

Flint (Gas. M.)

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REPORT

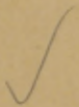
ON THE

PHARMACOPŒIAS

OF

ALL NATIONS.

BY



DR. JAMES M. FLINT, U. S. N.



WASHINGTON:
GOVERNMENT PRINTING OFFICE.
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A Pharmacopœia may be defined to be a book containing directions for the identification and preparation of medicines, published by authority. Under this definition the numerous Dispensatories, Formulæ, and other treatises on *materia medica* which have been produced by authors in their private capacity are excluded, and the term is limited to those works on the subject which have been prepared under the direction, and issued with the sanction, of a government or of a medical or pharmaceutical society.

The primary object of a pharmacopœia is to establish uniformity in the nomenclature of drugs and in the character and strength of preparations.

The necessity for an authoritative designation of the compounds of mercury with chlorine, for example, is obvious to all who have knowledge of their properties, and it is equally evident that there should be some standard established for the composition and medicinal strength of all preparations which are prescribed by name. So important does this appear that in most countries the directions of their pharmacopœias have been made, by legislative enactment, imperative on all who prepare medicines or offer them for sale.

A pharmacopœia is supposed to present: 1st. A complete list of those substances of the *materia medica* whose value as medicinal agents has been established by a large experience, giving such information as to their sources and physical properties as shall be sufficient for their identification; and, 2d. Those preparations and combinations which, from the frequency or adaptability of their use, demand that authoritative titles be given them and such methods established as will insure uniformity of strength and composition in all cases. It is, or should be, conservative, admitting to its lists from time to time only such new remedies as have proved their claim to official recognition by no limited experience, and dropping those only which have fallen into disuse, having been supplanted by others of the same therapeutical class, more efficient or manageable.

To the pharmacopœia, then, we look for an enumeration of those substances derived from the animal, vegetable, and mineral kingdoms which are in general use by physicians in the treatment of disease.

In the preparation of a collection for the National Museum which should illustrate that section of anthropological study which relates to the medicines used by man, it became of the first importance to bring together the pharmacopœias of the world, in order to learn what are the principal medicinal substances employed among civilized people. To this end a circular letter was sent out, through the courtesy of the State and Navy Departments, to the United States ministers and consuls-general resident abroad and to medical officers of the Navy serving on foreign stations, asking information relative to the pharmacopœias in use in each country.

Replies have been received, embracing reports from the principal countries of the civilized world, and the pharmacopœias indicated have nearly all been added to the library of the Smithsonian Institution. From a review of these the following observations have been drawn:

So far as has been learned, there are now in use nineteen pharmacopœias, which from their official character are properly entitled to the name, besides two or three in Italy whose exact status has not yet been determined.

Enumerated by the countries in which they are published and for whose use they have been compiled, they are as follows: United States, Mexican, British, Indian, German, Austrian, Hungarian, Swiss, Tessiner, Russian, Danish, Swedish, Norwegian, Dutch, Belgian, French, Spanish, Portuguese, and Greek. Italy has no national pharmacopœia, but according to information, gathered with some difficulty by Dr. Obenaus, of Naples, different authorities are followed in the various states of the country. Sardinia has its pharmacopœia, dating back to 1853; Piacenza, Parma, and Modena have a pharmacopœia in common, published in 1839. In the Church States, as well as Tuscany and Lucca, is used an unofficial compilation, entitled "Orosi, Farmacologia technica practica, ovvero Farmacologia Italiana." Lombardy and Venice retain the Austrian pharmacopœia, and Naples has its "Ricettario Farmaceutico Napolitano," published in 1859. It is said that several years ago a commission was appointed for the purpose of preparing a national pharmacopœia for Italy, but no information is at hand regarding the progress of this work.

In Switzerland the Pharmacopœia Helvetica is not universally accepted, the French Codex being used in Geneva, and the canton of Tessin having its own Tessiner Pharmacopœia. Three countries—Japan, the Argentine Republic, and Chili—have each a pharmacopœia in preparation.

Of the above mentioned, fifteen were issued under authority of government, and their directions have the force of law in their respective countries. The other four, viz, United States, Mexican, Swiss, and Tessiner, were prepared by commissions appointed by medical or pharmaceutical societies, and have no other authority in their support than that of the societies from which they emanate.

With the exception of the Swiss and Italian pharmacopœias, they may all be said to be national in character, and as such accepted throughout their respective countries.

The total number has considerably diminished within the last few years, by reason of the union, under the title of British Pharmacopœia, of the three formerly distinct publications of the kind for England, Scotland, and Ireland, respectively, and especially through the consolidation into one Pharmacopœia Germanica of some fourteen or more until quite recently in use in the different German states and cities.

Facilities are not yet at hand for a general comparison of the older with more recent editions of the pharmacopœias, but from such as it has been possible to make it is evident that there is a gradual and constant tendency towards simplification of medicinal formulæ and toward agreement in the materia medica lists of one with another.

The polypharmacy so general in practice years ago has been gradually growing into disrepute, as unnecessary, confusing, and unscientific, and the official formulæ reflect this sentiment in their greater simplicity. To be sure, some still retain such preparations as "theriaca," with its 50 to 70 ingredients, but in the majority of instances this terrific host, *on paper*, is now presented to therapeutics, marshaled as a small squad

of 7 to 12 constituents only, under the same name, or that of "confection of opium."

The recent rapid increase in periodical medical literature, and the international exchange of medical journals, by means of which the experience of the profession all over the world is made known, has established the therapeutical position of the great majority of the articles of the materia medica upon a moderately firm basis. No remedy, new or old, of real or fancied importance, can long remain the exclusive property of any one country or section. So it will be found that in all these pharmacopœias there is approximate uniformity in the materia medica lists, and even unanimity as regards the more important drugs. A few indigenous plants, or other drugs of local celebrity which have been handed down from past generations and are retained out of respect for age, continue to appear in each in order to satisfy a public nonprofessional demand rather than to meet the wants of physicians. The French Codex presents the largest list of special drugs, and is cumbersomely voluminous in this respect, as well as in the number of its preparations. This peculiarity comes, doubtless, by reason of the stringent laws which govern the sale of drugs in France, as will appear later.

In the official preparations, also, there is a growing uniformity in number, constituents, and strength, though much yet remains to be accomplished before that correspondence so much to be desired shall be reached. Nearly all the continental pharmacopœias declare their efforts to make the important preparations correspond, in strength at least, with those of similar name or purpose in use in the neighboring countries. But a change in the strength of an established and much used preparation involves so many considerations of public safety, as well as professional convenience, that the necessity for conformity will have to be much more strongly presented than now before it will be possible to obtain general consent to radical changes.

The standard tinctures, extracts, and alkaloids are everywhere recognized, and special formulæ are gradually being dropped as the notion of specifics is wearing out, leaving the combination of medicines to the direction of the prescriber, who may thereby be enabled better to meet the particular indications of each case and to exercise his own skill or fancy in the combination of medicines. Perhaps the strongest reason for the reduction in the number of special formulæ may be found in the great progress of pharmaceutical chemistry, which has placed in the hands of the pharmacist medicinal substances in such a form that they can be combined at the moment, instead of requiring the tedious processes formerly necessary, when only the crude drug was available from which to prepare his compounds. These products of the laboratory are the most prominent and valuable additions to the recent lists of medicines, and every new pharmacopœia is prompt to recognize them.

With few exceptions the new pharmacopœias are published in the vernacular of the country in which they are intended for use. The sufficient reason for this seems to be that while Latin is recognized as the language of science, and while in most countries the graduates in pharmacy are required to have a certain familiarity with the language, yet it is evident that the explanations and directions of the pharmacopœia would be much more clearly understood by the great majority of pharmacists when written in their own tongue than if given in Latin. The only apparent objection is the difficulty attending its use or study in other countries or by other people than that for which it was prepared. In all cases the Latin nomenclature is recognized as the scientific one, and where the vernacular names are used prominently as titles to designate the articles the Latin synonyms follow. From this general

statement the French Codex should be excepted, as it frequently fails to give the Latin synonym for the vernacular title. The alphabetical arrangement of subjects is followed in all the pharmacopœias except the French, Spanish, and Greek, these latter still holding to the division into *materia medica* and pharmaceutical preparations. In the Latin terminology there are many disagreements, especially as relates to chemical compounds. The majority avoid the use of the genitive form for the basic substance of salts. Thus, instead of *ferri sulphas*, *U. S. P.*, *ferrum sulfuricum* or *sulphas ferrosus* are the terms generally used, the latter form corresponding with the present mode of chemical expression in English. Potassium and sodium are generally designated *kali* or *kalium* and *natrium*, respectively. These are minor differences not likely to lead to error. Somewhat more confusing is the use of the words *chloratum*, *chloretum*, and *chloruretum* as synonymous with *chloridum* of the *U. S. P.*, and *chloricum* instead of *chloras*. Thus, *ammonium chloratum*, *Ph. Ger.*, and *chloretum ammonicum*, *Ph. Dan.*, are equivalent to *ammonii chloridum*, *U. S. P.*; and *kali chloricum*, *Ph. Ger.*, to *potassii chloras*, *U. S. P.*

The following lists illustrate the official Latin synonymy of these two substances, taken from seventeen pharmacopœias:

Ammonium Chloride—

Ammonii chloridum, *U. S., Br., Ind.*

Ammonium chloraum, *Ger., Aust., Hung., Russ., Swiss.*

Cloretum ammonicum, *Dan., Swed., Nor., Dutch, Port.*

Chlorhydras ammonia, *Fr.*

Chlorurum ammonicum, *Span.*

Ammonium muriaticum, *Gr.*

Chlorhydras ammonicus, *Sard.*

Potassium Chlorate—

Potassii chloras, *U. S.*

Potassæ chloras, *Br., Ind.*

Kali chloricum, *Ger., Russ.*

Kalium chloricum, *Aust., Hung., Swiss.*

Chloras kalicus, *Dan., Swed., Nor., Dutch, Port.*

Chloras potassicus, *Fr., Span., Sard.*

Kali muriaticum oxygenatum, *Gr.*

In the nomenclature of vegetable products adopted by most of the pharmacopœias, the name of the part of the plant used is incorporated in the name of the drug, thus: *radix gentianæ*, *Ph. Ger.*, instead of simply *gentiana*, as in the *U. S. P.* When given as above, with the part or organ of the plant as the first name, it is an impediment to ready reference, especially where accurate but not well known distinctions are drawn, as between roots and rhizomes. But this objection is sometimes avoided by reversing the order, and placing the name of the plant first, as *gentianæ radix*, *Br. Ph.*

The ancient custom of designating weights by pounds, ounces, drams, and grains, or the equivalent words in other languages, referring generally to the troy or avoirdupois scales, is rapidly falling into disuse in every branch of science and art. With the exception of the British pharmacopœia, the pharmacopœia of India, and in some few instances the pharmacopœia of Greece, all express quantities either by metric weight, or in parts by weight; the latter method being a compromise which allows the use of any scale but which leads directly to the decimal method of calculation.

There seems to be no excuse for further adherence to the old system of troy weights for pharmaceutical purposes. It would be an easy

day's lesson for a school boy to thoroughly master all the facts and figures necessary for the ready reduction of quantities expressed in one form to the equivalent expression in the other; and the use of the metric scale is dictated not only by convenience in calculation, but by the fact of its general adoption by civilized nations the world over.

For the same reasons, the centigrade scale for the expression of temperatures is certain to supplant all others. The British and Indian pharmacopœias alone adhere to the scale of Fahrenheit.

The question of chemical formulæ is avoided in the majority of the pharmacopœias by leaving them out entirely. The Hungarian alone uses the new system of notation exclusively; the Norwegian and French give the old formulæ only, while the United States, British, Indian, and Portuguese present both.

The greatest stumbling block in the way of harmony among the pharmacopœias, at least so far as regards medicinal strength of preparations, seems to be the constitution of the tinctures. No clearly defined system of formulæ has yet been introduced and followed without exceptions in their manufacture; and as the strength of a tincture, relative to the drug from which prepared, can never be safely inferred from the composition of other tinctures in the same pharmacopœia, much less would it be prudent to act upon the supposition that tinctures of the same name in different pharmacopœias would prove to be of the same strength. The Portuguese method comes the nearest to a systematic treatment of the subject. It is substantially as follows: Tinctures of fresh plants are all prepared with equal parts of the drug and alcoholic menstruum. The tinctures of alkaloids and their salts are solutions of 1 part of the alkaloid in 99 parts of menstruum. Etherial tinctures are all in the proportion of 1 part in 10, and the simple tinctures in general, with unfortunately a few exceptions, are prepared by macerating 1 part of the drug in 5 parts of alcohol of the given strength. The old method of preparation of the tinctures by maceration, expression, and filtration is the one usually followed, the process of percolation being directed for general use only by the United States, British, and Indian pharmacopœias, occasionally permitted by the French Codex, and very rarely mentioned in one or two other pharmacopœias.

The United States and Hungarian direct that the resulting tinctures be made up to a definite *weight* by the addition of a sufficient quantity of the menstruum at the end of the process; the British and Indian make up the product to a definite *measure*; the Danish restores, during the process of maceration or digestion, the weight of alcohol lost by evaporation. The German, Russian, and Helvetic distinctly prescribe that the loss of alcohol during the process shall not be replaced. Other pharmacopœias leave it to be inferred, since they give no directions, that the loss is not to be made up.

The extracts are of three kinds: alcoholic extracts, aqueous extracts, and inspissated juices. Being simply concentrated tinctures, infusions, or juices, there can be little difference in these products from the same drug as found in different countries, except as relates to the degree of concentration. In this particular the same nominal extract may be found dry, of pillular consistence, or soft, according to the pharmacopœia under the directions of which it was prepared. Of more serious import is the fact of the occasional presentation, under the same name, of extracts greatly varying in strength, having been prepared from different parts of the same plant, or by a different method; thus, *extractum aconiti* signifies extract of aconite *root* in the United States, Austrian, Hungarian, and Russian pharmacopœias; extract of aconite *leaves* in the Danish and Portuguese; *inspissated juice* of the fresh leaves, in the

British, Indian, Spanish, and Greek; and *dry extract* of aconite leaves, with sugar of milk, in the Norwegian. This instance alone proves the necessity for some community of action among the nations in the compilation of their pharmacopœias.

The following is an attempt at a tabular comparison of the classification of extracts according to their consistence:

Class.	Consistence.	United States.	British.	German.	Austrian.	Hungarian.	Russian.	Helvetian.
I.	Thin.....	.....	.....	Tenuia	Tenuia	Liquida...	Tenuia	I.....
II.	Soft.....	.....	Soft.....	Spissa	.....	Subspissa.	Spissa	II.....
III.	Firm.....	Pillular...	Pillular...	.....	Spissa	Spissa	.....	III.....
IV.	Dry.....	Dry.....	Dry.....	Sicca	Sicca	Sicca	Sicca	.....

Class.	Consistence.	Danish.	Swedish.	Norwegian.	French.	Spanish.	Portuguese.	Dutch.	Greek.
I.	Thin.....	.....	.....	.....	.....	Miel	.....	Dunne	.....
II.	Soft.....	Ordinaria.	Justa	Spissa	Mou	Ext	Molle	Dikke	Justa.
III.	Firm.....	.....	.....	.....	Ferme	Pil	Duro	.....	Pil.
IV.	Dry.....	Sicca	Sicca	Sicca	Sec	.....	Secco	Droge	Sic.

A class of powdered extracts diluted with liquorice powder, sugar of milk or dextrin is directed or permitted, especially for the narcotic drugs, by the following: German, Austrian, Hungarian, Swiss, Dutch, Danish, Swedish, Norwegian, Russian, and Greek. They are analogous to the abstracta of the *U. S. P.*, except that they are all made from the official moist extract, and in strength bear a definite relation to those extracts instead of being prepared directly from the crude drug, as are the abstracts. The abstracta, *U. S. P.*, are all of such strength that one part represents two parts of the crude substance. The composition and strength of the European powdered extracts, *Extracta Sicca seu Extracta cum Dextrino*, are exhibited by the following table, which gives the diluent used and the weight of the resulting product relative to 1 of the moist extract:

	German.	Austrian.	Hungarian.	Swiss.	Dutch.	Danish.	Swedish.	Norwegian.	Russian.	Greek.
Extractum.....	1	1	1	1	1	1	1	1	1	1
Glycyrrhizæ pulvis q. s. ut f't.....	.....	.....	.....	.....	.....	2	2	.....	.....	.....
Saccharum lactis q. s. ut f't.....	.....	2	.....	2	2	.....	.....	1	.....	2
Dextrinum q. s. ut f't.....	2	.....	*1.75	.....	.....	.....	.....	.....	2	.....

* The Hungarian directions are such that the product is double the weight, not of the moist extract taken, but of the resulting dry extract.

The following example illustrates the method of calculation:

Let 250 = weight of moist extract.

125 = weight of powdered dextrine added.

375 = total.

315 = weight of mixture after desiccation.

60 = loss of water by evaporation, to be subtracted from the weight of moist extract taken.

250 - 60 = 190 = weight of dry extract.

125 = weight of dextrine used.

65 = weight of dextrine still to be added to make the finished product.

The want of harmony existing in the formulæ for other classes of preparations is perhaps of less consequence than those just mentioned.

Where general directions for decoctions exist the drug is represented in the proportion of 1 part to 10 of water in the United States, German, Helvetican, Danish, Swedish, Norwegian, and Portuguese; no simple decoctions or methods for their preparation are found in the Hungarian, Austrian, Dutch, or French; in the remaining pharmacopœias the formulæ vary with the drug. The German and Russian also admit decocta concentrata (1.5 to 10 Ger.) (6 to 30 Russ.), and decocta concentratissima (2 to 10 Ger.) (8 to 30 Russ.). The direction for infusions are about the same as for decoctions except that the Portuguese adopt a general formula of 1 part of the drug to 20 of water. The Tisanes of the French Codex are very dilute infusions, varying in strength from 1 in 50 to 1 in 200 of the drug.

Species is the title of a class of preparations found in most of the continental pharmacopœias. It signifies a mixture of several plants, or parts of plants, cut into small fragments, ready for the extemporaneous preparation of decoctions and infusions. They vary greatly in composition, as directed by the different authorities, and no general comparison can be instituted.

The classes of sirups, pills, ointments, plasters, &c., being of the nature of special prescriptions, are subject to limitless variations, and it is seldom that the pharmacopœias agree in the constitution of those even which appear under the same name.

In the introduction of the class of fluid extracts, constructed upon such formulæ as to produce the uniform result of an extract representing the crude drug, measure for weight, the United States pharmacopœia is peculiar. The British pharmacopœia presents 8 only of this class (*extracta liquida*), and the Indian 7, but the extracts in these few cases do not bear the same relations of strength to the drug employed. The class is not represented in other pharmacopœias than the three just mentioned.

To illustrate as briefly and graphically as possible the differences in nomenclature, composition, and strength of preparations of similar intent to be found in the different pharmacopœias, the following tables have been prepared, giving, first, the official Latin synonymy, then the official vernacular synonyms, if any, followed by tables showing the composition of the preparations according to the directions of each of the pharmacopœias in which they are found. The quantities are represented in parts, by weight:

PAREGORIC ELIXIR.

Official Latin synonyms:

- Tinctura opii camphorata, *U. S.*
- Tinctura camphoræ composita, *Br., Ind.*
- Tinctura opii benzoica, *Ger., Russ., Swiss, Nor., Belg., Gr.*
- Tinctura thebaica benzoica, *Dan., Swed.*
- Tinctura opii composita, *Port.*
- Tinctura cum extracto opii camphorata, *Fr.*

Vernacular synonyms:

- Camphorated tincture of opium, *U. S.*
- Compound tincture of camphor, *Brit., Ind.*
- Benzoesäurehaltige opiumtinktur, *Ger.*
- Beroligende bryst-draaber, *Dan.*
- Anis-draaber, *Nor.*
- Teinture d'opium camphrée, *Fr.*
- Tinctura de opio composita, *Port.*
- Ἐπίου βαμμα μετὰ βενζόης, *Gr.*

	United States.	British.	Indian.	German.	Russian.	Swiss.	Danish.	Swedish.	Norwegian.	Belgian.	French.	Portuguese.	Greek.
Opium	4	4	4	1	1	1	6	6	5	5			1
Extractum opii.....											3	5	
Acidum benzoicum.....	4	4	4	4	4	1	6	6	5	5	3	5	1
Camphora.....	4	3	3	2	2	1	4	4	3	3.5	2	5	1
Oleum anisi.....	4	3	3	2	2	1	3	3	2	2.5	3	5	1
Glycerina.....	40												
Alcohol.....	*944	805	805	192	192	197	1,200	1,200	1,000	*984	650	1,000	192
Proportionate weight of opium.	1/250	1/204	1/204	1/200	1/200	1/200	1/200	1/200	1/200	1/200	† 1/110	† 1/102	1/196

* Or sufficient to make the product 1,000.

† Reckoning 1 part of extract of opium equal to 2 parts of opium in powder.

FWLER'S SOLUTION.

Official Latin synonyms :

- Liquor potassii arsenitis, *U. S.*
 Liquor arsenicalis, *Brit., Ind.*
 Liquor kali arsenicosi, *Ger., Russ.*
 Liquor kali arseniosi, *Swiss.*
 Solutio arsenicalis Fowleri, *Aust., Hung.*
 Liquor arsenicalis kalici, *Dan., Swed., Nor.*
 Solutio arseniitis kalici composita, *Dutch.*
 Arsenis potassæ solutus, *Belg.*
 Arsenis potassicus aqua solutus, *Fr.*
 Solutum arsenitis potassici, *Span.*
 Solutum arsenitis kalici, *Port.*
 Kali arsenicosum liquidum, *Gr.*

Vernacular synonyms :

- Solution of arsenite of potassium, *U. S.*
 Arsenical solution, *Brit., Ind.*
 Fowler'sche Tropfen, *Ger.*
 Fowler mirenyes oldata, *Hung.*
 Fowlers arsenik-draaber, *Dan., Swed.*
 Samengestelde oplossing van arsenigzuren Kali, *Dutch.*
 Solution d'arsénite de potasse, *Fr.*
 Solucion de arsenito potassico, *Span.*
 Ἀρσενικῶδες κάλιον ὑγρὸν, *Gr.*

	United States.	British.	Indian.	German.	Austrian.	Hungarian.	Russian.	Swiss.	Danish.	Swedish.	Norwegian.	Dutch.	Belgian.	French.	Spanish.	Portuguese.	Greek.
Acidum arseniosum.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Potassii bicarb.....	1																
Potassii carbonas.....		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Spiritus lavendulæ co.....	3	3	3														
Spiritus lavendulæ.....									5	5	5	4					
Spiritus melissæ co.....								5						3	2½		
Spiritus angelicæ co.....							5										
Alcoholatum aromat.....													3				
Aqua q. s. ut fiat.....	100	109	109	90	90	90	100	100	100	100	100	90	100	100	90	100	90

TINCTURE OF ACONITE ROOT.

*Official synonyms:*Tinctura aconiti, *U. S., Brit., Ind., Ger., Aust., Hung.*Tinctura aconiti tuberum, *Russ.*Tinctura radiceis aconiti, *Port.**Vernacular synonyms:*Tincture of aconite, *U. S., Brit., Ind.*Eisenbuttinktur, *Ger.*Sisakvirág-festvény, *Hung.*Tinctura de aconito, da raiz, *Port.*

	United States	British.	Indian.	German.	Austrian.	Hungarian.	Russian.	Portuguese.
Aconiti radix	1	1	1	1	1	1	1	1
Acidum tartaricum	0.01							
Alcohol	2.5	6.7	6.7	10	5	5	10	5

TINCTURE OF ACONITE LEAF.

*Official synonyms:*Tinctura aconiti, *Swiss, Dan., Nor., Port., Belg.*Tinctura aconiti herbæ, *Russ.**Vernacular synonyms:*Stormhat-draaber, *Dan.*Aconit-tinctuur, *Nor.*Tinctura de aconito, Acoolado de aconito, Alcooléo de aconito, *Port.*

	Russian.	Swiss.	Danish.	Norwegian.	Belgian.	Portuguese.
Aconiti folia s. herba	1	1	1	1	1	1
Alcohol	10	5	10	10	5	5

VINEGAR OF OPIUM.

*Official synonyms:*Acetum opii, *U. S.*Acetum thebaicum, *Sweed.*Tinctura opii acetosa, *Swiss.*Guttæ nigræ britannicæ, *Fr.*Acetum opii aromaticum, *Belg.*

	United States	Swedish.	Swiss.	French.	Belgian.
Opium	10	1	100	100	16
Myristica	3		25	25	3
Crocus			8	8	1
Saccharum	20		50	50	24
Acetum			600	600	q. s.
Acidum acetic, dil	g. s.	10			
Alcohol			10		
To make	100	10	200	200	100
Proportion of opium	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{6}$

OINTMENT OF ROSE-WATER.

Official synonyms:

- Unguentum aquæ rosæ, *U. S.*
 Unguentum refrigerans, *Swiss.*
 Unguentum leniens, *Ger.*
 Unguentum cetacei, *Russ., Dan., Sued., Nor.*
 Unguentum emolliens, *Aust., Hung.*
 Cold cream, *Fr.*
 Ceratum spermatis ceti, *Span.*
 Unguentum rosatum, *Port.*

Vernacular synonyms:

- Cold cream, *U. S., Ger., Sued.*
 Spermacet-salve, *Dan., Nor.*
 Creme céleste, *Aust.*
 Lúgyito ír, *Hung.*
 Cerato de esperma de ballena, *Span.*
 Pomada rosada, pomada alvissima, *Port.*

	United States.	German.	Russian.	Austrian.	Hungarian.	Swiss.	Danish.	Swedish.	Norwegian.	French.	Spanish.	Portuguese.
Oleum amygdalæ exp.	50	32	.....	40	40	36	24	36	50	215	32	24
Oleum olivæ provincial. . . . .	.....	.....	42	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cetaceum	10	5	9	10	10	6	3	5	5	60	6	3
Cera alba	10	4	9	5	5	3	1	4	5	30	4	3
Aqua rosæ	30	16	6	10	10	18	12	16	40	60	20	10
Oleum rosæ . . . . .	.....	0.05	.....	.....	.....	.....	.....	.....	.....	0.3	.....	.....
Tinctura benzoini . . . . .	.....	.....	.....	.....	.....	.....	.....	.....	.....	15	.....	.....

These tables represent, perhaps, as well as any that could be selected, the average differences in nomenclature, composition, and strength of preparations as directed by the pharmacopœias. It will be seen that these differences involve serious considerations for patient, practitioner, student, and traveler. To establish uniformity would seem well-nigh impossible; and yet it is clearly the duty of every body of men having in charge the revision of a pharmacopœia to keep in mind this important object in any changes they may introduce. The practical solution of the most difficult part of the problem—that relating to the strength of preparations—will probably be found in the introduction of decimal relations wherever possible and the general yielding of the stronger to the weaker forms.

It would be difficult, perhaps impossible, to make a general comparison of pharmaceutical processes as directed by these different authorities. And this is of smaller consequence, since, although they may vary in complexity, economy, or elegance, the practical results, viewed from a therapeutical standpoint, will be found in most cases sufficiently approximate to prevent serious mistakes from this cause.

In further consideration of the pharmacopœias a brief review of each is presented:

THE PHARMACOPŒIA OF THE UNITED STATES. Sixth decennial revision. By authority of the National Convention for revising the Pharmacopœias, held at Washington, A. D. 1880. New York: William Wood & Co. 1882.

The project of a National Pharmacopœia for the United States was first submitted by Dr. Lyman Spaulding to the New York County Med-

ical Society, in January, 1817. A committee to consider the subject was appointed by this society, and correspondence opened with medical societies and eminent physicians in different parts of the country, and the following plan was fixed upon for the development of the project: Each State medical society, each college of physicians and surgeons, medical school, or faculty, and in sections where these did not exist voluntary associations established for the purpose, were asked to send one or more delegates to form conventions, which were to represent the different regions of the country, northern, middle, southern, and western. These district conventions were to form or select each a pharmacopœia which should embody the requirements of the respective sections of country; then to send delegates to a general convention, which should combine and harmonize the district pharmacopœias. Conventions were held in the northern and middle districts only, and adopted each a pharmacopœia, which was presented to the general convention which met in Washington on the 1st of January, 1820. The southern district was represented at the general convention. The two pharmacopœias were consolidated and published under the authority stated, as the National Pharmacopœia of the United States. To provide for revision, the president of the convention was authorized to issue decennially writs of election to the incorporated State medical societies of each district, requiring them to elect three delegates each to a convention for the revision of the pharmacopœia. The first edition was divided, as now, into the materia medica (primary and secondary lists) and preparations. The nomenclature then established has been substantially followed since. The text in this and the first revision was in Latin and English, on opposite pages.

In the convention for the first revision, held in 1830, the Surgeon-General of the Army, the senior surgeon of the Navy, and members of Congress who were practitioners of medicine were invited to participate. The result of their labors was submitted to the Philadelphia College of Pharmacy for examination and suggestions before publication.

The second revision, 1840, was made by delegates from State medical societies and incorporated medical colleges. The co-operation of the colleges of pharmacy was also requested, and the Philadelphia College of Pharmacy exercised an important influence in this revision, presenting to the committee a revised copy of the pharmacopœia, elaborated with great care. This and succeeding editions were published in the vernacular only. Brief notes were introduced indicating tests of purity of certain drugs, and the process of displacement or percolation was for the first time presented as an authorized method of preparing tinctures, infusions, &c.

The revision of 1850 made few changes, except in certain processes and in the introduction of the important class of fluid extracts. In this convention delegates from the colleges of pharmacy were received.

The United States Pharmacopœia was submitted to its sixth revision in 1880, and has but recently been presented in its new form. Into the present edition very marked changes have been introduced, the greater part of them, it is pleasant to be able to say, being of a character to bring the work much more in accord with the modern pharmacopœias of other nations. The volume is considerably, but not inconveniently, enlarged, although the increase in number of titles is only 27 over the previous edition. The typography is excellently clear and judiciously varied to suit the variety of expressions of names, formulæ, descriptions, directions, and explanations. The division of subjects into materia medica and preparations has been abandoned, and all titles

are arranged alphabetically. Concise descriptions, generally sufficient for identification, of crude drugs, and, where necessary, tests of purity or strength, have been introduced. The designation of quantities by troy weight and wine measure has been changed for the more scientific and approved method of expression in parts by weight, and the adoption of the centesimal ratio of these parts in the construction of formulæ is more general than in any other pharmacopœia. Whenever in the combination of a preparation the process is likely to occasion a loss, by evaporation or otherwise, of any part of any of the ingredients, the specified weight of the finished product is made up by the addition of the necessary quantity of the ingredient lost. Appended to each article is a list of the preparations into which that substance enters as the important constituent.

Chemical formulæ are given according to both the old and new systems of notation. Temperatures are expressed in degrees both of the centigrade and Fahrenheit scales. To the body of the book is added a list of reagents; tables of elementary substances; thermometric equivalents; elaborate tables of percentage and specific gravity of alcohol, acetic, hydrobromic, hydrochloric, nitric, sulphuric, and phosphoric acids, and aqueous solutions of potash and soda; tables of solubility and saturation; tables showing the quantity of official alkalies and acids required to make 100 parts of salts of ammonium, potassium and sodium; list of articles added and dismissed from the pharmacopœia; changes of official titles, and strength of preparations; and tables of weights and measures.

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). 1867. Fourth reprint, with additions made in 1874. Spottiswoode & Co., London. 1880.

The first edition of the British Pharmacopœia appeared in 1864. Previous to that date England, Scotland, and Ireland had each its standard, under the titles of London, Edinburgh, and Dublin Pharmacopœias. By act of Parliament (1858) it was declared that "the British Pharmacopœia, when published, shall for all purposes be deemed to be substituted throughout Great Britain and Ireland for the several and above-mentioned pharmacopœias." It remains, then, the legally authorized standard for the selection and preparation of medicines throughout the kingdom. A second edition was issued in 1867, and the present is the fourth reprint of this second edition, with some additions made in 1874. The general character of the British Pharmacopœia is too well known in this country to need detailed explanation, since its formulæ and directions are given in full, for comparison with our own preparations of similar name and purpose, in those standard books of reference, the United States and National Dispensatories, one or both of which are in the hands of every pharmacist and physician in the country. It contains 804 titles, including the 34 "additions." The arrangement is alphabetical; the text vernacular; the sources and physical characters of crude drugs are given, as well as tests of identity and purity of chemical products. There are bibliographical references to botanical works containing illustrations of medicinal plants. Under each title is a list of all the preparations into which that substance enters as an ingredient. The average adult dose of each medicine is also added. Quantities by weight are expressed in avoirdupois pounds (16 ounces), ounces (437.5 grains), and grains only, though it is "optional

with the physician *in prescribing* to use the symbols \ominus and 3, the former representing 20 and the latter 60 grains, if such should be found to conduce to accuracy or convenience." The measurement of liquids is by the imperial measure, every denomination of which, from minim to gallon, it is well to remember, differs in the quantity expressed from that indicated by the same name according to the wine measures in universal use in this country.

The appendix contains a list of articles employed in chemical testing; test solutions and directions for their preparation; elementary bodies, their symbols and equivalents; weights and measures; and a list of books referred to, containing plates of officinal plants.

The "additions" number 34, distributed among the various classes of preparations, 4 only being crude drugs.

PHARMACOPŒIA OF INDIA. Prepared under the authority of Her Majesty's secretary of state for India, in council, by Edward John Waring, M. D., member of the Royal College of Physicians of London, surgeon in Her Majesty's Indian army, assisted by a committee appointed for the purpose. India office. 1868. London: W. H. Allen & Co.

Avowedly based upon the British Pharmacopœia, it aims to present "all the information contained in that work of practical use in India," and to bring together in condensed form the principal part of the information which up to the present day exists relative to the indigenous drugs of India. It contains the substance of numerous reports from medical officers serving in India, giving their personal experience regarding the source, character, and therapeutical properties of the principal drugs and medicinal plants of the country.

The substances treated of are divided into two classes, officinal and non-officinal. The first includes all the official drugs and preparations of the British Pharmacopœia, except the "additions," which were introduced since the publication of the Pharmacopœia of India, and also "those indigenous products of India whose claims as medicinal agents are established on a solid basis." The non-officinal list comprises many substances whose therapeutical value is not yet fully determined, but which are sufficiently active to make them worthy of attention and further investigation.

The arrangement of subjects in this work differs from that of all the other pharmacopœias. The alphabetical sequence has been discarded and a scientific classification substituted. The first division includes the "Vegetable Materia Medica." The plants are arranged according to their botanical affinities. Under the botanical name of the plant are considered the drugs which it furnishes and the preparations of which they form the active ingredient; the second division consists of "Products of Fermentation and Distillation;" the third, "Animal Materia Medica;" and the fourth, "Inorganic Materia Medica." As presenting a scientific classification, this arrangement has important advantages, but it is questionable if these be not overbalanced by inconvenience of reference.

The avoirdupois weights and imperial measures, as adopted by the British medical council, are employed. Medical properties, therapeutical uses and doses of each substance are stated.

Appended to the body of the work is a catalogue of Indian medicinal products derived from the organic kingdom, classified according to therapeutical properties, and indicating those which are more or less

analogous to articles officinal in the British Pharmacopœia and for which they may be employed as substitutes. A valuable appendix contains numerous extracts from the reports of medical officers in India, bibliographical references, and other information relating especially to the Indian materia medica. The student will find in this publication much information not easily, if at all, available from other sources.

Under the title "Supplement to the Pharmacopœia of India" appears a volume of nearly 700 pages, containing a catalogue of Indian synonyms of the substances mentioned in the principal work, in fourteen languages, with explanatory and descriptive remarks "by Moodeen Sheriff, G. M. M. C., native surgeon in Her Majesty's Indian medical service. Published by order of the government, at Madras, 1869." As the briefest and most complete indication of the character of the work, the table of contents is here inserted.

CONTENTS.

1. Affixes and prefixes required in each language to designate plants or their parts and products, &c. Synonyms of medicinal plants, drugs, &c., with explanatory and descriptive remarks.
2. Table of the method of transliteration adopted in the catalogue for expressing the vernacular synonyms in English character.
3. Explanation of the initials and names attached to the botanical names and synonyms.
4. Names of the books, &c., consulted in preparing the catalogue.
5. Appendix (remarks on some indigenous cathartics and emetics).
6. Index of the botanical names used as synonyms and mentioned in the remarks addenda, and appendix.
7. Index of English synonyms.
 - Arabic synonyms.
 - Persian synonyms.
 - Hindustani synonyms.
 - Dukhni synonyms.
 - Tamil synonyms.
 - Telugu synonyms.
 - Malyalim synonyms.
 - Canarese synonyms.
 - Bengali synonyms.
 - Sanscrit synonyms.
 - Mahratti synonyms.
 - Guzratti synonyms.
 - Cingalese synonyms.
 - Burmese synonyms.

PHARMACOPŒIA GERMANICA. Berolini. Apud Rudolphum de Decker
1872.

The initiatory movement toward the formation of a German pharmacopœia which should replace the numerous local authorities in use in the various states and cities of the confederation was made, at the request of many persons, by the two pharmaceutical societies of North and South Germany. These two societies prepared a national pharmacopœia which appeared in 1867, under the title of Pharmacopœia Germaniæ. After the formation of the North German Confederacy, the authorities of Mecklenburg-Schwerin called the attention of the federal council to the importance of a common pharmacopœia, and after consideration a committee of physicians and pharmacists was chosen to prepare such a work. The enterprise was interrupted by the Austro-Prussian war, but after the establishment of the empire was resumed.

By decree of the federal council, April 29, 1871, a new committee was chosen, which, with the assistance of men of eminence from all parts

of Germany, speedily prepared this first edition of the *Pharmacopœia Germanica*. By resolution of the federal council passed at its session on May 22, 1872, it was declared that this book of medicines should take the place of the different pharmacopœias previously in use in the several states of the confederacy after the 1st of November of that year. The following list of the most important of these local works thus superseded is taken from Parrish's *Treatise on Pharmacy* (1874):

- Pharmacopœia Barvarica, Munich, 1859.
- Dispensatorium Pharmaceuticum Brunsvicensis, Brunswick, 1777.
- Pharmacopœia Hannoverana, Hanover, 1831.
- Dispensatorium Electorale Hessianum, Marburg, 1827.
- Dispensatorium Lippiacum genio moderno accommodatum, Lenigo, 1794.
- Pharmacopœia Oldenburgica, Oldenburg, 1801.
- Dispensatorium Medico Pharmaceuticum Palatinatus, Manheim, 1764.
- Pharmacopœia Castrensis Borussica, Königsberg, 1822.
- Pharmacopœia Borussica, Berlin, 1862.
- Pharmacopœia Saxonica, Dresden, 1837.
- Pharmacopœia Wurtembergica, Stuttgart, 1847.
- Pharmacopœia Herbipolitana, Wurzburg, 1796.
- Pharmacopœia Fuldense, Frankfort-sur-le-Main, 1791.

At a session of the federal council on the 2d of July, 1873, certain supplementary revisions were resolved upon, relating particularly to several powerful medicines which were to be separated from the other medicaments of the pharmacopœia. These emendations were published in the Central Sheet (Central Blatt) for the German Empire (No. 27 of 1873), and took effect August 1, 1873.

The features of this work to be especially noted are the excellent typography, the Latin text, the alphabetical arrangement, the expression of quantities of both solids and liquids in parts by weight ("mensura nunquam sed semper ponderibus liquorum quantitas indicanda et determinandates"), the clear and concise descriptions of the physical characters and tests of purity of drugs, and freedom from multiplication or complexity of special pharmaceutical preparations. Titles number 910, exclusive of heads of chapters.

It contains tables of (1) maximum doses, single and daily, which are not to be exceeded unless the physician has appended on the prescription an exclamation point (!); (2) poisons, commonly known as such, which are to be guarded with the greatest care in a secluded place; (3) active medicines which should be kept separate from the rest and dispensed with care; (4) specific gravity; and (5) alcoholimetric tables.

A revision of the work is now taking place preparatory to the issue of a second edition.

PHARMACOPŒIA AUSTRIACA. Editio Sexta. Vienna: Cæs. Reg. Aulæ et Imperie Typographia. 1869.

The above-mentioned pharmacopœia was instituted in the ministry of the interior by a commission composed of practicing physicians, professors of chemistry and pharmacology, and other men of eminence in these branches, and was published by the authority of the ministry of the interior on the 15th of May, 1869. Every pharmacist is directed to have a copy, and adhere rigorously to its directions in the preparation and dispensing of medicines.

It is announced in the preface that the pharmacopœias of other nations have been taken into consideration, so that the Austrian Pharma-

copœia may exhibit the same relations of composition of tinctures, &c., which are generally found in the others. Attention is called, however, to the fact that the foreign pharmacopœias differ widely among themselves, and that compliance with them all was manifestly impossible.

Medicines which are not to be dispensed except when prescribed by a legally-authorized physician are marked with a dagger, thus: †. When the physician desires to prescribe a larger dose of any medicine than that given in the table of maximum doses he must add to the prescription the sign †.

The metric system of weights makes its first appearance in this edition, and the quantities in the formulæ are denoted in grams and not parts. All the dilute acids are brought to a uniform strength such that 10 grams may be exactly neutralized by 34 grams of acidimetric solution.

In the nomenclature of vegetable drugs a single word is used to designate the substance intended. This title may be either the generic or specific name of the plant from which derived, or some title which long use has rendered significant. The part of the plant used is named and described in the text following the title. The chemical nomenclature is like the German, and no formulæ are given, but a very full Latin synonymy is introduced. Thus there are mentioned 13 Latin synonyms of calomel and 8 of solution of subacetate of lead. There are only 500 prominent titles, but these do not quite represent the number of medicines mentioned, since two or more drugs may appear under one title when they are the product of the same plant. Still, the number is considerably less than is found in most of the other pharmacopœias, but includes nearly all the important articles of the materia medica except the additions of recent years. There are numerous tables, as of weights and measures, specific gravity, solubility, proportional parts at different degrees of density of alcohol, chlor-hydric acid, nitric acid, ammonia, and solutions of potassa and soda; areometric table of Beaumé, Carter, and Beck; tables of maximum doses, &c.

MAGYAR GYOGYSZERKÖNYV; Pharmacopœia Hungarica. 1871. Pesti: Könyvnyomda Reszvinny Tarsulat.

The Hungarian Pharmacopœia may be described as a revised and improved edition of the Austrian. Some substances are omitted which appear in the latter, but the number is more than made good by the addition of about sixty substances or preparations not found in the Austrian. There are some changes in the text, but not more than would naturally appear in a thorough revision. The alphabetical arrangement of titles is followed, and a Latin synonymy given which is of assistance in the identification of preparations. Quantities are expressed in grams of the metric system. The text is in both the vernacular and in Latin, on opposite pages. Formulæ according to the new system of notation are given for the chemical preparations. A feature peculiar to this and the Austrian Pharmacopœias is the preparation of all dilute acids of such strength that 10 grams may be exactly neutralized by 34 grams of normal acidimetric solution of soda.

The tables are the same as those of the Austrian Pharmacopœia, with the addition of a list of the violent poisons which are to be kept in a secluded place, and a list of the active medicines which are to be kept separated from the other drugs.

The work was prepared under the authority of the ministry of the interior, by a commission from the sanitary council of the kingdom;

was published on the 4th of December, 1871; and its provisions have the force of law throughout the country. The leading principles followed in the elaboration of this work are abbreviated from the Austrian Pharmacopœia, and are declared to have been—

1. The nomenclature is in scientific terms and in alphabetical order.
2. In the selection of articles admitted not only scientific reasons but also common usage have been considered.
3. In the preparation of active agents chiefly the Pharmacopœia of Austria, but others as well, have been consulted, in order that these substances might correspond as far as possible both in degree of concentration and mode of preparation.
4. From preparations of various qualities in the market always the best have been selected.
5. The preparation or purification of chemical drugs has been directed whenever the preparations of the shops do not offer a greater certainty of good quality than those prepared in small quantities at greater expense.
6. The dilute acids coincide in degree of concentration, so that a given quantity of any dilute acid may be neutralized by a definite quantity of an alkaline body.
7. Wherever degrees of temperature are mentioned the scale of Celsius is to be understood.
8. The metric system of weights has been substituted for the Austrian medicinal weights hitherto used.

A supplement to this work has just appeared (1883) under the title: *Függelék a Magyar Gyozyszerkönyvhöz. Additamentum ad Pharmacopœam Hungaricam.** It contains 41 new titles, of which 28 are of crude drugs and preparations; 7 are of *antiseptic dressings*; 4 reagents, and 2 additions to the directions for testing Quinine and Quinidine Sulphate.

The introduction of antiseptic dressings into a pharmacopœal list is a new departure to be noted. The following articles are included: *Chorda carbolata*, *Filum sericeum antisepticum*, *Folia Gutta-percha*, *Gaze salicylicum*, *Lana gossypii depurata et a pinguedine liberata Brunsi*, *Lana gossypii salicylata*, *Tubuli præparati carbolati*.

RUSSIAN PHARMACOPŒIA. Edited under imperial order by the medical council of the department of the interior. Third edition. St. Petersburg: Carl Ricker, publisher. 1880.

The above is a translation of the title-page of the Russian Pharmacopœia. The original order for its preparation was issued by the Emperor to the medical council of the interior department in the year 1863. The progress made in its compilation was slow, and it was not until 1865 that the first part of the incomplete work appeared. Soon afterward, however, the second part was issued, completing the first edition. It was revised in 1870 and again in 1880, the latter revision constituting the present third edition of the National Pharmacopœia of Russia.

The book presents to the reviewer the obstacle of the Russian language, in which, with the exception of the names of the drugs, preparations, and the formulæ, which are in Latin, it is written. From these titles and formulæ, however, it is easy to see that the work is very intimately related to the German, as might be expected from the excellence of the model,

* Copy in Library of Surgeon-General's Office, U. S. A.

the geographical relations of the two nations, and the predominance of German influence in the medical practice and literature of the country. The descriptive and explanatory text is copious, the typography good, the order alphabetical, and the nomenclature almost identical with the German. Quantities are expressed in parts by weight. To other tables is added one of the principal poisons and their antidotes. The number of titles, excluding class titles, is 1,004. The impression received by a necessarily superficial examination of this book is that it will claim a place in the front rank among the pharmacopœias of the world.

In this connection it should be mentioned that a *Pharmacopœia Fœnica*, third edition, published at Helsingfors, 1863, has come to hand. By whom it was compiled or by what authority issued does not appear. It is probable that whatever authority it may have originally possessed has been superseded by the later national work.

PHARMACOPŒA HELVETICA. Editio altera. Scaphusiæ ex Officina Brodtmanniana. 1872.

PHARMACOPŒÆ HELVETICÆ SUPPLEMENTUM. Scaphusiæ ex Officina Brodtmanniana. 1876.

These two volumes, constituting the pharmacopœia of Switzerland, emanate from the Swiss Pharmaceutical Society. The first edition was published in 1865, and the second as above. The first part, or *Pharmacopœa Helvetica*, is officially prescribed in all the cantons of Switzerland except Tessin and Geneva. The former has a *Tessiner Pharmacopœa* of its own, and in the latter there are no official provisions, the French Codex being generally used in practice. The "*Supplementum*" is legally in force in eight cantons, and, with the other, in the military service of the country. There are no original features to note. Both are written in the Latin language; the nomenclature is the same as in the German *Pharmacopœia*; quantities are expressed in parts.

In the preparation of the Supplement regard was had not only to the wants of physicians, but also to the convenience of dealers who were called upon to supply medicines for domestic use which ought nevertheless to have everywhere the same composition. Many formulæ, therefore, are found of local interest only and peculiar to this pharmacopœia. As such may be classed 22 preparations introduced under the head of "*Medicamenta Rademacheri*." In the Supplement the French and German synonyms are very generally inserted, especially for the preparations in common use, for the convenience of those sections where one or the other of those languages is the vernacular.

A table supplementary to the maximum-dose table gives the maximum single and daily doses for infants not exceeding two years of age. The *Tessiner Pharmacopœa* has not been received. It is said to bear the date 1848, and to be now undergoing revision. The reason for its existence is not apparent.

PHARMACOPŒA DANICA. Regia auctoritate edita. Anno 1868. Editio secunda. Hauniæ. Impensis Reitzellii.

PHARMACOPŒA SVECICA. Editio septima. Stockholmiæ, 1879. P. A. Norstedt & Fiiij, Typogr. Reg.

PHARMACOPŒA NORVEGICA. Editio altera. Regia auctoritate edita. Christianiæ, 1870. Impensis Alb. Cammermeyer.

These three pharmacopœias may be properly considered together, since they are similar in every particular, and each has avowedly been

prepared with constant reference to the latest editions of the others then in existence. In the preparation of the latest publication, the Swedish, it was directed by the royal decree that advice of delegates from Norway and Denmark be taken, in order to insure the greatest harmony in the pharmacopœias of these three nations. Each, therefore, may be said to be of the nature of a revised edition of the others that preceded it in order of publication. They present few peculiar features. In all the text is in Latin; the quantities expressed in parts, by weight; the arrangement alphabetical. As in the German Pharmacopœia, the class name is put first, as "*radix gentianæ*," "*rhizoma zinziberis*," &c., a method which certainly does not facilitate reference, which is the only reason for the alphabetical order.

In the Swedish and Norwegian pharmacopœias the poisons, so called, and active medicaments are indicated by signs in the body of the work, and the latter are directed to be kept by themselves in a place separate from other medicines; the former in an armarium, secured by a lock.

The number of official articles is reduced to a minimum, the Norwegian presenting 479, the Danish 651, and the Swedish 677.

NEDERLANDSCHE APOTHEEK. Tweede Druk. Sgravenhage, Ter Algemeene Landsdrukkerij. 1871.

The first edition of this work was published in both the Latin and Dutch languages, under the title of *Pharmacopœa Neerlandica*, in the year 1851. This second edition of the official pharmacopœia of the Netherlands was prepared by a royal commission, appointed under decree of 1st of March and 16th of May, 1867, and its directions were made obligatory by law enacted on the 2d of November, 1871. It presents no remarkable peculiarities. It is well printed, entirely in the vernacular, even to the names of the ingredients of preparations, in this respect resembling the United States, British, and several other pharmacopœias.

There are 655 titles, which include the principal crude drugs and preparations of acknowledged efficiency.

The list of special formulæ is limited, and none are complex. There are three tables only—two specific gravity tables and a table of maximum doses. Quantities are expressed in parts by weight.

It is forbidden by law in the Netherlands for others than licensed apothecaries to prepare or furnish medicines, and druggists and manufacturing chemists may sell medicines only as articles of commerce, and in quantities regulated by an official list.

PHARMACOPŒA BELGICA NOVA. Brussels, 1854.

This is the official pharmaceutical authority for the Kingdom of Belgium. It is a revision of a previous work published in 1823. A review of it at any length is not desirable, since "a new edition, revised and thoroughly changed, is now in press," and its appearance in the new form is daily expected.

There are few distinguishing characters that demand special notice. The official text is Latin, but bound with it is a translation of the whole into the French language, which is the vernacular of the country. The articles enumerated are not exceptionally numerous, neither are the formulæ complicated. As a whole this pharmacopœia compares very favorably with those of other nations in use at the time of its publication.

CODEx MEDICAMENTARIUS; Pharmacopée Française. Rédigée par ordre du gouvernement, la commission de rédaction étant composée de professeurs de la Faculté de Médecine et de l'École Supérieure de Pharmacie de Paris, de membres de l'Académie Impériale de Médecine, et de la Société de Pharmacie de Paris. Paris: J. B. Baillière, et Fils; Libraires de l'Académie Impériale de Médecine, Rue Haute-feuille. 1866.

The first edition of the Codex, compiled in accordance with a law passed on the 11th of April, 1803, appeared in 1818. It replaced an older work, the use of which had been ordered by decree of the Parliament of Paris, July 23, 1748. A revision of the first edition was soon found to be necessary, owing to the rapid advance in therapeutics and pharmacology, and such revision was ordered in the year 1835 and was completed in 1837. The same reasons which called for a first revision subsequently demanded a second, which appeared in 1866, as the above mentioned Codex Medicamentarius, or Pharmacopée Française. By a decree signed by Napoleon III, and dated the 5th of December, 1866, the provisions of the present edition (1866) of the new Codex were declared to be binding on all pharmacists from the 1st of January, 1867.

The Codex differs materially from the other pharmacopœias both in manner and matter. The reasons for this difference may perhaps be found, in part, in the stringent laws existing in France relating to the practice of pharmacy. Pharmacists are not allowed to sell any secret remedies, even on the prescription of a physician. A substance becomes a secret remedy when it is presented under a name which disguises it. Every remedy not formulated in the Codex, or of which the recipe has not been published by the government, is considered a secret remedy. Hence, by decree of May 3, 1850, remedies which have been declared to be new and useful by the National Academy of Medicine, and of which the formulæ, approved by the minister of agriculture and commerce, shall have been published in its bulletin, cease to be considered secret remedies; they can therefore be sold by pharmacists while awaiting the insertion of the formulæ in the next edition of the Codex.

Under such regulations it must be necessary to include many articles and preparations to gratify public demand which modern medical practice has rejected. On no other ground can be explained the retention of such simples as "*vipère*," viper, and "*cloport des canes*," oniscus, and such preparations as *theriaque*, containing 60 or more ingredients. To the same necessity for satisfying public demand may be attributed the introduction into an official pharmacopœia of the class of *tisanes*, which are defined to be very dilute infusions intended for use as an habitual drink for the sick. Of this class there are given directions for the preparation of 70.

The Codex is arranged in three divisions: First, *Notions Préliminaires*, which includes the usual tables of weights and measures, densities, solubilities, &c., with explanations of instruments and their modes of use, and also tables of the temperatures of fusion of many solids and the boiling point of several liquids. Second, *Matière Médicale*, or substances which are used in their natural state or which figure in the formulæ of the Codex. These are arranged alphabetically, by their vernacular names, in two series: direct vegetable or animal products, and mineral and chemical products. The first series numbers 537 titles, comprehending not less than 700 distinct crude drugs of organic origin; the second numbers 76. The third division, *Pharmacopée*, also comprises two classes: simple medicaments furnished by chemistry, and compounds formed by the mixture of various substances. The materia

medica list is seen to be exceptionally voluminous, at least half of the articles mentioned being found in no other pharmacopœia than the Codex. There is no description of the crude drugs, except of a few of the most important, like cinchona and opium. The directions for the preparations are copious. The text, as well as the nomenclature, is in the French language. The Latin synonyms are generally given, but with a construction peculiar to this pharmacopœia. For instance, tincture of gentian is Latinized into *tinctura de gentianâ*; castor-oil is called *oleum e seminibus ricini*; and Fowler's solution is named *arsenis potassicus aqua solutum*. The arrangement of articles is by classes, as sulphates, chlorides, powders, extracts, tinctures, &c. Of these classes there are 75, arbitrarily arranged, as are the titles under them, no alphabetical sequence being followed, so that reference to the index is always necessary in order to find any given subject. The sum total of crude drugs and preparations exceeds 2,000, more than double the average of other modern pharmacopœias. The quantities are, of course, directed in grams. There is a brief supplementary list of formulæ, which includes the more important preparations peculiar to foreign pharmacopœias most likely to be demanded by strangers.

The work concludes with extracts from the laws relating to the practice of pharmacy; to schools of pharmacy; to the adulteration of food or medicine; to the use of labels of red color on bottles in which medicines for external use are dispensed; to the inspection of pharmacies by the board of health; to the sale of poisonous substances; to secret remedies; and to the manufacture of artificial mineral waters. The Codex has, perhaps, a more extended use outside the limits of its own country than any other national pharmacopœia. In connection with L'Officine, par Dorvault, a work corresponding to our United States and National Dispensatories, the Codex is the druggist's standard in a large part of South and Central America, and is official in Turkey. It is at the present time undergoing a revision, which is believed to be nearly complete, and its appearance in a new form may be expected at an early day.

FARMACOPEA ESPAÑOLA. Quinta edition. Madrid: Imprenta Nacional. 1865.

The previous edition of the Spanish Pharmacopœia was published in 1817, under the name of Farmacopea Hispana. By royal order of the 16th of May, 1856, a commission was appointed for its revision. In April, 1860, this commission, not having completed its work, was dissolved, and a new commission constituted under the superintendence of the Royal Academy of Medicine. The result of its labors was presented in December, 1863, under the title above mentioned, and was approved by royal decree on the 26th of March, 1864. The work is divided into two sections: First, *Materia Farmaceutica*; second, *Preparaciones*. The arrangement of titles in each section is alphabetical; the text is Spanish; the names of substances and preparations are given in Spanish with a Latin synonymy. In the expression of quantities, the effort is made gradually to introduce the metric system, expressly leaving the complete substitution of the decimal method to the next revision. In the directions for the preparation of purely chemical compounds the weight of the ingredients is given in parts. In other cases the weight is written in full according to the old system, and the approximate equivalent in grams is expressed in figures immediately following. The materia medica list presents the usual standard substances recognized by all pharmacopœias,

with but few additions or omissions. In the preparations, the ancient disposition to polypharmacy appears more strikingly than in any other pharmacopœia. The number of ingredients introduced into many of the tinctures, emulsions, electuaries, plasters, &c., is beyond parallel elsewhere. Evidently, too, it has been thought necessary to gratify to some extent the demands of an uninstructed public by retaining such a preparation as "*emplastrum ranarum simplex*," of which one of the ingredients is "*ranas vivas*"—*living frogs*. Ten other constituents enter into this "simple" plaster.

The "electuarium theriacale magnum" of this pharmacopœia contains 75 ingredients, of which one is vipers, prepared and dried with their viscera! *Oniscus*, *proscarabeus*, *helix*, *œsypus*, are also borne on the *materia medica* list. The physical characters of crude drugs are not given—only the botanical or zoological references to the sources of vegetable or animal medicines. The therapeutical action or use of each of the preparations is indicated, and the medium adult dose.

There are full Latin and Spanish indices, but they are most inconveniently divided into four groups, thus materially obstructing ready reference.

PHARMACOPÊA PORTUGUEZA. Edição official. Lisboa: Impensa Nacional. 1876.

By royal decree, dated November 15, 1871, a commission was indicated for the purpose of elaborating a national pharmacopœia to take the place of the "*Codigo Pharmaceutico Lusitano*," published in 1838, second edition in 1858. This Pharmacopœa Portugueza, by order of the 14th of September, 1876, was declared to be the official standard throughout the Kingdom of Portugal. It bears evidence of great care in preparation, and in general arrangement may well serve as a model for all works of the kind. The classification is alphabetical, and the nomenclature corresponds with that adopted in the United States Pharmacopœia, using a single general term to indicate a product of the vegetable kingdom. The Portuguese name of each substance is given first, then the Latin name, followed by the more important vernacular synonyms. The description and explanatory text are in the vernacular. Under chemical substances appear their symbols, according to both the old and new formula, and also a brief indication of source or manner of production. This is followed by distinguishing characters and tests of purity. Vegetable products are described as to their source and habitat, with bibliographical references, and the physical characters of the crude drugs are fully enumerated. The allied plants which may or may not be substituted for the official drug are mentioned.

The *materia medica* list includes but few other than the standard articles to be found in all the pharmacopœias. The preparations have been very considerably reduced in number from the former *Codigo Pharmaceutico*, and are perhaps not now numerically excessive or unusually complex. The quantities are given in grams, expressed in words and figures. Temperatures are referred to the centigrade scale of Celsius; densities to the scale of Baumé; alcohol strength to the centesimal alcoholimeter of Gay-Lussac. The typography is beautifully clear and tastefully varied to suit the different purposes of nomenclature and description.

As has been before mentioned, there is evidence of a more persistent effort to establish uniform relations between the preparations of each class in this pharmacopœia than in any other. Whenever it was pos-

sible the finished product has been made to weigh 10, 100, or 1,000; and decimal relations between the crude drug and the resulting preparation have been established whenever circumstances would permit.

In almost every respect the more thorough the examination of this work the more satisfactorily does it appear to present that which is necessary to make a pharmacopœia exact and complete without redundancy.

ΕΛΛΗΝΙΚΗ ΦΑΡΜΑΚΟΠΟΙΙΑ. PHARMACOPŒIA OF GREECE. Published by royal order and with the approval of the royal medical council. Prepared by Johannes Bourus, Xanerius Landererus, Joseph Sartorius. Athens. 1868.

The first edition of this work was issued in 1837. As stated in the preface, the reason for its production was that in Greece medicine and pharmacy were practiced by men educated in different parts of Europe, and each prescribing or preparing medicines according to the method he had learned, there resulted much confusion and it became necessary to have some uniform standard by which all should be governed. "This necessity is plain to all those who practice medicine, and it has induced us to write this book, which, being brought by us before the administrative authorities, has been ordered by the King to be published, and by the authority of the College of Physicians to be considered the standard in the pharmacies of Greece."

The present edition consists of a reprint of the first, with a supplement by A. Landererus. With the exception of the supplement it is printed in Latin and Greek in parallel columns. The work is divided into three parts. First, a "Materia Pharmaceutica" (*Φαρμακευτική Ἰλη*), containing "all those medicaments which are supplied by commerce." The usual articles found in all European pharmacopœias are included. Each is given with its Latin and Greek titles and a considerable synonymy, especially in the Italian, German, and Turkish languages. The botanical sources of vegetable drugs are carefully stated, with the classification according to the Linnæan system. There is a brief statement of the mode of production of the chemical drugs of commerce. In every case there is a sufficient description of physical characters for identification.

The second part is called "Technica Pharmaceutica" (*Φαρμακευτικῶν τεχνικῶν μέρος*), and contains the usual preparations and processes. The preparations are not complex for the time at which the book was written, and there are very few which modern pharmacy would think it desirable to omit. Quantities are given in parts.

The third division gives a list of the necessary and convenient reagents and methods for their preparation. The supplement, which constitutes the peculiar feature of the second edition, is written in the Greek language, with a Latin nomenclature. It principally relates to the products of the chemical laboratory which have been introduced into medical practice since the issue of the first edition. A few formulæ are added for preparations evidently in demand, such as Blancard's pills, sirup of sarsaparilla, &c. That they are copied from various sources is apparent from the fact that in some of these formulæ the quantities are expressed in parts, in others in grams, and in others in ounces, drams, and grains.

An interesting part of the supplement is devoted to an etymological lexicon, containing remarks on the derivation of the names of the principal medicinal plants, the metals, and the class names of preparations.

FARMACOPEA per Gli Stati Sardi. Torino: Stamperia Reale. 1853.

By decree of Vittorio Emanuele, given at Turin, on the 1st of June, 1853, this pharmacopœia was declared to be the official standard for the pharmacists in all the states constituting the Kingdom of Sardinia. What authority yet remains to it since the political changes that have taken place in Italy, or to what extent it is in use, has not been ascertained.

It presents the usual materia medica list, preparations, and directions in the Italian language. There is some reason to hope that it and the other local pharmacopœias of Italy may soon be superseded by a single pharmacopœia for united Italy.

NUEVA FARMACOPÍA MEXICANA.

Prepared under the auspices of the Pharmaceutical Society of Mexico by a commission appointed for the purpose, and published in the year 1874.

It has been impossible up to the present time to obtain a copy of this work, owing to the exhaustion of the edition. There is official information, however, that it is undergoing revision, with the prospect of a speedy issue of the revised work.

PUN-TSAOU-KANG-MUH. A Synopsis of Ancient Herbals.

A brief mention of this Chinese authority on materia medica seems appropriate in this place, and the following facts, abbreviated from Hanbury's Science Papers* and from Smith's Chinese Materia Medica† are therefore introduced.

This book was written in great part by Le-she-chin, about the middle of the sixteenth century. It claims to be a compendium of the most valuable knowledge contained in thirty-nine previous publications on the materia medica recording the observations of some eight hundred authors, together with much original matter. It was finished by the son of the author and presented to the Emperor Wan-Leih in the year 1596.

The Pun-Tsaou is usually bound into about 40 volumes, the first three of which contain wood-cuts to the number of 1,180 or more, illustrative of the minerals, plants, and animals referred to in the text. The work is divided into 52 chapters, containing mention of about 1,900 drugs and 11,896 formulæ. The names of drugs are accompanied with a synonymy, and explanations of the origin, sound, and meaning of the terms. The source and description of the drug is then given, and mode of preparation for medicinal use. Then follows an account of the nature, properties, and therapeutic uses of the substance, and a host of formulæ. "Curious trials for the purity of substances attest the ancient prevalence of that habit of sophistication which is the original sin of the Chinese."

In the classification substances are arranged in 62 great classes, under the 16 orders: Water, fire, earths, minerals and metals, herbs, grain and pulse, vegetables, fruits, trees, garments and utensils, insects, scaly animals, mailed and shelly creatures, birds, beasts, and man. "Some thirty-seven substances are given under the article on man as fit to administer as medicines to the sick."

But one revision of this work has been attempted, in 1657, but several reprints have been brought out, the last in 1826.

* Science Papers, chiefly Pharmacological and Botanical, by Daniel Hanbury, F. R. S., page 212 *et seq.*

† Contributions Towards the Materia Medica and Natural History of China, by Frederick Porter Smith, M. B.

TABULAR RÉSUMÉ, INCLUDING ALL THE COUNTRIES FROM WHICH INFORMATION HAS BEEN RECEIVED RELATING TO THE OFFICIAL PHARMACOPŒIA OR STANDARD PHARMACEUTICAL WORK IN GENERAL USE.

ARGENTINE REPUBLIC :

Codex Medicamentarius (Pharmacopée Francaise).

Tratado de Farmacia y Farmacognosia. By Charles Murray. (Not official.)

A national pharmacopœia is "in process of compilation, under direction of the pharmaceutical societies of Buenos Ayres, authorized by the government."

AUSTRIA :

Pharmacopœa Austriaca. Vienna. 1869.

BELGIUM :

Pharmacopœa Belgica. Brussels. 1854.

A new edition, "revised and thoroughly changed, in press."

BRAZIL :

Codex Medicamentarius.

Formulario ou Guia Medica. Chenoviz. Tenth edition. Paris. 1879. (Not official.)

CENTRAL AMERICAN STATES :

La Oficina de Farmacia ; a translation into the Spanish language and rearrangement of Dorvault's L'Officine. Pontes. Second edition. Madrid. 1879. (Not official.)

CHILI :

A National Pharmacopœia "will be published during the course of the present year" (1882).

CHINA :

Pun-tsaou-kang-muh (the Chinese Herbal). By Le-she-chin. 1596. In 40 thin 8vo volumes.

The foreign druggists use the pharmacopœias of their respective countries, or as required by physicians, principally the British Pharmacopœia.

CUBA :

Farmacopea Española.

Formulario de los hospitales. 1858. (Not official.)

DENMARK :

Pharmacopœa Danica. Hauniæ. 1868.

Pharmacopœa Nosocomii Civitatis Hauniensis. Copenhagen. 1881. (Not official.)

Supplementum Pharmacopœæ Danicæ. T. S. Warucke. Hauniæ. 1869. (Not official.)

ENGLAND :

British Pharmacopœia. 1867. Fourth reprint, with additions made in 1874. London. 1880.

FRANCE :

Codex Medicamentarius (Pharmacopée Francaise). Paris. 1866.

A new edition in preparation.

GERMANY :

Pharmacopœa Germanica. Berlin. 1872.

Is now undergoing revision.

GREECE :

ΕΛΛΗΝΙΚΗ ΦΑΡΜΑΚΟΠΟΙΙΑ. Εγ Αθηναίς. 1868.

HAYTI :

Codex Medicamentarius.

HAWAIIAN ISLANDS :

The United States Pharmacopœia, and occasionally the British Pharmacopœia.

HUNGARY :

Pharmacopœa Hungarica. Pesth. 1871.

INDIA :

Pharmacopœia of India. India Office, London. 1868.

ITALY :

Farmacopœa per gli Stati Sardi. Turin. 1853.

Farmacologia, teorica e practica, ovvero Farmacologia Italiana. Milan. 1866-'67. Fourth edition. (Not official.)

Ricettario Farmaceutico Napolitano. Naples. 1859. (Not official.)

Pharmacopœa Austriaca, in Lombardy and Venetia.

Pharmacopœa—(Title unknown) in Parma, Modena, and Piacenza.

Codice Farmaceutico Romano. Compilato e pubblicato per ordine di Sua Santità Papa Pio IX. Roma. 1868.

JAPAN :

A national pharmacopœia, to accord with modern practice, is now being compiled.

LIBERIA :

The United States and British Pharmacopœias in use.

MEXICO :

Nueva Farmacopia Mexicana. Mexico. 1874.

A new edition about to be issued.

NETHERLANDS :

Nederlandsche Apoteek. Sgravenhage. 1872.

NORWAY :

Pharmacopœa Norvegica. Christiania. 1870.

PARAGUAY :

Codex Medicamentarius.

PORTUGAL :

Pharmacopœa Portugueza. Lisbon. 1876.

RUSSIA :

Pharmacopea Rossica. St. Petersburg. 1880.

SPAIN :

Farmacopea Española. Quinta edition. Madrid. 1865.

SWEDEN :

Pharmacopœa Svecica. Stockholm. 1879.

SWITZERLAND :

Pharmacopœa Helvetica. Editio altera. 1872.

Pharmacopœa Helvetica Supplementum. 1876.

TURKEY :

Codex Medicamentarius. (Officially prescribed.)

UNITED STATES :

Pharmacopœia of the United States. Sixth revision. New York. 1882.

URUGUAY :

Codex Medicamentarius. Occasionally the United States Pharmacopœia, Pharmacopœa Germanica, British Pharmacopœia, and L'Officine.

VENEZUELA :

Codex Medicamentarius. Also in use Pontes's La Officina, the Farmacopea Española, and rarely the United States or British Pharmacopœias.



