgium—was present at the seventh and eighth sessions, and Dr. L. C. Miller—Director of Revision of the Pharmacopeia of the United States of America—attended the eighth session.

It should be stressed that the use of the term " pharmacopoeia " in the title of the *Pharmacopoea Internationalis* (Ph.I.) does not imply that the book is intended " to be a legal pharmacopoeia in any country unless adopted by the pharmacopoeial authority of that country ". Some of the reasons—mentioned earlier in this paper (see section 4)—for the establishment of separate official pharmacopoeias are still valid. They will certainly influence the decisions of the national pharmacopoeia commissions with regard to the adoption of greater or lesser parts of the suggestions put forward in the *Pharmacopoea Internationalis.* Nevertheless, the Third World Health Assembly, in its resolution approving the publication of the Ph.I.,[12] recommended " the eventual inclusion of its provisions in the national pharmacopoeias after the adoption of the said provisions by the authorities responsible for the pharmacopoeias ".

In addition to the immensely important work on the preparation of the Ph.I., the pharmacopoeial experts have been studying the question of the unification of non-proprietary names for drugs. A Subcommittee on Non-Proprietary Names has been set up and has held two sessions,[c] at which several international non-proprietary names have been established. It is hoped that the work of this subcommittee will go far towards ending the confusion which has arisen in the past from the multiplicity of non-proprietary names for the same drug.

The extent to which the specific goal of an adequate unification of pharmacopoeias is achieved, and the speed at which it is attained, will largely depend on, as well as testify to, the extent and speed of the attainment of mankind's general goal—an adequate unification of the world.

SUMMARY

The author describes the origin, nature, and historical development of pharmacopoeias, concluding with a brief account of the international activities which have culminated in the publication by the World

RÉSUMÉ

L'auteur décrit l'origine, la nature et le développement historique des pharmacopées, puis expose brièvement, à la fin de son étude, les travaux d'ordre international qui trouvèrent leur couronnement, au

[c] The reports of the two sessions of the Subcommittee on Non-Proprietary Names are included in the reports on the seventh and eighth sessions of the main committee. [12, 16] — ED.

Health Organization in October 1951 of the first international pharmacopoeia.

Although the term pharmacopoeia had been used much earlier, it was not until 1573 that it was first applied to an official pharmaceutical standard, the *Pharmacopoeia Augustana*, which was legally valid in the city of Augsburg. Official pharmacopoeias had earlier been established elsewhere under different names. In the same year, the *Ricettario Fiorentino* was made official for the Grand Duchy of Tuscany, thus becoming the first national pharmacopoeia. The *Pharmacopoeia Londinensis*, published in 1618, was the second, and the author includes a table showing the years of publication of the first editions of these and forty-three subsequent national pharmacopoeias. Not only the growth of medical science and chemistry, and the rise of the chemical industry, but also important political and social developments are reflected in the changing character of national pharmacopoeias.

The compilation of the modern pharmacopoeia calls for the co-operation of many different kinds of experts. The idea of extending such co-operation across national frontiers with a view to obtaining a universally recognized standard of drugs was the primary incentive for holding in 1865 the first International Pharmaceutical Congress. In 1902 the first International Agreement for the Unification of the Formulae of Potent Drugs was drawn up, and a second similar Agreement was completed in 1929. In 1937 the Health Organization of the League of Nations appointed a Technical Commission of Pharmacopoeial Experts. The task of this commission was to prepare a draft Agreement including general rules, tables of usual and maximal doses, and monographs on drugs common to a number of national pharmacopoeias. After the war, the

mois d'octobre 1951, dans la publication, par l'Organisation Mondiale de la Santé, de la première Pharmacopée internationale.

Bien que l'emploi du mot « pharmacopée » remonte à une époque beaucoup plus ancienne, c'est en 1573 seulement que ce terme fut appliqué pour la première fois à un recueil de normes pharmaceutiques, la *Pharmacopoeia Augustana*, qui reçut la sanction légale dans la ville d'Augsbourg. Précédemment, diverses pharmacopées officielles avaient été établies ailleurs sous des appellations variées. Au cours de cette même année 1573, le *Ricettario Fiorentino* était reconnu officiellement dans le Grand-Duché de Toscane : cet ouvrage devenait ainsi la première pharmacopée nationale. La deuxième fut la *Pharmacopoeia Londinensis*, qui parut en 1618.

La présente étude est accompagnée d'un tableau qui indique les dates de publication des premières éditions de ces deux ouvrages, ainsi que de quarante-trois pharmacopées qui parurent ultérieurement. L'évolution des pharmacopées nationales est d'autant plus intéressante à étudier qu'elle reflète non seulement les progrès de la médecine et de la chimie et le développement des industries chimiques, mais encore certains des grands événements qui ont marqué la transformation des conditions politiques et sociales.

Toute pharmacopée moderne est le fruit des efforts conjugués d'un grand nombre de spécialistes très divers. Etendre cette collaboration à l'échelle internationale en vue de mettre au point une série de normes universellement reconnues pour les produits pharmaceutiques, telle fut la principale raison qui motiva la convocation, en 1865, du premier Congrès pharmaceutique international. La première Convention internationale pour l'unification de la formule des médicaments héroïques fut élaborée en 1902 ; elle fut suivie d'un deuxième Arrangement du même genre en 1929. En 1937, l'Organisation d'Hygiène de la Société des Nations désigna une Commission technique d'experts en Pharmacopée. Cette commission avait pour mandat d'établir un projet d'accord qui contiendrait des règles générales, des tableaux des doses usuelles

Interim Commission of the World Health Organization established an Expert Committee on the Unification of Pharmacopoeias to continue the work of the League's Technical Commission. The task of this committee was to prepare the text of the first international pharmacopoeia for publication in English, French, and Spanish.

et des doses maximums, ainsi que des monographies sur divers médicaments dont la description se retrouvait dans un certain nombre de pharmacopées nationales. Après la guerre, le travail de cette commission fut repris par un Comité d'experts pour l'Unification des Pharmacopées, créé par la Commission Intérimaire de l'Organisation Mondiale de la Santé. C'est à ce comité d'experts qu'incomba la tâche d'élaborer la première Pharmacopée internationale, dont le texte sera publié en français, en anglais et en espagnol.

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