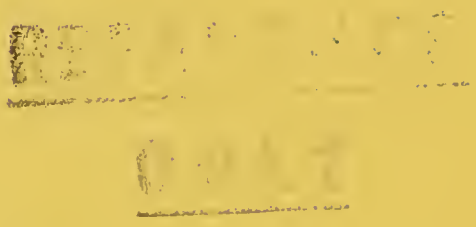

THE PHARMACOPŒIA OF JAPAN

THIRD REVISED EDITION

Official from January 1, 1907

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BY
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NOTICE.

Neither the Pharmaceutical Society of Japan nor the translator is responsible for any loss, damage, or controversy which may arise either from any misinterpretation of the original Japanese Pharmacopœia or from any errors which may occur in the printing.

All corrections and suggestions will be thankfully received.

ERRATA

PAGE	LINE	ARTICLE	FOR	READ
1	13	Acetanilidum	it acquires	0.2 g. of it acquires
6	3	Acid. arsenicosum	AS_2O_3	As_2O_3
10	3	„ chromicum	CO_3	CrO_3
11	3	„ gallicum	$CH_6O_5+H_2O$	$C_7H_6O_5+H_2O$
12	2 *fr. bottom*	„ hydrocyanicum dilutum	an excess f	an excess of
15	8 *fr. bottom*	Acid. olcinicum	282.341	282.34
18	8 *fr. bottom*	„ salicylicum	0.5. g.	0.5 g.
20	3	„ sulfuricum	1.92—20 ccm.	19.2—20 ccm.
„	9	„ „ crudum	1.82	1.83
22	4	Acidum tartaricum	5 g.	0.5 g.
27	21	Æthylium bromatum	minutes	seconds
28	8	Agaricinum	heating with	heating 0.1 g. of it with
31	3	Aloë	by heating it	by heating 1 part of it
36	6 *fr. bottom*	Am. sulfoichthyolicum	chared	charred
39	6	Amylum, (b) *Kuzu*	*thunbergiana*	*Thunbergiana*
41	18	Antipyrin. salicylicum	at 157° C.	at about 157° C.
„	20	„ „	water	hot water
52	13	Asafœtidæ	powdrous	powdery
61	4	Borax	Sodium Biborate	Sodium Borate
„	5	„	282.3	382.3
64	2	Caffeino-Nat. salicylic.	in 50 parts	in about 50 parts
71	6 *fr. bottom*	Capsulæ Copaivæ	Capaiva	Copaiva
79	16	Chininum bisulfuricum	80° C.	about 80° C.
91	17	Cort. Aurant. Fructus	Duham,	Duham.,
93	20	Cortex Cinnamomi	1—3 mm. thick, and 0.5—3.0 mm.	about 1—3 mm. thick, and 0.5—3 cm.
94	13	„ Condurango	partly containing	partly contain
95	11	„ Frangulæ	but is devoid of	which is devoid of
96	6	„ Granati	0.00025—0.0008 mm.	0.0025—0.008 mm.
97	18	„ Quillaiæ	0.06—3.20 mm.	0.06—0.2 mm.
101	10 *fr. bottom*	Dimethylamidoantipyrinum	Demethylamidoantipyrinum	Dimethylamidoantipyrinum
113	11 *fr. bottom*	Extractum Colombo	Columba root	Calumba Root

Page	Line	Article	For	Read.
113	2 & 13 *fr. bottom*	Extractum Colombo	Extract of Columba	Extract of Calumba
116	5 *fr. bottom*	„ Gentianæ	*in coarse powder*	*coarse cut*
118	5 *fr. bottom*	„ Hydrastis fluidum	a dry filter-paper	a dry filter-paper, placed in a well-covered funnel
121	1	Extractum Opii	a till	till a
126	1 *fr. bottom*	Ferrum carbonicum saccharatum	50 *pts.*	5 *pts.*
129	12 *fr. bottom*	Ferrum citricum oxydatum	thereform	therefrom
130	21	Ferrum iod. saccharat.	20 per cent	about 20 per cent.
136	16	Flores Arnicæ	8—12 veins	8—10 veins
„	6 *fr. bottom*	„ Chamomillæ	white ones	of white ones
142	3 *fr. bottom*	Folia Eucalypti	1—2 mm.	1—2 cm.
146	7 *fr. bottom*	„ Sennæ	Cynanchum Argel Del.	Cynanchum Arghel Del.
152	6 *fr. bottom*	Galbanum	fuming nitric acid	fuming hydrochloric acid.
155	7 *fr. bottom*	Gossypium depuratum	10 parts	10 ccm.
157	7 *fr. bottom*	Guaiacolum	about 28° C.	about 28° C. Boiling point: abont 205° C.
159	1 *fr. bottom*	Gutta percha depurata	at 100° C.	at 100° C., and should completely dissolve in chloroform
169	12	Hydrar. oxyd. rubrum	2 ccm.	1 ccm.
188	4 *fr. bottom*	Lichen islandicus	Cetrara	Cetraria
190	17	Lignum Quassiæ	5—20 layers	5—20 or more layers
191	5	„ Sassafras	add	and
194	5	Liquor Ferri albumi.	of water	of distilled water
199	10 *fr. bottom*	„ Kali Acetici	with water	with distilled water
205	6 *fr. bottom*	Magnesium carbonicum ponderosum	Distilled Water	Boiling Distilled Water
207	2 *fr. bottom*	Magnesium sulfuricum	The aqueous solution	20 ccm. of the aqueous solution
216	9	Naphthalinum	Naphtalin	Naphthalene
218	5 *fr. bottom*	Natrium aceticum	then become	then becomes
222	18	Natrium carbonicum	If its aqueous	If 2 ccm. of its aqueous
229	2 *fr. bottom*	Natrum causticum	A aqueous solution	An aqueous solution
231	8	Oleum Amygdalarum	shaken with	shaken at 10° C. with

Page	Line	Article	For	Read
233	8 *fr. bottom*	Oleum Cacao	dissolve 0.5 g.	dissolve about 0.5 g.
237	4	„ Citri	9.858—0.861	0.858—0.861
„	1 *fr. bottom*	„ Eucalypti	with iodine	with iodine. Specific gravity: 0.90—0.93
238	17	„ Gynocardiæ	25°—20° C.	25° —29° C.
240	19	„ Lavandulæ	half-normal	half-normal alcoholic
260	18	Physostig. Salicylicum	0.2 g.	0.02 g.
270	4	Pulvis æropliorus	2 *pts.*	2 g.
„	5	„ „	15 *pts.*	1.5 g.
„	11	„ „ laxans	75 *pts.*	7.5 g.
„	12	„ „ „	25 *pts.*	2.5 g.
„	14	„ „ „	2 *pts.*	2 g.
275	6	Radix Althææ	It should	1 part of it should
„	13	„ Colombo	*Jateorrhiza*	*Jatrorrhiza*
277	10 *fr. bottom*	„ Gentianæ scab.	5 cm.	5 mm.
280	18	„ Iridis	*Iris pallida* Linn.	*Iris pallida* Lam.
282	11 *fr. bottom*	„ Rhei	Rheum.,	Rhenm,
285	11	„ Tarax. c. Herba	Koch.,	Koch,
288	7 *fr. bottom*	Resina Jalapæ	If it be	If 1 part of it be
290	8	Resorcinum	100°—111° C.	110°—111° C.
299	3	Semen Lini	Linum usitatissimum	Linum usitatissimum
302	18	„ Strychni	6 parts of ether and 1 part	6 ccm. of ether and 1 ccm.
307	11 *fr. bottom*	Sirupus Croci	Syrupus Croci	Sirupus Croci
315	20	Spiritus ætliereus	Liquor Hoffmann	Liquor Hoffmanni
351	13 *fr. bottom*	Tinctura Scopoliæ	to 100 ccm.	to about 100 ccm.
353	13	„ Strychni	to 100 ccm.	to about 100 ccm.
375	16		Chloroform absolutum	Chloroforminm absolut.
376	1 *fr. bottom*		in 12 parts	in 19 parts
377	21		nitric acid. Specific gravity: 1.2	nitric acid, having a specific gravity of 1.2
„	2 *fr. bottom*		Solutio Calcii chloraci	Solutio Calcii chlorati
379	13 *fr. bottom*		in 9 parts	in 19 parts
382	12		Solution Kali	Solutio Kali
386	29		usta	ustum
398	26		306.9	206.9

PREFACE

TO

THE ENGLISH TRANSLATION.

The first and the second edition of the Japanese Pharmacopœia were each accompanied by an official Latin translation published by the Government, and were thus introduced to pharmaceutical circles abroad. But in the case of this third edition, the usual course was not followed by the Government. However, the necessity in the foreign pharmaceutical circles, especially among those engaged in the trade of medicinal substances and also in their manufacture, of knowing the contents of the newly revised Pharmacopœia, was so great that it soon became clear that its translation into one of the foreign languages should somehow be brought about, not only in their interest, but also for the benefit of our country. Hence from all sides, both official and private, the Pharmaceutical Society was persuaded to supply this want, and as we also felt the pressing need of a translation, the Council of our Society resolved in July before last, to take up the work, and have a translation made into English which is, at present, the language most generally employed

in the foreign intercourse of our country, consequently we asked Prof. Etz. Hori of the Dai Ichi Kōtō Gakkō (*The First National College*), who is also a member of the Committee of Publication of our Society, to undertake this work on behalf of the Pharmaceutical Society. We are now able to lay before the public the complete English translation of the newly revised third edition of the Japanese Pharmacopœia, and it will give great pleasure and satisfaction to our Society, if the publication of this translation proves to be of some convenience to the pharmaceutical circles, both at home and abroad.

Prof. Dr. Wilh. Nag. Nagai, *Ri.-Hak.*, *Yak.-Hak.*
President of the Pharmaceutical Society of Japan.

Tokyo, September, 1907.

HISTORICAL INTRODUCTION

The establishment of the Japanese Pharmacopœia is due to Masayoshi Matsukata, Minister of Home Affairs, who submitted his project in October, 1880, to the Government of the time, in accordance with the view of the late Sensai Nagayo who was the director of the Sanitary Bureau, at that time, in the Department of Home Affairs.

The outline of Matsukata's project was as follows :—

Firstly, as a natural consequence of the non-existence of an authorised pharmacopœia, there is no standard for prescriptions and preparations, and such dangerous mistakes as the prescribing of German preparations according to English doses are frequently committed.

Secondly, since manufacturers freely prepare medicines, using as their authorities the pharmacopœias of various countries, different medicines often come into market under the same name, while identical medicines are often met with, labelled with different names.

Thirdly, as we have no standard of our own to judge thereby the qualities of the imported medicines, they must naturally be tested according to the Pharmacopœia of the country where they were manufactured ; moreover, the foreign manufacturers, taking advantage of the non-existence of a Japanese Pharmacopœia, tend to use the cheapest raw materials of an inferior quality for manufacturing medicines, especially for the purpose of importing them into our country, thus advertising that they care for nothing but for their own pecuniary interests.

Now the only means of putting an end to these abuses is, according to Matsukata's opinion, to establish, in some way or other, a national Pharmacopœia, as by entrusting the Central Council of Health with the power of selecting the medicines and compiling a Pharmacopœia.

In November of the same year, the Central Council of Health was entrusted by the Government with the power of compiling a Pharmacopœia, and in January of the next year, the President and the Members of the Committee of Publication, consisting of the following gentlemen were appointed :—

PRESIDENT.

Junjirō Hosokawa, Secretary of the Senate.

MEMBERS OF THE COMMITTEE.

Jun Matsumoto, Surgeon General, I. J. A.

Tsuna Hayashi, Surgeon Lieutenant General, I. J. A.

Bunkwai Totsuka, Surgeon General, I. J. N.

Dr. Kensai Ikeda, Physician in Ordinary to the Imperial Court.

Sensai Nagayo, Director of the Sanitary Bureau.

Hiizu Miyake, Professor in the Faculty of Medicine, Tokyo University.

Kanehiro Takaki, Fleet Surgeon, I. J. N.

Tōkwai Nagamatsu, Apothecary Colonel, 2nd Class; I. J. A., Surgeon Colonel, 2nd Class, I. J. A.

Shōkei Shibata, Esq.

Dr. Eijkman, Professor in the Tokyo Pharmaceutical Laboratory.

Dr. Geerts, Professor in the Yokohama Pharmaceutical Laboratory.

Dr. Bælz, Professor in the Faculty of Medicine, Tokyo University.

Dr. Langgaard.

Dr. Bœkema.

In January, 1881, the Committee held its first meeting, and settled the general outline of the Pharmacopœia, and the extent of its contents; it was also resolved that the drafts in Dutch and its Japanese translation, originally compiled at the request of the Home Office by Dr. Geerts and Dr. Dwars, both Professors in the Pharmaceutical Laboratory, should be made its basis. However, it was afterward decided to compile the Japanese Pharmacopœia in German, independent of the old draft of 1877, and the numbers of the articles and the tables, to be adopted were settled; and subsequently, the chief work of the meeting was directed to the compilation of the Pharmacopœia and the discussion of the articles to be adopted therein.

In July, 1883, Chūtoku Ishiguro and Ijun Ogata were appointed Members of the Committee.

In April, 1884, Junjirō Hosokawa was released from the office of President and succeeded by Hisamoto Hijikata, Vice-Minister of Home Affairs.

In Septembar of the same year, Dr. Seriba and in October, Dr. van der Heyden were appointed Members of the Committee.

In July, 1885, Viscount Hijikata, State Councillor was released from the office of President, and Akimasa Yoshikawa, Vice-Minister of Home Affairs, was appointed President in his place.

On October 13, 1885, the Japanese Pharmacopœia was completed, and submitted to the Minister of Home Affairs, and in December, the President and all the Members of the Committee were released from duty.

On July 7, 1886, the new Japanese Pharmacopœia was published, and became official from July 1, 1887.

The first edition of the Japanese Pharmacopœia contains 470 articles, with appendices including general rules in relation to the pharmaceutical preparations, lists of reagents and of volumetric solutions, and 6 tables, among which there is a list of medicines which should always be kept in the dispensa-

ries. At the same time, a complete Latin translation was published by the Home Office.

The German draft which served as the basis of the new Pharmacopœia was drawn up first by Dr. Geerts and Dr. Langgaard, and afterwards principally by Dr. Eijkman, whose commentary of the first edition of the Japanese Pharmacopœia was also published by the Sanitary Bureau. The gentlemen who participated in the compilation of the new Pharmacopœia, without being themselves Members of the Committee are as follows :—

Seisuke Tsujioka, Director of the Yokohama Sanitary Laboratory.

Jun-ichirō Shimoyama, Assistant Professor in the Faculty of Medicine, Tokyo University.

Keizō Tamba, Assistant Professor in the Faculty of Medicine, Tokyo University.

Tōkichirō Niwa, Assistant Professor in the Faculty of Medicine, Tokyo University.

Tōkwai Hayashi, An Official in the Home Office.

Ta-ichirō Ōnaka, Assistant Chemical Expert, 1st Class, of the Home Office.

In April, 1888, with the view of revising the first edition of the Japanese Pharmacopœia, the following gentlemen were appointed as the Members of the Revision Committee of the Japanese Pharmacopœia :—

Dr. Wilhelm Nagayosi Nagai, Professor in the College of Medicine, Imperial University.

Dr. Juntarō Takahashi, Professor in the College of Medicine, Imperial University.

Dr. Jun-ichirō Shimoyama, Professor in the College of Medicine, Imperial University.

Dr. Keizō Tamba, Professor in the College of Medicine, Imperial University.

Dr. Seitoku Kashimura, Professor in the College of Medicine, Imperial University.

Seisuke Tsujioka, Chemical Expert, 3rd Class, of the Home Office.

Yoshizumi Tahara, Chemical Expert, 4th Class, of the Home Office.

Koheida Sakurai, Chemical Expert, 5th Class, of the Home Office

Kōichi Shimada, Assistant Chemieal Expert, 1st Class, of the Home Office.

Shōkei Shibata, Esq.

The Revision Committee at first discussed the articles to be further added to the Pharmacopœia then in use, and in September, 1888, set forth the drafts of the 2 articles on *Cocainum Hydrochloricum* and *Antifebrinum*, and after a deliberate discussion, decided to adopt them. Since then, the Committee, after a full investigation into the important points to be revised, came to the conclusion that it would be much better, in order to avoid promiscuous confusions resulting from numerous necessary changes, to make a thorough revision of the first edition. The draft of the Revised Pharmacopœia was begun in September, 1888, and after deliberate discussions, it was completed in October, 1890, and submitted in March, 1891, to the Minister of Home Affairs who, after consulting the Central Council of Health, issued the Revised Pharmacopœia which became official from January 1, 1892.

In this revised edition, 32 articles were newly admitted, and 67 articles were omitted, and about 1500 changes were made in the older edition, and all the Latin names were altered to those adopted in Germany and Austria, and native products were mostly taken to be used as the raw materials for drugs and preparations. The Latin translation of this revised Pharmacopœia was also published by the Home Office.

Ten years passed since the publication of the second revised edition of the Japanese Pharmacopœia, and it became necessary to revise it again, in accordance with the progress of the science of medicine and that of pharmacy.

In March, 1900, the regulation relating to the revision of the Japanese Pharmacopœia was issued by the Imperial Ordinance No. 80. (*33rd year of Meiji*), and the necessary Committee was organised, and in April, the Chairman, the Secretary and the Members of the Committee of Revision were appointed. The result of their inquiries is the publication of the third revised edition of the Japanese Pharmacopœia. The progress of the work of revision, and the changes in the names of the officials, and of the Members of the Committee may be seen from the following preface.

PREFACE

After the regulation relating to the Revision Committee of the Japanese Pharmacopœia was issued in March, 1900, the Chairman, the Secretary, the Chief Members and the Members of the Committee were appointed.

In May of the same year, the first meeting of the Committee was held in the Home Office, and the general plan to be followed in revising the Pharmacopœia was arranged as follows :—

1. The meeting of the Chief Members shall be held once every week.

2. The general meeting of the Committee shall be held once every month, and the Chief Members shall report to the general meeting the results of inquiries in their special branches.

3. To do away with the practical inconveniences due to a comparatively limited number of articles adopted in the current Pharmacopœia, they shall be increased, but such a complete revision naturally requires a longer time, and therefore previous to such a revision, the articles for the newly introduced medicines and also for others commonly used at the time, shall be discussed as occasion arises and added in the form of appendices. Thus the article for *Acidum Gallicum* and 32 others were added by the Departmental Ordinance No. 48. (*33rd year of Meiji*,) that for *Serum Antidiphtherieum* and 2 others were added by the Departmental Ordinance No. 3. (*June, 36th year of Meiji*) and that for *Aqua carbolisata pro Desinfectione* and another article were added by the Departmental Ordinance No. 8. *May, 37th year of Meiji*).

From June 13, 1900, the articles to be newly added to the current Pharmacopœia and those to be omitted therefrom, were inquired into, and decided upon; and from September 25, 1901, the real work of revising the Pharmacopœia was begun.

On September 21, 1904, a Committee of Publication was elected from among the Chief Members of the Committee.

Thus after the lapse of 5 years and 11 months, since the organisation of the Revision Committee, during which time, 70 general meetings, 119 meetings of the Chief Members and 34 meetings of the Committee of Publication were held, the revision of the Pharmacopœia was completed in March of the year 1906, and submitted to the Minister of Home Affairs. In this revision, 242 articles were newly added, 22 articles were omitted, and as the result of inquiries and practical investigations, about 815 alterations were made, besides numerous improvements of the terms and phrases in almost every article. Important changes of general interest are as follows :—

1. Medicines which are commonly used, those for disinfecting purposes, and the materials for disinfection are generally adopted in most cases.

2. The following medicines are newly added :—

LIST OF ARTICLES ADDED TO THE PHARMACOPŒIA

Acetum aromaticum.
„ pyrolignosum crudum.
„ Scillæ.
Acidum acetsalicylicum.
„ camphoricum.
„ carbolicum liquefactum.
„ hydrocyanicum dilutum.
„ nitricum crudum.
„ olcinicum.
Acidum picrinicum.
„ stearinicum.
„ trichloraccticum.
Adeps benzoatus.
„ Lanæ anhydricus.
Æther aceticus.
„ pro narcosi.
Æthylium bromatum.
Agaricinum.

Albumen Ovi siccum.
Albuminum tannicum.
Alcohol absolutus.
Aluminium sulfuricum.
Ammonium benzoicum.
Amygdalæ dulces.
Anetholum.
Antipyrinum salicylicum.
Aqua Amygdalarum amararum.
„ Anisi.
„ Carvi.
„ Chloroformii.
„ cresolica.
„ Picis.
„ Pruni macrophyllæ.
„ Rosæ.
Argentum proteinatum.
Arsenum iodatum.
Bismutum subcarbonicum.
„ tribromphenylicum.
Caffeino-Natrium benzoicum.
„ „ salicylicum.
Calcaria sulfurata.
Carrageen.
Carvonum.
Cautschuc.
Cera alba.
Chininum æthylcarbonicum.
„ bisulfuricum.
„ tannicum.
Coccionella.
Cognac.
Collemplastrum.
Collodium iodoformiatum.
Collophonium.
Cortex Citri Fructus.
„ Frangulæ.
„ Mezerei.
„ Quillaiæ.
Cresolum crudum.
Creta præparata.
Diastasa.
Dimethylamidoantipyrinum.
Emplastrum Cantharidum.
„ Hydrargyri.
„ Lithargyri compositum.
„ Saponatum.
Extractum Aconiti Napelli.
„ Cardui benedicti.
„ Chinæ fluidum.
„ Cubebarum.
„ Gentianæ.
„ Hamamelidis fluidum.
„ Quassiæ.
„ Ratanhiæ.
„ Secalis cornuti fluidum.
Fel Tauri inspissatum.
Ferrum carbonicum saccharatum.
„ iodatum saccharatum.
Flores Chamomillæ romanæ.
„ Lavandulæ.
„ Malvæ.
„ Rosæ.
„ Sambuci.
„ Tiliæ.
„ Verbasci.
Folia Althææ.
„ Belladonnæ.

Folia Bucco.
„ Coca.
„ Eucalypti.
„ Farfaræ.
„ Hamamelidis.
„ Hyoscyami.
„ Melissæ.
„ Pruni macrophyllæ.
„ Stramonii.
„ Trifolii fibrini.
Fructus Anisi.
„ Aurantii immaturi.
„ Capsici.
„ Carvi.
„ Juniperi.
„ Piperis nigri.
„ Vanillæ.
Galbanum.
Gelatina alba.
Gossypium Acidi borici.
„ carbolisatum.
„ Hydrargyri bichlorati.
„ iodoformiatum.
„ salicylatum.
Guttapercha depurata.
Gutti.
Herba Absinthii.
„ Cardui benedicti.
Hexamethylentetraminum.
Homatropinum hydrobromicum.
Hydrargyrum cum Creta.
„ chloratum vapore paratum.
„ oleinicum.
Kalium chloratum.
Lactylphenetidinum.
Lapis Punicis.
Linimentum Chloroformii.
Liquor Arseni et Hydrargyri iodati.
Liquor Cresoli saponatus.
„ Ferri albuminati.
„ „ oxychlorati.
„ Kalii acetici.
„ Nitroglycerini.
Magnesia usta ponderosa.
Magnesium carbonicum ponderosum.
Mel rosatum.
Minium.
Mucilago Salep.
„ Tragacanthæ.
Naphthalinum.
Natrium carbonicum siccum.
„ nitricum.
„ sulfocarbolicum.
„ sulfuricum siccum.
Nitroglycerinum.
Oleum Bergamottæ.
„ camphoratum.
„ cantharidatum.
„ Chloroformii.
„ Gynocardiæ.
„ Hyoscyami.
„ Lauri.
„ Myristicæ æthereum.
„ Resinæ empyreumaticum
„ Sabinæ.
„ Santali.

Oleum Thymi.
Oxymel.
„ Scillæ.
Pankreatinum.
Paraffinum liquidum.
Paraldehydum.
Pastilli Acidi borici.
„ Antipyrini.
„ Bismuti subnitrici.
„ Cocaini hydrochlorici.
„ Hydrargyri bichlorati.
„ „ chlorati cum Talco.
„ Menthæ.
„ Morphini hydrochlorici.
„ Natrii salicylici.
„ Opii et Ipecacuanhæ.
Phenyldihydrochinazolinum tannicum.
Pilulæ Aloës et Asæ fœtidæ.
„ Chinini sulfurici.
„ Ferri carbonici Blaudii.
„ Kreosoti.
Pix Betulæ liquida.
„ Juniperi liquida.
Pulpa Tamarindorum depurata.
Pulvis Liquiritiæ compositus.
„ Rhei compositus.
„ salicylicus cum Talco.
Pyrogallolum.
Radix Aconiti Napelli.
„ Gelsemii.
„ Gentianæ.
„ Hibisci.
„ Iridis.
Radix Ratanhiæ.
„ Serpentariæ.
„ Zedoariæ.
Resina Dammar.
Saccharinum.
„ solubile.
Sandaraca.
Sapo viridis.
Scopolaminum hydrobromicum.
Semen Tonco.
Sirupus Cinnamomi.
„ Croci.
„ Mannæ.
„ Menthæ.
„ Rubi Idæi.
„ Sennæ cum Manna.
Sparteinum sulfuricum.
Species.
„ laxantes.
„ pectorales.
Spiritus Rosmarini.
„ Saponatus.
„ Sinapis.
Styrax liquidus depuratus.
Suppositoria.
„ Glycerini.
„ Opii.
„ Scopoliæ.
Talcum.
Tela depurata.
„ Acidi borici.
„ Hydrargyri bichlorati.
„ iodoformiata.
„ salicylata.

Terpinum hydratum.
Tinctura Aconiti Napelli.
„ Aloës composita.
„ Cannabis indicæ.
„ Capsici.
„ Chinæ composita.
„ Chloroformii et Morphini composita.
Tinctura Colombo.
„ Gelsemii.
„ Gentianæ composita.
„ Ratanhiæ.
Tinctura Serpentariæ.
„ Valerianæ æthcrea.
Unguentum Acidi borici.
„ Cantharidum.
„ Kalii iodati.
„ Paraffini.
„ Picis liquidæ.
Vinum.
„ Chinæ.
„ Condurango.
Zincum sulfocarbolicum.
„ valerianicum.

3. Those which are omitted are as follows :—

LIST OF ARTICLES OMITTED FROM THE PHARMACOPŒIA.

Acidum hydrochloricum crudum.
Aqua chlorata.
„ communis.
Charta nitrata.
Chinoidinum.
Cinchoninum hydrochloricum.
Codeinum.
Farina Lini.
Glandulæ Lupuli.
Herba Hyoscyamii.
„ Scopoliæ.
Hydrargyrum sulfuratum rubrum.
Kalium aceticum.
Lactucarium.
Linimentum Scopoliæ.
Manganum hyperoxydatum.
Pilulæ Ferri carbonici.
Sirupus Auranti Florum.
„ Balsami tolutani.
Tinctura Arnicæ.
Vinum album.
„ Xerense.

4. The Latin names of medicines are always given at the beginning of every article.

5. The registered names of patent medicines are changed to their chemical names.

6. Except in the case of tinctures, extracts and syrups, the

transliteration of the names of medicines are written in '*Katakana.*'

7. In a case where the chemical constitution is known, formula and molecular weight are given under the Latin names of medicines.

8. Atomic weights selected by the International Atomic Weight Committee, are adopted.

9. For weights and measures, Arabic numerals are used with abbreviations.

10. Distinctions are made between the sizes of cut pieces and the degrees of fineness of powder.

11. The sieves to be used for the preparation of medicinal substances cut or powdered, have different sizes of mesh.

12. The size of the test-tube to be used for the qualitative testing of medicines is fixed.

13. The method of determining the melting point is fixed.

14. The specific gravity of the tinctures is not given.

The names of the officers, and the members of the Revision Committee of the Japanese Pharmacopœia, who were acting on March 31, 1906, and their successors are as follows :—

CHAIRMAN.

Viscount Chūtoku Ishiguro, Surgeon General, I. J. A.

SECRETARY.

Scitarō Kubota, Director of the Sanitary Bureau, Home Office.

MEMBERS OF THE COMMITTEE.

*Dr. Wilh. Nag. Nagai, Rigakuhakushi, Yakugakuhakushi ; Prof. in the Coll. of Med., Tokyo Imperial University.

*Juntarō Takahashi, Igakuhakushi, Prof. in the Coll. of Med., Tokyo Imperial University.

*Dr. Jun-ichirō Shimoyama, Yakugakuhakushi, Prof. in the Coll. of Med., Tokyo Imperial University.

*Dr. Keizō Tamba, Yakugakuhakushi, Prof. in the Coll. of Med., Tokyo Imperial University.

*Sōsuke Kimura, Surgeon General, I. J. N.

*Yoshizumi Tahara, Yakugakuhakushi, Chemical Expert, Imperial Sanitary Laboratory.

*Keizō Ikeguchi, Chemical Expert, Metropolitan Police Office.

*Kōichi Shimada, Prof. in the Nagasaki Medical College.

Hirotake Saito, Chemical Expert, Imperial Saintary Laboratory.

Tatsukichi Irisawa, Igakuhakushi, Prof. in the Coll. of Med., Tokyo Imperial University.

*Seiyū Hirai, Surgeon Colonel, I. J. A.

*Masunosuke Hirayama, Apothecary Colonel, I. J. A.

Hidematsu Takahashi, Chief Apothecary, 1st Class, I. J. N.

Tadasu Yamada, Chief Apothecary to the Imperial Court.

Tōkichirō Niwa, Assistant Professor in the Coll. of Med., Tokyo Imperial University.

Dr. Tasuku Sato.

Note.—The asterisk indicates a Chief Member of the Committee.

On April 16, 1902, Tai Hasegawa, Director of the Sanitary Bureau, resigned the Chairmanship, and Viscount Chūtoku Ishiguro, Surgeon General, I. J. A., was appointed in his place.

On April 28, 1900, Keinosuke Miyairi, Medical Expert in the Home Office, was appointed Secretary of the Committee.

On March 14, 1902, Keinosuke Miyairi, Medical Expert in the Home Office, resigned, and Yōshō Kurimoto, Medical Expert in the Home Office, was appointed Secretary in his place.

On December 28, 1902, Yōshō Kurimoto was appointed Chief Surgeon to the Metropolitan Police Office, and Shinzō Ohara, Councillor to the Home Office, was appointed Secretary in his place.

On April 13, 1903, Shinzō Ohara, Councillor to the Home Office, was released from the Office of Secretary, and Mokichi Morita, Director of the Sanitary Bureau, was appointed in his place.

On September 3, 1903, Mokichi Morita, Director of the Sanitary Bureau, became Directer of the Commercial and Industrial Bureau, Department of Agriculture and Commerce.

On September 14, 1903, Seitaro Kubota, Director of the Sanitary Bureau, was appointed Secretary in succession to the above.

On May 2, 1902, Intsū Aoyama resigned his post as a Member of the Committee.

On July 8, 1902, Seitoku Kashimura, a Member of the Committee, died.

On Decembar 12, 1903, Masanao Koike resigned his post as a Member of the Committee.

On February 3, 1904, Tōkichirō Niwa, Assistant Professor in the Coll. of Med., Tokyo Imperial University, was appointed a Member of the Committee.

On June 5, 1904, Seisuke Tsujioka, a Member of the Committee, died.

On July 1, 1904, Hirotake Saito, Chemical Expert, Imperial Sanitary Laboratory, was appointed a Member of the Committee.

INTRODUCTORY NOTES

The articles are arranged in the alphabetical order of the Latin names of medicines.

At the head of each article, the ordinary popular names, if any, are given besides the Latin and the Japanese names.

In each article, statements are given in the following order:— (1) preparation, (2) condition, (3) properties, (4) reactions, (5) tests and (6) preservation. But any of these is omitted when not essential.

In the case of drugs, the names of the original plants and animals are given.

The method of preparation is given only in cases, where it is necessary to fix the composition of medicines.

The purity or the adulteration of medicines is judged by their condition, properties, reactions and tests.

The metric system is adopted for weights and measures, and for one gramme, two centimetres, three cubic centimetres, figures with abbreviations are used, viz., 1 g., 2 cm., and 3 ccm.

Temperature is taken by a thermometer graduated according to Celsius, and 15° C. is made the normal temperature.

For a medicine, the chemical constitution of which is established, formula and molecular weight are also given under its Latin name.

The atomic weights, selected by the International Atomic Weight Committee of 1898, are adopted.

The number of parts mentioned in every article always means, unless otherwise stated, so many parts by weight of the substance named.

In cases where the strength of a solution is given, (1 : 10)

or (1 : 20) means that the solution referred to contains 1 part by weight of the substance in about 10 or 20 parts by weight of the solution.

In every article, where properties or tests are described, '*water*' always means '*distilled water.*'

The qualitative tests of a medicine, unless otherwise stated, are done by taking 10 ccm. of its solution in a test-tube which has an internal diameter of 1.5 cm.

In cases where the name of the solvent is not mentioned, it being only stated '*a solution,*' it is always meant that water is used as the solvent.

Extraction '*in the cold*' is done at the temperature of 15°—25° C., and extraction '*by warming*' is done at 35°—45° C.

When a medicine is to be kept in glass bottles '*protected from light,*' black or yellowish-brown glass bottles are employed.

Unless otherwise stated, only the dry drugs are used, and their drying is done at a temperature not above 40° C.

At the end of the Pharmacopœia, are lists of reagents and of volumetric solutions, and under each article of the latter, the quantity of the chief constituent is given.

In the case of the strong drugs or preparations, the method of testing their chief constituents is given if possible.

In the case of chemical compounds, the chemical name is given if possible.

In determining the melting point, a capillary glass tube, 1 mm. in internal diameter, is closed at one end, filled, to the height of 2—3 mm., with the finely powdered substance which is is previously dried for 24 hours in a desiccator, and it is fixed to the thermometer bulb introduced into sulphuric acid, which is contained in a test-tube having an internal diameter of 3 cm. The sulphuric acid is then gradually heated with frequent stirring at the same time, and the temperature at which the substance melts and forms a transparent drop is taken as its melting point.

In determining the melting point of fats and other similar substances, they are at first melted and sucked up to the height of 1 cm. into a capillary glass tube, 1 mm. at most in internal diameter and open at both ends, then allowed to solidify completely by cooling to a low temperature (about 10° C.) for 24 hours. The capillary tube is attached to the bulb of a thermometer dipped into water which is contained in a test-tube, 3 cm. in internal diameter, and is warmed gradually with frequent stirrings. The temperature at which the fat melts to a transparent liquid and begins to rise in the capillary tube, is taken as its melting point.

For the preparation of the cut or the powdered medicinal substances, the following six different sieves are used :—

No. 1. That which has meshes with an internal diameter of 4 mm.

No. 2. That which has meshes with an internal diameter of 3 mm.

No. 3. That which has meshes with an internal diameter of 2 mm.

No. 4. That which has 10 meshes in a length of 1 cm.

No. 5. That which has 26 meshes in a length of 1 cm.

No. 6. That which has 40 meshes in a length of 1 cm.

There are the following three different degrees of fineness, both for the cut, and the powdered medicinal substances :—

That which is '*coarse cut*,' is the one passing through sieve No. 1.

That which is '*medium cut*,' is the one passing through sieve No. 2.

That which is '*fine cut*,' is the one passing through sieve No. 3.

That which is '*in coarse powder*,' is the one passing through sieve No. 4.

That which is '*in medium powder*,' is the one passing through sieve No. 5.

That which is '*in fine powder*,' is the one passing through sieve No. 6.

In preparing the medicinal substances, *coarse cut*, *medium cut*, *fine cut*, or *in coarse powder*, the portion passing through sieve No. 5. are removed.

The Pharmaeopœia has the following tables attached to it as an appendix :—

Table (A) contains a list of medieines whieh should always be kept in every dispensary. Medieines of this class are distinguished from others by the symbol ○ standing before their Latin names in the articles of the original Pharmaeopœia in Japanese.

Table (B) contains a list of medicines which should be kept separated from others, in a place which can be shut up, viz., the so-called poisonous medieines. Medicines of this class are distinguished from others by the motto '*Keep with special care*' at the end of every artiele.

Table (C) contains a list of medieines whieh should be kept separated from others, viz., the so-ealled strong or energetic medieines. Medicines of this class are distinguished from others by the motto '*Keep with care*' at the end of every article.

Table (D) contains a list of medicines with their maximum daily doses for an adult, and also the maxinum doses to be taken at any one time. Physicians are not allowed to preseribe a medicine with a dose exceeding its maximum one, unless they draw special attention to it by putting an exclamation mark (!) after the quantity of that medicine in the preseription.

Table (E) contains symbols and atomic weights of the more important elements.

At the end of the Pharmaeopœia, there are a comparative table of the official names of medicines, and the popular names by whieh they are eommonly known, and also a eomplete index of the Latin and the English names, arranged all together in alphabetieal order.

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THE PHARMACOPŒIA OF JAPAN

THE

PHARMACOPŒIA

OF

JAPAN.

ACETANILIDUM. *Antifebrinum.*

Acetanilide. *Antifebrine.*

$C_8H_9NO = 135.13$

Colorless, odorless, glistening, lamelar crystals, having a faintly pungent taste, and melting at 113—114° C. Soluble in 230 parts of water, and in 22 parts of boiling water, showing a neutral solution, easily soluble in alcohol, ether, and in chloroform.

On heating it with potassium hydroxide solution, an aromatic odor is noticed; and on adding a few drops of chloroform and heating, the disagreeable smell of isonitrile is produced.

Dissolved in 2 ccm. of hydrochloric acid, and on boiling the resulting solution for 1 minute, with 4 ccm. of the solution of carbolic acid, and afterwards adding the solution of bleaching powder, it acquires a dirty violet-blue color, which becomes blue for a long time, on supersaturating with ammonia water.

A cold, saturated, aqueous solution of it should produce no change with dilute ferric chloride solution.

No coloration should be produced by shaking 0.2 g. of it with 2 ccm. of nitric acid; 0.1 g. should dissolve without coloration in 1 ccm. of sulphuric acid; and upon ignition, 0.1 g. should be consumed without leaving any weighable solid residue.

Keep with care.

ACETUM AROMATICUM.

Aromatic Vinegar.

Take

Cinnamon oil	1 *pt.*
Juniper oil	1 *pt.*
Lavender oil	1 *pt.*
Peppermint oil	1 *pt.*
Rosmarin oil	1 *pt.*
Lemon oil	2 *pts.*
Clove oil	2 *pts.*
Alcohol	441 *pts.*
Acetic acid	542 *pts.*
Distilled water	2008 *pts.*

At first dissolve the oils in alcohol, afterwards add acetic acid and water; set aside the turbid mixture for 8 days with frequent stirring, and filter.

A colorless, clear liquid, miscible with water in all proportions, and having an aromatic odor and an acid taste.

ACETUM PYROLIGNOSUM CRUDUM.

Crude Wood Vinegar.

A brown liquid, with an acid and somewhat bitter taste, and an odor resembling that of wood tar and acetic acid, and when kept for a long time, producing a substance resembling wood tar.

Crude Wood Vinegar contains more than 6 per cent. of pure acetic acid ($C_2H_4O_2 = 60.04$).

If 1 volume of it be diluted with 1 volume of water and filtered, the filtrate should give only a slightly blue coloration with the solution of yellow prussiate of potash, and produce only an opalescence, either with barium nitrate solution, or with silver nitrate solution, and produce no change with hydrogen sulphide solution.

If 10 ccm. of normal potassium hydroxide solution be mixed with 10 ccm. of it, the mixture should not react alkaline

ACETUM SCILLÆ.

Vinegar of Squill.

Take

Squill, *medium cut*	50 *pts.*
Alcohol	50 *pts.*
Acetic acid	75 *pts.*
Distilled water	375 *pts.*

Mix alcohol, acetic acid and distilled water; add squill to the mixture, and extract for 3 days in the cold, frequently shaking, in a well-stoppered bottle; express lightly; set aside for 24 hours, and filter.

A clear, yellowish liquid, having an acid, followed by a bitter, taste.

To neutralise 10 ccm. of the vinegar, 8–8.5 ccm. of normal potassium hydroxide solution should be required.

ACIDUM ACETICUM.

Acetic Acid.

A clear, colorless, volatile liquid, with an acid taste. Specific gravity: 1.048. It contains 36 per cent. of pure acetic acid ($C_2H_4O_2$ = 60.04).

If 1 volume of it be diluted with 6 volumes of water, and neutralised with sodium hydroxide solution, the resulting solution assumes a red color with ferric chloride solution.

When neutralised with sodium hydroxide solution, it should not give a smoky odor. When mixed with the same volume of sulphuric acid, it should not acquire any coloration, and on pouring carefully to that mixture, after cooling, half a volume of ferrous sulphate solution, so as to form 2 layers, no brownish ring should be produced at their contact surface.

If 1 ccm. of the acid be mixed with 3 ccm. of stannous chloride solution, it should not acquire a dark color within an hour.

If 1 volume of the acid be diluted with 6 volumes of water, the solution should not suffer any change with solutions of barium nitrate, silver nitrate, and of hydrogen sulphide, or with ammonia water.

If 15 ccm. of the acid be mixed with 1 ccm. of potassium permanganate solution, the mixture should not lose its pink color in less than 10 minutes.

To neutralise 2 ccm. of the acid, 12.6 ccm. of normal potassium hydroxide solution should be required.

ACIDUM ACETICUM DILUTUM.

Dilute Acetic Acid.

Mix

Acetic acid	**17** *pts.*
Distilled water	**83** *pts.*

A clear, colorless liquid, of an acid taste and odor.

It contains 6 per cent of pure acetic acid ($C_2H_4O_2 = 60.04$). It should respond to the tests and reactions given under *Acidum Aceticum*.

To neutralise 10 ccm. of the acid, 10.1 ccm. of normal potassium hydroxide solution should be required.

ACIDUM ACETICUM GLACIALE.

Glacial Acetic Acid.

$C_2H_4O_2 = 60.04$

A clear, colorless, volatile liquid, of a pungent, acid odor, and a strong, acid taste. When cooled, it solidifies to a crystalline mass, which melts again at about 16° C. It boils at 117—118° C., and is miscible with water, alcohol, and ether in all proportions. Specific gravity: 1.056–1.064. It contains more than 96 per cent. of pure acetic acid.

If 1 volume of the acid be diluted with 20 volumes of water, and neutralised with sodium hydroxide solution, the resulting solution produces a red coloration with ferric chloride solution.

If 1 volume of the acid be diluted with 2 volumes of water, and neutralised with sodium hydroxide solution, no smoky odor should be produced.

When mixed with an equal volume of sulphuric acid, it should

acquire no coloration, and on pouring carefully to that mixture, after cooling, half a volume of ferrous sulphate solution, so as to form 2 layers, no brownish ring should be produced at their contact surface.

If 1 volume of the acid be diluted with 2 volumes of water, 1 ccm. of the resulting solution should produce no dark coloration within 1 hour, with 3 ccm. of stannous chloride solution.

If 1 volume of the acid be diluted with 20 volumes of water, the resulting solution should produce no change with solutions of barium nitrate, silver nitrate, and of hydrogen sulphide, or with ammonia water.

If 1 ccm. of potassium permanganate solution be mixed with 5 ccm. of the acid, previously diluted with 15 ccm. of water, its pink color should not be lost within 10 minutes.

If 1 part of the acid be diluted with 9 parts of water, 5 ccm. of the resulting solution should require at least 8.1 ccm. of normal potassium hydroxide solution for neutralisation.

Keep in glass-stoppered bottles.

ACIDUM ACETSALICYLICUM.

Acetylsalicylic Acid.

$C_9H_8O_7 = 180.08$

A white, crystalline powder, almost odorless, slightly soluble in water, readily soluble in hot water, alcohol, and in ether. Melting point: 135° C.

If 0.5 g. of the acid be boiled with 10 ccm. of sodium hydroxide solution for a few minutes, cooled, and an excess of dilute sulphuric acid be added, a white precipitate is produced, which is entirely soluble in ether, and gives a violet coloration with ferric chloride solution; if the filtrate, obtained by separating the white precipitate, be boiled with alcohol, the odor of ethyl ester of acetic acid is produced.

It should dissolve with no coloration in sulphuric acid.

If 0.1 g. of the acid be dissolved in 5 ccm. of alcohol, and diluted with 20 ccm. of water, the resulting solution should produce no more than a faintly violet coloration, with a drop of ferric chloride solution.

On ignition, it should be consumed without leaving any solid residue.

ACIDUM ARSENICOSUM.

Arsenious Acid.

$AS_2O_3 = 198$

White, porcelain-like or glassy masses, or a white powder, odorless and tasteless; slowly but completely soluble in 15 parts of boiling water.

When heated carefully in a test-tube, it sublimes in tetrahedral or octahedral crystals with glassy lustre; when thrown on ignited charcoal, it volatilises with an alliaceous odor.

Its aqueous solution mixed with hydrochloric acid, produces, with hydrogen sulphide solution, a yellow precipitate soluble in ammonia.

It contains about 99 per cent. of pure arsenious acid.

If 1 part of the acid be dissolved in 10 parts of ammonia water, the resulting clear solution, after diluting with 10 parts of water, should not acquire a yellow coloration, with an excess of hydrochloric acid.

When heated in a glass-tube, it should sublime without leaving any solid residue, or, if any, only a very slight quantity.

If 0.5 g. of the acid be dissolved, together with 3 g. of sodium bicarbonate, in boiling water, and made up to 100 cem. by adding cold water, 10 cem. of the resulting solution should decolorise at least 10 cem. of decinormal iodine solution.

Keep with special care.

ACIDUM BENZOICUM.

Benzoic Acid.

$C_7H_6O_2 = 122.06$

White, or yellowish leaflets or needle-crystals, soluble in alcohol, ether, chloroform, and in sodium hydroxide solution, sparingly soluble in water, but largely soluble in boiling water; subliming when heated, and melting at about 120° C.

The aqueous solution of the acid produces a yellowish precipitate with ferric chloride solution.

It should not have the odor of urine, and when heated, should volatilise without leaving any solid residue.

If 1 part each, of the acid and of potassium permanganate, together with 10 parts of water, be put in a test-tube, gently stoppered, and slightly warmed for 1 or 2 hours and cooled, no smell of benzaldehyde should be noticed on removing the stopper.

If 0.2 g. of the acid and 0.3 g. of calcium carbonate be mixed with a little water, and the mixture dried, ignited, and the residue dissolved in nitric acid, and made up to 10 ccm. by adding water, the resulting solution should produce no more than an opalescence with silver nitrate solution.

ACIDUM BORICUM.

Boric Acid.

$H_3BO_3 = 62.03$

Colorless leaflets, having a pearly lustre; slowly soluble in 25 parts of water, readily soluble in 3 parts of boiling water, and in 15 parts of alcohol, also soluble in glycerin.

When heated it melts and swells up, but, on cooling, solidifies to a colorless, transparent, glassy substance.

Its aqueous solution, mixed with a few drops of hydrochloric acid, colors the turmeric paper reddish-brown, which becomes more distinct after drying, and changes to greenish-black on pouring a small quantity of ammonia water.

The solution of 1 part of the acid in 15 parts of alcohol, burns with a flame fringed with a green color.

The aqueous solution (1 : 50) of the acid does not acquire any color, either with hydrogen sulphide solution, or with ammonium sulphide solution; it should produce no more than an opalescence with solutions of barium nitrate, silver nitrate, and of ammonium oxalate; after adding ammonia water, it should not suffer any change with sodium phosphate solution; 50 ccm. of the same solution, after adding hydrochloric acid, should not at once assume a blue coloration, with 0.5 ccm. of the solution of yellow prussiate of potash.

ACIDUM CAMPHORICUM.

Camphoric Acid.

$C_{10}H_{16}O_4 = 200.16$

Colorless, odorless leafts, soluble in about 150 parts of water, and in 8 parts of boiling water, with an acid reaction, readily soluble in alcohol and in ether, somewhat difficultly soluble in chloroform. Melting point: 186° C.

A cold, saturated, aqueous solution of the acid should not suffer any change with solutions of silver nitrate, and of barium nitrate.

If 2 ccm. of its aqueous solution be mixed with 2 ccm. of sulphuric acid, and after cooling, 1 ccm. of ferrous sulphate solution added carefully, so as to form 2 separate layers, a brownish ring should not be produced at their contact surface.

When heated, the acid completely volatilises in form of a white vapor, having a pungent odor.

To neutralise 1 g. of the dry acid, 10 ccm. of normal potassium hydroxide solution should be required.

ACIDUM CARBOLICUM.

Carbolic Acid.

$C_6H_6O = 94.06$

Long, colorless, needle-shaped crystals, or a white crystalline mass, having a characteristic odor. When heated on a water-bath, the acid completely volatilises, melting at 40—42° C., and forming a highly refractive liquid, boiling at 178—182° C.

When heated, it is consumed with a white flame; soluble in 15 parts of water, forming a clear, neutral solution; miscible, in all proportions, with alcohol, ether, chloroform, glycerin, carbon disulphide, and with sodium hydroxide solution.

The solution of 20 parts of the acid in 10 parts of alcohol assumes a dirty green color, with 5 parts of ferric chloride solution, but if diluted with water and made to 1000 parts, it changes to a beautiful, violet coloration somewhat permanent.

The solution even of 1 part of it in 50,000 parts of water produces a white curdy precipitate with bromine water.

It should not have a smoky or a disagreeable odor; and on ignition, it should leave no solid residue.

If 10 parts of it be mixed with 1 part of water, a clear liquid is obtained, which, however, becomes turbid by adding still more water, and clear again, when the water added reaches 200 parts.

Keep with care.

ACIDUM CARBOLICUM CRUDUM.

Crude Carbolic Acid.

Pink or reddish-brown or dark reddish-brown crystals, usually with a smoky odor, not completely soluble in water, soluble in ether and in alcohol, and soluble with turbidity in sodium hydroxide solution.

The aqueous solution of the acid produces a white, curdy precipitate with bromine water, and assumes a violet color with ferric chloride solution.

On ignition, it should be consumed, leaving, if any, only a slight solid residue.

Keep with care.

ACIDUM CARBOLICUM LIQUEFACTUM.

Liquefied Carbolic Acid.

Melt

Carbolic acid	100 *pts.*

by warming gently, add to it

Distilled water	10 *pts.*

A colorless, clear liquid, having the odor of carbolic acid. Specific gravity: 1.068–1.069.

If 2.3 cem. of water be added to 10 ccm. of the acid at 15° C., the latter does not become turbid, but is rendered so by adding 8–10 drops more of water, and this turbid solution should again become clear by adding 135–140 cem. of water.

Keep with care.

ACIDUM CHROMICUM.

Chromic Acid.

$CO_3 = 100.5$

Dark brownish-red crystals, having a steel-like lustre, deliquescent in the air, and easily soluble in water.

When mixed with alcohol or some other easily oxidisable matters, explosion or combustion may occur. When heated, it melts and evolves oxygen, getting a dark greenish color; and when heated with hydrochloric acid, it produces chlorine.

The aqueous solution (1 : 100) of the acid, after adding hydrochloric acid, should produce no more than a slight opalescence with barium nitrate solution.

The residue, obtained by igniting 0.2 g. of it, should contain no substance soluble in water.

Keep with care.

ACIDUM CITRICUM.

Citric Acid.

$C_6H_8O_7 + H_2O = 210.1$

Colorless, transparent crystals, stable in the air, but efflorescent when slightly warmed. When heated, it melts and then carbonises, soluble in 0.54 parts of water, 1 part of alcohol, and in about 50 parts of ether.

On adding 40–50 ccm. of lime water to 1 ccm. of its aqueous solution (1 : 10), it remains clear; but on boiling for 1 minute, a white, curdy precipitate is produced, which, on cooling, redissolves entirely within 3 hours.

If 1 g. of the acid be mixed with 10 ccm. of sulphuric acid, the resulting solution should acquire only a yellow, and not a brown color by warming on a water-bath.

Its aqueous solution (1 : 10) should produce no more than a slight opalescence with solutions of barium nitrate, and of ammonium oxalate.

If 5 g. of it be dissolved in 10 ccm. of water, and almost neutralised with ammonia water, the resulting solution should suffer no change with the solution of hydrogen sulphide.

On ignition, 0.5 g. of it should leave no weighable solid residue.

ACIDUM GALLICUM.

Gallic Acid.

$$CH_6O_5 + H_2O = 188.08$$

White, or brownish-white, odorless, needle-shaped crystals, with a silky lustre, having an astringent and slightly acid taste; soluble in 100 parts of water, and in 3 parts of boiling water, showing an acid reaction, and also soluble in 5 parts of alcohol, 50 parts of ether, and in 12 parts of glycerin.

The aqueous solution of the acid reduces silver nitrate solution, and produces a bluish-black precipitate with ferric chloride solution.

The aqueous solution (1 : 100) of it should produce no precipitate with solution of barium nitrate, and with solution of gelatine, or of albumen.

When dried at 100° C. to a constant weight, the acid should not lose more than 10 per cent. of its weight.

On igniton, 0.2 g. of the acid should leave no weighable solid residue.

Keep in well-stoppered bottles, protected from light.

ACIDUM HYDROCHLORICUM.

Hydrochloric Acid.

A clear, colorless liquid, fuming in the air, and completely volatilising when heated. Specific gravity : 1.152.

The acid contains 30 per cent. of hydrogen chloride (HCl = 36.46).

With silver nitrate solution, it yields a white, curdy precipitate, completely soluble in ammonia. When warmed with manganese dioxide, it gives off chlorine.

The mixture of 1 cem. of it with 3 cem. of stannous chloride solution, should acquire no dark color within an hour.

If 1 volume of it be diluted with 6 volumes of water, and ammonia water added, so as almost to neutralise it, the addition of zinc iodide and starch solution should not at once produce a blue

coloration, nor should the addition of hydrogen sulphide solution produce any change, nor should the addition of barium nitrate solution produce any change within 5 minutes; it remains the same, even after acquiring a light yellow coloration, by adding iodine solution.

If 1 volume of the acid be diluted with 12 volumes of water, 10 cem. of the resulting solution should produce no blue coloration, at once, on adding 0.5 cem. of the solution of yellow prussiate of potash.

To neutralise 3 ccm. of the acid, 28.4 ccm. of normal potassium hydroxide solution should be required.

Keep with care in glass-stoppered bottles.

ACIDUM HYDROCHLORICUM DILUTUM.

Dilute Hydrochloric Acid.

Mix

Hydrochloric acid	1 *pt.*
Distilled water	2 *pts.*

A clear, colorless liquid. Specific gravity: 1.05.

The acid contains about 10 per cent. of hydrogen chloride (HCl = 36.46).

It should respond to the same tests and reactions, as stated under *Acidum Hydrochloricum.*

Keep in glass-stoppered bottles.

ACIDUM HYDROCYANICUM DILUTUM.

Dilute Hydrocyanic Acid.

A clear, colorless, volatile liquid, with an odor resembling that of bitter almonds, and having a weak acid reaction. Specific gravity: 0.997.

The acid contains 2 per cent. of hydrogen cyanide (HCN = 27.05).

If it be supersaturated with sodium hydroxide solution, and mixed with ferrous sulphate solution, and a few drops of ferric chloride solution, it acquires a dark blue coloration, after adding an excess of hydrochloric acid.

If the precipitate, produced by mixing it with silver nitrate solution, after completely removing the clear supernatant liquid, be boiled with a mixture of equal volumes of sulphuric acid and water, it should completely dissolve. After adding 1 or 2 drops of nitric acid, it should produce no more than a slight turbidity with silver nitrate solution; and 5 ccm. of the acid, on evaporation, should leave no solid residue.

If 5 ccm. of the acid be diluted with 90 ccm. of water, and mixed with 2 ccm. of potassium hydroxide solution, the resulting solution should require 18.5 ccm. of decinormal silver nitrate solution, added drop by drop with agitation, in order to produce a permanent whitish turbidity.

Keep with special care, protected from light.

ACIDUM LACTICUM.

Lactic Acid.

A clear, colorless or very slightly yellowish, syrupy liquid, without odor, but having a purely acid taste; miscible, in all proportions, with water, alcohol, and ether. Specific gravity: 1.21–1.22.

It contains about 75 per cent. of pure lactic acid ($C_3H_6O_3 = 90.06$).

It evolves the odor of aldehyde, when warmed with the solution of potassium permanganate. When strongly heated, it carbonises and burns with a luminous flame.

When warmed, it should not evolve any odor, like that of fatty acid.

If poured on an equal volume of sulphuric acid, it should impart no coloration to the latter within 15 minutes.

If 1 part of the acid be diluted with 9 parts of water, the resulting solution produces no change with solutions of hydrogen sulphide, barium nitrate, silver nitrate, and of ammonium oxalate, it should also produce no change with an excess of lime water, even after heating.

If 1 ccm. of the acid be poured, drop by drop, into 2 ccm. of ether, it should not be rendered turbid.

On ignition, 0.5 g. of the acid should leave no solid residue.

ACIDUM NITRICUM.

Nitric Acid.

A clear, colorless liquid, completely volatilising when heated. Specific gravity : 1.153.

When warmed with copper filings, it dissolves the latter and produces a blue solution, evolving yellowish-red vapors.

It contains 25 per cent. of pure nitric acid ($HNO_3 = 63.05$).

If 1 part of the acid be mixed with 5 parts of water, and almost neutralised with ammonia water, the resulting solution produces no change with hydrogen sulphide solution, and should produce no more than a slight opalescence with barium nitrate solution, even after the lapse of 5 minutes.

If 1 part of the acid be diluted with 5 parts of water, the resulting solution should produce no change with a solution of silver nitrate.

If 1 part of the acid be diluted with 2 parts of water, and a little pure zinc, and afterward a little chloroform be added and shaken, no violet coloration should be imparted to the latter.

If 1 part of the acid be diluted with 9 parts of water, 10 ccm. of the resulting solution should not at once acquire a blue coloration, with 0.5 ccm. of the solution of yellow prussiate of potash.

To neutralise 5 ccm. of the acid, 22.9 ccm. of normal potassium hydroxide solution should be required.

Keep with care in glass-stoppered bottles.

ACIDUM NITRICUM CRUDUM.

Crude Nitric Acid.

A clear, colorless or light yellow liquid, evolving red fumes in air, and volatilising without leaving any residue, when heated. Specific gravity : 1.38–1.40.

It contains more than 61 per cent. of pure nitric acid ($HNO_3 = 63.05$).

Keep with care.

ACIDUM NITRICUM DILUTUM.

Dilute Nitric Acid.

Mix

Nitric acid	10 *pts.*
Distilled water	15 *pts.*

A clear, colorless liquid. Specific gravity : 1.056.

It should conform with the tests and reactions given under *Acidum Nitricum.*

It contains 10 per cent. of pure nitric acid ($HNO_3 = 63.05$).

To neutralise 10 ccm. of the acid, 16.8 ccm. of normal potassium hydroxide solution should be required.

Keep in glass-stoppered bottles.

ACIDUM NITRICUM FUMANS.

Fuming Nitric Acid.

A clear, reddish-brown liquid, evolving suffocating, yellowish-red vapors in air, and volatilising completely when heated. Specific gravity : 1.486–1.500.

It contains about 86 per cent. of pure nitric acid ($HNO_3 = 63.05$).

Keep with care, in glass-stoppered bottles, in a cool place.

ACIDUM OLEINICUM.

Oleic Acid.

$C_{18}H_{34}O_2 = 282.341$

A light yellow or brownish-yellow, oily liquid, having a characteristic, lard-like odor and taste, absorbing oxygen and becoming gradually darker, on exposure to air. Specific gravity : about 0.9 Insoluble in water, soluble in alcohol, with a slightly acid reaction, and soluble in ether, chloroform, and fatty and volatile oils. When cooled to about 4° C., it becomes semi-solid, and on further cooling, congeals to a whitish, solid mass.

When heated to about 95° C., it evolves acrid vapors, and at a higher temperature, it is completely decomposed.

A mixture of equal parts of oleic acid and alcohol, should form a clear solution without separating any oily drops on its surface.

If 1 g. of the acid be heated with 20 cem. of alcohol, and 2 drops of the solution of phenolphthalein added, followed by a strong solution (1 : 4) of sodium hydroxide, drop by drop, until the liquid acquires a permanent red color, then the oleic acid is completely saponified; and if acetic acid be added, until the red color of the solution is just discharged, and the liquid be filtered, then 10 cem. of the filtrate, mixed with 10 cem. of ether, should not be rendered more than slightly turbid by shaking with 1 cem. of lead acetate solution.

ACIDUM PHOSPHORICUM.

Phosphoric Acid.

A clear, colorless, odorless liquid. Specific gravity: 1.12.

It contains 20 per cent. of pure phosphoric acid ($H_3PO_4 = 98.03$).

After neutralising it with a solution of sodium carbonate, silver nitrate solution produces a yellow precipitate, soluble in nitric acid and in ammonia water.

A mixture of 1 cem. of it with 3 cem. of stannous chloride solution, should not acquire a dark coloration within an hour.

It should produce no change with the solution of silver nitrate, even when warmed, and also produce no coloration with hydrogen sulphide solution.

If 1 volume of it be diluted with 3 volumes of water, the resulting solution should not be rendered turbid with the solution of barium nitrate; it should produce no change, with an excess of ammonia water, and also with the solution of ammonium oxalate, after supersaturating with ammonia water.

If 1 volume of the acid be mixed with 4 volumes of alcohol, the solution should not lose its clearness.

If 2 cem. of it be mixed with 2 cem. of sulphuric acid and cooled, and 1 cem. of ferrous sulphate solution be poured on to the surface so

as to form 2 layers, no brownish ring should be formed at their contact surface.

Keep in glass-stoppered bottles.

ACIDUM PHOSPHORICUM DILUTUM.

Dilute Phosphoric Acid.

Mix

Phosphoric acid	**1** *pt.*
Distilled water	**1** *pt.*

A clear, colorless liquid. Specific gravity: 1.057.

Dilute Phosphoric Acid contains 10 per cent. of pure phosphoric acid ($H_3PO_4 = 98.03$).

It should conform to the reactions and tests given under *Acidum Phosphoricum*.

ACIDUM PICRINICUM.

Picric Acid.

$C_6H_3N_3O_7 = 229.1$

Lustrous, yellow leaflets or needle crystals, having an intensely bitter taste; soluble in 86 parts of water, forming a bright yellow solution, and showing an acid reaction, somewhat soluble in hot water, alcohol, and in ether; and being consumed with explosion, when heated to a higher temperature. Melting point: 122.6° C.

An alcoholic solution of Picric Acid imparts a bright yellow color to white wool or silk; and if to its warm solution (1 : 10), potassium cyanide solution (1 : 2) be added, a dark red coloration is produced.

When dissolved in petroleum benzin, it forms an almost colorless, clear solution.

When heated carefully, it should be consumed without leaving any solid residue.

Keep with care.

ACIDUM SALICYLICUM.

Salicylic Acid.

$C_7H_6O_3 = 138.06$

White, needle-shaped crystals or light, white, crystalline powder, without odor, having a sweet, acid and somewhat acrid taste; soluble in about 500 parts of water, and in 15 parts of boiling water, showing an acid reaction, and easily soluble in hot chloroform, alcohol, and in ether. Melting point: about 157° C.

An aqueous solution of Salicylic Acid acquires a permanent bluish-violet coloration with ferric chloride solution, which changes to violet-red when exceedingly diluted.

If 1 part of the acid be dissolved in 6 parts of sulphuric acid, almost no coloration should be produced.

If 0.5 g. of the acid be dissolved at ordinary temperatures in 10 cem. of sodium carbonate solution (1 : 10), and shaken with ether, and the ethereal solution allowed to evaporate spontaneously, the residue should be, if any, only very slight, and should have no odor of carbolic acid.

The solution obtained by dissolving 1 part of the acid in 9 parts of alcohol should leave, on evaporating the alcohol at ordinary temperatures, a purely white residue; the same solution, after adding a little nitric acid, should produce no more than an opalescence with a solution of silver nitrate.

On ignition, 0.5 g. of the acid should leave no weighable solid residue.

ACIDUM STEARICUM.

Stearic Acid.

$C_{18}H_{36}O_2 = 284.36$

White, odorless, solid masses, with granular and crystalline fractures; insoluble in water, and soluble in boiling alcohol, and in ether. Melting point: 60—65° C.

If Stearic Acid be dissolved in boiling alcohol and neutralised with sodium hydroxide solution and evaporated, the resulting residue should be insoluble in petroleum benzin, but if it contains any soluble part, it should be only in mere traces.

On boiling 1 g. of the acid in a large glass-bottle, together with 1 g. of sodium carbonate and 30 ccm. of water, an almost clear solution should be obtained.

When heated, it should be consumed without leaving any solid residue.

ACIDUM SULFURICUM.

Sulphuric Acid.

A clear, colorless, odorless liquid of oily consistence, completely volatilising when heated. Specific gravity: 1.836—1.840.

When diluted with water, Sulphuric Acid yields, with barium nitrate solution, a white precipitate insoluble in acids.

It contains 94—98 per cent. of pure sulphuric acid ($H_2SO_4 = 98.08$).

If 1 ccm. of a cold mixture of 1 volume of the acid with 2 volumes of water be added to 3 ccm. of stannous chloride solution, the mixture should not acquire a dark coloration within an hour.

If 1 volume of the acid be mixed with 5 volumes of alcohol, the mixture should not be rendered turbid for a long time.

If 3 or 4 drops of potassium permanganate solution be mixed with 10 ccm. of the cold solution, formed by diluting the acid with 5 volumes of water, an immediate decoloration should not take place.

If 1 volume of the acid be diluted with 19 volumes of water, the resulting solution should produce no change with a solution of silver nitrate; if 0.5 ccm. of the solution of yellow prussiate of potash be added to 10 ccm. of the same diluted solution, no blue color should be produced immediately after the solution is almost neutralised with ammonia water; the same solution should also produce no change with hydrogen sulphide solution.

If 2 layers of liquids be formed by pouring 1 ccm. of a solution of ferrous sulphate on to 2 ccm. of the acid, no brownish ring should appear at their contact surface.

If 2 layers of liquids be formed by adding 2 ccm. of hydrochloric acid, in which 1 or 2 small pieces of sodium sulphite were dissolved,

to 2 ccm. of the acid, a reddish ring should not appear at their contact surface, and if warmed, no red precipitate should be produced.

To neutralise 1 g. of the acid, 1.92—20 ccm. of normal potassium hydroxide solution should be required.

Keep with care in glass-stoppered bottles.

ACIDUM SULFURICUM CRUDUM.

Crude Sulphuric Acid.

A clear, colorless or brownish liquid of oily consistence.

Specific gravity: above 1.82.

Crude Sulphuric Acid contains more than 91 per cent. of pure sulphuric acid ($H_2SO_4 = 98.08$).

Keep with care in glass-stoppered bottles.

ACIDUM SULFURICUM DILUTUM.

Dilute Sulphuric Acid.

Mix

Sulphuric acid	1 *pt.*
Distilled water	9 *pts.*

A clear, colorless liquid. Specific gravity: 1.0645—1.0670.

Dilute Sulphuric Acid contains 9.4—9.8 per cent. of pure sulphuric acid ($H_2SO_4 = 98.08$).

It should conform with the reactions and tests given under *Acidum Sulphuricum*.

To neutralise 10 ccm. of the acid, 20.4—21.2 ccm. of normal potassium hydroxide solution should be required.

Keep in glass-stoppered bottles.

ACIDUM TANNICUM.

Tannic Acid.

$C_{14}H_{10}O_9 + 2H_2O = 358.14$

A white or yellowish powder, or shining, almost colorless, coarse scales, having a strongly astringent taste; soluble in 5 parts of water,

showing an acid reaction, and also soluble in 2 parts of alcohol, and glycerin, but insoluble in ether, chloroform, and in benzene.

An aqueous solution (1 : 5) of Tannic Acid produces a precipitate on adding sulphuric acid or sodium chloride, and also yields, with ferric chloride solution, a bluish-black precipitate which redissolves in sulphuric acid.

If 2 ccm. of the aqueous solution (1 : 6) of the acid be mixed with 2 ccm. of alcohol, the solution should remain clear, and not become turbid on adding 1 ccm. of ether.

When dried at 100° C., it should lose not more than 12 per cent of its weight.

On ignition, 4 g. of the acid should leave not more than 0.012 g., if any, of solid residue; and if that residue be dissolved in 2 ccm. of acetic acid, and be diluted with 8 ccm. of water and filtered, 5 ccm. of the resulting filtrate should, on adding hydrogen sulphide solution, produce no more than a slight turbidity.

ACIDUM TARTARICUM.

Tartaric Acid.

$C_4H_6O_6 = 150.06$

Colorless, odorless, translucent, prismatic crystals, often crystalline crusts, or a white, crystalline powder, permanent in the air; soluble in 0.8 parts of water, 2.5 parts of alcohol, or in 250 parts of ether, almost insoluble in chloroform, and in benzene; producing the odor of burning sugar on combustion.

An aqueous solution (1 : 3) of Tartaric Acid yields a crystalline precipitate with potassium acetate solution, and with an excess of lime water, a flocculent precipitate, which, however, changes gradually into a crystalline one, and is soluble in ammonium chloride solution or in sodium hydroxide solution; the latter solution produces a gelatinous precipitate when boiled, but redissolves on cooling.

The aqueous solution (1 : 10) of the acid should produce no more than a slight turbidity with barium nitrate solution, or ammonium oxalate solution; and if almost neutralised with ammonia water, it should not produce any change with calcium sulphate solution.

If 5 g. of the acid be dissolved in 10 ccm. of water and almost neutralised with ammonia, the solution should produce no change with hydrogen sulphide solution.

On ignition, 5 g. of the acid should leave no weighable solid residue.

ACIDUM TRICHLORACETICUM.

Trichloracetic Acid.

$C_2HCl_3O_2 = 163.36$

Colorless, deliquescent crystals, having a slightly pungent odor; soluble in water, showing a strongly acid reaction, soluble in alcohol, and in ether. Melting point: about 55° C. Boiling point: about 195° C.

Trichloracetic Acid volatilises completely on heating, leaving no residue.

When heated with an excess of potassium hydroxide solution, it evolves the odor of chloroform.

If 10 ccm. of its aqueous solution (1 : 10) be mixed with 2 drops of decinormal silver nitrate solution, the mixture should produce, if any, no more than a slight opalescence.

To neutralise 1 g. of the dried acid, not more than 6.1 ccm. of normal potassium hydroxide solution should be required.

Keep with care.

ADEPS BENZOATUS.

Benzoinated Lard.

Melt

Lard	99 *pts.*

on a water-bath and dissolve in it

Benzoic acid	1 *pt.*

ADEPS LANÆ ANHYDRICUS.

Anhydrous Wool Fat.

The purified fat of the wool of sheep, freed from water; light yellow,

ointment-like masses, almost odorless, soluble in ether, and in chloroform, but insoluble in water, not losing its ointment-like consistence, even after being mixed with more than twice its volume of water. Melting point: about 40° C.

If 2 layers of liquids be formed by carefully pouring the chloroform solution (1 : 50) of Anhydrous Wool Fat on sulphuric acid, a brownish-red ring should gradually be produced at their contact surface, which becomes very distinct after about 24 hours.

The solution of 2 g. of it in 10 ccm. of ether should remain colorless on addition of 2 drops of phenolphthalein solution, and acquire a red coloration on adding 0.1 ccm. of decinormal potassium hydroxide solution.

If 10 g. of it and 50 g. of water be heated with continuous stirring, on a water-bath until it is melted, there should result, after cooling, a light yellow, anhydrous, fatty layer on a clear aqueous solution, which has a neutral reaction, and leaves no glycerin on being evaporated, and which, when heated with the addition of lime water, should evolve no alkaline vapors; if 2 drops of solution of potassium permanganate be added to 10 ccm. of this same aqueous solution previously filtered, a permanent red coloration should be produced.

If 1 g. of it be boiled with 20 ccm. of absolute alcohol and filtered after cooling, the filtrate should become clear again on warming, even if once rendered turbid by the addition of alcoholic solution (1 : 20) of silver nitrate.

It should lose no weight by drying on a water-bath.

Not more than 0.1 per cent., if any, of solid residue should be left on ignition, and that residue should not turn blue a red litmus paper, previously moistened with water.

ADEPS LANÆ CUM AQUA.

Hydrous Wool Fat.

Mix

Wool fat	75 *pts.*
Distilled water	25 *pts.*

Yellowish-white, ointment-like masses, almost free from any odor. When warmed on a water-bath, it melts and separates into an oily

and an aqueous layer, then the latter is separated, and the fat, obtained by drying the oily layer on a water-bath, should conform with the tests and reactions given under *Adeps Lanæ Anhydricus.*

When dried at 100° C., it should lose not more than 26 per cent. of its weight.

ADEPS SUILLUS.

Hog's Lard.

The anhydrous fat prepared from the internal, fresh fat-tissue of the abdomen of the healthy hog, *Sus scrofa,* Linn., by washing and cleaning at first, and melting out the fat, and removing the aqueous part.

White, soft, homogeneous masses, with a faint, characteristic odor, free from rancidity, and melting at 36—42° C. to a clear liquid, which is colorless in a layer not thicker than 1 cm.

If 10 g. of Hog's Lard be dissolved in 10 ccm. of chloroform, and 10 ccm. of alcohol and 1 drop of phenophthalein solution added, then the mixture should obtain a red color on adding 0.2 ccm. of normal potassium hydroxide solution, and shaking strongly.

If 2 parts of it be mixed with 3 parts of potassium hydroxide solution and 2 parts of alcohol, and the mixture boiled till it becomes clear, the solution should produce no more than a slight opalescence, on adding 50 parts of water and 10 parts of alcohol.

If 0.3 g. of it be dissolved in 15 ccm. of chloroform in a glass-stoppered bottle, and mixed with an alcoholic solution of iodine and that of corrosive sublimate, each 10 ccm.; and if the mixture thus prepared, after standing, protected from direct sunlight for 4 hours, be decolorised by adding 2.5 g. of potassium iodide and 100 ccm. of water, and by pouring in, drop by drop, decinormal sodium thiosulphate solution, 100 parts of the lard should absorb more than 46 parts, and not more than 73 parts of iodine.

If 5 g. of it be shaken in a test-tube with the solution made by dissolving 0.05 g. of silver nitrate in a mixture of 3 ccm. of ether, 12 ccm. of alcohol, and 2 drops of dilute nitric acid, and put in a water-bath for 15 minutes, no brown or black color should be produced.

AETHER.

Ether.

$C_4H_{10}O = 74.1$

A colorless, clear, exceedingly volatile liquid of a neutral reaction, having a characteristic odor and taste; miscible, in all proportions, with alcohol, and fatty oils. Boiling point: 35° C. Specific gravity: 0.72.

Dropped and volatilised on a filter-paper, Ether should leave no odor; 10 cem. of it, when evaporated on a water-bath, should leave no residue.

On spontaneously evaporating 5 cem. of it in a dish, a blue litmus paper should not be turned red, when placed in the moist interior.

If it be sprinkled upon newly ground potassium hydroxide, and set aside tightly closed and protected from light, the latter should not obtain a yellowish color within half an hour.

If 10 volumes of it and 1 volume of potassium iodide solution be put in a well-stoppered glass-bottle, so as to make it quite full, and set aside, protected from light, and with frequent shaking, it should acquire no coloration within an hour.

Keep in well-stoppered bottles, in a cool place.

AETHER ACETICUS.

Acetic Ether.

$C_4H_8O_2 = 88.08$

A colorless, transparent, volatile liquid, having a characteristic, refreshing and cooling fragrance; miscible, in all proportions, with alcohol, ether, or chloroform. Boiling point: 74—76° C. Specific gravity: 0.900—0.904.

Acetic Ether should not at once redden a blue litmus paper.

When sprinkled and volatilised on a filter-paper, no foreign, ethereal odor should be noticed at the moment when its last traces leave the

paper; and when evaporated on a water-bath, it should leave no residue.

On adding it carefully to an equal volume of sulphuric acid, so as to form 2 layers of liquids, no coloration should be produced at their contact surface.

If it be strongly shaken with an equal volume of water, the latter should increase not more than one-tenth of its orginal volume.

Keep in well-stoppered bottles, in a cool place.

AETHER PRO NARCOSI.

Narcotic Ether.

$C_4H_{10}O = 74.1$

A colorless, clear, and exceedingly volatile liquid of a neutral reaction, having a characteristic odor and taste; miscible, in all proportions, with alcohol, and fatty oils. Boiling point: 35° C. Specific gravity: 0.72.

When sprinkled upon a filter-paper and volatilised, Narcotic Ether should leave no odor, and when evaporated on a water-bath, it should leave no residue.

If 20 ccm. of it be allowed to evaporate spontaneously in a dish, a blue litmus paper should neither be decolorised nor turned red, on being placed in the moist interior.

If it be sprinkled upon newly ground potassium hydroxide, and allowed to stand tightly closed and protected from light, the latter should not acquire a yellowish color within 6 hours.

If 10 volumes of it and 1 volume of potassium iodide solution be put in a well-stoppered glass-bottle, so as to make it quite full, and set aside, protected from light, and with frequent shaking, it should acquire no coloration within 3 hours.

Keep in small, well-stoppered, brown-colored bottles, filled quite full, in a dark cool place.

AETHYLIUM BROMATUM.

Ethyl Bromide.

$C_2H_5Br = 109.01$

Mix

Sulphuric acid	12 *pts.*
Alcohol (*specific gravity*: 0.816)	7 *pts.*

after cooling, gradually add

Powdered potassium bromide	12 *pts.*

distill the mixture on a sand-bath ; shake the distillate with an equal volume of sulphuric acid, and after removing the latter, shake again with a solution (1 : 20) of potassium carbonate, and after drying with calcium chloride, redistill the lower layer on a water-bath.

A colorless, clear, volatile, highly refractive liquid, having a neutral reaction, and an agreeable ethereal odor ; not miscible with water, but clearly miscible with alcohol, and with ether. Boiling point : 38—40° C. Specific gravity : 1.453—1.457.

If 5 ccm. of Ethyl Bromide be shaken with an equal volume of sulphuric acid in a glass-stoppered cylinder of 3 cm. in diameter, no coloration should be produced within an hour.

If 5 ccm. of it be shaken with an equal volume of water for a few minutes, and 2.5 ccm. of the aqueous part quickly taken, and a drop of silver nitrate solution be added, the solution should remain clear at least for 5 minutes.

Keep in a cool place, protected from light.

AGARICINUM.

Agaricine.

$C_{16}H_{30}O_5 + H_2O = 320.32$

A white, crystalline, odorless powder, melting at about 140° C. to a light yellow liquid, and when heated to a heigher temperature, evolving white fumes, carbonising and emitting an odor, which resembles that of burnt fat. Agaricine dissolves sparingly in water,

but swells in hot water, and dissolves clearly with foaming in boiling water which, on cooling, becomes turbid and shows an acid reaction; soluble in 130 parts of alcohol, and in 10 parts of hot alcohol, soluble in hot glacial acetic acid and in hot turpentine oil, sparingly soluble in ether, but almost insoluble in chloroform. It dissolves in potassium hydroxide solution or in ammonia water, forming a clear solution which foams strongly on shaking.

On heating with 10 ccm. of dilute sulphuric acid, it forms a turbid solution which, if allowed to stand on a water-bath, deposits oily drops, solidifying to crystalline masses when cooled.

On ignition, 0.1 g. of it should leave no weighable solid residue.

Keep with care.

ALBUMEN OVI SICCUM.

Dry White of the Egg.

Transparent, colorless, tasteless and horny masses, soluble in water with turbidity, showing a neutral reaction, but insoluble in alcohol and in ether.

If 5 ccm. of its aqueous solution (1 : 1000) be carefully warmed with 10 drops of nitric acid, an abundance of flocculent precipitate is produced.

If 10 ccm. of its aqueous solution (1 : 100) be mixed with 5 ccm. of carbolic acid solution and 5 drops of nitric acid, shaken and filtered, the filtrate should be clear, and a milky turbidity should not be produced at the contact surface of the two layers of liquids, formed by 5 ccm. of the filtrate and 5 ccm. of alcohol; 5 ccm. of the same filtrate should also produce a pure yellow, and not a reddish-yellow color, with 1 drop of decinormal iodine solution.

ALBUMINUM TANNICUM.

Albumen Tannate.

Take

White of the egg	20 *pts.*

dissolve it in

Distilled water	200 *pts.*

filter; to the filtrate add an aqueous solution formed with

Tannic acid	13 *pts.*
Distilled water	130 *pts.*

collect the resulting precipitate on a filter-cloth; wash with 200 parts of water; after drying at 30° C., reduce to powder and dry it in thin layers for 6 hours at 115—120° C.

An odorless, brownish powder, very slightly soluble in water and in alcohol.

Albumen Tannate, when shaken with water and filtered, gives a filtrate which acquires a deep blue coloration with 1 drop of ferric chloride solution; when boiled with water and filtered, the filtrate produces a precipitate on the addition of albumen solution.

After boiling with sodium hydroxide solution and cooling, it produces the odor of hydrogen sulphide on supersaturating with hydrochloric acid.

If 1 g. of it be mixed with 0.25 g. of pepsine, previously dissolved in 100 ccm. of water, 1 ccm. of dilute hydrochloric acid added, warmed for 3 hours at 40° C. and filtered, and the residue left on the filter-paper be washed with 10 ccm. of water, dried at 100° C. and weighed; and if 1 g. of it be again treated just in the same way as before, and the residue extracted again for 3 hours at 40° C., with the solution of 1.5 g. of sodium carbonate in 100 ccm. of water, filtered, and the residue on the filter-paper again washed with water, dried at 100° C. and weighed, then the difference of these 2 residues should be not less than 0.2 g.

On ignition, it should leave not more than 1 per cent. of solid residue.

ALCOHOL ABSOLUTUS.

Absolute Alcohol.

$C_2H_6O = 46.06$

A colorless, transparent, volatile liquid, showing a neutral reaction; with an agreeable, characteristic, penetrating odor and a burning taste; clearly miscible, in all proportions, with water, ether, chloroform, and benzene. Boiling point: 78.5° C. Specific gravity: 0.796—0.800.

Absolute Alcohol contains 99.4—99.7 per cent. by volume, or 99—99.6 per cent. by weight, of pure alcohol. It should have no foreign odor, and be miscible with water without producing turbidity.

If 10 ccm. of it be mixed with 5 ccm. of the solution of silver nitrate, the resulting solution should neither be rendered turbid, nor acquire any coloration even after warming.

If 10 ccm. of it be evaporated with the addition of 0.2 ccm. of potassium hydroxide solution, until it becomes 1 ccm., and then supersaturated with dilute sulphuric acid, no odor of fusel oil should be evolved.

If 5 ccm. of it be carefully poured into a test-tube, already containing 5 ccm. of sulphuric acid to form two layers of liquids, a rose-red coloration should not appear at their contact surface, even after a long standing.

If 10 ccm. of it be mixed with 1 ccm. of potassium permanganate solution, no decoloration should take place within 20 minutes.

It should acquire no coloration with hydrogen sulphide solution, and with ammonia water.

If 5 ccm. of it be evaporated on a water-bath, no weighable residue should be left behind.

Keep in well-stoppered bottles.

ALOE.

Aloes.

The juice collected from the leaves of various species of Aloe, evaporated to dryness.

Dark brown, brittle masses, with translucent, conchoidal fractures and glassy lustre; of a reddish or light brown color; having a characteristic odor and a bitter taste; not crystalline when examined under the microscope.

On boiling Aloes with chloroform, or on adding ether, it acquires only a slightly yellowish color; and the ethereal solution, on being evaporated, leaves a sticky residue of a very slightly yellow color.

If it be dissolved in hot water, and a strong solution of sodium borate added, the solution acquires a greenish fluorescence.

If a mixture of 5 parts of it with 60 parts of water be boiled, an almost clear solution is produced which, on cooling, should deposit about 3 parts; the solution obtained by heating it with 5 parts of alcohol should not become turbid on cooling.

On pouring nitric acid upon its broken pieces, only a slightly greenish color, and not a red coloration should be produced on their edges within 3 minutes.

On incineration, it should leave not more than 3 per cent. of solid residue.

In order to prepare its powder, thoroughly dried material should be used; and its powder, when heated at 100° C., should neither melt together nor change its color and lustre.

ALUMEN.

Alum.

$$Al_2K_2(SO_4)_4 + 24H_2O = 949.22$$

Colorless, transparent, hard, octahedral crystals, or crystalline masses, frequently having a white coating on their surfaces; with a slightly sweet and astringent taste; soluble in 10.5 parts of water, showing an acid reaction, but insoluble in alcohol; when heated, melting at first and swelling up, and lastly turning into porous, white masses.

An aqueous solution of Alum produces, with sodium hydroxide solution, a white gelatinous precipitate which is soluble in excess, but reappears on adding an excess of ammonium chloride solution.

On shaking strongly with a solution of tartaric acid, its saturated aqueous solution yields a crystalline precipitate within half an hour.

Its aqueous solution (1 : 20) produces no change with hydrogen sulphide solution; 20 cem. of the same solution should not at once acquire a blue coloration with 0.5 ccm. of the solution of yellow prussiate of potash.

If 1 g. of it be heated with 1 cem. of water and 3 cem. of sodium hydroxide solution, no ammonia should be evolved.

ALUMEN EXSICCATUM.

Exsiccated Alum.

$Al_2K_2(SO_4)_4 = 516.74$

A white powder, gradually but almost completely, soluble in 30 parts of water.

An aqueous solution (1 : 40) of Exsiccated Alum should respond to the reactions and tests stated under *Alumen*.

When slightly ignited, it should lose not more than 10 per cent. of its weight.

Keep in well-stoppered bottles.

ALUMINIUM SULFURICUM.

Aluminium Sulphate.

$Al_2(SO_4)_3 + 18H_2O = 666.74$

White, crystalline fragments, soluble in 1.2 parts of water, readily soluble in hot water, forming a solution with an acid reaction, but insoluble in alcohol ; and having an acid and astringent taste.

An aqueous solution of Aluminium Sulphate produces, with barium nitrate solution, a white precipitate insoluble in hydrochloric acid ; the same solution produces, with sodium hydroxide solution, a colorless, gelatinous precipitate which is soluble in excess, but is reprecipitated by the addition of a large quantity of ammonium chloride solution.

The aqueous solution (1 : 10) of the salt should be colorless and clear, and produce no change with hydrogen sulphide solution, and also produce no more than an opalescence on the addition of an equal volume of decinormal sodium thiosulphate solution.

If 20 ccm. of the aqueous solution (1 : 20) of the salt be mixed with 0.5 ccm. of the solution of yellow prussiate of potash, no blue coloration should at once be produced.

If 1 g. of its powder, dried at 100° C., be mixed with 3 ccm. of stannous chloride solution, no dark coloration should be produced within an hour.

AMMONIACUM.

Ammoniacum.

A gum-resin obtained from *Dorema Ammoniacum* Don.

In brownish-colored tears, or masses of moderate size, separated or sticking together; freshly broken surfaces, showing an opaque, white color; brittle when cold; softening but not melting to a clear liquid at a high temperature, and having a characteristic odor and a bitter, acrid and aromatic taste.

The turbid liquid, obtained by boiling 1 part of Ammoniacum with 10 parts of water, produces a dirty reddish-violet color with ferric chloride solution.

If 1 part of it be triturated with 3 parts of water, a milky emulsion is obtained which, on adding sodium hydroxide solution, acquires at first a yellow and then a brown color.

If 5 g. of it be finely ground, and boiled for 15 minutes with about 13 ccm. of fuming hydrochloric acid and filtered, the resulting clear filtrate, on being carefully supersaturated by adding ammonia water, should display no blue fluorescence with reflected light.

When thoroughly extracted with boiling alcohol, it leaves a residue which, after drying, should not exceed 40 per cent.

On ignition, it should leave not more than 5 per cent. of solid residue.

In order to reduce it to powder, it should be dried in a desiccator, and ground at as low a temperature as possible.

AMMONIUM BENZOICUM.

Ammonium Benzoate.

$C_7H_9NO_2 = 139.13$

Thin laminar crystals, or a crystalline powder, odorless, or having a slight odor of benzoic acid; soluble in 6 parts of water and in 1.2 parts of boiling water, showing a neutral, or a slightly acid reaction, and also soluble in 30 parts of alcohol. Melting point: 190° C.

When strongly heated, Ammonium Benzoate volatilises, emitting vapors having the odors of ammonia and of benzoic acid.

An aqueous solution of it produces, with ferric chloride solution, a reddish-yellow precipitate, and with hydrochloric acid, a crystalline, flocculent precipitate which redissolves on heating, and the same solution, when warmed with sodium hydroxide solution, evolves the odor of ammonia.

The aqueous solution (1 : 20) of the salt produces no change with solutions of hydrogen sulphide, ammonium sulphide, and of barium nitrate ; and after the addition first of an equal volume of alcohol, then a small quantity of nitric acid, the same aqueous solution should produce no more than an opalescence with silver nitrate solution.

If 0.1 g. of the salt be mixed with 1 ccm. of sodium carbonate solution, evaporated to dryness and gently ignited, and the residue dissolved in 30 ccm. of water and filtered, the filtrate, after being acidified with nitric acid, should produce no more than an opalescence with silver nitrate solution.

On heating, it should be consumed without leaving any solid residue.

Keep in well-closed vessels.

AMMONIUM BROMATUM.

Ammonium Bromide.

$NH_4Br = 98.04$

Colorless crystals, or a white, crystalline powder, turning slightly yellow on a long exposure to the air ; soluble in 1.5 parts of water and in about 150 parts of alcohol, and completely volatilising when heated.

If an aqueous solution of Ammonium Bromide be shaken with a small quantity of chlorine water and chloroform, the latter acquires a reddish-brown color ; on heating with sodium hydroxide solution, the same aqueous solution evolves ammonia.

If a few drops of dilute sulphuric acid be brought in contact with a little of the powdered salt in a porcelain dish, it should not at once assume a yellowish color.

The aqueous solution (1 : 20) of the salt is clear and neutral, and should produce no change with a solution either of hydrogen sulphide,

or of barium nitrate, and also with dilute sulphuric acid; 20 ccm. of the same aqueous solution should not at once give a blue coloration with 0.5 ccm. of the solution of yellow prussiate of potash.

If 3 g. of the salt, dried at 100° C., be dissolved in 100 ccm. of water, then 10 ccm. of the resulting solution, after adding 1 or 2 drops of potassium chromate solution, should require not more than 30.9 ccm. of decinormal silver nitrate solution to produce a permanent red coloration.

AMMONIUM CARBONICUM.

Ammonium Carbonate.

$C_2H_{11}N_3O_5 = 157.23$

Colorless, hard, compact, translucent, striated, crystalline masses, having the strong odor of ammonia; becoming, when exposed to the air, opaque and white by efflorescence; volatile when heated; slowly but completely soluble in about 5 parts of water, showing an alkaline reaction, and soluble with much effervescence in dilute acids.

An aqueous solution (1 : 20) of Ammonium Carbonate, on being supersaturated with acetic acid, produces no change with solutions of barium nitrate, ammonium oxalate, and of hydrogen sulphide; the same aqueous solution, when supersaturated with hydrochloric acid, acquires no red coloration with ferric chloride solution; and after adding an excess of silver nitrate solution, it produces, with an excess of nitric acid, neither a brown color nor any more than an opalescence within 2 minutes.

If 1 g. of the salt be supersaturated with nitric acid and evaporated on a water-bath, a colorless residue is obtained, which should be completely volatilised on heating.

Keep in well-stoppered bottles.

AMMONIUM CHLORATUM.

Ammonium Chloride.

$NH_4Cl = 53.53$

A white, crystalline powder, or hard, fibrous, crystalline masses;

odorless; permanent in the air; volatile when heated; soluble in 3 parts of water, and in equal parts of boiling water, but insoluble in alcohol.

An aqueous solution of Ammonium Chloride yields, on the addition of silver nitrate solution, a white curdy precipitate which is completely soluble in ammonia water; the same aqueous solution, on being heated with sodium hydroxide solution, evolves ammonia.

The aqueous solution (1 : 20) of the salt is colorless and clear, and has a neutral reaction, and produces no change with solutions of hydrogen sulphide, barium nitrate, and of ammonium oxalate, and also with dilute sulphuric acid; the same aqueous solution, after being acidified with hydrochloric acid, should assume no red color with ferric chloride solution.

If 20 ccm. of the aqueous solution (1 : 20) of the salt be mixed with 0.5 ccm. of the solution of yellow prussiate of potash, no change should at once be produced.

If 1 g. of the salt be mixed with a little nitric acid and evaporated on a water-bath, the residue obtained should be colorless, and completely volatilise on heating.

AMMONIUM SULFOICHTHYOLICUM.

Ammonium Sulfoichthyolate.

A reddish-brown, syrupy liquid, having a smoky odor; swelling and charring when heated, and being consumed with no residue when ignited. Miscible clearly with water and showing an acid reaction, considerably soluble in alcohol, slightly in ether, petroleum benzin, and almost completely soluble in a mixture of equal volumes of alcohol and ether.

Ammonium Sulfoichthyolate, when heated with potassium hydroxide solution, evolves ammonia; on further heating the mixture till it is chared, and on adding hydrochloric acid, hydrogen sulphide is evolved.

If the aqueous solution (1 : 20) of the salt be mixed with hydrochloric acid, a dark resinous substance is precipitated, which dissolves both in ether and in water, and is reprecipitated from the latter solution by adding hydrochloric acid, or sodium chloride.

If 0.5 g. of the salt, dried at 100° C., be mixed with 2 g. of potassium nitrate and 3 g. of anhydrous sodium carbonate, and carefully ignited, and the resulting white fused mass be dissolved in warm water and acidified with hydrochloric acid, the resulting solution should, on the addition of barium chloride solution, produce 0.51—0.62 g. of barium sulphate.

When dried at 100° C. until no more weight is lost, it should lose no more than 50 per cent. of its weight.

AMYGDALÆ AMARÆ.

Bitter Almond.

The seed of *Prunus amygdalus* Bail., var. *amara* D. C.

Asymmetrically ovoid and compressed; in average 2 cm. long and 1.2 cm. broad; pointed at one end, and rounded at the other, being 0.8 cm. thick at that part.

The seed-coat is brown, externally assuming a powderly appearance by thick-walled epidermal cells which fall off easily, and internally traversed by numerous vascular bundles, emanating from chalaza. When softened in hot water, the seed-coat may be taken off together with thin endosperm; the cotyledons are pure white.

Bitter Almond has a very bitter taste, but not rancid; and when triturated with water, it evolves the odor of the volatile oil of bitter almond.

AMYGDALÆ DULCES

Sweet Almond.

The seed of *Prunus amygdalus* Bail.

In average 2.25 cm. long and 1.5 cm. broad; asymmetrically ovoid and compressed; pointed at one end, and rounded at the other; sometimes being more than 1.0 cm. thick at that part. The seed-coat is brown, assuming externally a powderly appearance by thick-walled epidermal cells which fall off easily; and internally traversed by numerous vascular bundles, emanating from chalaza.

When softened in hot water, the seed-coat may be taken off together with thin endosperm; the cotyledons are pure white.

Sweet Almond has a bland, oily, slimy and slightly sweet taste, but not rancid; and when triturated with water, it should not evolve the odor of the volatile oil of bitter almond.

AMYLIUM NITROSUM.

Amyl Nitrite.

$C_5H_{11}NO_2 = 117.15$

A clear, yellowish, volatile liquid, having a characteristic odor and an aromatic, burning taste; almost insoluble in water; miscible, in all proportions, both with alcohol and with ether; and is inflammable, burning with a yellow, luminous and sooty flame. Boiling point: 97—99° C. Specific gravity: 0.87—0.88.

When boiled with an excess of potassium hydroxide solution, Amyl Nitrite evolves the odor of amyl alcohol; and after cooling, if potassium iodide be added and acidified with acetic acid, iodine is set free.

If 5 ccm. of it be mixed and shaken with 0.1 ccm. of ammonia water and 1 ccm. of water, the resulting aqueous part should have no acid reaction.

If 1 ccm. of it be mixed and gently warmed with 1.5 ccm. each, of silver nitrate solution, and of absolute alcohol, and also with a few drops of ammonia water, neither brown nor black coloration should be produced.

When cooled even to 0° C., it should not be rendered turbid.

Keep with care in small bottles, protected from light.

AMYLUM.

Starch.

(a) *Katakuri.*

The starch prepared from the root of *Erythronium dens canis* Linn.

A purely white, tasteless, odorless powder. When examined under the microscope, it appears as granules, not uniform in size, but mostly oval, with indistinct striæ, and usually having a hilum near the narrow end.

(b) *Kuzu.*

The starch prepared from the root of *Pueraria thunbergiana* Benth.

A purely white, tasteless, odorless powder. When examined under the microscope, it appears as granules, not uniform in size, but more or less angular in outline.

(c) *Potato-Starch.*

The starch prepared from the tuber of *Solanum tuberosum* Linn.

A white powder, with a slight lustre. When examined under the microscope, it appears as large granules, either conchoidal, egg-shaped, or pear-shaped, distinctly showing excentric striæ, with a hilum usually near the narrow end.

Starch is insoluble in cold water and in alcohol.

If 1 part of it be mixed and shaken with 100 parts of water, boiled and cooled, it forms a neutral paste which, with a solution of iodine, produces a dark blue coloration.

When incinerated, it should leave not more than 1 per cent. of solid residue.

ANETHOLUM.

Anethol.

$C_{10}H_{12}O = 148.12$

The oxygen-containing constituent of the oils of fennel and of anise.

A white, crystalline mass, with a strong aromatic odor and a sweet taste. Melting point: 20°—21° C. Boiling point: 232°—234° C. Specific gravity: 0.984—0.986 at 25° C.

If 1 part of Anethol be mixed with 2 parts of alcohol, a clear solution should be obtained.

ANTIDOTUM ARSENICI.

Antidote for Arsenic.

Mix

Ferric sulphate solution	100 *pts.*
Distilled water	250 *pts.*

add to that mixture

Calcined magnesia	15 *pts.*

which is previously triturated thoroughly with

Distilled water	250 *pts.*

carefully shake the whole, until the mixture forms a homogeneous brew.

Antidote for Arsenic should be freshly prepared at the time when wanted, but 100 g. of ferric sulphate solution and 15 g. of calcined magnesia should always be weighed and kept separately at hand.

ANTIPYRINUM.

Antipyrine.

$C_{11}H_{12}N_2O = 188.2$

Colorless, prismatic crystals, or a white, crystalline powder, almost without odor, but with a slightly bitter taste; soluble in almost equal parts of water, alcohol, and of chloroform, and also soluble in about 50 parts of ether. Melting point: 113° C.

An aqueous solution (1 : 100) of Antipyrine yields a white precipitate with tannic acid solution; and if to 2 ccm. of the same aqueous solution, 2 drops of fuming nitric acid be added, a green color is produced which, when heated to boiling, turns to red on the further addition of a few drops of fuming nitric acid.

If to 2 ccm. of its aqueous solution (1 : 1000) a few drops of ferric chloride solution be added, it acquires a blood-red coloration which, on the addition of 10 drops of sulphuric acid, turns to yellow.

Its aqueous solution (1 : 2) is colorless and neutral, and should produce no change with hydrogen sulphide solution.

It should dissolve colorless in sulphuric acid.

On ignition, 0.1 g. of it should leave no weighable solid residue.

Keep with care.

ANTIPYRINUM SALICYLICUM.

Antipyrine Salicylate.

$C_{11}H_{12}N_2O.C_7H_6O_3 = 326.26$

A white, odorless, crystalline powder, or hexagonal tabular crystals, having a slightly sweet taste; soluble in about 200 parts of water, and in 25 parts of boiling water, readily soluble both in alcohol and in chloroform, somewhat difficultly soluble in ether. Melting point: 91—92° C.

An aqueous solution (1 : 200) of Antipyrine Salicylate produces a white turbidity with tannic acid solution, and a green color with a few drops of fuming nitric acid; and 10 ccm. of the same aqueous solution produces, with a drop of ferric chloride solution, a violet-red color.

If 0.5 g. of it be heated with 15 ccm. of water and 1 ccm. of hydrochloric acid, it dissolves to a colorless, clear solution which, on cooling, deposits white, fine, needle-shaped crystals, melting at 157° C.; after being washed with water and dried, these crystals, when dissolved in 20 ccm. of water, form a solution which produces a deep violet coloration with 5 drops of ferric chloride solution.

The aqueous solution (1 : 200) of the salt should produce no change with hydrogen sulphide solution.

On ignition, 0.1 g. of it should leave no weighable solid residue.

Keep with care.

APOMORPHINUM HYDROCHLORICUM.

Apomorphine Hydrochloride.

$C_{17}H_{17}NO_2.HCl = 303.67$

White or grayish-white crystals, acquiring at once a greenish tint in moist air, especially on exposure to light; soluble in about 40

parts of water, and alcohol, showing a neutral reaction, but almost insoluble in ether and in chloroform.

Apomorphine Hydrochloride dissolves in nitric acid with blood-red coloration; when dissolved in an excess of sodium hydroxide solution, the salt forms a solution which immediately acquires, in the air, a violet-red color finally changing to black.

The aqueous solution of the salt produces, on adding sodium bicarbonate solution, a white amorphous precipitate, which acquires a green color in the air, and dissolves in ether with a reddish-violet coloration, but in chloroform with a bluish-violet coloration.

On adding ammonia, the aqueous solution of the salt at once reduces a solution of silver nitrate.

The aqueous solution of the salt should be colorless or nearly so, and when 1 part of it is dissolved in 100 parts of water, the resulting solution should not have a green color.

If the dried salt be shaken with ether, it should impart no color, or, if any, only a light reddish color to the latter.

On ignition, 0.02 g. of the salt should leave no solid residue.

Keep with special care, protected from light.

AQUA AMMONIÆ.

Ammonia Water.

A colorless, clear, volatile liquid, having a characteristic odor and a strongly alkaline reaction; emitting white fumes, when a glass rod, moistened with dilute hydrochloric acid, is brought near to it. Specific gravity: 0.96.

Ammonia Water contains 10 per cent. of pure ammonia ($NH_3 = 17.07$).

If 1 volume of it be mixed with 4 volumes of lime water, and allowed to stand in a well-closed vessel for 1 hour, the solution should produce only a slight turbidity; and after being diluted with 2 volumes of water, it should produce no change with a solution either of hydrogen sulphide, or of ammonium oxalate.

After being supersaturated with acetic acid, it should produce no change with barium nitrate solution; and when supersaturated with dilute nitric acid, it should produce no more than a slight opalescence with silver nitrate solution.

If it be supersaturated with nitric acid and evaporated on a water-bath, the residue should be colorless, and should completely volatilise when heated.

To neutralise 5 ccm. of it, 28—28.2 ccm. of normal hydrochloric acid solution should be required.

Keep in glass-stoppered bottles, in a cool place.

AQUA AMYGDALARUM AMARARUM.

Bitter Almond Water.

Triturate

Bitter almond . . . . . **12** *pts.*

press it without warming; separate the fatty oil as completely as possible; transfer it, in the form of medium powder, into a large still; add to it

Water . . . . . **20** *pts.*

distill by passing steam; collect 9 parts of the distillate into a receiver, already containing 3 parts of alcohol; estimate the quantity of hydrogen cyanide contained in the mixture, according to the method described below; dilute it by adding a mixture of

Alcohol . . . . . **1** *pt.*

Distilled water . . . . . **3** *pts.*

until 1 part of hydrogen cyanide is contained in 1000 parts of the liquid.

A clear or almost clear liquid, not reddening a blue litmus paper; having conspicuously the odor of the volatile oil of bitter almond, even after the precipitation of hydrogen cyanide by adding silver nitrate solution, and shaking. Specific gravity: 0.97—0.98.

If 10 ccm. of Bitter Almond Water be mixed with 0.8 ccm. of decinormal silver nitrate solution and a few drops of nitric acid, and the resulting precipitate be filtered, the filtrate should not be rendered turbid by the further addition of silver nitrate solution.

If 2 volumes of it be mixed with 1 volume of ammonia water, the solution should become slightly turbid within 10 minutes, and decidedly so within 20 minutes.

If 25 ccm. of it be diluted with 100 ccm. of water and mixed with 1 ccm. of potassium hydroxide solution, the mixture should require

4.5—4.8 ccm. of decinormal silver nitrate solution, in order to produce a permanent, whitish turbidity by pouring it, drop by drop, under constant agitation.

On evaporation, 5 ccm. of it should leave no weighable solid residue.

It may be used as a substitute both for *Aqua Pruni Armeniacæ*, and *Aqua Pruni Macrophyllæ*.

Keep with care, protected from light.

AQUA ANISI.

Anise Water.

Take

Anise fruit	1 *pt.*
Water	20 *pts.*

put them into a still, and distill until 10 parts of the distillate are obtained.

AQUA CALCARIÆ.

Lime Water.

Take

Quick lime	1 *pt.*

add to it

Water	4 *pts.*

to change it into slaked lime; pour on it with agitation

Water	50 *pts.*

let it stand to subside; decant the clear supernatant liquid; mix the residue with

Water	50 *pts.*

shake the mixture repeatedly, and keep in well-closed bottles.

A clear, colorless liquid, having a strongly alkaline reaction; becoming turbid on exposure to the air, or when boiled.

If boiled for a while, after passing an excess of carbonic acid gas, Lime Water should have no alkaline reaction.

To neutralise 100 ccm. of it, 4.0—4.5 ccm. of normal hydrochloric acid solution should be required.

It should be decanted, or filtered before use.

AQUA CARBOLISATA.

Carbolic Acid Water.

Mix

Liquid carbolic acid	22 *pts.*
Distilled water	978 *pts.*

A clear, colorless liquid, containing 2 per cent. of carbolic acid.

AQUA CARBOLISATA PRO DESINFECTIONE.

Carbolic Acid Water for Disinfection.

Take

Carbolic acid	5 *pts.*

dissolve it in

Water	94 *pts.*

and to the solution add

Hydrochloric acid	1 *pt.*

AQUA CARVI.

Caraway Water.

Take

Caraway fruit	1 *pt.*

put it into a still, together with

Water	20 *pts.*

and distill until 10 parts of the distillate are obtained.

AQUA CHLOROFORMII.

Chloroform Water.

Take

Chloroform	1 *vol.*

mix it with

Distilled water	400 *vols.*

and shake them up.

AQUA CINNAMOMI.

Cinnamon Water.

Take

Cinnamon bark, *in coarse powder*	1 *pt.*

put it into a still; pour on it

Alcohol	1 *pt.*
Water	a suitable quality.

allow the mixture to stand for 24 hours, and distill until 10 parts of the distillate are obtained.

AQUA CRESOLICA.

Cresol Water.

Mix

Cresol soap solution	6 *pts.*
Water	94 *pts.*

Cresol Water contains 3 per cent. of crude cresol.

For medical purposes, it should be prepared with distilled water, but for disinfecting purposes, ordinary water may be used.

When prepared with distilled water, it is a light yellow, clear liquid.

When prepared with ordinary water, it is slightly turbid, but should separate no oily drops.

AQUA DESTILLATA.

Distilled Water.

A clear, colorless, odorless, tasteless liquid, showing a neutral reaction.

Distilled Water should produce no change with Nessler's reagent, and also with a solution either of silver nitrate, or of hydrogen sulphide.

After adding ammonia water, it should also produce no change with hydrogen sulphide solution.

If 1 volume of it be mixed with 2 volumes of lime water, the solution should remain clear.

If 100 ccm. of it be mixed with 1 ccm. of dilute sulphuric acid and heated till it boils, and 0.3 ccm. of potassium permanganate solution be poured into it and boiled again for 3 minutes, no decoloration should take place.

On evaporation, 10 ccm. of it should leave no weighable solid residue.

AQUA FLORUM AURANTII.

Orange Flower Water.

Mix

Oil of orange flower	1 *pt.*
Warm distilled water	1000 *pts.*

shake the mixture strongly, and after cooling, filter it with a moist filter-paper.

AQUA FOENICULI.

Fennel Water.

Take

Triturated fennel	1 *pt.*

put it into a still; pour on it

Water	**a suitable quality.**

and distill until 30 parts of the distillate are obtained.

AQUA FORMALINATA.

Formaline Water.

Mix

Formaline	1 *pt.*
Water	34 *pts.*

AQUA MENTHÆ.

Menthol Water.

Take

Peppermint leaves, *coarse cut*	1 *pt.*

put them into a still; pour on them

Water	**a suitable quality.**

and distill until 30 parts of the distillate are obtained.

AQUA PICIS.

Tar Water.

Mix

Wood tar	1 *pt.*
Pumice, ***in coarse powder***	3 *pts.*

to the mixture add

Water	10 *pts.*

shake it for 5 minutes, and filter.

A yellowish to brownish, clear liquid, having the odor of wood tar.

Tar Water should be prepared freshly when wanted.

AQUA PRUNI ARMENIACÆ.

Apricot Water.

Prepare with apricot seed according to the same method, as described under *Aqua Amygdalarum amararum.*

The properties, reactions, tests, and the way of preservation of Apricot Water are the same as those stated under *Aqua Amygdalarum amararum.*

It may be used as a substitute both for *Aqua Amygdalarum amararum*, and *Aqua Pruni macrophillæ.*

AQUA PRUNI MACROPHYLLÆ.

Bakuchi Water.

Triturate

Fresh bakuchi leaves	12 *pts.*

put them into a large still; pour on them

Water	36 *pts.*

distill by passing steam; take 5 parts of the distillate into a receiver, previously containing 3 parts of alcohol; estimate the quantity of hydrogen cyanide contained in the mixture, according to the method given under *Aqua Amygdalarum amararum*, and dilute it by adding a mixture of

Alcohol	1 *pt.*
Distilled Water	3 *pts.*

until 1 part of hydrogen cyanide is contained in 1000 parts of the liquid. Specific gravity: 0.965—0.969. The properties, reactions, tests and the way of preservation of Bukuchi Water are the same as those stated under *Aqua Amygdalarum Amararum.*

It may be used as a substitute both for *Aqua Amygdalarum Amararum*, and for *Aqua Pruni Armeniacæ.*

AQUA ROSÆ.

Rose Water.

Mix

Rose oil	4 *dps.*
Lukewarm distilled water	1000 *ccm.*

and shake them up for a while.

An almost clear liquid, having an agreeable odor.

ARGENTUM NITRICUM.

Silver Nitrate.

$AgNO_3 = 169.97$

Colorless, lustrous, tabular crystals, soluble in 0.6 parts of water, and in about 10 parts of alcohol.

An aqueous solution of Silver Nitrate produces, with hydrochloric acid, a white curdy precipitate, completely soluble in ammonia water, but insoluble in nitric acid.

The aqueous solution of the salt has a neutral reaction, and if it has an acid reaction, it should be only extremely weak.

If to 5 ccm. of the aqueous solution (1 : 20) of the salt, an excess of hydrochloric acid be added, boiled and filtered, the filtrate, on being evaporated, should leave no weighable solid residue.

Keep with care, protected from light.

ARGENTUM NITRICUM CUM KALIO NITRICO.

Silver Nitrate Mitigated with Potassium Nitrate.

Mix

Silver nitrate	1 *pt.*
Potassium nitrate	1 *pt.*

fuse the mixture with care, and mould it into small sticks.

White or grayish-white, hard, small sticks, having granular and crystalline fractures.

If 0.5 g. of it be dissolved in 5 ccm. of water, and to the resulting solution, 15 ccm. of decinormal sodium chloride solution, and 1 or 2 drops of potassium chromate solution added, and decinormal silver nitrate solution be added, drop by drop, to the mixture, then not more than 0.5 ccm. of the solution should be required, before the appearance of a permanent red coloration.

Keep with care, protected from light.

ARGENTUM NITRICUM FUSUM.

Fused Silver Nitrate.

White or grayish-white sticks, having radiated, crystalline fractures, and melting when heated.

It should conform with reactions and tests stated under *Argentum Nitricum*.

Keep with care, protected from light.

ARGENTUM PROTEINATUM.

Proteine Silver.

A minute, light yellow powder, having a slightly mineral taste; easily soluble in water, showing a neutral or a slightly alkaline reaction.

An aqueous solution (1 : 10) of Proteine Silver has a brown color, and on heating, yields a precipitate soluble in sodium hydroxide

solution; and the same aqueous solution, on adding an excess of the latter reagent and a little copper sulphate solution, acquires a violet color, and also yields, on adding picric acid, a yellow precipitate.

If the residue, obtained by igniting it, be dissolved in nitric acid, and hydrochloric acid be added to the resulting solution, then a white, flocculent precipitate, which is soluble in ammonia water, is produced.

Its aqueous solution (1 : 10) should produce no change with solutions of sodium hydroxide, potassium sulphide, sodium chloride, and also of albumen.

On ignition, it leaves 8—12 per cent. of solid residue, which should dissolve completely in nitric acid.

Keep in well-stoppered bottles, protected from light.

ARSENUM IODATUM.

Arsenous Iodide.

$AsI_3 = 455.55$

Brownish, orange-red, crystalline masses, or lustrous, crystalline scales, having the odor of iodine; soluble in 3.5 parts of water, and in 10 parts of alcohol, showing a neutral reaction, and completely soluble in ether, and in carbon disulphide.

An aqueous solution of Arsenous Iodide has a yellow color, and evolves violet vapors when heated with nitric acid, and also yields a lemon-yellow precipitate with hydrogen sulphide solution.

It should volatilise completely, when heated, without leaving any solid residue.

Keep with special care.

ASAFOETIDA.

Asafetida.

A gum-resin obtained from various species of Ferula, found in Asia, especially from *Ferula Asa foetida* Linn. and *Ferula Narthex* Boiss.

In tears, separated or sticking together, or somewhat in large masses, having a characteristic odor and taste.

Asafetida is externally yellowish, violet, or brownish; its fresh fractures showing a white color, which changes gradually to a pink rainbow tint, and finally to a brown color.

If 1 part of it be triturated with 3 parts of water, a whitish emulsion is obtained, which acquires a yellow color with a drop of ammonia water.

After extracting it thoroughly with boiling alcohol, the insoluble portion, when dried at 100° C., should not exceed 50 per cent.

On incineration, it should leave not more than 10 per cent. of solid residue.

In order to bring it to powdrous state, first dry it in a desiccator, and then pulverise it at a low temperature.

Keep in well-stoppered bottles.

ATROPINUM SULFURICUM.

Atropine Sulphate.

$$(C_{17}H_{23}NO_3)_2.H_2SO_4 = 676.62$$

A white, crystalline powder, prepared from atropine which melts at 115.5° C.; almost insoluble both in ether and in chloroform, but soluble in equal parts of water, and in 3 parts of alcohol, forming colorless neutral solutions. Melting point: 180° C.

If 0.01 g. of Atropine Sulphate be heated in a small glass-tube, until a white fume is produced, and 1.5 ccm. of sulphuric acid added, and heated again until it acquires a brown color, and immediately 2 ccm. of water be added, an agreeable, characteristic odor is evolved, and if a small crystal of potassium permanganate be then added, the odor of the volatile oil of bitter almond is produced.

If to 0.01 g. of the salt, 5 drops of fuming nitric acid be added in a porcelain dish, and dried on a water-bath, the residue has a slightly yellowish color; and if, after cooling, an alcoholic solution of potassium hydroxide be added to it in drops, a violet coloration is produced.

Its aqueous solution produces, with barium nitrate solution, a white precipitate insoluble in acids.

The aqueous solution (1 : 1000) of the salt has a bitter and acrid taste, and, if applied to the eye, dilates the pupil.

The aqueous solution (1 : 60) of the salt should be rendered turbid by sodium hydroxide solution, but not by ammonia water.

If 0.1 g. of the salt be mixed with 2 ccm. of sulphuric acid, almost no coloration is produced, and the further addition of a little nitric acid also produces no change.

On ignition, 0.02 g. of the salt should leave no solid residue.

Keep with special care.

BALSAMUM COPAIVÆ.

Copaiva Balsam.

A balsam excreted from wounds made by incision on the stems of various plants belonging to the genus Copaifera, especially *Copaifera officinalis* Linn., *Copaifera guyanensis* Desfon. and *Copaifera coriacea* Mart.

A clear, more or less thick liquid of a yellowish-brown color, with no, or only a very slight fluorescence; having a characteristic odor, and acrid, slightly bitter taste; miscible, completely or almost completely, with chloroform, and with absolute alcohol. Specific gravity: 0.980—0.993.

If 4 drops of Capaiva Balsam be added to a mixture of 6 drops of nitric acid, and of 7 ccm. of glacial acetic acid, the mixture should assume neither reddish nor violet coloration

If 1 g. of the balsam be dissolved in 50 ccm. of alcohol, and 10 drops of phenolphthalein solution added, then 2.5—3.0 ccm. of a half-normal alcoholic potassium hydroxide solution should be required to produce a red coloration; and if 20 ccm. more of the half-normal alcoholic potassium hydroxide solution be added to the same mixture, and heated on a water-bath for 15 minutes, and the excess of potassium hydroxide be titrated back with a half-normal hydrochloric acid solution, then the quantity of the acid solution, required for its neutralisation, should be at least 19.6 ccm.

BALSAMUM PERUVIANUM.

Balsam of Peru.

A balsam obtained by smouldering the bark of *Myroxylon Pereirae* Klotzsch.

A dark brown liquid, not stringy; transparent in thin layers; having an agreeable odor and an acrid somewhat bitter taste; not drying in the air, and soluble clearly in alcohol. Specific gravity: 1.140—1.162.

If 10 drops of Peru Balsam be triturated with 20 drops of sulphuric acid, it changes to a tough and sticky mass, the surface of which assumes a violet color, if cold water be poured on it after 2 or 3 minutes, and when washed frequently with cold water, it can finally be broken to pieces.

If 1 g. of the balsam be dissolved in 20 ccm. of alcohol, and 25 ccm. of half-normal alcoholic potassium hydroxide solution added, and the mixture, after being boiled on a water-bath for half an hour, diluted with 500—600 ccm. of water, and 20—30 drops of the solution of phenolphthalein added, and be titrated back with half-normal hydrochloric acid solution, then not more than 17 ccm. of the acid solution should be required to neutralise the excess of potassium hydroxide.

If 10 ccm. of ether be added, successively for 3 times, to a mixture of 2.5 g. of the balsam, 15 ccm. of water, and of 15 ccm. of sodium hydroxide solution and shaken, and the ethereal extracts be mixed together and evaporated, then the residue obtained, after drying on a water-bath, should weigh at least 1.4 g.; and if this residue be dissolved in 25 ccm. of alcohol, and mixed with 25 ccm. of half-normal alcoholic potassium hydroxide solution, and heated on a water-bath for half an hour, and 10 drops of the solution of phenolphthalein added, and be titrated back with half-normal hydrochloric acid solution, then in order to neutralise the excess of potassium hydroxide, not more than 13.2 ccm. of the acid solution should be required.

BALSAMUM TOLUTANUM.

Balsam of Tolu.

A resin obtained from *Myroxylon Toluifera* Humb. Bompl. and Kunth.

Brownish-red, crystalline masses, reducible, when dry, to a yellowish powder; having a very agreeable odor, and an acid, slightly caustic and aromatic taste.

When dissolved in alcohol, chloroform, or in potassium hydroxide solution, Balsam of Tolu should leave only a few wooden shreds.

If 1 g. of the balsam be dissolved in 50 ccm. of alcohol and mixed with 10 drops of the solution of phenolphthalein, then 4—6 ccm. of half-normal alcoholic potassium hydroxide solution should be required to produce a red coloration; and if enough more of the same half-normal solution be added to the above mixture so as to make the whole just 20 ccm., and heated on a water-bath for half an hour, and be titrated back with half-normal hydrochloric acid solution, then in order to neutralise the excess of potassium hydroxide, 13.2—14.5 ccm. of the acid solution should be required.

BENZINUM PETROLEI.

Petroleum Benzin.

A clear, colorless, easily inflammable, volatile liquid, contained in crude petroleum, and showing no fluorescence; having a characteristic, but not disagreeable odor, and a neutral reaction; insoluble in water, but soluble in about 5 parts of alcohol. Boiling point: 50—75° C. Specific gravity: 0.64—0.67.

When heated with a little ammoniacal silver nitrate solution, together with a little alcohol, Petroleum Benzin should produce no coloration.

Keep in well-stoppered bottles, in a cool place.

BENZOE.

Benzoin.

Flat or round, brownish masses, internally of a white color, and evolving a very agreeable odor when heated on a water-bath, and producing penetrating vapors when strongly heated.

If Benzoin be heated with alcohol and filtered, the filtrate has an acid reaction, and becomes milky on adding water.

If 1 part of it be heated with 10 parts of carbon disulphide, it softens, and a colorless solution is obtained, which produces crystals of benzoic acid on cooling.

If a small quantity of it, in finely powdered state, be allowed to stand for a long time with potassium permanganate, no odor of the volatile oil of bitter almond should be evolved.

After thoroughly extracting it with boiling alcohol, the residue, when dried, should weigh not more than 5 per cent.

On incineration, it should leave not more than 2 per cent. of solid residue.

BISMUTUM SUBCARBONICUM.

Bismuth Subcarbonate.

A white or yellowish-white, amorphous, odorless, tasteless powder, permanent in the air, and insoluble in water, and in alcohol.

Bismuth Subcarbonate dissolves with effervescence in nitric and hydrochloric acids, and the resulting solutions produce a white precipitate with a large quantity of water.

It is clearly dissolved in dilute nitric acid, and the resulting clear solution, obtained by diluting with a little water, should not be rendered turbid with a solution either of silver nitrate, or of barium nitrate, and also with twice its volume of dilute sulphuric acid; if an excess of ammonia water be added to the same solution and filtered, the filtrate should be perfectly colorless, and not rendered turbid with sodium phosphate solution, and also produce no change with hydrogen sulphide solution.

If 1 g. of the salt be heated with an excess of sodium hydroxide solution, no ammonia should be evolved.

On gentle ignition, 1 g. of the salt should leave 0.85—0.91 g. of yellow bismuth oxide; and on dissolving that oxide in about 10 cem. of hydrochloric acid, and dividing the resulting solution into 2 portions, the first portion, when heated with 1.5 cem. of stannous chloride solution, should acquire no dark coloration within 1 hour; and the second portion, when diluted with water and thoroughly precipitated with hydrogen sulphide and filtered, should give a filtrate which, on evaporation, leaves only a trace, if any, of solid residue.

If 0.2 g. of the salt be mixed with 1 cem. of sulphuric acid, and 2 cem. of the saturated solution of ferrous sulphate be carefully added to the mixture so as to form 2 layers of liquids, no brownish ring should be produced at their contact surface.

BISMUTUM SUBGALLICUM.

Bismuth Subgallate.

$BiC_7H_7O_7 = 411.57$

A yellow, odorless, tasteless, amorphous powder, insoluble in water, alcohol, and in ether. When ignited, Bismuth Subgallate carbonises without melting, and finally leaves a yellow substance.

If the salt be mixed with an excess of hydrogen sulphide solution and shaken, a blackish-brown coloration is produced; and if the solution, obtained by filtering that mixture, be boiled and cooled, and a dilute solution of ferric chloride be added to it, a bluish-black coloration is produced.

If 1 g. of the salt be gently ignited and dissolved in a very little nitric acid, and carefully evaporated, dried and ignited again, at least 0.51 g. of bismuth oxide should be obtained; if this residue be dissolved in nitric acid and diluted with water to 20 cem., the resulting solution produces no more than an opalescence with a solution either of barium nitrate, and of silver nitrate, and should produce no change with twice its volume of dilute sulphuric acid; if an excess of ammonia water be added to the same solution and filtered, the filtrate is colorless, and produces no change with hydrogen sulphide

solution, and on being evaporated and ignited, the same filtrate should leave no weighable solid residue.

If 1 g. of the salt be mixed with 3 cem. of stannous chloride solution, no dark coloration should be produced within an hour.

If 1 g. of the salt be mixed with 10 cem. of alcohol, shaken and filtered, the filtrate, on evaporation, should leave no weighable solid residue.

If 1 g. of the salt be mixed with 5 cem. of sodium hydroxide solution, it should dissolve clearly, and the resulting solution, on being heated with a mixture of 0.5 g. each, of zinc and of iron powder, should evolve no ammonia.

BISMUTUM SUBNITRICUM.

Bismuth Subnitrate.

Take

Bismuth, *in coarse powder* . . . . . 1 *pt.*

introduce it gradually, in small portions, into

Nitric acid *(specific gravity:* 1.2) . . . . . 5 *pts.*

previously heated to 75—90° C.; when the action of nitric acid began to weaken at the end, facilitate the dissolution of bismuth by heating more strongly; after allowing the resulting solution to stand for a few days, decant the upper clear liquid and evaporate to crystallisation; wash the crystals obtained, once or twice with a little distilled water containing nitric acid; triturate

The crystals . . . . . 1 *pt.*

by adding

Distilled water . . . . . 4 *pts.*

throw them, under agitation, into

Boiling distilled water . . . . . 21 *pts.*

quickly pour off the upper clear liquid, as soon as the resulting precipitate has subsided; collect the precipitate on a filter; thoroughly free it from water; wash with

Cold distilled water . . . . . 25 *pts.*

and dry at 30° C.

A white, minute, crystalline, heavy powder, having an acid reaction.

Bismuth Subnitrate evolves yellowish-red vapors on heating, and finally leaves 79—82 per cent. of bismuth oxide.

At ordinary temperatures, 0.5 g. of the salt should dissolve completely and clearly in 25 ccm. of dilute sulphuric acid, and evolve no carbonic acid; if one-half of the resulting solution be mixed with an excess of ammonia water and filtered, a perfectly colorless filtrate should be produced; and if the other half be diluted with much water, and an excess of hydrogen sulphide solution be added and filtered, the filtrate, on evaporation, should leave no weighable solid residue.

If 1 g. of the salt be strongly heated, until the production of vapors completely ceases, and the residue dissolved in a little hydrochloric acid, and be mixed with two times its volume of stannous chloride solution, no dark coloration should be produced within an hour.

A clear solution, formed by dissolving 0.5 g. of the salt in 5 ccm. of nitric acid, should produce no more than an opalescence with 0.5 ccm. of silver nitrate solution; the same solution should neither produce any change with 0.5 ccm. of barium nitrate solution diluted with an equal volume of water, nor should it evolve ammonia, when heated with an excess of sodium hydroxide solution.

BISMUTUM SUBSALICYLICUM.

Bismuth Subsalicylate.

$$BiC_7H_5O_4 = 361.55$$

A white or yellowish-white, odorless, tasteless, amorphous powder, almost insoluble in water, and in alcohol; when ignited, Bismuth Subsalicylate carbonises without melting, finally leaving a yellow substance.

When mixed with dilute ferric chloride solution, it produces a violet coloration; and when mixed with hydrogen sulphide solution, a blackish-brown color is produced.

The solution, obtained by shaking a mixture of 0.5 g. of the salt with 5 ccm. of water and filtering, should not at once redden a blue litmus paper.

If 1 g. of the salt be gently ignited and dissolved in a very little nitric acid, and after carefully evaporating and drying, be ignited once more, at least 0.63 g. of bismuth oxide should be obtained; if this residue be dissolved in nitric acid and diluted to 20 ccm. with water, the resulting solution produces no more than an opalescence with a

solution either of barium nitrate, or of silver nitrate, and should produce no change with twice its volume of dilute sulphuric acid; if an excess of ammonia water be added to the same solution and filtered, the filtrate is colorless, and should produce no change with hydrogen sulphide solution, and on being evaporated and ignited, the same filtrate should leave no weighable solid residue.

If 1 g. of the salt be mixed with 3 ccm. of stannous chloride solution, no dark coloration should be produced within an hour.

If 0.5 g. of the salt be mixed with 5 ccm. of sodium hydroxide solution, and heated with the addition of 0.5 g. each, of zinc and of iron powder, no ammonia should be evolved.

Keep protected from light.

BISMUTUM TRIBROMPHENILICUM.

Bismuth Tribromphenolate.

$Bi_2C_6H_3Br_3O_4 = 795.91$

A yellow, tasteless, odorless powder, insoluble in water, and in alcohol.

On heating, Bismuth Tribromphenolate dissolves in dilute sodium hydroxide solution, leaving a yellow bismuth oxide which, when filtered off after cooling, gives a solution producing a white precipitate with hydrochloric acid.

If 1 g. of the salt be mixed with nitric acid, and the mixture evaporated and ignited, then about 0.58 g. of the residue is obtained, which, if dissolved in 10 ccm. of hydrochloric acid and heated with 3 ccm. of stannous chloride solution, should acquire no dark coloration within an hour.

BOLUS ALBA.

White Bole.

White, earthy masses, consisting chiefly of hydrated aluminium silicate; easy to be ground; stained by being touched at; soaking if moistened with water; and being crushed, when thrown into water, but not dissolving in it.

If hydrochloric acid be poured on White Bole, no effervescence should take place; on dressing, it should leave no sandy residue.

BORAX.

Sodium Biborate.

$$Na_2B_4O_7 + 10H_2O = 282.3$$

White, hard crystals, or crystalline masses, soluble in 17 parts of water, and in 0.5 part of boiling water, showing an alkaline reaction; freely soluble in glycerin, but insoluble in alcohol. When heated, Sodium Biborate is dissolved in its water of crystallisation, swells up considerably, and finally becomes a white, porous mass, which, on further heating to redness, melts and forms a white, glassy substance.

If heated in a colorless flame, it imparts a yellow color to the latter; its aqueous solution, acidified with a little hydrochloric acid, turns the turmeric paper reddish-brown, which becomes still more striking on drying, and if moistened with a little ammonia water, turns to greenish-black color.

The aqueous solution (1 : 50) of the salt should produce no change with a solution either of hydrogen sulphide, or of ammonium oxalate; the same aqueous solution, when acidified with nitric acid, produces no effervescence, and should yield no more than an opalescence with a solution either of barium nitrate, or of silver nitrate.

If 50 ccm. of its aqueous solution (1 : 50) be acidified with hydrochloric acid, and 0.5 ccm. of the solution of yellow prussiate of potash be added, no blue coloration should at once be produced.

BROMUM.

Bromine.

$$Br = 79.96$$

A dark reddish-brown, volatile liquid, emitting, at ordinary temperatures, yellowish-red vapors of a strongly irritating odor; soluble in

30 parts of water, easily soluble in alcohol, ether, carbon disulphide, or in chloroform, forming a reddish-brown solution. Specific gravity: 2.9—3.0

When Bromine is dissolved in sodium hydroxide solution, the resulting solution should remain clear for a long time.

If its aqueous solution (1 : 30) be shaken with an excess of iron powder and filtered, the filtrate should not acquire a blue color on adding both a solution of ferric chloride and a solution of starch.

Keep with care in glass-stoppered bottles, in a cool place.

BULBUS SCILLÆ.

Squill Bulb.

The fleshy bulb-scales of *Urginea maritima* Bak., cut into slices and dried.

The epidermis is provided with stomata on both surfaces. The mesophyll consists chiefly of almost round cells free from starch, contains a great number of raphide-cells, and encloses collateral vascular bundles running parallelly. It has no odor, but a disagreeable bitter taste; that which is translucent and yellowish-white, should break like glass. Its powder abounds in needle-shaped oxalate crystals, and should contain no sclerenchymatous cells; while the starch, if contained in it, should be only in a small quantity.

Keep well-closed.

CAFFEINO-NATRIUM BENZOICUM.

Caffeine Sodium Benzoate.

Take

Caffeine	50 *pts.*
Sodium benzoate	59 *pts.*

dissolve them in

Distilled Water	200 *pts.*

and evaporate the solution to dryness

A white, odorless, amorphous powder, or granular masses, having

a bitter taste; soluble in 2 parts of water, and in 40 parts of alcohol, forming a colorless solution, and showing a neutral reaction.

When heated in a glass-tube, Caffeine Sodium Benzoate evolves white fumes, which condense to minute crystals in the cooler parts of the tube.

Its aqueous solution (1 : 10) produces, with hydrochloric acid, white crystals soluble in ether, and also yields, with ferric chloride solution, a light brown precipitate, which redissolves on adding hydrochloric acid and alcohol.

If it be warmed with chloroform and filtered, the filtrate leaves, on evaporation, a crystalline residue having the reactions of caffeine.

Its aqueous solution (1 : 20) should produce no change with a solution either of hydrogen sulphide, or of barium nitrate; if 2 volumes of the same aqueous solution be mixed with 3 volumes of alcohol and acidified with nitric acid, it should produce no more than an opalescence with silver nitrate solution.

If 0.17 g. of it be gently ignited, and the residue dissolved in 30 ccm. of water and be filtered, the filtrate, after being acidified with nitric acid, should produce no more than an opalescence with silver nitrate solution.

If 0.5 g. of it be dissolved in 10 ccm. of water, and after adding 1 ccm. of sodium hydroxide solution, 10 ccm. of chloroform be also added to the resulting mixture, successively for 3 times, and shaken for 5 minutes, then the chloroform extracts, on being collected, evaporated and dried at 100° C., should leave at least 0.22 g. of dry caffeine.

Keep with care.

CAFFEINO-NATRIUM SALICYLICUM.

Caffeine Sodium Salicylate.

Take

Caffeine	50 *pts.*
Sodium salicylate	60 *pts.*

dissolve them in

Distilled water	200 *pts.*

and evaporate the solution to dryness.

A white, odorless, amorphous powder, or white granular masses,

having a sweet and slightly bitter taste; soluble in 2 parts of water, and in 50 parts of alcohol.

An aqueous solution (1 : 10) of Caffeine Sodium Salicylate acquires, with ferric chloride solution, a violet color, and produces, with hydrochloric acid, white crystals soluble in ether.

If it be warmed with chloroform and filtered, the filtrate leaves, on evaporation, a crystalline residue having the reactions of caffeine

Its aqueous solution (1 : 5) should be colorless, but after standing for a while, the color, if any, should be faintly light red; and the acid reaction, if any, should also be only very slight.

If 0.1 g. of it be dissolved in 1 ccm. of sulphuric acid, neither effervescence nor coloration should take place.

Its aqueous solution (1 : 20) should produce no change with a solution either of hydrogen sulphide, or of barium nitrate; and 2 volumes of the same aqueous solution, mixed with 3 volumes of alcohol and acidified with nitric acid, should produce no more than an opalescence with silver nitrate solution.

If 0.5 g. of it be dissolved in 10 ccm. of water, and after adding 1 ccm. of sodium hydroxide solution, 10 ccm. of chloroform be mixed with the resulting solution, successively for 3 times, and shaken for 5 minutes, then the chloroform extracts, on being collected, evaporated and dried at 100° C., should leave at least 0.2 g. of dry caffeine.

Keep with care.

CAFFEINUM.

Caffeine.

$$C_8H_{10}N_4O_2 + H_2O = 212.28$$

White, flexible, silky, glistening, needle-shaped crystals, having a slightly bitter taste; soluble in 80 parts of water, forming a colorless solution, with a neutral reaction; soluble in about 50 parts of alcohol, and in 9 parts of chloroform, slightly soluble in ether; efflorescent in the air, and losing its water of crystallisation at 100° C. Melting point: 230.5° C.

If Caffeine be dissolved in 2 parts of boiling water and cooled, a crystalline brew is obtained; when slowly heated, it partly volati-

lises at about 100° C. and completely sublimes at 180° C. without leaving any solid residue.

Its aqueous solution produces, with a solution of tannic acid, a precipitate soluble in excess.

If 1 part of it be dissolved in 10 parts of chlorine water, and evaporated on a water-bath, the resulting residue has a yellowish-red color, and acquires, when mixed with a little ammonia water, a violet-red coloration.

Its cold, saturated aqueous solution is rendered turbid neither with chlorine water, nor with iodine solution, nor should the solution acquire any coloration with ammonia water.

If 0.1 g. of it be separately dissolved in 1 ccm. each of sulphuric, and of nitric acids, no coloration should be produced in either cases.

Keep with care.

CALCARIA CHLORATA.

Chlorinated lime. *Chloride of lime.*

A white or whitish powder, having the odor resembling that of chlorine, and partly soluble in water.

Chlorinated Lime is dissolved, with evolution of chlorine, in acetic acid which, when diluted with water and filtered, yields a white precipitate with a solution of ammonium oxalate.

It contains more than 25 per cent. of available chlorine (Cl = 35.45).

If 0.5 g. of it be triturated with 20 ccm. of water, and 1 g. of potassium iodide and 20 drops of hydrochloric acid be added, the iodine set free, should require at least 35.2 ccm. of decinormal sodium thiosulphate solution to combine with.

Keep well-closed, in a cool place.

CALCARIA SULFURATA.

Sulphurated lime.

Thoroughly mix

Exsiccated calcium sulphate	70 *pts.*

Charcoal powder	10 *pts.*
Starch	2 *pts.*

put the mixture into a crucible with cover; heat to bright redness until the contents have lost their black color; allow the crucible to cool; reduce the product to powder, and immediately put it into a well-closed bottle.

A light gray powder, slightly evolving the odor of hydrogen sulphide, and slowly decomposing in the air; sparingly soluble in water, somewhat soluble in hot water, but insoluble in alcohol.

Sulphurated Lime dissolves in dilute acetic acid, with abundant evolution of hydrogen sulphide gas, forming a turbid solution which gives a clear filtrate when filtered, and yields, with ammonium oxalate solution, a white precipitate soluble in hydrochloric acid.

If the solution of 2.08 g. of copper sulphate in 50 ccm. of water be heated to boiling, and 1 g. of it gradually thrown into the solution and warmed for 15 minutes on a water-bath, and be filtered after cooling, the resulting filtrate should acquire no coloration with a drop of the solution of yellow prussiate of potash.

Keep in well-stoppered bottles.

CALCARIA USTA.

Quick Lime.

$CaO = 56$

Whitish, compact masses which, when mixed with about half its weight of water, gradually falls to a white powder, evolving heat at the same time, and producing a homogeneous brew with 3—4 parts of water; almost completely soluble in nitric acid without effervescence, and the resulting solution, when diluted with water, produces, after adding an excess of sodium acetate solution, a white precipitate with solution of ammonium oxalate.

Keep well-closed.

CALCIUM CARBONICUM PRÆCIPITATUM.

Precipitated Calcium Carbonate.

$CaCO_3 = 100$

A minute, white, crystalline powder, almost insoluble in water, completely soluble with effervescence in acetic acid, forming a solution which yields, with ammonium oxalate solution, a white precipitate.

If 1 part of Precipitated Calcium Carbonate be shaken with 50 parts of boiling water and filtered, the filtrate has no alkaline reaction, and, when evaporated, should leave no weighable solid residue.

The aqueous solution (1 : 50), obtained by boiling it with dilute acetic acid, immediately produces no change with a solution of barium nitrate, and should produce, with silver nitrate solution, no more than an opalescence even after 5 minutes, and should also produce no change, on being supersaturated either with ammonia water, or with lime water.

If 1 g. of it be dissolved in 50 cem. of water, which is previously acidified with hydrochloric acid, the resulting solution should produce no blue coloration with 0.5 cem. of the solution of yellow prussiate of potash.

CALCIUM HYPOPHOSPHOROSUM.

Calcium Hypophosphite.

$CaH_4(PO_2)_2 = 170.04$

A white, crystalline powder, or colorless, transparent, tabular crystals, soluble in 7 parts of water, but insoluble in alcohol.

When heated, Calcium Hypophosphite assumes a reddish-yellow color, and evolves spontaneously inflammable vapors; its aqueous solution yields, with ammonium oxalate solution, a white precipitate insoluble in acetic acid; an excess of its aqueous solution, when acidified with hydrochloric acid and mixed with a solution of corrosive sublimate, yields a precipitate which is white at first, but afterwards turns gray.

Its aqueous solution (1 : 20) reacts neutral or slightly acid, and, when mixed with lead acetate solution, should yield no precipitate; the same solution, when filtered after adding solutions of ammonium chloride and of ammonium carbonate, gives a filtrate which should neither be rendered turbid with a solution of sodium phosphate, nor should produce, after being acidified with nitric acid, any more than a turbidity with a solution of barium nitrate.

Keep in well-stoppered bottles.

CALCIUM PHOSPHORICUM PRÆCIPITATUM.

Precipitated Calcium Phosphate.

$$CaHPO_4 + 2H_2O = 172.05$$

Take

Calcium carbonate	20 *pts.*

gradually pour on it, under shaking, a mixture of

Hydrochloric acid	50 *pts.*
Distilled water	50 *pts.*

warm gently, when the evolution of carbonic acid gas diminishes; decant the upper, clear solution here obtained; add an excess of chlorine water; heat it again until the odor of chlorine completely disappears; add

Slaked lime	1 *pt.*

let it stand for half an hour at 35°—40° C.; filter; after cooling, add to the filtrate

Phosphoric acid	1 *pt.*

slowly add, under shaking

Sodium phosphate	61 *pts.*

which is previously dissolved in

Warm distilled water	300 *pts.*

filtered and cooled down to 20°—25° C.; thoroughly stir the resulting precipitate until it becomes crystalline; collect it on a filter-cloth; repeatedly wash with water; when the washing, after being acidified with nitric acid, yields only a slight opalescence with silver nitrate solution, remove the water by pressing, and after drying by a gentle heat, reduce it to a fine powder.

A light, white, crystalline powder, almost insoluble in water, sparingly soluble in cold acetic acid, and easily soluble without effervescence in hydrochloric and nitric acids.

When moistened with a solution of silver nitrate, Precipitated Calcium Phosphate acquires a yellow color, though it ceases to do so after a long ignition; when dissolved in acetic acid, it yields a white precipitate with a solution of ammonium oxalate.

If 1 g. of the salt be mixed with 3 ccm. of stannous chloride solution, no dark coloration should be produced within an hour.

If 1 part of the salt be shaken with 20 parts of water and filtered, the filtrate should, after the addition of acetic acid, produce no change with a solution of barium nitrate, and should produce, on adding silver nitrate solution, no more than an opalescence.

Its solution (1 : 20) in water, which is previously acidified with nitric acid, should produce a pure white precipitate either with an excess of ammonia water, or with a solution of hydrogen sulphide.

When heated strongly, it should lose 25–26 per cent. of its weight.

CALCIUM SULFURICUM USTUM. *Gypsum Ustum.*

Exsiccated Calcium Sulphate. *Burnt Gypsum.*

A white powder. If 1 part of Exsiccated Calcium Sulphate be mixed with 0.5 part of water, it should solidify within 5 minutes.

Keep well-closed.

CAMPHORA DEPURATA.

Purified Camphor.

$C_{10}H_{16}O = 152.16$

Colorless, translucent or white, semi-transparent, crystalline masses of a tough consistency, or a white, crystalline powder, having a characteristic odor and a slightly bitter, pungent taste, followed by a

refreshing after-taste; volatilising completely at the temperature of a water-bath, and burning with a smoky, luminous flame; almost insoluble in water, easily soluble in ether, chloroform, and in alcohol. Melting point: 175° C. Boiling point: 204° C.

Before pulverisation, Purified Camphor should be moistened either with alcohol or with ether.

Keep in well-stoppered bottles, in a cool place.

CAMPHORA MONOBROMATA.

Monobromated Camphor.

$C_{10}H_{15}BrO = 231.11$

Colorless, prismatic needles, or tables, stable in the air; having a somewhat milder, camphor-like odor and taste; almost insoluble in water, but easily soluble in alcohol, ether, and in chloroform, and showing a neutral reaction. Melting point: about 76° C.

If Monobromated Camphor be dissolved by heating in a mixture of 1 volume of dilute sulphuric acid and 5 volumes of alcohol, and a piece of pure zinc be thrown into the solution, a yellowish-white precipitate is produced on adding, after hydrogen gas has been evolved for a short time, a solution of silver nitrate.

It should be soluble in sulphuric acid, forming a perfectly or nearly colorless solution.

Its alcoholic solution, when boiled with a solution of silver nitrate, should produce no precipitate.

On ignition, 0.02 g. of it should leave no solid residue.

Keep with care.

CANTHARIDES.

Cantharides. *Blistering Flies.*

The dried beetle, *Epicauta Gorhami* Mars.

It is 1.5—1.8 cm. in length and 4—5 mm. in breadth. The elytron is of a dull blackish color, and provided with a line, consisting

of yellowish hairs, along the middle and either margin. The head is nearly heart-shaped and triangular, its hinder part being of a reddish color; the abdomen is black and shining, and shows 4—5 rings formed of yellowish hairs. It has a strong disagreeable odor.

Mix 10 g. of Cantharides, in the form of medium powder, with 100 cem. of chloroform and 2 ccm. of hydrochloric acid; put aside for 24 hours with occasional shaking; filter 50 ccm. of the chloroform solution through a dry filter-paper, well covered, into an exactly weighed glass flask; distill off the chloroform; on the residue pour 5 ccm. of petroleum benzin; keep well stoppered and set aside for 12 hours with occasional shaking; filter through a filter-paper of 5 cm. in diameter, which is previously dried at 100° C., weighed and moistened with petroleum benzin; on the insoluble part pour 10 ccm. of petroleum benzin repeatedly for 2 times, and filter through the same filter-paper as before; after drying the filter-paper and the glass flask, wash them with a little water containing a drop of ammonium carbonate solution in every 10 ccm.; when the washing aequires a yellow color, wash once more with 5 ccm. of water; drop off the water adhering to the glass flask and the filter-paper; after drying, put the filter-paper together with its content into the glass flask; dry at 100° C. till it attains a constant weight, then the weight of the crystalline residue should be at least 0.1 g.

On incineration, it should leave not more than 8 per cent. of solid residue.

Keep with care.

CAPSULÆ COPAIVÆ.

Capaiva in Capsule.

Each capsule contains 0.5 g. of copaiva balsam, having the properties stated under *Balsamum Copaivæ*.

CARBO OSSIUM PULVERATUS.

Powdered Animal Charcoal.

Pulverise ordinary animal charcoal; after extracting it several

times with hot hydrochloric acid, thoroughly wash it with boiling water till a portion of it, when burnt, leaves only a very slight, solid residue; after drying, put it into a well-covered crucible, ignite, and transfer it into a vessel while still warm, and keep well closed.

A black powder which, when boiled with water, should give a solution showing no acid reaction, and, when boiled with dilute hydrochloric acid and filtered, should give a filtrate producing no change with hydrogen sulphide solution.

CARRAGEEN.

Carrageen. *Irish Moss.*

The dried *Chondrus crispus* Lyngbye. and *Gigartina mammillosa* J. G. Agardh.

It is yellowish-white or brownish-yellow; horny, foliaceous, not larger than the size of a hand, and divided into broad or narrow lobes.

When 30 parts of water are added to 1 part of Carrageen, it is softened, and if boiled, becomes thick on cooling, and produces a paste, of a light taste, giving no blue coloration with a solution of iodine.

If 1 part of it be equally soaked with the addition of 5 parts of water and filtered, the filtrate should not redden a blue litmus paper, and 10 cem. of the same filtrate should, with a drop of decinormal iodine solution, acquire a yellow coloration.

Other algæ, if mixed with it, should be only a very little.

CARVONUM.

Carvon.

$C_{10}H_{14}O = 150.14$

An oxygen-containing constituent, present in the oil of caraway.

A colorless or light yellowish liquid, having an aromatic taste and odor, resembling those of caraway-seed. Boiling point: 229°—230° C. Specific gravity: above 0.96.

If 1 part of Carvon be dissolved in 2 parts of dilute alcohol, a clear solution should be obtained.

CARYOPHYLLI.

Cloves.

The dried flower-buds of *Eugenia aromatica* Bail. They are of a brown color. The ovary is cylindrical and obscurely 4-angled, furnished with 2 narrow locules in its upper part, and crowned above with 4-toothed calyx. The latter bears almost round, light brown petals in its inner side, which enclose numerous stamens and are globular in shape.

Its ovary and calyx-tube contain an especially large, round secretory organ, which exudes a volatile oil when pressed.

Cloves have a characteristic, aromatic, spicy odor and taste.

Keep well-closed.

CASCARA SAGRADA. *Cortex Rhamni Purshianæ.*

Cascara Sagrada. *Sacred Bark.*

The dried bark of *Rhamnus Purshiana* D. C.

In quills or curved pieces, 3—10 cm. long, 2 mm. thick; externally brown; marked with transversely extended lenticels; often covered with grayish-white lichens. The inner surface is of a yellowish or a brownish color, and the fractured surface also of a yellowish color. The inner surface of a thicker bark is somewhat fibrous. It tastes bitter.

The clear solution, obtained by extracting 1 part of Cascara Sagrada in coarse powder with 100 parts of cold water, produces a yellowish-red coloration by adding 2 or 3 drops of ammonia water.

When soaked in lime water, a dark red color is developed in its inner surface.

CATECHU.

Catechu.

(a) *Gambir.*

The dry extract which is prepared in India from the leaves and twigs of *Ourouparia Gambir* Bail. It consists of brownish, and internally light-colored, brittle masses.

(b) *Pegu-catechu.*

The dry extract prepared in India from the heart-wood of *Acacia Catechu* Willd. It consists of, both externally and internally, dark brown masses, sometimes marked with pores, and breaking with conchoidal fractures.

When triturated with glycerin and examined under the microscope, magnifying 200 times, Pegu-catechu appears crystalline in general; having a somewhat bitter and astringent, followed by a slightly sweet, taste.

Its dilute alcoholic solution acquires a green color with ferric chloride solution.

On boiling 1 part of it with 10 parts of water, a turbid, brownish-red, acid solution is obtained, which, when decanted from its insoluble parts, yields an abundant, brown precipitate on cooling; the above insoluble parts, when washed with hot water and dried at 100° C., should not exceed 15 per cent.

The residue, obtained by completely extracting it with boiling alcohol, when dried at 100° C., should not exceed 15 per cent.

On ignition, it should leave not more than 6 per cent. of solid residue.

CAUTSCHUC.

Caoutchouc.

The dried and purified milky juice collected from various tropical trees belonging to Moraceæ, Urticaceæ, Euphorbiaceæ, and Apocynaceæ.

Brown, semi-transparent plates, about 0.5 mm. in thickness; having a strong elasticity; insoluble in water, and in alcohol, but soluble in benzene, petroleum benzin, chloroform, and in carbon disulphide. When macerated in hot water, Caoutchouc becomes neither soft nor plastic. Melting point: about 120° C.

If 1 part of it be treated with 7.5 parts of petroleum benzin, it should be dissolved in a few hours, leaving no residue.

If 0.2 g. of it be cut into minute pieces and gradually thrown into 2 g. of a fused mixture, consisting of 2 parts of sodium nitrate and 1 part of sodium carbonate, it burns with a flame, and the fused mass, after cooling, should dissolve in water without leaving any residue; and the resulting solution (1 : 50), after being acidified with nitric acid, should produce no change with barium nitrate solution.

CERA ALBA.

White Wax.

Yellow Wax bleached by exposure to sunlight. White or whitish masses, melting at about 64° C. to a colorless liquid. Specific gravity: 0.965—0.975.

White Wax should have no rancid odor.

If 2 parts of alcohol be mixed with 7 parts of water and set aside at 15° C. until the bubbles disappear, and the wax, made into globular shape, be thrown into the mixture, it should either remain suspended in the liquid, or should do so, when the specific gravity of the liquid is made 0.965—0.975 by adding more water. The globular wax for this purpose, should be prepared by melting it at a temperature as low as possible, and pouring it, drop by drop, into a glass vessel containing alcohol, and it should be used after leaving for 24 hours in the air.

The cold, colorless solution, obtained by boiling 1 g. of it for 2 or 3 minutes with 20 cem. of alcohol and filtering after an hour, should redden a blue litmus paper only very slightly, if at all; the same solution should not become much turbid by adding water.

If 1 g. of it be mixed with 10 cem. of water and 3 g. of sodium carbonate, and the mixture heated till it boils strongly, and cooled,

it is deposited on the surface of the solution which should show no more than a slight opalescence.

If 3 g. of it be boiled with 50 ccm. of alcohol and cooled, the solution should require, after being mixed with 12 drops of the solution of phenolphthalein, 0.5—0.85 ccm. of half-normal alcoholic potassium hydroxide solution to produce a red coloration; and if to the mixture, 20 ccm. of half-normal alcoholic potassium hydroxide solution be freshly added and heated on a water-bath for an hour, it should require, in order to neutralise the excess of potassium hydroxide, 10.0—11.4 ccm. of half-normal hydrochloric acid solution.

CERA FLAVA.

Yellow Wax.

A substance obtained from the honey-comb of the bees, by melting carefully after the honey has been taken out.

Light yellow or yellow masses, melting at 63°—64° C. to a clear liquid, having the honey-like odor. Specific gravity: 0.962—0.972.

A mixture of 2 parts of alcohol and 7 parts of water is kept at 15° C. until the bubbles disappear, and if the Yellow Wax, made into globular shape, be thrown into the mixture, it should either remain suspended in the mixture, or should do so, when the specific gravity of the liquid is made 0.962—0.972 by adding more water. The globular wax for this purpose, should be prepared by melting it at a temperature as low as possible, and pouring it, drop by drop, into a glass vessel containing alcohol, and it should be used after leaving for 24 hours in the air.

As for the other tests, those given under *Cera Alba* are equally applicable.

CERIUM OXALICUM.

Cerium Oxalate.

$$Ce_2(C_2O_4)_3 + 9H_2O = 706.18$$

A white, granular, odorless, tasteless powder, stable in the air; insoluble in water, and in alcohol.

A solution of Cerium Oxalate in hydrochloric acid produces, on being mixed with sodium hydroxide solution, a gelatinous precipitate which is insoluble in excess; when filtered, the filtrate, after being supersaturated with acetic acid, produces a white precipitate with calcium chloride solution.

It is dissolved with no effervescence in hydrochloric acid, and if sodium hydroxide solution be added to the resulting solution, and the gelatinous precipitate be filtered off, the filtrate should, on heating with an excess of ammonium chloride solution, produce no precipitate; the same filtrate should also produce no change with ammonium sulphide solution.

On gentle ignition, it should leave about 48 per cent. of a yellow or yellowish-red, neutral powder which, when dissolved in hydrochloric acid and diluted with water (1 : 40), should produce no precipitate with hydrogen sulphide solution; the same solution, after being supersaturated with ammonia and filtered, should produce no precipitate with a solution either of ammonium oxalate, or of sodium phosphate.

The solution, obtained by shaking 1 part of the salt with 50 parts of water and filtering, should produce no more than a strong opalescence with silver nitrate solution, and also a turbidity with barium nitrate solution.

When warmed with sodium hydroxide solution, it should evolve no odor of ammonia.

Keep with care.

CETACEUM.

Spermaceti.

A purified, solid constituent of the fatty substances, contained chiefly in the cavity at the head of *Physeter macrocephalus* Linn.

White, crystalline, brittle masses, with foliar structure and pearly lustre; melting at 45°—50° C. to a clear, colorless liquid with a slight odor, not like that of a rancid oil; soluble in ether, chloroform, carbon disulphide, and in boiling alcohol. Specific gravity: about 0.943.

If 1 part of Spermaceti be dissolved in about 50 parts of boiling alcohol and left at ordinary temperatures, it gradually crystallises out

again; the solution, decanted from the crystals, is neutral to test-papers, and should not produce a flocculent precipitate, when mixed with an equal volume of water.

If 1 g. of it be boiled with 1 g. of anhydrous sodium carbonate and 50 ccm. of alcohol, and the mixture filtered, the filtrate, on being acidified with acetic acid, may become turbid but should not produce a precipitate.

CHARTA RUBEFACIENS.

Rubefacient Paper.

Mix

Yellow Wax	8 *pts.*
Spermaceti	3 *pts.*
Olive oil	4 *pts.*
Cantharides, ***in fine powder***	1 *pt.*
Terpentine	1 *pt.*
Water	10 *pts.*

Boil the mixture for 2 hours with constant stirring; strain through a piece of muslin without applying any pressure; put the solidified mass of the strained liquid into a flat dish, and after melting on a water-bath, apply it uniformly to one side of a piece of paper.

CHININUM ÆTHYLCARBONICUM.

Ethyl Quinine Carbonate.

$C_{23}H_{28}N_2O_4 = 396.36$

Colorless, soft, needle-shaped, almost odorless crystals, having a slightly bitter taste; sparingly soluble in water, but easily soluble in alcohol, ether, and in chloroform. Melting point: 95° C.

If 0.1 g. of Ethyl Quinine Carbonate be dissolved in chlorine water, the resulting solution acquires a green coloration with an excess of ammonia water.

It dissolves readily in water which is mixed with a small quantity

of dilute sulphuric acid, and the resulting solution exhibits a bluish-green fluorescence.

If 0.1 g. of it be dissolved by heating in 1 cem. of sulphuric acid, the resulting solution, on adding a drop of potassium bichromate solution, produces a green color and evolves the odor of the aldehyde.

Its solution in water, which is previously acidified with nitric acid, should not be rendered turbid by a solution either of barium nitrate, or of silver nitrate.

When heated, it should be consumed without leaving any solid residue.

CHININUM BISULFURICUM.

Quinine Bisulphate.

$$C_{20}H_{24}N_2O_2.H_2SO_4 + 7H_2O = 548.54$$

Lustrous, colorless, prismatic crystals, effloresecnt in the air; turning yellow when exposed to light, and having an exceedingly bitter taste; soluble in 11 parts of water, and in 32 parts of alcohol. Melting point: 80° C. An aqueous solution of Quinine Bisulphate reacts acid, and has a blue fluorescence.

The aqueous solution of the salt, after being mixed with chlorine water, acquires a green coloration on adding an excess of ammonia water, and produces, with the addition of barium nitrate solution, a white precipitate which is insoluble in acids.

When moistened with sulphuric or nitric acid, the salt should acquire no more than a yellowish coloration; its aqueous solution (1 : 50), after being mixed with 2 or 3 drops of nitric acid, should not become turbid with silver nitrate solution.

Dissolve 2 g. of the salt in 20 cem. of water by warming gently in a test-tube, and exactly neutralise it with normal potassium hydroxide solution, and keep for half an hour at the temperature of 60°—65° C. with continuous stirring, and afterwards put the test-tube for 2 hours in water at 15° C. and shake frequently, then press out the content of the test-tube through a dry cloth of about 100 sqcm., and filter the resulting liquid again through a filter-paper of 7 cm. in diameter, and take 5 cem. of the filtrate at 15° C. into a dry test-tube, and gradually add ammonia water at 15° C. and lightly

shake, then not more than 7.5 ccm. of ammonia water should be required in order to completely dissolve the precipitate formed at first.

When slowly dried at 100° C. to a constant weight, the salt should lose not more than 23 per cent.

On ignition, 0.2 g. of the salt should leave no weighable solid residue.

Keep in well-closed vessels, protected from light.

CHININUM FERRO-CITRICUM.

Citrate of Iron and Quinine.

Lustrous, transparent, thin, dark reddish-brown leaflets, having a bitter, ferruginous taste; slowly but completely soluble in water, and sparingly soluble in alcohol.

An aqueous solution of Citrate of Iron and Quinine, after being acidified with hydrochloric acid, acquires a blue color with a solution of yellow prussiate of potash, and on adding ammonia water, the same solution produces a white precipitate which is completely soluble in ether.

The salt contains 9—10 per cent. of pure quinine ($C_{20}H_{24}N_2O_2$ = 324.32).

On heating, the salt is at first carbonised and then consumed, leaving a residue which should have no alkaline reaction.

If the aqueous solution (1 : 5) of the salt be boiled with an excess of potassium hydroxide solution till the iron is completely precipitated, no ammonia should be evolved; the solution, which is obtained by filtering off the above precipitate, on being acidified with acetic acid and left for a long time, should produce no crystalline precipitate.

The aqueous solution (1 : 20) of the salt should produce, on adding barium nitrate solution, no more than a slight turbidity.

If 1 g. of the salt be dissolved in 4 ccm. of water, made strongly alkaline by adding sodium hydroxide solution and extracted 3 times, each with 7 ccm. of ether, and the ethereal extracts be collected and evaporated, then the residue obtained, when dried at 100° C., should weigh at least 0.09 g; when the quinine, prepared by the above method, is dissolved in alcohol and completely neutralised with dilute sulphuric acid, evaporated and crystallised, then the crystals here obtained,

should conform with the tests given under *Quininum sulphuricum.*

If 1 g. of the salt be gently ignited, moistened with nitric acid, and evaporated by a gentle heat, the residue, on re-ignition, should leave at least 0.3 g. of ferric oxide.

Keep protected from light.

CHININUM HYDROCHLORICUM.

Quinine Hydrochloride.

$$C_{20}H_{24}N_2O_2.HCl + 2H_2O = 396.82$$

White, needle-shaped crystals, having an exceedingly bitter taste; soluble in 3 parts of alcohol, and in 34 parts of water.

An aqueous solution of Quinine Hydrochloride is colorless and neutral, and exhibits no fluorescence.

If 5 ccm. of the aqueous solution (1 : 200) of the salt be mixed with 1 ccm. of chlorine water, and an excess of ammonia water be added, a green coloration is produced; the same aqueous solution, after being acidified with nitric acid, produces, on adding silver nitrate solution, a white precipitate.

The aqueous solution (1 : 50) of the salt should become not more than slightly turbid with barium nitrate solution, and should also not become turbid with dilute sulphuric acid.

On mixing 0.05 g. of the salt with 10 drops of sulphuric acid and 1 drop of nitric acid, no reddish-yellow coloration should be produced.

When boiled with milk of lime, the salt should evolve no ammonia.

Mix 2 g. of the salt with 20 ccm. of water, and warm at 60° C. until it dissolves, add 1 g. of freshly powdered, uneffloresced sodium sulphate into the mixture, heat the resulting brew-like mass, under stirring, for 5 minutes on a water-bath, set aside for an hour at 15° C., pack the content in a dry cloth of 100 sqcm. and press, filter the resulting liquid through a filter-paper 7 cm. in diameter, and take 5 ccm. of the filtrate at 15° C. into a dry test-tube, and gradually add ammonia water at 15° C. and shake lightly, then not more than 6 ccm. of ammonia water should be required for completely redissolving the precipitate produced at first.

If 1 g. of the salt be dried at 100° C., not more than 0.09 g. of its weight should be lost.

On ignition, 0.2 g. of the salt should leave no weighable solid residue.

CHININUM SULFURICUM.

Quinine Sulphate.

$$(C_{20}H_{24}N_2O_2)_2.H_2SO_4 + 8H_2O = 890.88$$

Fine, white, needle-shaped crystals, having an exceedingly bitter taste; soluble in about 800 parts of water, 25 parts of boiling water, and in 6 parts of boiling alcohol.

An aqueous solution of Quinine Sulphate reacts neutral, and exhibits no fluorescence, however, if 1 drop of dilute sulphuric acid be added to it, a blue fluorescence is produced.

If 5 cem. of the cold, saturated aqueous solution of the salt be mixed with 1 ccm. of chlorine water, and an excess of ammonia water be added, a green coloration is produced; the same solution, after being acidified with nitric acid, yields a white precipitate on adding barium nitrate solution.

When moistened with sulphuric or nitric acid, the salt should acquire almost no color.

On boiling the salt with milk of lime, no ammonia should be evolved.

The cold, saturated aqueous solution of the salt, after being acidified with dilute nitric acid, should produce no change with silver nitrate solution.

If 1 g. of the salt be added to 7 cem. of a mixture of 2 volumes of chloroform and 1 volume of absolute alcohol, and warmed for a while at 40°—50° C., it should completely dissolve, and the resulting solution should remain almost clear, even after cooling.

Mix 2 g. of the salt, completely effloresced at 40°—50° C., with 20 ccm. of water in a test-tube; warm at 60°—65° C., with constant shaking, for half an hour; put into water at 15° C.; leave there for 2 hours with frequent stirring, and pack its content in a dry cloth of 100 sqcm. and press; filter the resulting solution through a filter-paper 7 cm. in diameter, and take 5 ccm. of the filtrate at 15° C. into

a dry test-tube, and gradually add ammonia water at 15° C. and shake lightly, then not more than 6 ccm. of ammonia water should be required for completely redissolving the precipitate, once formed at the beginning.

If 1 g. of the salt be dried at 100° C., not more than 0.15 g. of its weight should be lost.

On ignition, 0.2 g. of the salt should leave no weighable solid residue.

Keep protected from light.

CHININUM TANNICUM.

Quinine Tannate.

A yellowish-white, odorless, crystalline powder, having a very slightly bitter and astringent taste; sparingly soluble in water, and somewhat easily soluble in alcohol.

Quinine Tannate contains 30—32 per cent. of quinine ($C_{20}H_{24}N_2O_2$ = 324.32).

The aqueous or alcoholic solution of the salt acquires, on the addition of ferric chloride solution, a bluish-black coloration.

The solution (1 : 50), obtained by shaking the salt with water and a small quantity of nitric acid and filtering, should produce no change with a solution either of hydrogen sulphide, or of silver nitrate; if the same solution becomes immediately turbid by barium nitrate solution, the turbidity should be only very slight.

Mix 1 g. of the salt with 4 ccm. of water in a separating-funnel, make the solution strongly alkaline with sodium hydroxide solution, thoroughly shake with 15 ccm. of ether, and take the clear upper solution into a previously weighed vessel, and repeat the same operation twice more, each with 15 ccm. of ether, and put together the ethereal solutions, and distill or evaporate the ether off, then the resulting residue, when dried at 100° C., should weigh at least 0.3 g.

If the quinine, prepared by the above method by taking a somewhat larger quantity of the salt, be dissolved in alcohol and exactly neutralised with dilute sulphuric acid, and the solution be evaporated, then the resulting substance should conform entirely with the properties stated under *Chininum sulphuricum*.

On ignition, 0.2 g. of the salt should leave no weighable solid residue. Keep protected from light.

CHLORALUM HYDRATUM.

Chloral Hydrate.

$C_2HCl_3O.H_2O = 165.38$

Colorless, transparent, dry crystals, having a penetrating odor and a caustic, somewhat bitter taste; easily soluble in water, alcohol, and in ether, slightly soluble in fatty oils, and in carbon disulphide, and slowly soluble in 5 parts of chloroform. Melting point: 58° C.

Chloral Hydrate, when heated with sodium hydroxide solution, first becomes turbid and then clear, with separation of chloroform.

If 1 g. of it be dissolved in 10 ccm. of alcohol, the solution hardly reddens a blue litmus paper, and should not at once produce any change on adding silver nitrate solution.

If 0.5 g. of it be mixed with 5 ccm. of sulphuric acid in a glass tube, having an internal diameter of 3 cm. and provided with a glass-stopper, and frequently shaken and left aside, the mixture should acquire no coloration within an hour.

If 0.2 g. of it be carefully heated, it should volatilise without leaving any weighable solid residue, emitting, at the same time, no inflammable vapors.

Keep with care in well-stoppered bottles.

CHLOROFORMIUM.

Chloroform.

$CHCl_3 = 119.36$

A clear, volatile liquid, with a characteristic odor, and having a slightly sweet taste; very slightly soluble in water, but miscible with alcohol, ether, and with fatty and volatile oils. Boiling point: 60–62° C. Specific gravity: 1.485–1.495.

When Chloroform is shaken with half its volume of water, the latter does not redden a blue litmus paper, and if that water be carefully poured into the solution of silver nitrate diluted with an equal parts of water, no turbidity should be produced.

It acquires no coloration on shaking with the solution of zinc iodide and of starch, nor should the latter solution also acquire a blue coloration.

If 20 ccm. of it be frequently shaken with 15 ccm. of sulphuric acid, in a glass tube with a glass-stopper, the latter acid should acquire no coloration within an hour.

Keep with care in well-stoppered bottles, protected from light.

CHRYSAROBINUM. *Araroba Depurata.*

Chrysarobin. *Purified Goa Powder.*

A substance found deposited in the cavities of the stem of *Andira Araroba* Aguiar, in purified form.

A yellow, light, crystalline powder.

Chrysarobin is not completely soluble, even if boiled, in 2000 times its weight of water, and the tasteless solution, obtained by filtering the above aqueous solution, has a slightly brownish-red color, reacts neutral to test-papers, and is not colored by ferric chloride solution.

When shaken with ammonia water and left for a day, a carmine-red coloration is gradually produced.

If 1 drop of fuming nitric acid be added to 0.001 g. of it in a watch-glass, and ammonia water added to the resulting red solution, a violet coloration is produced.

When sprinkled on sulphuric acid, it should produce a reddish-yellow liquid; 1 part of it, when dissolved in 150 parts of hot alcohol, warm chloroform, or in carbon disulphide, should leave not more than a slight insoluble residue.

It melts when heated, evolving yellow vapors, and carbonises, but only to a slight extent.

On ignition, 0.2 g. of it should leave no weighable solid residue.

COCAINUM HYDROCHLORICUM.

Cocaine Hydrochloride.

$C_{17}H_{21}NO_4.HCl = 339.71$

White, odorless leaflets, or prismatic crystals, or a crystalline powder, soluble in water, and in alcohol, showing a neutral reaction and with a bitter taste, and producing on the tongue a tingling sensation followed by a temporary numbness.

An aqueous solution of Cocaine Hydrochloride, after being acidified with hydrochloric acid, produces a white precipitate with corrosive sublimate solution, a brown precipitate with iodine solution, and with potassium hydroxide solution, a white precipitate which is easily soluble in alcohol, and in ether; when acidified with nitric acid, its aqueous solution yields a white precipitate with silver nitrate solution.

On warming 0.1 g. of the salt with 1 ccm. of sulphuric acid for 5 minutes at about 100° C., and carefully pouring into the resulting solution, 2 ccm. of water, it evolves the odor of ethyl benzoate, and on cooling, the solution deposits abundant crystals which also dissolve in 2 ccm. of alcohol.

The mixture of equal parts of the salt and of calomel turns black, when it is moistened with dilute alcohol.

If 0.05 g. of the salt be dissolved in 5 ccm. of water, and 5 drops of chromic acid solution poured into the solution, every drop produces a yellow precipitate which, however, disappears on shaking, and is reproduced on the addition of 0.8 ccm. of hydrochloric acid.

If 0.1 g. of the salt be dissolved in 1 ccm. of sulphuric or nitric acid, no coloration should take place; the solution, obtained by dissolving 0.1 g. of the salt in 5 ccm. of water, acquires, on adding at first 3 drops of dilute sulphuric acid and then 5 drops of potassium permanganate solution, a violet coloration which should not be decolorised within half an hour.

If 0.1 g. of the salt be dissolved in 100 ccm. of water, and 4 drops of ammonia water added and set aside, no turbidity should be produced within an hour.

The aqueous solution (1 : 20) of the salt produces no more than an

opalescence with barium nitrate solution; the same solution produces, with sodium hydroxide solution, a white, crystalline precipitate, but should evolve no ammonia.

The salt should lose no weight at 100° C.

On ignition, 0.2 g. of the salt should leave no weighable solid residue.

Keep with care.

COCCIONELLA.

Cochineal.

The dried female insect, *Coccus Cacti* Linn.

It is 5 mm. long, somewhat oblong or oval in shape; transversely wrinkled, convex above, flat or concave beneath; of a violet-black or violet-gray color, usually with a silverly line; easily pulverisable, yielding a dark red or dark brown powder.

Cochineal should contain no foreign matter.

It should leave, when ignited, not more than 6 per cent. of solid residue.

CODEINUM PHOSPHORICUM.

Codeine Phosphate.

$$C_{18}H_{21}NO_3.H_3PO_4 + 1\tfrac{1}{2}H_2O = 424.31$$

Fine, white, acicular or hard crystals, having a bitter taste; soluble in about 3 parts of water, showing a faintly acid reaction, but difficultly soluble in alcohol.

If 0.01 g. of Codeine Phosphate be dissolved in 10 ccm. of sulphuric acid, a colorless solution should be obtained.

If 0.01 g. of the salt be warmed with a mixture of 10 ccm. of sulphuric acid and 5 drops of ferric chloride solution, a blue or violet coloration should be produced.

The aqueous solution (1 : 20) of the salt yields a yellow precipitate with silver nitrate solution, and a white precipitate with potassium hydroxide solution.

If 1 ccm. of its aqueous solution (1 : 100) be mixed with a solution, which is made by dissolving a piece of red prussiate of potash in

10 ccm. of water and adding a drop of ferric chloride solution, no blue coloration should at once be produced.

The aqueous solution (1 : 20) of the salt, after being acidified with nitric acid, produces no change with silver nitrate solution, and should not at once become turbid with barium nitrate solution.

When dried at 100° C., the salt should lose not more than about 8 per cent. of its weight.

Keep with care.

Sol in 4 pts aq. should be quite clear
Good Lab'y Test.

COGNAC.

Cognac.

A clear, yellow, alcoholic drink of a superior quality, prepared by distilling wine, and having a pleasant odor and an agreeable taste. Cognac contains 35—39 g. of pure alcohol ($C_2H_6O = 46.06$) in 100 cem.

COLLA PISCIUM. *Ichthyocolla.*

Isinglass.

A substance obtained from the air-bladder of *Acipenser Huso* Linn.

A whitish, tough, semi-transparent, horny membrane or colorless, transparent, iridescent scales or slender slices, without odor or taste.

When macerated in water, it swells up, and is almost completely soluble in boiling water, and in boiling dilute alcohol.

If 1 part of Isinglass be dissolved in 30 parts of hot water, an almost transparent, colorless jelly should be obtained on cooling.

When incinerated, it should leave not more than 1.2 per cent. of solid residue.

COLLEMPLASTRUM.

Hard Plaster.

Take

Empyreumatic resin-oil	150 *pts.*
Copaiva balsam	100 *pts.*

Collophonium . . . . . 100 *pts.*
Anhydrous lanolin . . . . . 50 *pts.*
Yellow wax . . . . . 30 *pts.*
Purified guttapercha, *fine cut* . . . . . 250 *pts.*

dissolve them in

Ether . . . . . 1200 *pts.*

add to the ethereal solution a mixture of

Iris root, *in fine powder* . . . . . 220 *pts.*
Sandarac, *in fine powder* . . . . . 50 *pts.*
Ether . . . . . 400 *pts.*

mix them thoroughly so as to get a homogeneous mass, and apply it to the surfaee of a piece of cloth.

COLLODIUM.

Collodion.

Mix

Crude sulphuric acid . . . . . 1000 *pts.*
Crude nitric acid . . . . . 400 *pts.*

gradually with care; after the mixture has cooled to 20° C., macerate in it

Purified cotton . . . . . 55 *pts.*

let it stand at 15°—20° C. for 24 hours; transfer it into a funnel; leave it there for 24 hours more to drain off the excess of the acid; wash with water until the acid is completely removed; press and dry at 25° C.; take the dried

Collodion cotton . . . . . 2 *pts.*

into a bottle; add to it

Alcohol . . . . . 7 *pts.*

and after moistening it well, add

Ether . . . . . 42 *pts.*

shake repeatedly, and after setting it aside quietly, decant the upper clear liquid.

A colorless or slightly yellow, syrupy liquid, having a neutral reaction. If it be made to a thin layer and its ether-alcohol evaporated, a colorless, tough film is left behind.

When evaporated, Collodion should leave about 3.5 per cent of residue.

Keep in well-stoppered bottles, in a cool place.

COLLODIUM ELASTICUM.

Elastic Collodion.

Mix

Collodion	94 *pts.*
Terpentine	5 *pts.*
Castor oil	1 *pts.*

Elastic Collodion is almost colorless or slightly yellow.

Keep in well-stoppered bottles, in a cool place.

COLLODIUM EPISPASTICUM.

Cantharidal Collodion. *Blistering Collodion.*

Take

Cantharides, *in medium powder* . . . . . 1 *pt.*

extract it in the cold with

Ether . . . . . **a suitable quantity.**

filter; evaporate the clear filtrate by a gentle heat until it attains a syrupy consistency, and make the whole to 1 part by adding

Collodion . . . . . **a suitable quantity.**

A clear, syrupy, olive-green liquid, having a slightly acid reaction; when its ether-alcohol is volatilised, a green-colored, tough film is left behind.

Keep with care in well-stoppered bottles, in a cool place.

COLLODIUM IODOFORMIATUM.

Iodoform Collodion.

Take

Iodoform . . . . . 1 *pt.*

dissolve it in

Collodion . . . . . 9 *pts.*

A brownish liquid; it should not have a dark brown color.

Keep in well-stoppered bottles, in a cool place.

COLOPHONIUM.

Colophony.

A resin prepared by removing terpentine oil from the terpentine which is collected from various species of Pinus.

Transparent, glassy, yellowish or light brown, brittle masses, with a white coating on the surface; breaking with large conchoidal faces; melting, when heated on a water-bath, to a clear viscous liquid, and evolving, when strongly heated, heavy, aromatic, white vapors; soluble in 1 part of absolute alcohol, 2 parts of glacial acetic acid, and also clearly soluble in 8 parts of dilute potassium hydroxide solution (1 : 40).

If 1 g. of it be dissolved, at ordinary temperatures, in 25 ccm. of half-normal alcoholic potassium hydroxide solution, and 10 drops of phenolphthalein solution be added, 18.6 – 19.6 ccm. of half-normal hydrochloric acid solution should be required for decolorisation.

CORTEX AURANTII FRUCTUS.

Bitter Orange Peel.

The peel of the ripe fruits of *Citrus Bigaradia* Duham, taken off, cut and dried.

Externally of a brownish color, roughly pitted, and internally of a whitish color.

It has a very bitter, aromatic odor and taste.

Before using, it should be softened by macerating in cold water for 15 minutes, and after removing the water completely and setting aside well-covered till the next day, the softened spongy tissue should be removed, and the peel dried.

CORTEX CASCARILLÆ.

Sweet Wood Bark.

The dried bark of the stem and branches of *Croton eluteria* Benn. In quills or curved pieces, 1 – 2 mm. thick; the outer surface

covered, here and there, with a whitish cork-layer, which is provided with transversely extended, slit-like lenticels, and is irregularly fissured, assuming a brownish color in the spots where the cork-layer has dropped off. The tissue of the bark contains slender sclerenchymatous fibres but no stone-cells.

It has a bitter, aromatic taste and odor, and should contain no pieces of wood.

CORTEX CHINÆ.

Cinchona Bark.

The dried bark taken from the stems and branches of various species of Cinchona, especially *Cinchona succirubra* Pav.

In quills or curved pieces; brittle; externally grayish-brown; marked with rough longitudinal ridges and short transverse fissures; internally fibrous and brownish-red.

Under the microscope, bast-fibres, characteristic of the Cinchona Bark, are visible.

The powdered bark produces a carmine-colored tar on heating in a small glass tube.

Mix 12 g. of the bark in fine powder, dried at 100° C., with 125 cem. of ether and 25 cem. of chloroform, and shake strongly; after adding to the mixture, 10 cem. of sodium hydroxide solution and setting aside for 3 hours with occasional strong shaking, let the powder collect together by adding 10 cem., or still more quantity of water and thoroughly shaking, and set aside for an hour; filter 125 cem. of the clear chloroform-ether solution into a small glass flask, by means of a well-covered funnel which is furnished with a dry filter-paper, and distill the filtrate till it becomes about half its orginal volume; put the remaining chloroform-ether solution into a separating-funnel, and wash the small flask 3 times, each with 5 cem. of the mixture of 6 cem. of ether and 1 cem. of chloroform, and add the washing to the solution in the separating-funnel; shake the mixture strongly with 25 cem. of decinormal hydrochloric acid solution, if necessary, with the addition of a suitable quantity of ether; when the layer of the chloroform-ether solution separates, take the lower, clear, acid layer, and filter it into a colorless glass flask of 100 cem. in capacity,

by means of a small filter-paper which is previously moistened with water; add 10 ccm. of water, successively for 3 times, to the chloroform-ether solution and shake, the aqueous layer being separated and filtered, each time, through the same filter-paper which is finally washed with water, then mix the whole filtrates and washings, and make the mixture to 100 ccm. by adding water. To 50 ccm. of the solution thus prepared, add 1 ccm. of alcohol, in which a small piece of hæmatoxylin has been freshly dissolved, and titrate the resulting yellowish solution with decinormal potassium hydroxide solution, then not more than 4.3 ccm. of the latter solution should be required in order to color it immediately bluish-violet; and 5 ccm. of the solution left in the flask, after being mixed with 1 ccm. of chlorine water, should acquire a beautiful green color by adding ammonia water. = 5.3% T.

CORTEX CINNAMOMI.

Cassia Bark.

The dried bark taken from the stems and branches of *Cinnamomum Cassia* Bl. cultivated in southern China, and prepared by removing, almost completely, the grayish-brown cork-layer from it.

In quills or curved pieces, 1—3 mm. thick, and 0.5—3.0 mm. in diameter; with external surface of a light brown color.

Examined under the microscope, sclerenchymatous fibres, about 0.7 mm. long and 0.03—0.05 mm. in diameter at their middle part, are scattered singly in the secondary bast, and rarely in groups of 2 or 3; the cortical strands contain mucilage and secretory cells; the medullary rays generally consist of 2 cell-rows.

Cassia Bark has the odor of cinnamon oil, and should taste neither astringent nor slimy.

CORTEX CITRI FRUCTUS.

Lemon Peel.

The pericarp of the fresh ripe fruit of *Citrus Limonum* Risso, cut in spiral ribbons and dried.

Externally of a brownish-yellow color; pitted with numerous oil reservoirs embedded in the tissue; and internally of a whitish color.

Lemon Peel has the odor of lemon oil, and an aromatic and slightly bitter taste.

CORTEX CONDURANGO.

Condurango Bark.

The Condurango Bark is 2—7 mm. thick; in most cases slightly curved; externally of a brownish-gray color; having light yellowish-gray fractures, mostly granular; if its young bark be cut across, long fibres come out of peripheral portion; the cross-section of the secondary bast, when examined under the microscope, shows the secondary medullary rays, which are 1-cell, rarely 2-cells broad, and 10-cells to 40-cells, mostly 15-cells high; cells of these medullary rays, partly containing groups of the oxalate crystals; the cortical strands contain laticiferous vessels and stone-cell groups, which are elongated in the direction of main axis; the stone-cells are arranged in loose, tangential rows; the parenchyma of the secondary bast is rich in starch; on the internal boundary of the primary cortex, lie the bundles of fibres which are arranged in 1 or 2 tangential rows; the cork-layer consists of thin-walled cells.

The clear liquid, obtained by extracting 1 part of the bark, in the cold, with 4 parts of water, is rendered conspicuously turbid on heating, but becomes clear again on cooling.

CORTEX FRANGULÆ.

Black Alder Bark.

The bark of the stems and branches of *Rhamnus Frangula* Linn., collected and kept at least one year.

Not more than 1.5 mm. in thickness; externally of a grayish-brown color; with numerous, whitish lenticels; showing a red color, if the outer bark be scratched with a knife; internally being reddish-yellow or brownish colored.

When softened by soaking in lime water, the inner surface of Black Alder Bark assumes a red color.

When examined under the microscope, the cork-layer containing a red substance is seen; the secondary bast contains medullary rays which are 1—3 rows of cells wide and 10—25 layers of cells high; in the cortical strands, are scattered broad bundles of long, colorless, sclerenchymatous fibres, which are accompanied by longitudinal rows of small cells containing single crystals; and in the other parenchymatous tissues, clusters of the oxalate crystals are seen; these bundles of sclerenchymatous fibres make tangential rows at the internal boundary of the cortex, but is devoid of stone-cells.

The solution, obtained by boiling the bark with water, has a yellowish-red or brownish color, a slimy, somewhat bitter and sweet taste, and acquires, with ferric chloride solution, a deep brown coloration.

CORTEX GRANATI.

Pomegranate Bark.

The dried bark stripped off from the stems, branches and roots of *Punica Granatum* Linn.

In quills or transversely curved pieces, 1—3 mm. in thickness; externally of a greenish-yellow or grayish-brown color; with smooth and yellowish fracture; frequently having a somewhat brown or gray color on its outer surface; the outer bark consisting of cork-layers; the inner walls of the cork-cells being conspicuously thickened, clearly stratified, and pitted; the secondary bast having medullary rays of usually 1 row of cells and very rarely of 2; the cross-section of the cortical strands, consisting of quadratic cells, arranged in regular tangential rows, each cell containing a cluster of the oxalate crystals; these rows of cells being placed alternate with transverse rows of parenchyma which contains sieve tubes, and particularly at the outer portion of the secondary bast are scattered, the thickened, sclerenchymatous cells of 0.02—0.20 mm. in diameter.

If 1 part of finely cut Pomegranate Bark be left for an hour with 100 parts of slightly acidified water, a yellow extract is obtained, which acquires a blackish-blue color with 2 or 3 drops of ferric chloride

solution; the same extract, when mixed with five times its volume of lime water, is rendered turbid and colored yellowish-red and finally blackens, depositing an orange-red, flocculent precipitate, as the time passes.

The powdered bark should contain no other ingredients, except round, single starch grains with a diameter of 0.00025—0.0008 mm., rarely compound starch grains, characteristic cork-cells, sclerenchymatous cells, cells containing single or clustered crystals of oxalate, parenchymatous cells and sieve tubes.

Mix 12 g. of the bark in medium powder, dried at 100° C., with 125 ccm. of ether and 25 ccm. of chloroform, and shake strongly; after adding to the mixture 10 ccm. of a mixture of 2 parts of sodium hydroxide solution and 1 part of water, and leaving for 3 hours with frequent strong shaking, let the powder collect together by adding 10 ccm. or more of water and shaking strongly, and set aside for an hour; filter 125 ccm. of the clear chloroform-ether solution into a separating-funnel, by means of a well-covered funnel which is furnished with a dry filter-paper; add to the filtrate 50 ccm. of centinormal hydrochloric acid solution and shake; separate the lower, clear, acid layer and filter it into a glass flask of 100 ccm. in capacity through a small filter-papar which is previously moistened with water; add 10 ccm. of water, successively for 3 times, to the chloroform-ether solution and shake, the aqueous layer being separated and filtered, each time; through the same filter-paper which is finally washed with water, then mix the whole filtrates and washings, and dilute the mixture to 100 ccm. by adding water. Take 50 ccm. of the solution thus prepared into a colorless glass bottle of about 200 ccm. in capacity, add about 50 ccm. of water and pour in ether until the latter forms in the bottle a layer of about 1 cm. in thickness, and after adding 5 drops of iodeosine solution, titrate by pouring centinormal potassium hydroxide solution, drop by drop, under strong shaking, then not more than 11 ccm. of the latter solution should be required, before a light red coloration is produced in the lower aqueous layer.

CORTEX MEZEREI.

Mezereon Bark.

The bark of *Daphne Mezereum* Linn., in form of long bands, 1—3 em. wide, usually made into bundles by folding up the inner sides out; externally of a light brown and slightly red eolor; smooth and lustrous; having, here and there, buds and brown leaf-sears and numerous, minute, blaekish lentieels; internally yellowish-white and slightly lustrous.

Mezereon Bark is very flexible, and its inner layer ean be removed in form of long, minute fibres.

It has an aerid and burning taste.

CORTEX QUILLAIÆ.

Quillaia Bark.

The dried bark of the stems and branehes of *Quillaia Saponaria* Molina, deprived of the brown periderm; 1 em. in thiekness; when broken, seattering about a sternutatory powder; with sharp and yellowish-white fraetures; when examined with a lens, prismatic erystals of ealeium oxalate, 0.06—3.20 mm. long, being visible singly in parenehymatous cells of the bark; in a transverse seetion, are seen bundles of irregular selerenchymatous fibres, horizontally eonneeting medullary rays, and eolorless selerenehymatous fibres singly seattered in the bark.

The infusion, obtained by boiling Quillaia Bark with water, foams eonsiderably on shaking, and has a slimy, aerid taste.

CRESOLUM CRUDUM.

Crude Cresol.

A elear, yellowish to yellow-brown, neutral liquid, heavier than water; having an empyreumatie smell; not completely soluble in water, but easily soluble in aleohol, and in ether.

If 10 ccm. of Crude Cresol be shaken in a glass-stoppered, graduated cylinder of 200 ccm. in capacity, together with 50 ccm. each, of sodium hydroxide solution and of water, not more than a little, floeculent substance should be deposited after standing for a long while; on adding 30 ccm. of hydrochloric acid and 10 g. of sodium chloride to the above solution and shaking, an oily layer of cresol consisting of 8.5—9.0 ccm., should be separated after standing, and 0.5 ccm. of the cresol here separated, when shaken with 300 ccm. of water and mixed with 2.5 ccm. of ferric chloride solution, should produce a bluish-violet coloration.

CRETA PRÆPARATA.

Prepared Chalk.

A powdered chalk, freed from its impurities by elutriation, and dried.

A very fine, white, amorphous powder, or easily pulverisable masses, odorless and tasteless; insoluble in water, and in alcohol.

Prepared Chalk is almost completely dissolved with effervescence in acetic acid, and the resulting solution yields a white precipitate with ammonium oxalate solution.

Its dilute acetic acid solution (1 : 20) should not be rendered turbid with a solution either of calcium sulphate, or of barium chloride, and should acquire, with a solution of yellow prussiate of potash, no more than a slightly blue coloration; the same solution, after being precipitated completely with ammonium oxalate solution and filtered, gives a filtrate which should not be rendered decidedly turbid by adding both a sodium phosphate solution and ammonia water.

CROCUS.

Saffron.

The dried red stigma of *Crocus sativus* Linn.

If softened by soaking in water, each stigmatic lobe appears as a tube, narrowing towards its lower end; 30—35 mm. long; open at one side and notched at the apex; a narrow vascular bundle ascending

from the base and dichotomously branching repeatedly, terminates, in the upper broad portion, into about 20 vascular bundles.

If 1 part of Saffron be shaken with 100,000 parts of water, a decidedly pure yellow coloration is produced.

When dried at 100° C., it loses not more than 15 per cent. of its weight; if dried saffron be incinerated, no explosion takes place, and not more than 7.5 per cent. of solid residue should be left behind.

It should have a strong odor and an aromatic, bitter taste.

Keep well closed, protected from light.

CUBEBÆ.

Cubebs.

The dried, full-grown, unripe fruit of *Piper Cubeba* Linn. fil.

Nearly globular; not above 5 mm. in diameter; externally dark brown in color and marked with wrinkles; its top provided with 3—5 stigmatic lobes; its base terminating in a pedicel, 4—10 mm. long and not bigger than 1 mm. in diameter. The fracture of the pericarp shows a hard and somewhat light colored internal layer, which consists of 2 or 3 rows of sclerenchymatous cells, with more or less thickened wall, and elongated slightly in radial direction. The middle layer of the pericarp contains secretory cells, but no sclerenchymatous cells. Just beneath the epidermis, are seen 1 or 2 layers of sclerenchymatous cells, and a somewhat developed seed is attached to the bottom of the pericarp.

It has an aromatic, bitter odor and taste.

A drop of sulphuric acid, placed on a piece of it, decidedly assumes a red coloration.

CUPRUM ALUMINATUM LAPIS DIVINUS.

Copper Alum.

Pulverise

Copper sulphate . . . . . **10** *pts.*

Potassium nitrate	10 *pts.*
Alum	10 *pts.*

mix them in a porcelain dish; heat on a sand-bath until the mixture melts; add to it

Purified camphor powder	1 *pt.*

decant into another porcelain dish, or pour into a mould so as to give to it the shape of a small rod.

Homogeneous, light greenish-blue, dry masses or small rods, having the odor of camphor; soluble in 16 parts of water, leaving a little residue.

Keep with care in well-stoppered bottles.

CUPRUM SULFURICUM.

Copper Sulphate.

$$CuSO_4 + 5H_2O = 249.76$$

Transparent, blue crystalls, slowly effloreseent in dry air; soluble in 3.5 parts of water, and in 1 part of boiling water, showing an aeid reaetion, but insoluble in aleohol.

An aqueous solution of Copper Sulphate produees, with barium nitrate solution, a white preeipitate insoluble in hydroehlorie aeid, and with an exeess of ammonia water, a elear, deep blue liquid.

If an exeess of hydrogen sulphide solution be added to the aqueous solution of 0.5 g. of the salt, and the blaek preeipitate produeed be filtered off, the resulting eolorless filtrate is neither eolored with ammonia water, nor should it leave when evaporated and ignited, any weighable solid residue.

Keep with eare.

DECOCTA.

Decoctions.

In order to prepare deeoetions, eut, if neeessary, the materials to be used in fine pieees, and pouring water on them heat on a water-bath for 30 minutes with oeeasional shaking, and express while it is still warm.

In cases when the quantity of the drugs to be used, is not specified in the prescription, such quantities are taken, that 10 parts of the expressed liquid are obtained for every 1 part of the material employed.

In cases of powerful drugs, physicians should always prescribe the quantities to be used, and in cases when much slimy substances are contained, apothecaries may fix their quantities.

DIASTASA.

Diastase.

A yellowish-white powder, partly soluble with turbidity in water, and almost insoluble in alcohol.

If 0.1 g. of Diastase be mixed with the starch solution, which is prepared by pouring 70 ccm. of boiling distilled water, under frequent shaking, into a mixture of 6 g. of potato-starch dried at 100° C. and 30 ccm. of water, and leaving the whole for 30 minutes on a water-bath, and the mixture be set aside at 50° C. for 6 hours with frequent stirring, then 10 ccm. of the resulting solution should decolorise 50 ccm. of Fehling's solution.

Keep in well-stoppered bottles.

DEMETHYLAMIDOANTIPYRINUM.

Dimethylamidoantipyrine.

$$C_{13}H_{17}N_3O = 231.29$$

Fine, white crystals, having a slightly bitter taste; readily soluble in alcohol, ether, and in about 20 parts of water. Melting point: 108° C.

A saturated, aqueous solution of Dimethylamidoantipyrine acquires a yellowish-brown coloration on adding a little ferric chloride solution which, when added in a larger quantity, produces a bluish-violet coloration, afterward changing to dark red.

It acquires a beautiful bluish-violet color with a solution of iodine, and a blue color with fuming nitric acid.

It should produce no change with hydrogen sulphide solution.

On heating strongly, it should be consumed without leaving any solid residue.

Keep with care.

ELÆOSACCHARA.

Oil Sugar.

Mix

Prescribed volatile oil	1 *pt.*
Sugar, ***in medium powder***	50 *pts.*

Prepare it freshly when wanted.

ELECTUARIUM SENNÆ COMPOSITUM.

Lenitive Electuary.

Take

Tamarind	10 *pts.*

pour on it

Distilled water	40 *pts.*

warm and shake for about 2 hours until a homogeneous mass is obtained; sift into a previously weighed porcelain dish; add to it

Licorice extract	1 *pt.*
White sugar	55 *pts.*
Distilled water	35 *pts.*

warm on a water-bath, thereby completely dissolving the licorice extract and sugar; add a thoroughly triturated mixture of

Senna leaves, ***in fine powder***	7 *pts.*
Orange peel, ***in fine powder***	3 *pts.*
Fennel fruit, ***in fine powder***	1 *pt.*
Precipitated sulphur	35 *pts.*
Potassium bicarbonate, ***in fine powder***	10 *pts.*

evaporate the mixture with stirring on a water-bath until the whole becomes 135 parts; mix with it

Syrup of orange peel	35 *pts.*

add a suitable quantity of white sugar which is burnt and made dark brown; thoroughly mix the whole until a brownish, homogeneous, soft mass is obtained.

Keep in a dry and cool place.

EMPLASTRA.

Plaster.

Unless a special prescription is given, melt the difficultly melting substance at first, then add to it, that which melts easier; thoroughly mix the medicine with the melted mass partially cooled; and after the whole has become homogeneous, give a suitable form to it.

Plaster is a solid mass at ordinary temperatures, becomes plastic at the temperature of human body, and melts when warmed.

Keep in a cool, dry place, packed with sheaths or with opaque paper, and further put in a tinned-iron vessel, if it contains any volatile medicine.

EMPLASTRUM ADHÆSIVUM ANGLICUM.

Court Plaster.

Dissolve

Isinglass	**10** *pt.*

in so much hot water as to get 120 parts of the strained liquid; take 60 parts of the solution and paint a stretched, white silk cloth, several times with it, drying it every time; gradually mix the remaining 60 parts of the solution with

Alcohol	**40** *pts.*
Glycerin	**1** *pt.*

paint the above silk cloth with the mixed solution in the same way as before; lastly paint the back of the same silk cloth with the tincture of benzoin, and dry it well.

Court Plaster should be lustrous, and stick well to the skin when moistened.

Keep in a dry place.

EMPLASTRUM CANTHARIDUM.

Cantharides Plaster.

Mix

Cantharides, *in medium powder*	2 *pts.*
Olive oil	1 *pt.*

digest the mixture by heating on a water-bath for 2 hours; add to it

Yellow wax	4 *pts.*
Terpentine	1 *pt.*

stir the mixture till it cools.

Cantharides Plaster should have a grayish-brown color and a somewhat soft consisteney.

EMPLASTRUM HYDRARGYRI.

Mercury Plaster.

Thoroughly tritrate

Mercury	30 *pts.*
Anhydrous lanolin	15 *pts.*

add the whole to a melted and partially cooled mixture of

Yellow wax	15 *pts.*
Lead plaster	90 *pts.*

and make the whole mass homogeneous.

Mercury Plaster is gray-colored; no globules of mercury should be visible in it by the naked eye.

EMPLASTRUM LITHARGYRI.

Lead Plaster.

Take

Olive oil	5 *pts.*
Hog's lard	5 *pts.*
Distilled water	1 *pt.*
Lead oxide, *in fine powder*	5 *pts.*

first add distilled water to lead oxide and make a brew; add to it

the mixture of olive oil and hog's lard; heat the whole under constant stirring; boil it, with frequent additions of a little water, until a plaster mass is formed; immediately add warm water in order to remove glycerin by frequent kneading; then remove water from it on a water-bath.

Lead Plaster is yellowish-white; it should contain no free lead oxide.

EMPLASTRUM LYTHARGYRI COMPOSITUM.

Compound Lead Plaster.

Melt

Lead plaster	24 *pts.*
Yellow wax	3 *pts.*

by a gentle heat; to the melted and partially cooled mass add

Ammoniacum	2 *pts.*
Galbanum	2 *pts.*
Terpentine	2 *pts.*

which are melted together with a little water on a water-bath and strained previously.

Compound Lead Plaster is yellowish, tenacious and homogeneous, and gradually acquires a dark color on keeping.

EMPLASTRUM RESINÆ.

Resin Plaster.

Take

Lead plaster	80 *pts.*
Resin	14 *pts.*
Yellow wax	6 *pts.*

at first mix lead plaster and yellow wax; melt them together and add resin to the melted mixture.

Resin Plaster is yellowish in color.

EMPLASTRUM SAPONATUM.

Soap Plaster.

Take

Lead plaster	70 *pts.*
Yellow wax	10 *pts.*

melt them together by heating; add to the melted and partially cooled mass, under stirring, a mixture of

Medical soap, ***in medium powder***	5 *pts.*
Olive oil	1 *pts.*
Purified camphor	1 *pts.*

Soap Plaster is yellowish in color.

EMPLASTRUM SCOPOLIÆ.

Scopolia Plaster.

Melt

Resin plaster	90 *pts.*

on a water-bath, and carefully mix with it

Extract of scopolia	10 *pts.*

Scopolia Plaster has a brown color.

EXTRACTA.

Extracts.

The drugs, which serve for the preparation of extracts, should be shaken frequently while they are being extracted.

The extracts, after being filtered, should be evaporated with constant stirring on a water-bath until they get a suitable consistency.

The aqueous and alcoholic extracts should be evaporated at a temperature not above 85° C., and the ethereal extracts at a temperature not above 35° C.

At the end of evaporation, the alcoholic extracts should be brought to a suitable consistency, by adding a little fresh alcohol and stirring.

The extracts are divided into the following 3 classes according to their consistency :—

(1) ***Thin extracts:*** Those which have the consistency of a fresh honey.

(2) ***Thick extracts:*** Those which become stringy after cooling, though not decantable.

(3) ***Dry extracts:*** Those which are capable of being ground.

In order to prepare dry extracts, they are evaporated in a porcelain dish till it becomes sufficiently tenacious and capable of being ground after cooling, then taken out of the dish, while still warm, by means of a spatula, drawn out in form of threads, dried on a glass plate at 40—50°C., and are put, after grinding, into a previously warmed vessel.

The narcotic, dry extracts may be prepared from thick extracts, according to the following receipt :—

In a porcelain dish, mix 4 parts of the thick extracts with 3 parts of liquorice root in fine powder; dry the mixture on a water-bath till no more weight is lost, and triturate it, while still warm, with a fresh addition of finely powdered liquorice root so as to make the whole to 8 parts.

The narcotic extracts may be kept as solutions, by mixing 10 parts of them with 6 parts of water, 1 part of alcohol, and 3 parts of glycerin.

The extracts should have the taste, and odor of the drugs used for their preparation.

If 2 g. of the extracts be incinerated, and the residue dissolved by heating in 5 cem. of dilute hydrochloric acid and be filtered, the resulting filtrate should produce no change with hydrogen sulphide solution.

Keep in glass or porcelain vessels, well-closed, in a cool and dry place.

EXTRACTA FLUIDA.

Fluid Extracts.

In preparing the fluid extracts, the weights of the resulting extracts should be made exactly equal to those of the powdered drugs used for their preparation.

The Fluid Extracts are prepared according to the following receipt, using that particular menstruum mentioned under the head of each fluid extract.

Sprinkle the menstruum on 100 parts of the powdered drug, thoroughly mix them together and cover the vessel; when the drug ceases to take up any more liquid, firmly pack the mixture in a suitable percolator, after leaving it aside for 2 or 3 hours; press strongly to make the empty space as little as possible, and add more of the menstruum; when it begins to drop off from the lower orifice of the percolator, and the surface of the drug is still covered with it, close the lower orifice and cover the upper one; after letting it stand at 15°—20° C. for 24 hours, open the lower orifice and let the liquid drop off with a flowing velocity, not allowing more than 40 drops per minute.

Keep 85 parts of the percolated liquid, which is obtained at first, separated as No. 1. The percolated liquid No. 2., obtained by the complete extraction of the drug, by repeatedly adding the menstruum into the percolator, should be evaporated directly, and made to a thin extract, or done so after distilling off the alcohol; but the temperature during evaporation, should be restricted so as to lose the volatile constituents of the drug, as little as possible. The thin extract thus obtained, is mixed with the percolated liquid No. 1. which has been previously obtained, and more of the menstruum is added to that mixture, so that exactly 100 parts of the fluid extract are formed.

The fluid extracts, which are prepared by the above method, after being left aside for 1 or 2 days, are filtered if necessary; they should have the taste, and odor of the part of the plant, used for their preparation.

If 2 g. of the fluid extracts be incinerated, and the residue warmed with 5 cem. of dilute hydrochloric acid and filtered, the resulting filtrate should produce no change with hydrogen sulphide solution.

EXTRACTUM ACONITI NAPELLI.

Extract of Aconite.

Take

Aconite root, *in medium powder* . . . . . 10 *pts.*

pour on it

Alcohol . . . . . 25 *pts.*

extract by heating it for 2 days; express; on the residue pour

Alcohol . . . . . 30 *pts.*

express; put together the expressed liquids and evaporate to a somewhat hard, thick extract.

Extract of Aconite has a brown color, and is clearly soluble in alcohol.

Keep with special care.

EXTRACTUM ALOES.

Extract of Aloes.

Take

Aloes . . . . . 1 *pt.*

dissolve it in

Boiling water . . . . . 5 *pts.*

freshly add to it

Water . . . . . 5 *pts.*

let the mixture stand for 2 days; after the resinous ingredient has separated, decant the upper liquid and evaporate it till a dry extract is obtained.

Extract of Aloes has a yellowish-brown color, and is almost clearly soluble in water.

EXTRACTUM CANNABIS INDICÆ.

Extract of Indian Hemp.

Take

Indian hemp, ***in coarse powder*** . . . . . 1 *pt.*

pour on it

Alcohol . . . . . 5 *pts.*

extract for 6 days in the cold; express; on the residue pour

Alcohol . . . . . 5 *pts.*

extract again for 3 days in the cold; express; mix the expressed liquids; filter and evaporate till a thick extract is obtained.

Extract of Indian Hemp has a blackish-green color, and is clearly soluble in alcohol, but insoluble in water.

Keep with care.

EXTRACTUM CARDUI BENEDICTI.

Extract of Blessed Thistle.

Take

Blessed thistle, *in medium powder* . . . . . 1 *pt.*

pour on it

Boiling water . . . . . 5 *pts.*

extract by warming it, with frequent shaking, for 6 hours; express; on the residue pour

Boiling water . . . . . 3 *pts.*

extract again by warming it for 3 hours; express; collect the expressed liquids; evaporate till the whole becomes 2 parts; after cooling, add

Alcohol . . . . . 1 *pt.*

set aside for 2 days in a cool place; filter and evaporate till a thick extract is obtained.

Extract of Blessed thistle has a brown color, and is almost clearly soluble in water.

EXTRACTUM CASCARÆ SAGRADÆ FLUIDUM.

Fluid Extract of Cascara Sagrada.

Take

Cascara sagrada, *in medium powder* . . . . . 100 *pts.*

follow the receipt described under *Extracta Fluida*, using, as the menstruum, a mixture consisting of

Alcohol . . . . . 1 *pt.*

Distilled water . . . . . 1 *pt.*

Fluid Extract of Cascara Sagrada is a clear, dark brownish-red liquid.

It is rendered turbid by mixing a large quantity of water with it, and the clear liquid, obtained by filtering the mixture, acquires a reddish-brown coloration on adding ammonia water.

EXTRACTUM CASCARILLÆ.

Extract of Cascarilla.

Take

Cascarilla bark, *in coarse powder* . . . . . 1 *pt.*

pour on it

Boiling water . . . . . 5 *pts.*

set aside for 24 hours; express; to the residue pour

Boiling water . . . . . 3 *pts.*

set aside again for 24 hours; express; put together the expressed liquids; evaporate till the whole becomes 2 parts; set aside in a cool place; after it has subsided, decant the upper liquid and evaporate till a thick extract is obtained.

Extract of Cascarilla has a dark brown color, and is soluble with turbidity in water.

EXTRACTUM CHINÆ.

Extract of Cinchona.

Take

Cinchona bark, *in coarse powder* . . . . . 1 *pt.*

pour on it

Dilute alcohol . . . . . 5 *pts.*

extract it for 6 days in the cold; express; to the residue pour again

Dilute alcohol . . . . . 5 *pts.*

extract it again for 3 days in the cold; express; put together the expressed liquids; after leaving aside for 2 days, filter and evaporate till a dry extract is obtained.

Extract of Cinchona has a reddish-brown color, and is soluble with turbidity in water.

Dissolve 2 g. of the extract in a mixture of 5 ccm. of water and 6 ccm. of absolute alcohol, in a glass-flask; strongly shake the solution with a mixture of 70 ccm. of ether and 14 ccm. of chloroform; add 10 ccm. of the solution (1 : 3) of sodium carbonate, and leave aside for an hour with occasional shaking; filter 60 ccm. of the clear chloroform-ether solution into a small glass flask, through a well-covered funnel

which is furnished with a dry filter-paper; distill the filtrate till it becomes about one-half of the orginal bulk; put the remaining chloroform-ether solution into a separating-funnel; wash the small glass flask, successively for 3 times, each with 5 cem. of the mixture of 6 cem. of ether and 1 cem. of chloroform; add the washings to the solution in the separating-funnel; shake the mixture strongly with 10 cem. of decinormal hydrochloric acid solution, if necessary, with the addition of a suitable quantity of ether; on the separation of the chloroform-ether layer, filter the lower, clear, acid liquid into a colorless glass flask of 100 ccm. in capacity, through a small filter-paper previously moistened with water; shake the chloroform-ether solution, successively for 3 times, each with 10 cem. of water, the aqueous layer being separated and filtered, each time, through the same filter which is finally washed, and then mix the whole filtrates and washings, and dilute the mixture by adding water till it becomes 100 ccm. If 50 cem. of the solution thus prepared, after being mixed with 1 ccm. of alcohol, in which a small piece of hæmatoxylin has been freshly dissolved, be titrated with decinormal potassium hydroxide solution and the yellowish liquid strongly agitated, then not more than 2.3 cem. of potassium hydroxide solution should be required for the immediate development of a bluish-violet coloration. If 5 ccm. of the solution remaining in the glass flask be mixed with 1 cem. of chlorine water, it should acquire a beautiful green coloration on adding ammonia water.

EXTRACTUM CHINÆ FLUIDUM.

Fluid Extract of Cinchona.

Take

Cinchona bark, *in coarse powder*	100 *pts.*

prepare according to the receipt described under *Extracta Fluida*, by taking a suitable quantity of the first menstruum consisting of

Alcohol	16 *pts.*
distilled water	1 *pt.*
Glycerin	4 *pts.*

and also a suitable quantity of the second menstruum consisting of

Alcohol	4 *pts.*
Distilled water	1 *pt.*

Fluid Extract of Cinchona is a reddish dark brown liquid, with a very bitter and astringent taste.

EXTRACTUM COLOCYNTHIDIS.

Extract of Colocynth.

Take

Colocynth fruit, *coarse cut* . . . . . 2 *pts.*

pour on it

Dilute alcohol . . . . . 45 *pts.*

extract it for 6 days in the cold; express; on the residue pour

Alcohol . . . . . 15 *pts.*

Water . . . . . 15 *pts.*

extract it again for 3 days in the cold; express; collect the expressed liquids; filter and evaporate till a dry extract is obtained.

Extract of Colocynth has a yellowish-brown color and a very bitter taste, and is soluble with turbidity in water.

Keep with care.

EXTRACTUM COLOMBO.

Extract of Columba.

Take

Columba root, *in coarse powder* . . . . . 1 *pt.*

Pour on it

Alcohol . . . . . 2 *pts.*

Water . . . . . 2 *pts.*

extract it for 3 days in the cold; express; on the residue pour

Alcohol . . . . . 1 *pt.*

Water . . . . . 1 *pt.*

extract it again for 2 days in the cold; express; put together the expressed liquids; filter and evaporate till a dry extract is obtained.

Extract of Columba has a brown color, and is soluble with turbidity in water.

EXTRACTUM CONDURANGO FLUIDUM.

Fluid Extract of Condurango.

Take

Condurango bark, *in medium powder* . . . . . 100 *pts.*

prepare according to the receipt described under *Extracta Fluida*, by moistening the bark with the first menstruum consisting of

Alcohol . . . . . 15 *pts.*
Distilled water . . . . . 25 *pts.*
Glycerin . . . . . 10 *pts.*

and then taking a suitable quantity of the second menstruum consisting of

Alcohol . . . . . 1 *pt.*
Distilled water . . . . . 3 *pts.*

Fluid Extract of Condurango is a brown liquid.

If it be mixed with 4 times its volume of water and filtered, the resulting clear filtrate is rendered turbid on heating, and becomes clear again on cooling.

If 1 cem. of the extract be diluted with 4 ccm. of water, the resulting turbid liquid boiled, and after cooling, left aside for 30 minutes and be filtered, then 2 cem. of the filtrate, after being diluted with 8 cem. of water, should produce a flocculent precipitate with a solution of tannic acid.

EXTRACTUM COPTIDIS.

Extract of Coptis Root.

Prepare with coarsely powdered coptis root, in the same way as *Extractum Colombo.*

Extract of Coptis Root has a brown color, and is soluble with turbidity in water.

EXTRACTUM CUBEBARUM.

Extract of Cubeb.

Take

Cubeb, *in coarse powder* . . . . . 2 *pts.*

pour on it

Alcohol . . . . . 3 *pts.*

Ether . . . . . 3 *pts.*

extract it in the cold, with frequent shaking for 3 days; express; on the residue pour

Alcohol . . . . . 2 *pts.*

Ether . . . . . 2 *pts.*

extract it again for 3 days in the cold; express; collect the expressed liquids; filter and evaporate till a thin extract is obtained.

Extract of Cubeb has a brown color, and is insoluble in water.

Shake it before using.

EXTRACTUM FERRI POMATI.

Extract of Iron Malate.

Take

Sour ripe apples . . . . . 50 *pts.*

crush them, and to the liquid obtained by pressing out the brew thereby obtained, add

Iron . . . . . 1 *pt.*

immediately heat it on a water-bath; after the evolution of the gas has ceased, add water and make the whole to 50 parts; set aside for several days; filter and evaporate the filtrate till a thick extract is obtained.

Extract of Iron Malate has a greenish-black color and a somewhat astringent and sweet, but not penetrating taste; it is clearly soluble in water.

It contains not less than 5 per cent. of pure iron (Fe=56).

If 1 g. of the extract be incinerated in a porcelain crucible, moistened several times with 1 or 2 drops of nitric acid and evaporated, the re-

sidue ignited, and dissolved by warming in 5 ccm. of hydrochloric acid, the resulting solution diluted with 20 ccm. of water and cooled, 2 g. of potassium iodide added, and set aside well closed, at ordinary temperatures for an hour, then in order to decolorise the solution thus obtained, at least 9 ccm. of decinormal sodium thiosulphate solution should be required.

EXTRACTUM FILICIS.

Extract of Male Fern.

Take

Male Fern, *in coarse powder* . . . . . 1 *pt.*

pour on it

Ether . . . . . 3 *pts.*

extract it in a closed vessel for 3 days in the cold; pour off the upper liquid; on the residue pour

Ether . . . . . 2 *pts.*

extract it again for 3 days in the same way as before; express; mix the resulting 2 liquids; filter and completely distill the ether off till a thin extract is obtained.

Extract of Male Fern has a greenish color, and is clearly soluble in ether, but insoluble in water.

The stirred up extract, when diluted with glycerin and examined under the microscope, should show no starch grains.

Shake it before using.

EXTRACTUM GENTIANÆ.

Extract of Gentian.

Take

Gentian Root, *in coarse powder* . . . . . 1 *pt.*

pour on it

Water . . . . . 5 *pts.*

extract it in the cold for 48 hours; express; on the residue pour

Water . . . . . 3 *pts.*

extract it again in the cold for 12 hours; express; collect the expressed liquids and evaporate till the whole becomes 3 parts; after cooling, add

Alcohol . . . . . 1 *pts.*

leave aside for 2 days in a cool place; filter and evaporate till a thick extract is obtained.

Extract of Gentian has a reddish-brown color, and is clearly soluble in water.

It may be used as a substitute for *Extractum Gentianæ Scabræ.*

EXTRACTUM GENTIANÆ SCABRÆ.

Extract of Japanese Gentian (*Ryutan*).

Prepare with coarsely cut pieces of Japanese gentian root, in the same way as in the case of *Extractum Gentianæ.*

Extract of Japanese Gentian has a reddish-brown color, and is clearly soluble in water.

It may be used as a substitute for *Extractum Gentianæ.*

EXTRACTUM HAMAMELIDIS FLUIDUM.

Fluid Extract of Hamamelis.

Take

Hamamelis Leaves, ***in coarse powder*** . . . . . 100 *pts.*

prepare according to the receipt described under *Extracta Fluida,* by using a suitable quantity of the first menstruum consisting of

Alcohol . . . . . 5 *pts.*
Distilled Water . . . . . 8 *pts.*
Glycerin . . . . . 1 *pt.*

and then a suitable quantity of the second menstruum consisting of

Alcohol . . . . . 5 *pts.*
Distilled water . . . . . 8 *pts.*

Fluid Extract of Hamamelis is a reddish dark brown liquid, having an astringent taste.

EXTRACTUM HYDRASTIS FLUIDUM.

Fluid Extract of Hydrastis.

Take

Hydrastis, ***in medium powder*** . . . . . **100** *pts.*

prepare according to the receipt described under *Extracta Fluida*, by using a suitable quantity of the menstruum consisting of

Alcohol . . . . . **7** *pts.*

Distilled water . . . . . **3** *pts.*

Fluid Extract of Hydrastis is a dark brown liquid.

If 3 drops of the extract be diluted with 10 ccm. of water, the solution acquires a red coloration with chlorine water.

If 1 part of the extract be diluted with 10 parts of water and filtered, 5 ccm. of the clear filtrate becomes slightly turbid with 1 ccm. of dilute nitric acid, and deposits yellow crystals after a few minutes.

Take 15 g. of the extract in a porcelain dish previously weighed, evaporate down to about 5 g. on a water-bath, transfer the residue into a glass bottle, wash the dish with about 10 ccm. of water and mix the washings with the main portion; to the resulting solution add 15 ccm. of petroleum benzin, 75 ccm. of ether and 5 ccm. of ammonia water, and set aside the mixture with frequent shaking for an hour. Take 75 ccm. of the upper ethereal solution, filter it through a dry filter-paper placed in a well-covered funnel, into a separating-funnel, and shake thoroughly, for a few minutes, with 10 ccm. of a mixture of 1 part of hydrochloric acid and 4 parts of water. On separation of the clear acid liquid, introduce it into a glass bottle, shake up the remaining ethereal solution twice, each time, with 5 ccm. of water acidified with a few drops of hydrochloric acid, and mix the separated acid liquids with that in the glass bottle. Oversaturate the mixed solution with ammonia water, add 50 ccm. of ether and allow the mixture to stand for an hour with frequent shaking. Take 40 ccm. of the upper ethereal solution, filter it through a dry filter-paper into a dry glass bottle previously weighed, and distil off the ether, then the residue, after drying at 100° C. and cooling, should be not less than 0.2 g. If this residue be dissolved in 10 ccm. of water containing a few drops of dilute sulphuric acid, and shaken

with 5 ccm. of potassium permanganate solution till the latter is decolorised, a solution having a blue fluorescence should be obtained.

EXTRACTUM HYOSCYAMI.

Extract of Hyoscyamus.

Take

Fresh Hyoscyamus Leaves . . . . . 20 *pts.*

pour on them

Water . . . . . 1 *pt.*

triturate; express; on the residue pour again

Water . . . . . 3 *pts.*

triturate; express; collect the expressed liquids and strain at 80° C.; evaporate the strained liquid till the whole becomes 2 parts; add

Alcohol . . . . . 2 *pts.*

set aside for 24 hours with frequent shaking; strain; on the residue pour

Dilute Alcohol . . . . . 1 *pt.*

and extract it by heating, with frequent shaking; allow to settle and decant the upper clear liquid; collect the strained liquids; filter and evaporate the filtrate till a thick extract is obtained.

Extract of Hyoscyamus has a greenish-brown color, and is soluble with turbidity in water.

If 1 g. of the extract be dissolved in 40 ccm. of a mixture of equal parts of water and alcohol, an almost clear solution should be obtained.

Dissolve 2 g. of the extract in a mixture of 5 ccm. of water and 6 ccm. of absolute alcohol in a glass bottle, shake the resulting solution with a mixture of 70 ccm. of ether and 14 ccm. of chloroform, add 10 ccm. of sodium carbonate solution (1 : 3) and set aside the mixture for a hour, with occasional shaking. Take 60 ccm. of the clear ether-chloroform solution, filter through a dry filter-paper placed in a well-covered funnel into a small glass flask, distil the solution till it becomes about one-half of its original bulk, introduce the remaining ether-chloroform solution into a separating-funnel, wash the flask thrice, each time, with 5 ccm. of a mixture of 6 ccm. of ether and 1 ccm. of chloroform, add the washings to the main solution in the

separating-funnel, and thoroughly shake up the mixed liquids with 10 ccm. of centinormal hydrochloric acid solution, adding, if necessary, a suitable quantity of ether. After the complete separation of the ether-chloroform solution, filter the lower, clear, acid liquid through a small filter-paper moistened with water, into a colorless glass bottle of about 200 ccm. in capacity, shake up the ether-chloroform solution thrice, each time, with 10 ccm. of water, filter the aqueous solution by the previous filter-paper which is finally washed with water; mix all the filtrates and washings and dilute the mixture to about 100 ccm. by adding water, pour ether on it till the ethereal layer in the bottle measures about 1 cm. high, and after adding 5 drops of iodo-eosine solution, drop in centinormal potassium hydroxide solution with strong agitation, then not more than 6.5 ccm. of the latter solution should be required before the lower aqueous layer acquires a pale red color.

Keep with care.

EXTRACTUM LIQUIRITIÆ.

Extract of Licorice.

Prepare with licorice, root which is cut in pieces, in the same way as in the case of *Extractum Gentianæ*.

Extract of Licorice has a brown color, and is clearly soluble in water.

EXTRACTUM OPII.

Extract of Opium.

Take

Opium . . . . . 1 *pt.*

pour on it

Distilled Water . . . . . 4 *pts.*

extract it in the cold for 24 hours; express; on the residue pour

Distilled Water . . . . . 3 *pts.*

extract it again in the cold for 24 hours; express; collect the expressed

liquids; after waiting to settle, filter and evaporate the filtrate a till dry extract is obtained.

Extract of Opium has a reddish-brown color, and is soluble with turbidity in water.

If 6 g. of the extract be treated according to the method described under *Opium*, 0.40–0.44 g. of morphine should be obtained, the reactions and tests of which should conform with those given under *Opium*.

Keep with care.

EXTRACTUM PHYSOSTIGMATIS.

Extract of Calabar Bean.

Take

Calabar Bean, *in coarse powder* . . . . . 10 *pts.*

pour on it

Alcohol . . . . . 24 *pts.*

Water . . . . . 16 *pts.*

extract it by heating for 3 days; express; on the residue pour

Alcohol . . . . . 24 *pts.*

Water . . . . . 16 *pts.*

extract it by heating for a day; express; collect the expressed liquids; filter and evaporate the filtrate till it is reduced to one-third of the original bulk; set aside in a cool place to settle; filter again and evaporate the filtrate till a thick extract is obtained.

Extract of Calabar Bean has a brown color, and is soluble with turbidity in water.

Keep with special care.

EXTRACTUM PHYTOLACCÆ.

Extract of Phytolacca.

Take

Phytolacca Root, *in coarse powder* . . . . . 10 *pts.*

pour on it

Dilute Alcohol . . . . . 20 *pts.*

extract it by heating for 3 days; express; on the residue pour

Dilute Alcohol . . . . . 15 *pts.*

extract it by heating for a day; express; collect the expressed liquids; filter and evaporate till a thick extract is obtained.

Extract of Phytolacca has a brown color and a bitter taste, and is clearly soluble in dilute alcohol, but with turbidity in water.

Keep with care.

EXTRACTUM QUASSIÆ.

Extract of Quassia.

Take

Quassia Wood, *coarse cut* . . . . . 10 *pts.*

pour on it

Water . . . . . 12 *pts.*

extract it for a day in the cold; boil for an hour; express; on the residue pour

Water . . . . . 12 *pts.*

and boil; express; collect the expressed liquids; strain and evaporate till a thick extract is obtained.

Extract of Quassia has a brown color, and is soluble with turbidity in water.

EXTRACTUM RATANHIÆ.

Extract of Ratanhia.

Take

Ratanhia Root, *in coarse powder* . . . . . 1 *pt.*

pour on it

Water . . . . . a suitable quantity.

extract it several times in the cold; finally boil for once; strain; collect the strained liquids and evaporate till a thick extract is obtained.

Extract of Ratanhia has a brownish-black color, and is soluble with turbidity in water.

EXTRACTUM RHEI.

Extract of Rhubarb.

Take

Rhubarb Root, *coarse cut* . . . . . 2 *pts.*

pour on it

Alcohol . . . . . 4 *pts.*

Water . . . . . 6 *pts.*

extract it in the cold for 24 hours; express; on the residue pour

Alcohol . . . . . 2 *pts.*

Water . . . . . 3 *pts.*

extract it again in the cold for 24 hours; express; collect the expressed liquids; filter and evaporate till a dry extract is obtained.

Extract of Rhubarb has a brown color, and is soluble with turbidity in water.

EXTRACTUM SCOPOLIÆ.

Extract of Scopolia.

Take

Scopolia Root, *in coarse powder* . . . . . 1 *pt.*

pour on it

Dilute Alcohol . . . . . 2 *pts.*

Water . . . . . 2 *pts.*

extract it in the cold for 3 days; express; on the residue pour

Dilute Alcohol . . . . . 1 *pt.*

Water . . . . . 1 *pt.*

extract it again in the cold for 2 days; express; mix the expressed liquids; filter and evaporate till a thick extract is obtained.

Extract of Scopolia has a brown color, and is soluble with a slight turbidity in water.

If 1 part of the extract be mixed with 100 parts of water and filtered, the filtrate should have the power of dilating the pupil of the eye.

Keep with care.

EXTRACTUM SECALIS CORNUTI.

Extract of Ergot.

Take

Ergot, *in coarse powder* . . . . . 2 *pts.*

pour on it

Distilled Water . . . . . 4 *pts.*

extract it for 6 hours in the cold; express; on the residue pour

Distilled Water . . . . . 4 *pts.*

extract it again for 6 hours in the cold; express; mix the expressed liquids; evaporate till the whole becomes 1 part; add to it

Alcohol . . . . . 1 *pt.*

set aside for 3 days; filter and evaporate till a thick extract is obtained.

Extract of Ergot has a reddish-brown color, and is soluble clearly in water.

Keep with care.

EXTRACTUM SECALIS CORNUTUM FLUIDUM.

Fluid Extract of Ergot.

Take

Ergot, *in coarse powder* . . . . . 100 *pts.*

prepare according to the receipt described under *Extracta Fluida*, by using a menstruum consisting of

Alcohol . . . . . 2 *pts.*

Distilled Water . . . . . 8 *pts.*

Fluid Extract of Ergot is a clear reddish-brown liquid.

EXTRACTUM STRYCHNI.

Extract of Nux Vomica.

Take

Nux Vomica, *in coarse powder* . . . . . 10 *pts.*

pour on it

Dilute Alcohol . . . . . 20 *pts.*

extract it by heating for 24 hours; express; on the residue pour

Dilute Alcohol . . . . . 15 *pts.*

and repeat the same operation as before; collect the expressed liquids; filter and evaporate till a dry extract is obtained.

Extract of Nux Vomica has a brown color and an exceedingly bitter taste, and is soluble with turbidity in water.

An alcoholic solution of a piece of the extract yields, when acidified with 2 or 3 drops of dilute sulphuric acid and evaporated on a water-bath, a residue of a violet-red color which, on adding a few drops of water, fades away but reappears on evaporation.

Dissolve 1 g. of the extract in a mixture of 5 ccm. of water and 6 ccm. of absolute alcohol in a glass bottle, thoroughly shake the resulting solution by adding 70 ccm. of ether and 14 ccm. of chloroform, then add 10 ccm. of sodium carbonate solution (1 : 3) and set it aside for an hour with frequent shaking. Take 60 ccm. of the clear ether-chloroform solution, filter through a dry filter-paper placed in a well-covered funnel, into a small glass flask and distil the solution till it becomes about one-half of its original bulk. Transfer the remaining ether-chloroform solution into a separating-funnel, wash the flask thrice, each time, with 5 ccm. of a mixture of 6 ccm. of ether and 1 ccm. of chloroform, add the washings to the main solution in the separating-funnel, and thoroughly shake up the mixed liquids with 50 ccm. of centinormal hydrochloric acid solution, adding, if necessary, a suitable quantity of ether. After the complete separation of the ether-chloroform solution, filter the lower, clear, acid liquid through a small filter-paper moistened with water, into a colorless glass bottle of about 200 ccm. in capacity, shake up the chloroform-ether solution thrice more, each time, with 10 ccm. of water, filter the aqueous solution through the previous filter-paper which is finally washed with water, mix all the filtrates and washings, and dilute the mixture to about 100 ccm. by adding water, pour ether on it till the ethereal layer in the bottle measures about 1 cm. high. If the resulting solution be titrated, after adding 5 drops of iodo-eosine solution, with centinormal potassium hydroxide solution, not more than 18 ccm. of the latter solution should be required before the lower aqueous solution acquires a pale red color.

Keep with care.

EXTRACTUM TARAXACI.

Extract of Taraxacum.

Take

Taraxacum Root, ***medium cut*** . . . . . 1 *pt.*

pour on it

Water . . . . . 5 *pts.*

extract it for 48 hours in the cold; express; on the residue pour

Water . . . . . 3 *pts.*

extract it again for 12 hours in the cold; express; mix the expressed liquids; evaporate till the whole becomes 2 parts; add to it

Alcohol . . . . . 1 *pt.*

set aside for 2 days in a cool place; filter and evaporate the filtrate till a thick extract is obtained.

Extract of Taraxacum has a brown color, and is soluble clearly in water.

FEL TAURI INSPISSATUM.

Oxgall.

Take oxgall and strain by heating into a porcelain dish; evaporate on a water-bath till it gets the consistence of a thick extract.

Oxgall has a greenish-brown color, and is almost completely soluble in water. Its aqueous solution, after adding a small quantity of cane sugar, assumes a dark violet-red color on the addition of sulphuric acid, and on diluting with an excess of water, the above solution becomes considerably turbid.

It has a slightly sweet, followed by a very bitter, taste and a characteristic, but not fetid odor.

On ignition, it should leave 8—10 per cent. of solid residue.

FERRUM CARBONICUM SACCHARATUM.

Saccharated Iron Carbonate.

Take

Ferrous Sulphate . . . . . 50 *pts.*

dissolve it in

Boiling Distilled Water . . . . . 20 *pts.*

filter into a spacious bottle containing a clear solution of

Sodium Bicarbonate . . . . . 3.5 *pts.*

in

Tepid Distilled Water . . . . . 50 *pts.*

after mixing well the content of the bottle, fill it up completely with hot distilled water; cork loosely and set it aside. Draw off the upper clear solution by means of a siphon; fill the bottle again completely with hot distilled water; after settling, draw off the upper clear solution again, and repeat the same operation until the upper clear solution hardly becomes turbid on adding barium nitrate solution. Transfer the precipitate, freed from the aqueous part as much as possible, into a porcelain dish containing

Powdered Milk Sugar . . . . . 1 *pt.*

Powdered Cane Sugar . . . . . 3 *pts.*

mix well; dry on a water-bath; pulverise in a mortar and add so much dry powdered cane sugar that the whole weight of the mixture becomes 10 parts.

Saccharated Iron Carbonate is a greenish-gray powder, with a sweet and slightly chalybeate taste, and containing 9.5—10 per cent. of pure iron (Fe=56).

It dissolves in hydrochloric acid, with evolution of carbonic acid, forming a greenish-yellow solution which, when diluted with water, yields a blue precipitate with a solution either of yellow prussiate of potash, or of red prussiate of potash.

The aqueous solution (1 : 50), obtained by adding as little hydrochloric acid as possible to it, should produce no more than a slight turbidity, if any, with barium nitrate solution.

Dissolve 1 g. of it in 10 ccm. of dilute sulphuric acid without applying heat, and add potassium permanganate solution (5 : 1000) until the solution assumes a faint red color for a short time; after decoloration, add 2 g. of potassium iodide and keep well closed. If the mixture be allowed to stand for an hour at ordinary temperatures, then 17.0—17.8 ccm. of decinormal sodium thiosulphate solution should be required for its complete decoloration.

FERRUM CITRICUM AMMONIATUM.

Iron and Ammonium Citrate.

Mix

Iron Citrate Solution	3 *pts.*
Ammonia Water	1 *pt.*

evaporate the mixture at a temperature, not above 60° C., till it gets a syrupy consistence, and dry in thin layers, by warming gently on glass plates until it can be removed in form of small flakes.

Thin, transparent scales of a deep red color, showing a weak acid reaction; very hygroscopic; easily soluble in water, but insoluble in alcohol.

An aqueous solution of Iron and Ammonium Citrate, after being acidified with hydrochloric acid, acquires a blue color with a solution of yellow prussiate of potash.

When heated with sodium hydroxide solution, its aqueous solution yields a reddish-brown precipitate with evolution of ammonia, and the filtrate therefrom, when slightly acidified with acetic acid and mixed with calcium chloride solution, gives a clear solution which, on heating, slowly yields a white, crystalline precipitate.

If its aqueous solution (1 : 50) be boiled with an excess of potassium hydroxide solution until the iron is completely precipitated, and the solution be filtered, the filtrate should, on being acidified with acetic acid, produce no crystalline precipitate even after a long standing; the same filtrate, after being acidified with nitric acid, should produce no more than a slight turbidity with barium nitrate solution.

The aqueous solution (1 : 50) of the salt, after being acidified with nitric acid, neither produces any more than a slight opalescence with silver nitrate solution, nor should it produce any change, nor acquire any more than a bluish-green coloration, with a solution of red prussiate of potash.

On heating strongly, 1 g. of the salt should leave 0.25 – 0.30 g. of ferric oxide which should have no alkaline reaction.

Keep in well-stoppered bottles, protected from light.

FERRUM CITRICUM OXYDATUM.

Iron Citrate.

Evaporate

Iron Citrate Solution

at a temperature, not over 60° C., till it gets a syrupy consistence, and dry it in thin layers by warming gently on glass plates, until it can be separated in form of small scales.

Transparent, reddish-brown scales, showing an acid reaction; permanent in the air; completely but slowly soluble in cold water, readily in hot water, and insoluble in alcohol.

An aqueous solution of Iron Citrate acquires, with a solution of yellow prussiate of potash, a bluish-green color which is changed to dark blue by the subsequent addition of hydrochloric acid.

When heated with sodium hydroxide solution, its aqueous solution yields a reddish-brown precipitate, and the clear solution, which is obtained by slightly acidifying the filtrate therefrom with acetic acid and mixing with calcium chloride solution, gradually produces, on heating, a white, crystalline precipitate.

The aqueous solution (1 : 50) of the salt should yield no precipitate with ammonia water.

If its aqueous solution be boiled with an excess of potassium hydroxide solution and the iron completely precipitated, no ammonia should be evolved; and the filtrate therefrom, on being acidified with acetic acid, should neither produce a crystalline precipitate, even after standing for a long time, nor should it produce, after being acidified with nitric acid, any more than a slight turbidity with barium nitrate solution.

The aqueous solution (1 : 50) of the salt, after being acidified with nitric acid, should neither produce any more than an opalescence with silver nitrate solution, nor should it produce any change, nor acquire any more than a bluish-green coloration, with a solution of red prussiate of potash.

On heating strongly, 1 g. of the salt should leave 0.2—0.3 g. of ferric oxide showing no alkaline reaction.

FERRUM IODATUM SACCHARATUM.

Saccharated Iron Iodide.

Take

Iron Wire	6 *pts.*
Distilled Water	20 *pts.*
Iodine	17 *pts.*

introduce them into a glass flask; set it aside in a warm place, with occasional shaking, until the solution acquires a greenish color; filter into a porcelain dish containing

Powdered Milk Sugar	40 *pts.*

wash the flask and the filter, with a small quantity of distilled water; evaporate to dryness, under stirring, on a water-bath; transfer the dried mass quickly into a warm iron mortar, previously containing

Powdered Milk Sugar	39 *pts.*
Reduced Iron	1 *pt.*

reduce it to a dry powder, and quickly put into small, stoppered bottles.

A yellowish-white or grayish powder having a slightly ferruginous taste and showing a weak acid reaction; very hygroscopic; almost completely soluble in 7 parts of water, leaving behind reduced iron.

Saccharated Iron Iodide contains 20 per cent. of ferrous iodide ($FeI_2 = 309.7$).

On heating strongly in the air, it is consumed, evolving iodine vapor and emitting the odor of burning sugar, and finally leaves a residue showing no alkaline reaction.

Its aqueous solution acquires, with starch solution, a dark blue color, only after the addition of a small quantity of chlorine water.

Dissolve 1 g. of it in 10 ccm. of water, filter, wash with water, and to the resulting solution add 10 ccm. of dilute sulphuric acid and 6.6 ccm. of potassium permanganate solution (1 : 100), set aside at ordinary temperatures, with occasional shaking for 3 hours, and add 2 g. of potassium iodide, and again set aside for an hour; then for the complete decoloration of the resulting solution, 19 ccm. of decinormal sodium thiosulphate solution should be required.

Keep in small bottles, in a cool dark place.

FERRUM LACTICUM.

Iron Lactate.

$$Fe(C_3H_5O_3)_2 + 3H_2O = 288.16$$

Greenish-white masses, consisting of small acicular crystals, or a crystalline powder, having a weak, characteristic odor; soluble in about 40 parts of water, and in 12 parts of boiling water, forming a greenish-yellow solution which shows a slightly acid reaction, but insoluble in alcohol.

An aqueous solution of Iron Lactate immediately yields a dark blue precipitate with a solution of red prussiate of potash, and a sky-blue precipitate with a solution of yellow prussiate of potash.

On heating strongly, it carbonises, emitting the odor of burning sugar.

The aqueous solution (1 : 50) of the salt should produce only an opalescence with lead acetate solution, and also, after adding hydrochloric acid, with hydrogen sulphide solution. The same solution should, after adding nitric acid, undergo no change with a solution either of barium nitrate, or of silver nitrate.

If 30 ccm. of its aqueous solution (1 : 50) be boiled for a few minutes with 3 ccm. of dilute sulphuric acid, and an excess of sodium hydroxide solution added and be filtered, the filtrate, on being heated with Fehling's solution, should yield no red precipitate.

When mixed with sulphuric acid, the powdered salt should give off no gases, and the mixture, after standing for half an hour, should acquire no considerable brown coloration.

Moisten 1 g. of the salt with nitric acid in a porcelain crucible, and evaporate to dryness by a gentle heat, the solid residue thus obtained should leave, when strongly heated, at least about 0.27 g. of ferric oxide which is perfectly insoluble in water, and should show no alkaline reaction.

FERRUM PULVERATUM.

Powdered Iron.

Fe = 56

A heavy, slightly lustrous, gray powder, attracted by the magnet; soluble in dilute sulphuric or hydrochloric acid, with evolution of hydrogen gas.

A hydrochloric acid solution of Powdered Iron, on being diluted with a large quantity of water, produces a deep blue precipitate with a solution of red prussiate of potash.

It contains not less than 98 per cent. of pure iron.

If it be dissolved in a mixture of equal volumes of water and hydrochloric acid, the residue, if any, should be only very little, and the gas evolved during dissolution should be almost free from any odor, and should not immediately color brownish a piece of paper which is previously moistened with lead acetate solution. If the above dilute hydrochloric acid solution be mixed, after being oxidised with nitric acid, with an excess of ammonia water and filtered, the filtrate should undergo no change with hydrogen sulphide solution.

If 0.2 g. of it and 0.2 g. of potassium chlorate be mixed with 2 ccm. of hydrochloric acid in a large test-tube, and after the evolution of the gases has ceased, the mixture warmed to drive off free chlorine and be filtered, 1 ccm. of the clear filtrate, on being mixed with 3 ccm. of stannous chloride solution, should acquire no dark coloration within an hour.

Dissolve 1 g. of it in about 50 ccm. of dilute sulphuric acid, dilute the solution to 100 ccm., and to 10 ccm. of the resulting solution, add potassium permanganate solution (5 : 1000) until a faint red color is produced, and after decolorising with a few drops of alcohol, add 2 g. of potassium iodide, allow the mixture to stand for an hour in a closed vessel at ordinary temperatures; then for the complete decoloration of the solution thus prepared, at least 17.5 ccm. of decinormal sodium thiosulphate solution should be required.

FERRUM REDUCTUM.

Reduced Iron.

A very fine, gray or grayish-black, lustreless powder, attracted by the magnet

When heated, Reduced Iron glows and becomes dark brown.

It contains not less than 90 per cent. of pure iron (Fe = 56).

When it is dissolved in a mixture of equal volumes of water and hydrochloric acid, the residue, if any, should be only very little, and the gas evolved during dissolution should be almost free from any odor, and should not immediately color brownish a piece of paper which is previously moistened with lead acetate solution.

The solution, obtained by shaking 2 g. of it with 10 cem. of water, should not change the color of test-papers, and the solution obtained by filtering it should, when evaporated to dryness, leave no weighable solid residue.

If 0.2 g. of it be mixed with 0.2 g. of potassium chlorate and 2 cem. of hydrochloric acid in a large test-tube, and after the evolution of the gases has ceased, the mixture warmed to drive off free chlorine and be filtered, 1 cem. of the clear filtrate, on being mixed with 3 cem. of stannous chloride solution, should not become dark colored within an hour.

Pour 10 cem. of potassium iodide solution on 0.3 g. of it in finely powdered state, and add gradually, under cooling and shaking, 1.5 g. of coarsely powdered iodine; as soon as the iron and iodine have completely dissolved, dilute the solution to 100 cem. with water and set it aside; titrate 50 cem. of the clear solution thus prepared, with decinormal sodium thiosulphate solution, then not more than 10.3 cem. of the latter solution should be required for the complete decoloration.

Keep in well-stoppered bottles.

FERRUM SESQUICHLORATUM.

Ferric Chloride.

$$Fe_2Cl_6 + 12H_2O = 540.94$$

Dry, yellow, crystalline masses, of a strongly hygroscopic nature; soluble in water, and in alcohol, and also in a mixture of ether and alcohol.

The tests and reactions for the solution of Ferric Chloride in equal parts of water, should conform with those given under *Liquor Ferri Sesquichlorati.*

Keep in glass-stoppered bottles, protected from light.

FERRUM SUBCARBONICUM.

Iron Subcarbonate.

A yellowish-brown or reddish-brown, fine, amorphous powder, insoluble in water.

Iron Subcarbonate dissolves completely, with a slight effervescence, in dilute hydrochloric acid, and the resulting solution yields a blue precipitate with a solution either of yellow prussiate of potash, or of red prussiate of potash.

If 1 part of the salt be shaken with 10 parts of water and filtered, the filtrate should not immediately change the color of test-papers, nor should it leave, when evaporated to dryness, any more than, if any, a very little residue.

The solution of the salt (1 : 20) in water acidified with nitric acid should produce only an opalescence with a solution either of barium nitrate, or of silver nitrate.

If the hydrochloric acid solution of the salt be boiled with a small quantity of nitric acid, and an excess of ammonia water be added, warmed and filtered, the clear, colorless filtrate should neither become turbid, nor colored with a solution either of hydrogen sulphide, or of sodium carbonate.

FERRUM SULFURICUM.

Ferrous Sulphate.

$FeSO_4 + 7H_2O = 278.2$

Take

Iron	2 *pts.*

dissolve it by heating in a mixture of

Sulphuric Acid	3 *pts.*
Distilled Water	8 *pts.*

after the evolution of the gas has almost ceased, filter the solution while it is still warm; pour the filtrate, under shaking, into

Alcohol	4 *pts.*

transfer the crystalline powder here produced quickly into a filter; wash with a little alcohol; press; spread over a filter-paper and dry quickly at ordinary temperatures.

A crystalline powder, efflorescent in dry air; soluble in 1.8 parts of water, forming a bluish-green solution.

A very dilute, aqueous solution of Ferrous Sulphate yields, with a solution of red prussiate of potash, a deep blue precipitate, and, with barium nitrate solution, a white precipitate insoluble in hydrochloric acid.

The aqueous solution (1 : 20), obtained by dissolving the salt in freshly boiled and cooled water, should be clear and have a bluish-green color, and should hardly redden a blue litmus paper.

If 2 g. of the salt be dissolved in water, and after oxidising it with nitric acid or bromine water, an excess of ammonia water be added and filtered, the resulting colorless filtrate should not be affected by hydrogen sulphide solution, nor should it leave, when evaporated to dryness and ignited, any weighable solid residue.

Keep in well-stoppered bottles.

FERRUM SULFURICUM CRUDUM.

Crude Ferrous Sulphate. *Iron Vitriol.*

Greenish, crystalline masses, or green crystals, having an astringent

taste; usually somewhat moist, and rarely covered with a whitish powder; soluble with turbidity in 2 parts of water, and showing an acid reaction.

If 1 part of the salt be dissolved in 5 parts of water, the solution should not considerably acquire a brownish turbidity; the same solution, when filtered, gives a brownish-green filtrate which should produce only a slightly brown coloration, if any, with hydrogen sulphide solution.

FLORES ARNICÆ.

Arnica Flowers.

The dried ligulate and tubular florets of *Arnica montana* Linn.

Arnica Flowers are of a reddish-yellow color, and have an obscurely 5-edged ovary, which is covered with upright hairs, consisting of 2 cells arranged side by side. The pale yellow pappus consists of a number of stiff bristles. The corolla of ligulate florets is marked by 8—12 veins, and is 3-toothed at the apex. Each half of the anther is somewhat rounded below, and the connective triangular above.

They have a faintly aromatic odor and a bitter taste.

FLORES CHAMOMILLÆ.

German Chamomile.

The dried capitula of *Matricaria Chamomilla* Linn.

The involucre consists of green bracts with scarious margin and white ones arranged in about 3 rows. The receptacle is naked, hollow, hemispherical in young capitula and conical in old ones. It has 12—18 white ligulate florets, bearing a 4-nerved, 3-toothed corolla, and many yellow tubular florets.

German Chamomile has a strongly aromatic odor and a somewhat bitter taste.

FLORES CHAMOMILLÆ ROMANÆ.

Chamomile Flowers.

The dried capitula of *Anthemis nobilis* Linn.

The involuere is composed of numerous, hairy braets, whieh are whitish at the margin and provided with eiliary serratures. The reeeptaele is conical and solid; the attaehed florets being mainly white, ligulate ones whieh have a 4-nerved, 3-toothed eorolla and bear a keel-formed seale at the base. The yellow tubular florets oeeupying the middle portion of the reeeptaele are rather few.

Chamomile Flowers have a strongly aromatie odor and a bitter taste.

FLORES CINÆ.

Worm Seed

The dried, yet unopened flower heads of *Artemisia Cina* Berg.

The eapitulum is about 4 mm. long. The involuere consists of 12—20 of broadly elliptieal or linear, greenish bracts, obtuse at the apex, transparent and searious at the margin, having a prominent ridge along the mid-rib, on both sides of whieh are seattered yellowish glands and in most eases a few unieellular hairs. The involuere encloses 3—5 of hermaphrodite, tubular florets.

Worm Seed has a disagreeable, aromatic odor and a bitter, eooling taste.

FLORES KOSO.

Kousso Flowers.

The female infloreseenee of *Hagenia abyssinica* Willd., collected and dried after withering of flowers.

The flowers are pedunculate. The receptacle is nearly cup-shaped, with internal pitcher-shaped depression, and is constricted above by a ring, bearing on its rim 2 alternating, 4- to 5-merous whorls of

sepals and an isomerous whorl of very small petals, which are mostly fallen off in the drug. The outer sepals are about 1 cm. long and straight, while the inner ones do not exceed 3 mm. in length and are bent outward. At the bottom of the receptacle stand 2 pistils, of which only one develops into a small nut. 2 roundish bractlets are attached to the peduncle.

The powdered flower should only contain the ingredients of pistillate flowers and two bractlets; neither pollens nor fragments of vascular bundles, more than 0.002 mm. thick, should be therein found.

Flowers together with their bractlets, should only be employed.

FLORES LAVANDULÆ.

Lavender Flowers.

The dried flowers of *Lavandula vera* D.C.

The calyx is tubular, 5 mm. long, somewhat expanded above, 10- to 13-veined, and is beset with hairs. Of the 5 teeth on the edge of the calyx, 4 are very short, while the remaining one forms an ovate, obtuse, blue-colored lobe, 1 mm. long. The corolla is blue-colored, its upper lip, having 2 lobes, and the lower lip 3 lobes.

Lavender Flowers have an agreeable odor and a bitter taste.

FLORES MALVÆ.

Mallow Flowers.

The dried flowers of *Malva silvestris* Linn.

The calyx is 5 mm. long, 5 partite, surrounded externally by 3 narrow, spatulate, pointed bracts. The corolla consists of 5 blue-colored petals which are above 2 cm. long, cuneate or narrowly obovate, deeply emarginate at the apex and adnate to the staminal tube.

FLORES ROSÆ.

Rose Flowers.

The dried petals of *Rosa rugosa* Thunb.

They are of reddish-violet color, broadly elliptical or obcordate, somewhat thickened and recurved at the base.

Rose Flowers have an agreeable odor.

FLORES SAMBUCI.

Elder Flowers.

The dried flowers of *Sambucus nigra* Linn.

The ovary is inferior and bears a short style with 3 stigmas, 5 triangular sepals, and a rotate, 5-partite corolla, on which 5 stamens stand.

Elder Flowers should have a light yellow color and a strong odor.

FLORES TILIÆ.

Linden Flowers.

The dried inflorescences of *Tilia ulmifolia* Scop. and *Tilia platyphyllos* Scop.

The inflorescence-axis is adnate to a large, tongue-shaped bract. The yellowish flowers, 3—13 in number, have 5-merous calyx, with valvate æstivation and easily falling off; the corolla consists of 5 petals which are spatulate and glabrous. The stamens, 30—40 in number, are provided with filiform filaments and divided connectives. The ovary is superior, 5-locular and possesses a 5-lobed stigma.

Linden Flowers have a faintly aromatic odor and a slimy taste.

FLORES VERBASCI.

Mullein Flowers.

The dried, golden-colored flowers, with their stamens, of *Verbascum phlomoides* Linn. and *Verbascum thapsiforme* Schrad.

The corolla is 1.5—2.0 cm. wide, and has a short tube as well as a 5-lobed limb. The petals alternate with 5 stamens, of which 2 are not hairy and stand on the right and left sides of the largest petal, while the rest are covered with unicellular, club-shaped hairs.

Mullein Flowers should have a yellow color and a strong odor.

FOLIA ALTHÆÆ.

Marshmallow Leaves.

The dried leaves of *Althæa officinalis* Linn.

The lamina is 10 cm. long, elliptical, 3- to 5-lobed, gray in color, thick, brittle, cuneate or cordate at the base, and serrate or crenate at the margin.

Both surfaces of the lamina are densely covered with tufted hairs. The petiole is shorter than the blade.

Marshmallow Leaves have no odor, but a slimy taste.

FOLIA BELLADONNÆ.

Belladonna Leaves.

The dried leaves of *Atropa Belladonna* Linn., collected in the flowering season.

Belladonna Leaves are brownish-green on the upper surface, grayish-green on the lower, at most 2 dm. long, ovate and narrowed into the petiole which is semi-circular in cross-section, acute at the apex, entire at the margin and nearly glabrous. When magnified,

the leaves are seen, especially on the under surface, to be provided with white spots which consist of oxalate cells containing crystal-sand.

They have a slightly bitter taste.

FOLIA BUCCO.

Buchu Leaves.

The dried leaves of *Barosma crenulata* Hook. and *Barosma betulina*. Bartl. et Wendl.

Barosma crenulata Hook. The leaves are ovate or obovate, 12 – 20 mm. long, about 10 mm. broad, obtuse at the apex and crenate at the margin. The petiole is short.

Barosma betulina Bartl. et Wendl. The leaves have a rhombic form, 8 – 18 mm. long, 12 mm. broad, blunt or recurved at the apex, and narrowed and wedge-shaped at the base. They are light green in color, glossy, coriaceous and dotted with oil-glands. A large oil-gland is situated next to the margin at the base of each tooth.

Buchu Leaves have an aromatic taste, and an odor resembling that of the rue.

FOLIA COCA.

Coca Leaves.

The dried leaves of *Erythroxylon Coca* Lam.

Coca Leaves are greenish-brown in color, lanceolate, ovate or narrowly obovate, 2 – 7 cm. long, shortly petioled, obtuse or retuse at the apex, the midrib being very prominent, and having a curved line on either side.

Coca Leaves possess a faint, tea-like odor and a slightly bitter, aromatic taste, followed by a numbness of the tongue.

FOLIA DIGITALIS.

Foxglove Leaves.

The dried leaves of *Digitalis purpurea* Linn., collected at the commencement of flowering.

Foxglove Leaves are at most 30 cm. long, by 10 cm. broad, narrowly ovate, sessile or running down into a 3-edged petiole, and irregularly crenate at the margin. The primary vein diverge at an acute angle from the midrib, and form, together with those of the second and third order, a prominent net-work on the under surface of the blade, between which a fine reticulum of veinlets can further be observed by transmitted light. The blade is beset with pointed, mostly 1- to 4-cellular hairs and capitate glandular hairs. The mesophyll is devoid of oxalate crystals.

They have a repulsive, bitter taste.

An extract, obtained by treating 1 part of the leaves with 10 parts of boiling water, yields, after cooling, an abundant precipitate with tannic acid solution, dissolving gradually in excess of the latter.

Keep with care but not over 1 year.

FOLIA EUCALYPTI.

Eucalyptus Leaves.

The dried leaves of *Eucalyptus globulus* Labill.

The blade is 15—30 cm. long, 2.5—3 cm. broad in the broadest part of the base, lanceolately scythe-shaped, tapering above, and abruptly contracted at the base. The petiole is twisted and 2—3 cm. long. The leaves are entire at the margin, dark grayish-green, smooth, coriaceous, pellucid-punctate; the veins run along the margin, anastomosing at a distance of 1—2 mm. from it. They are often mixed with the leaves of young trees which are ovate, cordate at the base and very thin.

FOLIA FARFARÆ.

Coltsfoot Leaves.

The dried leaves of *Tussilago Farfara* Linn.

The blade is heart-shaped, 8—15 cm. long, palmately veined, long petiolate, pointed at the apex, more or less sinuate at the margin with serratures in the indentations. They are dark green on the upper surface and white on the lower, with somewhat whip-shaped, downy hairs.

Coltsfoot Leaves are almost odorless and tasteless.

FOLIA HAMAMELIDIS.

Hamamelis Leaves.

The dried leaves of *Hamamelis virginiana* Linn.

Hamamelis Leaves are 7—15 cm. long, 7 cm. broad, dark green or brownish-green on the upper surface, pale on the lower, broadly ovate with the obtuse apex. The blade is narrowed towards the base, which is almost unequal and often cordate at one side. The margin is sinuate and irregularly crenate. The prominent veins, about 6 in number, diverge at an acute angle from both sides of the midrib and run into larger teeth of the margin. Between these veins is seen a conspicuous net-work of veinlets.

Hamamelis Leaves have an astringent and slightly bitter taste.

FOLIA HYOSCYAMI.

Henbane Leaves.

The dried leaves of *Hyoscyamus niger* Linn., collected from the flowering plants.

The lower leaves are 30 cm. long, ovate-oblong, narrowed towards the petiole and coarsely toothed. The cauline leaves are smaller,

sessile, pointed at the apex and provided at the margin, with 1—4 large, wide teeth on either side. The epidermis is beset with generally 2- to 4- at most 10-celled conical hairs and multicellular capitate glandular hairs. The crystals of oxalic acid salt in the mesophyll-cells are usually single or twinned, and rarely of simpler clustered forms.

Keep with care.

FOLIA JABORANDI.

Jaborandi Leaves.

The dried leaflets of the impari-pinnate leaves of several species of Pilocarpus.

The lateral leaflets are in 2—4 pairs, shortly petioled, and the terminal one has a petiole 2—3 cm. long. The leaflets are 8—16 cm., mostly 12 cm. long, oval to lanceolate, narrowed uniformly towards both extremities and emarginate at the apex. The primary veins spring at an angle of 45° from the midrib and form loops, meeting with each other at a short distance from the margin; moreover smaller loops are seen lying outside of the latter. Between the primary veins lies a reticulate venation, the large meshes of which are formed of thinner veinlets of the third order and larger ones of the fourth order. The numerous transparent spots of the blade are due to the intercellular secretory-reservoirs. The thickness of a single layer of pallisade cells is about one-fifth of that of the blade.

When rubbed, Jaborandi Leaves emit strikingly an aromatic odor resembling that of dried peel of oranges, and on chewing for a long time, produce a sharp taste.

FOLIA MELISSÆ.

Balm-mint Leaves.

The dried leaves of cultivated plants of *Melissa officinalis* Linn.

Balm-mint Leaves are long petioled, 3—5 cm. long, ovate or cordate,

thin, deep green on the upper surface, pale green on the lower, sinuate-dentate, and beset with isolated hairs and shining glandular scales.

The leaves should have a citron-like odor.

FOLIA MENTHÆ.

Peppermint Leaves.

The dried leaves of *Mentha arvensis* Linn. var. *piperascens* Holmes.

Peppermint Leaves are ovate to lanceolate, 3—7 cm. long, sharply pointed, irregularly to sharply serrate, sparsely hairy and covered with numerous glandular scales.

The leaves have a characteristic, sharp, aromatic odor and taste, followed by a cooling after-taste.

FOLIA PRUNI MACROPHYLLÆ.

Bakuchi Leaves.

The fresh leaves of *Prunus macrophylla* S. et. Z.

Bakuchi Leaves are lanceolate, about 15 cm. long, 5 cm. broad, acute at the apex and sharply serrate at the margin. The blade is coriaceous, green, glossy on the upper surface, and paler on the lower. The midrib is prominent on the under side of the blade, showing a corresponding groove on the upper surface. The lateral veins spring from the midrib, curving upwards and anastomosing towards the margin. The petiole is short, showing a groove on the upper side, and are provided with glands on either side, close to the base of the blade. The palisade-cells are only found on the upper side, and enclose, here and there, clustered crystals of the salt of oxalic acid.

When crushed, the leaves emit the odor of hydrogen cyanide.

FOLIA SALVIÆ.

Garden Sage Leaves.

The dried leaves of *Salvia officinalis* Linn.

Garden Sage Leaves are of various shapes, usually ovate or oblong, 2—8 em. long, by 1—4 em. broad, finely erenulate, vaulted upwards between the meshes of the veins. Both surfaees have slender, long, somewhat thiek-walled, empty, 1- to 5-eelled hairs, eapitate glandular hairs and glandular seales.

The leaves have a eharaeteristie, aromatie, somewhat bitter and astringent taste.

FOLIA SENNÆ.

Senna Leaves.

(a) *India Senna.*

The dried leaves of *Cassia angustifolia* Vahl.

The leaves are laneeolate, somewhat inequilateral at the base, 2.5—5 em. long, shortly petioled, sparsely hairy and pointed at the apex. The primary veins, whieh are prominent on both sides of the blade, run upwards in winding eourse along the margin. The epidermis of both surfaees eonsists of polygonal, flat-walled eells, and is provided with unieellular thiek-walled hairs. Beneath the epidermis of both surfaees lies a layer of palisade-eells, and the middle layer of the mesophyll is eomposed of roundish eells.

(b) *Alexandria Senna.*

The dried leaves of *Cassia acutifolia* Del.

The leaves are smaller than the above mentioned in size, being 1—3 em. long. The other points are essentially the same to (a).

Senna Leaves should be free from petioles and legumes, and from Argel leaves (the leaves of *Cynanchum Argel* Del.).

The leaves should not be used after beeoming brownish or yellowish in color.

FOLIA STRAMONII.

Stramonium Leaves.

The dried leaves of *Datura alba* Nees., eolleeted in the flowering season.

The petiole is long, cylindrical and narrowly grooved on the upper surface. The blade is dark green in color, at most 2 dm. long, broadly ovate or narrowly ovate to lanceolate, pointed at the apex and wedge-shaped at the base, the margin being irregularly or doubly sinuate-dentate. It is nearly smooth, and has 3—5 stout veins proceeding from both sides of the midrib. The oxalate cells contain clustered crystals.

Stramonium Leaves have a slightly bitter and saline taste.

Keep with care.

FOLIA TRIFOLII FIBRINI.

Bog-bean Leaves.

The dried leaves of *Menyanthes trifoliata* Linn.

The petiole of the trifoliate leaves is round in cross-section, 1 dm. or less in length and 5 mm. thick. The leaflets are green, 3—10 cm. long, devoid of the petiole, thick, smooth, lanceolate-oblong in outline, and wedge-shaped at the base. The margin is slightly undulate, with a water-pore in each sinus.

Bog-bean Leaves are odorless, and have a very bitter taste.

FOLIA UVÆ URSI.

Bear-berry Leaves.

The dried leaves of *Arctostaphylos Uva Ursi* Spreng.

Bear-berry Leaves are spatulate, rarely obovate, 1.2—3 cm. in length, entire at the margin and provided with the 3—5 mm. long petiole. The blade is thick, brittle, and dark green on the upper side. The epidermis of the upper and lower surfaces consists of cells which appear polygonal and straight-walled, when seen from above. The stomata are broadly oval. The midrib contains single crystals of calcium oxalate in the cells, accompanying the vascular bundle above and below; the mesophyll does not contain any oxalate crystal. The leaves have an astringent taste.

If to a solution, obtained by extracting 1 part of the leaves for 2 or 3 hours with 50 parts of cold water, a small piece of ferrous sulphate be added, a violet precipitate is produced.

FORMALINUM. *Formaldehydum Solutum.*

Formaline. *Formaldehyde Solution.*

A clear, colorless liquid, having a penetrating odor, and reacting neutral or slightly acid to test-papers; miscible, in all proportions, with water, and also with alcohol, but not with ether. Specific gravity: 1.079–1.081.

Formaline contains about 35 per cent. of pure formaldehyde (CH_2O = 30.02).

If 5 ccm. of it be evaporated on a water-bath, it leaves a white, amorphous substance which is insoluble in water and is consumed, when heated, without leaving any solid residue.

When evaporated to dryness on a water-bath, after making it strongly alkaline with ammonia water, it leaves a white, crystaline substance which is easily soluble in water.

On mixing it with ammonia water and silver nitrate solution, metallic silver is slowly deposited, and on heating it with Fehling's solution, a red precipitate is produced.

If it be diluted with 4 times its volume of water, the resulting solution should not be affected by a solution of silver nitrate, barium nitrate, or of hydrogen sulphide, nor should it yield, after being supersaturated with ammonia water, any precipitate with ammonium sulphide solution.

If 1 ccm. of it be mixed with a drop of normal potassium hydroxide solution, it should show no acid reaction.

If 5 ccm. of it be mixed with 20 ccm. of water, and 10 ccm. of ammonia water added, and the mixture be allowed to stand for an hour in a closed vessel, and 20 ccm. of normal hydrochloric acid solution and a few drops of rosollic acid solution be added to the mixture, and titrated back with potassium hydroxide solution, then at least 4 ccm. of the latter solution should be required in order to produce a rose-red coloration.

Keep with care, protected from light.

FRUCTUS ANISI.

Anise Seed.

The fruit of *Pimpinella Anisum* Linn.

Anise Seed is 5 mm. or less in length, broadly ovoid, brownish and covered with short unicellular hairs. The oil-tubes between 10 obscure ribs are not recognisable externally, while 2 broad oil-tubes on the commissural surface of mericarps are very prominent. On a transverse section of the mericarp are seen 4—6 small oil-tubes between each 2 ribs.

It should have a sharp odor and a taste, resembling those of anethol.

FRUCTUS AURANTII IMMATURI.

Orange Pease.

The dried, unripe fruit of *Citrus bigaradia* Duham.

Orange Pease is 5—15 mm. in diameter, externally greenish or brownish, coarsely granular; the transverse section showing numerous oil reservoirs near the outer surface. It is internally divided into 8—10, rarely 12 locules, the white tissue of its outer wall, protruding between the locules.

It has an aromatic odor and a bitter taste.

FRUCTUS CAPSICI.

Red Pepper.

The dried fruit of several species of Capsicum.

Red Pepper is fusiform or conical, hollow above, 5—10 cm. long, and 5 cm. or less in diameter of the base. The outer surface of the pericarp is red, yellowish-red or brownish-red, smooth and shining. The seeds are numerous, disc-shaped, yellowish, and about 5 mm. in diameter.

It has a sharp, burning taste.

FRUCTUS CARDAMOMI.

Cardamom.

The dried capsules of *Elettaria Cardamomum* White et Maton, collected just before ripening.

Cardamom is pale yellowish, 1—2 cm. long, about 1 cm. in diameter, longitudinally veined, having 3 obscure ridges. It is crowned with a small beak 1—2 mm. long, and internally divided into 3 cells, each of which contains about 7 seeds longitudinally arranged. The seeds are brown, irregularly angled and wrinkled, covered with a colorless, thin aril.

The peel is tasteless, while the seed contains in the testa a secretion having a strongly aromatic taste and odor.

FRUCTUS CARVI.

Caraway.

The fruit of *Carum Carvi* Linn.

Caraway is mostly separated into mericarps, each being about 5 mm. long, 1 mm. in diameter, somewhat falcate, narrowing towards both ends; the 5 whitish ribs are prominent and the 6 broad oil-tubes appear dark brown.

It has an odor and a taste, resembling those of carvon.

FRUCTUS COLOCYNTHIDIS.

Colocynth Fruit.

The dried fruit of *Citrullus Colocynthis* Schrad., divested of the hard peel.

Colocynth Fruit is spherical in shape. The white pulp consists of a light, spongy, large-celled tissue, which contains air and is traversed by vascular bundles. The compressed ovoid seeds are enclosed in the pulp.

It is odorless, but has a bitter taste.
It should be used after removing the seeds.
Keep with eare.

FRUCTUS FŒNICULI.

Fennel.

The fruit of *Fœniculum vulgare* Gærtn.

Fennel is narrowly eylindrieal, brownish-green, 7—10 mm. long, by 3—4 mm. broad. Among the 10 ribs, marginal ones lying elosely with one another, are more prominent than the rest. The 6 brown oil-tubes are mostly broader than the ribs.

It should have a eharaeteristie, sharp, aromatie odor and taste.

FRUCTUS JUNIPERI.

Juniper Berry.

The dried fruit of *Juniperus communis* Linn.

Juniper Berry is spherieal, 9 mm. or less in diameter, dark brown, oeeasionally covered with a blue bloom, bearing on the base 1 to about 6 trimerous whorls of braets, and showing on the top 3 sutures. The pulp is light brownish and eneloses 3 hard seeds.

It has a strongly aromatie, sweet taste.

FRUCTUS PIPERIS NIGRI.

Black Pepper.

The dried fruit of *Piper nigrum* Linn., colleeted before complete maturity.

Blaek Pepper is spherical, without pedieel, about 5 mm. in diameter. The pericarp is thin, blackish-brown, coarsely wrinkled, and tightly encloses a single seed. The seed eonsists chiefly of perisperm, whieh

is hollow at the centre, horny, brownish-yellow, and internally white and mealy.

It has a sharp, aromatic odor and a burning taste.

On incineration, it should leave not more than 5 per cent. of solid residue.

FRUCTUS VANILLÆ.

Vanilla.

The immature fruit of *Vanilla planifolia* Andr.

Vanilla is 20—25 cm. long, 1 cm. or less in breadth, externally blackish-brown, glossy and often covered with crystals of vanillin. The fruit is 1-celled, and encloses very numerous seeds which are 0.25 mm. or less in diameter and surrounded by a thin, oily liquid.

It should have a pleasant, strongly aromatic odor and taste.

GALBANUM.

Galbanum.

The gum-resin yielded by certain umbelliferous plants, especially *Ferula galbaniflua* Boiss. et Buhse., growing in northern Persia.

Galbanum is met with in grains, either loose or adhering *inter se* into a mass, of a brownish, yellow, or often faintly greenish color; sometimes it is found in a brown, easily softening, homogeneous mass. The galbanum grains appear never white, even in the fresh fracture.

If finely powdered galbanum be boiled, for a quarter of an hour, with fuming nitric acid, filtered through a previously moistened filter-paper, and the clear filtrate be carefully oversaturated with ammonia water, the resulting solution, when seen by a reflected light, shows a blue fluorescence.

If it be completely extracted by boiling alcohol, it should leave at most 50 per cent. of the dried residue.

On incineration, it should leave not more than 10 per cent. of solid residue.

It should be powdered after drying in a desiccater, and at as low a temperature as possible.

It has an aromatic, but not a sharp odor and taste.

GALLÆ.

Japanese Galls.

Vesicular excrescences produced on *Rhus semialata* Murr. var. *Osbeckii* D. C. by the puncture of *Aphis chinensis* J. Bell.

Japanese Galls are of irregular form, branched, lobed, and 1—6 cm. in diameter. The wall is hard, brittle, horny, of a grayish-brown color, and covered with a grayish-white velvety down, consisting of silky hairs. The galls are internally hollow, often containing grayish-white, pulverulent matter and dried up bodies of the killed aphides.

They have a strongly astringent taste.

GELATINA ALBA.

White Gelatin.

Perfectly or almost colorless, transparent, thin, inodorous sheets, having a glassy lustre.

White Gelatin does not dissolve, but swells considerably in cold water. It is readily soluble in hot water, forming a sticky, neutral, clear or opalescent solution which, on cooling, solidifies even in the proportion of 1 in 100, but insoluble in alcohol, and in ether.

Even a very dilute, aqueous solution of it yields, with tannic acid solution, a white, flocculent precipitate.

On incineration, it should leave not more than 2 per cent. of solid residue.

GLYCERINUM.

Glycerin.

$C_3H_8O_3 = 92.08$

A clear, colorless, odorless, syrupy liquid, having a sweet taste; soluble, in all proportions, in water, alcohol, and in ether-alcohol, but insoluble in ether, chloroform, and in fatty oils. Specific gravity: 1.225—1.235.

If 1 cem. of Glycerin be mixed with 3 cem. of stannous chloride solution, the mixture should not acquire a dark coloration within an hour.

If 1 part of it be diluted with 5 parts of water, the resulting solution reacts neutral, and undergoes no change with a solution of hydrogen sulphide, or of barium nitrate, or of ammonium oxalate, or of calcium chloride; the same solution should produce no more than an opalescence with silver nitrate solution.

On heating 5 cem. of it and setting fire, it should burn completely and leave only a black stain which, on further ignition, should leave no solid residue.

If a mixture of 1 g. of it and 1 cem. of ammonia water be warmed to 60° C. on a water-bath, and 3 drops of silver nitrate solution quickly introduced and set aside, neither a coloration, nor a brownish-black precipitate should be produced within 5 minutes.

If 1 cem. of it be warmed with 1 cem. of sodium hydroxide solution, the mixture should neither be colored, nor should evolve ammoniacal, nor glutinous odor.

If 1 cem. of it be gently warmed with 1 cem. of dilute sulphuric acid, no disagreeable, rancid odor should be evolved.

GOSSYPIUM ACIDI BORICI.

Boric Acid Cotton.

Take

Boric Acid . . . . . 11 *pts.*

dissolve it in

Distilled Water . . . . . 187 *pts.*

in the resulting solution, soak

Purified Cotton . . . . . 90 *pts.*

after 2 hours, press till the whole becomes 270 parts; spread and dry till the whole weigh 100 parts.

Boric Acid Cotton contains about 10 per cent. of boric acid.

Keep well closed.

GOSSYPIUM CARBOLISATUM

Carbolic Acid Cotton.

Take

Liquefied Carbolic Acid . . . . . 6 *pts.*

dissolve it in

Alcohol . . . . . 130 *pts.*

in the resulting solution, soak

Purified Cotton . . . . . 100 *pts.*

after 24 hours, dry it at ordinary temperatures.

Carbolic Acid Cotton contains about 5 per cent. of carbolic acid.

Keep well closed.

GOSSYPIUM DEPURATUM.

Purified Cotton.

The white hairs of the seed of several species of Gossypium, freed from fatty matter.

Purified Cotton should be mixed with no more than a very small quantity, if any, of cotton flocks and brown seed crusts.

After moistening with water, it should not affect the test-papers.

The solution, prepared by extracting 1 part of it with 10 parts of boiling water, should produce no more than an opalescence with a solution of silver nitrate, barium nitrate, or of ammonium oxalate; a mixture of 10 parts of the same solution with 2 or 3 drops of sulphuric acid and 3 drops of potassium permanganate solution, should not decolorise within a few minutes.

When thrown on the surface of water, it should readily be soaked and sink immediately.

On incineration, it should leave not more than 0.3 per cent. of solid residue.

GOSSYPIUM HYDRARGYRI BICHLORATI.

Corrosive Sublimate Cotton.

Take

Mercuric Chloride	2 *pts.*
Potassium Chloride	2 *pts.*

dissolve them in

Distilled Water	1500 *pts.*

in the resulting solution, soak

Purified Cotton	1000 *pts.*

press; spread and dry by a gentle heat.

Corrosive Sublimate Cotton contains about 0.2 per cent. of mercuric chloride.

Keep with care, well closed and protected from light.

GOSSYPIUM IODOFORMIATUM.

Iodoform Cotton.

Take

Iodoform	5 *pts.*
Liquid Paraffin	5 *pts.*

dissolve them in

Ether	90 *pts.*

in the resulting solution, soak

Purified Cotton	90 *pts.*

press lightly so as to make the whole uniformly yellow colored and dry at ordinary temperatures.

Iodoform Cotton contains about 5 per cent. of iodoform.

Keep well closed.

GOSSYPIUM SALICYLATUM.

Salicylic Acid Cotton.

Dissolve

Salicylic Acid	55 *pts.*

Glycerin . . . . . 100 *pts.*
in a mixture of
Alcohol . . . . . 700 *pts.*
Distilled Water . . . . . 700 *pts.*
in the resulting solution, soak
Purified Cotton . . . . . 1000 *pts.*
press; spread and dry by a gentle heat.

Salicylic Acid Cotton contains about 5 per cent. of salicylic acid.

Keep well closed.

GOSSYPIUM STYPTICUM.

Styptic Cotton.

Take
Ferric Chloride Solution . . . . . 25 *pts.*
Alcohol . . . . . 15 *pts.*
mix them together; in the resulting mixture, soak purified cotton; press; spread and dry, protecting from light.

Keep in well-stoppered bottles, protected from light.

GUAIACOLUM.

Guaiacol.

A clear, colorless, strongly refractive, oily liquid, or a colorless, crystalline solid, having a characteristic, aromatic odor; soluble in about 80 parts of water, clearly miscible with alcohol, ether, and with carbon disulphide. Specific gravity: 1.120—1.143. Melting point: about 28° C.

An aqueous solution of Guaiacol acquires, with a drop of ferric chloride solution (1 : 20), a dark blue color, changing quickly to a reddish-brown, while its alcoholic solution therewith acquires a green color, changing immediately to blue, and finally to a brown color.

If 1 volume of it be mixed with 2 volumes of sodium hydroxide solution, the mixture is clear, and on diluting with 10 volumes of water, it should remain also clear and colorless.

A mixture of 1 volume of it with 2 volumes of potassium hydroxide solution should solidify, after a short time, to a white, crystalline mass.

Keep with care, protected from light.

GUAIACOLUM CARBONICUM.

Guaiacol Carbonate.

$(C_7H_7O)_2CO_3 = 274.14$

A white, crystalline powder, almost tasteless and odorless; insoluble in water, slightly soluble in alcohol, but readily soluble in boiling alcohol, chloroform, and in benzene. Melting point: about 88° C.

If Guaiacol Carbonate be dissolved in a mixture of equal parts of alcohol and potassium hydroxide solution, the alcohol evaporated off by heating on a water-bath, the remaining liquid shaken up with dilute sulphuric acid and ether, the ethereal solution separated and evaporated to dryness, then the residue here obtained, has the odor of guaiacol, and when dissolved in alcohol, it produces a green coloration with dilute ferric chloride solution.

When boiled with freshly prepared, clear, alcoholic potash solution for a few minutes, it produces a crystalline precipitate which, after being washed with absolute alcohol, evolves carbonic acid gas on mixing with hydrochloric acid.

The solution, obtained by dissolving 0.1 g. of it in 10 ccm. of hot alcohol, should acquire no blue color with a few drops of ferric chloride solution.

It should dissolve with no coloration in sulphuric acid.

On ignition, 0.2 g. of it should leave no solid residue.

GUMMI ARABICUM.

Gum Arabic.

A gummy exudation, solidified in the air, and collected from

the stems and branches of *Acacia Senegal* Willd., and of several other species of Acacia.

More or less round, colorless or slightly yellow-colored masses of various sizes, which are marked with external fissures; very brittle and easily broken into conchylaceously angular, vitreous, sometimes faintly iridescent fragments.

If 1 part of Gum Arabic be mixed with 2 parts of water, it dissolves slowly but completely, and forms a viscid, light yellowish, odorless mucilage, with an insipid taste and a faintly acid reaction; the resulting mucilage is clearly miscible with lead acetate solution, but yields a precipitate with lead subacetate solution, even when it is so diluted that 1 part of the gum is contained in 50,000 parts of water. When mixed with alcohol and ferric chloride solution, the same mucilage solidifies to a gelatinous mass.

Its aqueous solution (1 : 3) acquires, with ferric chloride solution, a dark green color.

On incineration, it should leave not more than 3 per cent. of solid residue.

GUTTA PERCHA.

Gutta Percha.

The dried milky juice, collected from various plants of the family Sapotaceæ.

Dark brown masses, becoming soft and plastic in hot water, and solidifying again on cooling; soluble in warm chloroform, leaving no more than a little residue.

GUTTA PERCHA DEPURATA.

Purified Gutta Percha.

White or yellowish-white sticks, 4—5 mm. in diameter.

Purified Gutta Percha becomes plastic at 65°—70° C., and melts at 100° C.

GUTTI.

Gamboge.

A gum-resin obtained from *Garcinia Hanburyi* Hook. fil., in form of cylindrical pieces, about 7 cm. in diameter, or agglutinated masses of a greenish-yellow color, easily broken into pieces, dark lemon-yellow in color, with flat, conchoidal and opaque fracture.

If 1 part of Gamboge be rubbed with 2 parts of water, a fine yellow emulsion of a burning taste is obtained, which, with 1 part of ammonia water, becomes clear and acquires a fine red color changing finally to brown; on neutralising the ammonia in this mixture, a yellow, flocculent precipitate is produced, while the liquid loses its color.

On incineration, it should leave not more than 1 per cent. of solid residue.

Keep with care.

HERBA ABSINTHII.

Worm Wood.

The wild or cultivated plants of *Artemisia Absinthium* Linn., collected and dried in the flowering season.

The radical leaves are long petioled and 3-pinnately parted with narrowly lanceolate lobes. The lower cauline leaves are 1- or 2-pinnately and the upper 1-pinnately parted. The inflorescence is a capitulate panicle and springs mostly singly from the axil of a pointed lanceolate or spatulate bract. The small capitula are nearly spherical and consist exclusively of tubular flowers which are about 3 mm. broad. The leaves and the stems are, especially in the wild plant, covered with dull gray to silver-gray, silky hairs.

Worm Wood has an aromatic odor and a strongly bitter taste.

HERBA CANNABIS INDICÆ.

Indian Hemp.

The dried twigs, or warty, stiff-haired leaves and undeveloped

fruits, detached from the twigs of the female plants of *Cannabis sativa* Linn., collected at the commencement of the ripening of the fruits, in the northern parts of India.

The leaflets are narrowly lanceolate, coarsely toothed, broken or adhering into a mass together with withered spikes. The drug should contain only a few pieces of lignified stems and ovoid, angular fruits, attaining a length of 5 mm.

Indian Hemp has a characteristic sharp odor, and when examined under the microscope, cystoliths and oil-glands, besides abundant hairs, should be found. It has no striking taste.

Keep with care.

HERBA CARDUI BENEDICTI.

Blessed Thistle.

The dried leaves and flowering twigs of *Cnicus benedictus* Linn.

The radical leaves are 5—30 cm. long, narrowly or linear-lanceolate, pointed at the apex, passing gradually into a 3-edged, winged petiole below, and toothed in a fin-like manner or pinnatifid. The upper cauline leaves decrease gradually in size; the uppermost ones are sessile and surround the stem. The solitary flower head is shorter than bracts; the outer leaves of the involucre are ovate, passing into spines bearing hairs on the edge, and the inner ones are narrower and converted into a pinnate spine.

Blessed Thistle has a bitter taste.

HERBA LOBELIÆ.

Indian Tobacco.

The dried flowering plants of *Lobelia inflata* Linn.

The stem is beset with hairs, especially on the edges, and bears ovate or oblong leaves which are sparsely hairy, pointed at the apex and irregularly toothed at the margin. The flowers have a whitish or pale bluish 2-lipped corolla. The capsule is obovoid, thin-walled,

10-ribbed, crowned with the calyx, 2-celled, about 0.5–0.7 mm. long, and contains numerous, brown reticulate seeds.

Indian Tobacco has a sharp and acrid taste.

HEXAMETHYLENTETRAMINUM.

Hexamethylene Tetramine.

$C_6H_{12}N_4 = 140.28$

A white, crystalline, odorless powder, having a sweet, followed by a slightly bitter, taste; soluble in 1.3 parts of water, showing a faintly alkaline reaction, soluble also in about 8.5 parts of alcohol, but almost insoluble in ether. When heated, it sublimes without melting.

If an aqueous solution (1: 10) of Hexamethylenetetramine be heated with dilute sulphuric acid, the odor of formaldehyde is evolved, and on the subsequent addition of an excess of sodium hydroxide solution, ammonia is evolved.

Its aqueous solution (1 : 10) produces, on mixing with nitric acid, a precipitate which disappears on adding water; the same solution also produces, with a solution either of tannic acid or of mercuric chloride, a white precipitate.

It should dissolve with no coloration in sulphuric acid.

Its aqueous solution (1 : 50) should, after being acidified with nitric acid, produce no more than an opalescence with a solution either of silver nitrate, or of barium nitrate.

Its aqueous solution (1 : 10) should not be affected by hydrogen sulphide solution.

On heating, it should be consumed without leaving any solid residue.

HIRUDINES.

Leech.

Leeches, *Hirudo nipponica* Whit., weigh usually 0.25–0.35 g., mostly yellowish-green in color, the under surface being lighter than the upper surface, which bears 5 yellow longitudinal lines, narrowing in breadth or interrupted at every 5 joints, the middle one being usually

broad and conspicuous. Yellow lines are usually found also on both flanks.

HOMATROPINUM HYDROBROMICUM.

Homatropine Hydrobromide.

$C_{16}H_{21}NO_3.HBr = 356.22$

A white, odorless, crystalline powder, readily soluble in water.

An aqueous solution (1 : 20) of Homatropine Hyrobromide produces, with a solution either of mercuric chloride or of potassium hydroxide, a white precipitate soluble in excess of the latter; the same solution produces a brown precipitate with iodine solution, and a light yellow precipitate with silver nitrate solution.

If 0.01 g. of the salt be mixed with 5 drops of fuming nitric acid in a porcelain dish, and evaporated to dryness on a water-bath, an almost colorless residue is obtained, and after cooling, the same residue produces, with alcoholic potassium hydroxide solution, a violet coloration, quickly passing to a reddish-yellow.

Its aqueous solution (1 : 20) should be neutral to test-papers, and should be precipitated neither by tannic acid solution, nor, after being acidified with hydrochloric acid, by platinum chloride solution

On ignition, 0.02 g. of the salt should leave no solid residue.

Keep with special care.

HYDRARGYRUM.

Mercury.

$Hg = 200.3$

A liquid metal, with a silver-like lustre, volatilising completely on heating.

Mercury should dissolve completely in nitric acid, and volatilise completely when heated in a test-tube.

It should have no moisture.

HYDRARGYRUM BICHLORATUM.

Mercuric Chloride.

$HgCl_2 = 271.2$

White, transparent, heavy, radiated, crystalline masses, or acicular crystals, or a white crystalline powder, soluble in 16 parts of water, 3 parts of boiling water, 3 parts of alcohol, and in 12—14 parts of ether.

An aqueous solution of Mercuric Chloride shows an acid reaction, but becomes neutral on adding sodium chloride.

The aqueous solution of the salt yields, on adding lime water, a reddish precipitate, and on adding silver nitrate solution, a white precipitate insoluble in dilute nitric acid.

When heated in a glass tube, it should melt at first and then volatilise completely.

If the aqueous solution of the salt be warmed and supersaturated with hydrogen sulphide, until complete precipitation is effected, and filtered, the filtrate should leave no residue on evaporation, and if the precipitate be shaken with ammonia water and filtered, the filtrate, on being acidified with dilute hydrochloric acid, should acquire no yellow color.

The aqueous solution (1 : 20) of the salt should produce no more than an opalescence with barium chloride solution.

Keep with special care.

HYDRARGYRUM BIIODATUM.

Mercuric Iodide.

$HgI_2 = 454$

A scarlet-red powder which, when heated, first becomes yellow, then melts, and on further heating, volatilises completely and forms a yellow sublimate which becomes red on cooling; almost insoluble

in water, but soluble in 130 parts of alcohol, in 20 parts of boiling alcohol, and also in potassium iodide solution.

On heating Mercuric Iodide with a mixture of sodium hydroxide solution and a small quantity of milk sugar, metallic mercury is deposited.

When heated with manganese dioxide and sulphuric acid, it evolves a violet vapor.

The cold alcoholic solution of the salt should be colorless and not redden a blue litmus paper.

If 1 part of the salt be shaken with 20 parts of water and filtered, the filtrate should become only slightly colored, if at all, by hydrogen sulphide solution, and give no more than a slight opalescence with silver nitrate solution.

Keep with special care, protected from light.

HYDRARGYRUM CHLORATUM. *Calomelas.*

Mercurous Chloride. *Calomel.*

$Hg_2Cl_2 = 471.5$

A yellowish-white, heavy, impalpable powder, showing, when examined under the microscope magnifying 100 times, a crystalline structure; insoluble in water, and in alcohol.

Mercurous Chloride blackens with ammonia water, and when heated with anhydrous sodium carbonate in a dry test-tube, it deposits metallic mercury.

When heated in a glass tube, the salt should completely volatilise without melting, and on heating it with sodium hydroxide solution, no ammonia should be evolved.

If 1 g. of the salt be shaken with 10 cem of dilute alcohol and filtered, the filtrate should produce no change with a solution either of hydrogen sulphide, or of silver nitrate.

Keep with care, protected from light.

HYDRARGYRUM CHLORATUM VAPORE PARATUM.

Mercurous Chloride Prepared by Steam.

$Hg_2Cl_2 = 471.5$

A white powder, becoming yellowish on being strongly rubbed; appearing, when examined under the microscope magnifying 100 times as small, isolated crystals; insoluble in water, and in alcohol.

The salt blackens with ammonia water, and on heating with anhydrous sodium carbonate in a dry test-tube, it deposits metallic mercury.

When heated in a glass tube, the salt should completely volatilise without melting, and on heating it with sodium hydroxide solution, no ammonia should be evolved.

If 1 g. of the salt be shaken with 10 cem of dilute alcohol and filtered, the resulting filtrate should produce no change with a solution either of hydrogen sulphide, or of silver nitrate.

Keep with care, protected from light.

HYDRARGYRUM CUM CRETA.

Mercury with Chalk.

Take

Mercury	1 *pt.*
Prepared Chalk	2 *pts.*

rub them together, until the mixture acquires a uniform gray color, and metallic globules are not visible by the naked eye.

A gray powder; no globules of metallic mercury should be visible by the naked eye.

HYDRARGYRUM IODATUM.

Mercurous Iodide.

$Hg_2I_2 = 654.3$

A greenish-yellow, amorphous, heavy powder, insoluble in alcohol and almost insoluble in water.

When shaken with an excess of potassium iodide solution, Mercurous Iodide becomes gray colored owing to the separation of metallic mercury. On heating the salt with manganese dioxide and sulphuric acid, a violet vapor is evolved.

When heated in a glass tube, it should volatilise completely. If 1 part of the salt be shaken with 20 parts of alcohol and filtered, the resulting filtrate should undergo almost no change with hydrogen sulphide solution.

Keep with care, protected from light.

HYDRARGYRUM OLEINICUM.

Mercuric Oleate.

Take

Mercuric Chloride . . . . . 32 *pts.*

dissolve it in

Distilled Water . . . . . 320 *pts.*

and after triturating

Medical Soap . . . . . 64 *pts.*

with

Oleic Acid . . . . . 3.6 *pts.*

dissolve the resulting mixture in

Distilled Water . . . . . 352 *pts.*

mix these 2 solutions; boil for 10 minutes and let the precipitate subside; decant the supernatant liquid; wash the precipitate several times with boiling water, until the washing gives almost no turbidity with silver nitrate solution; finally dry it on a water-bath.

Mercuric Oleate is a light grayish-yellow substance of ointment-like consistence, having a somewhat saponaceous odor.

Keep with care, protected from light.

HYDRARGYRUM OXYDATUM FLAVUM.

Yellow Mercuric Oxide.

$HgO = 216.3$

Take

Mercuric Chloride . . . . . 2 *pts.*

dissolve it in

Warm Distilled Water . . . . . 40 *pts.*

pour the solution gradually, under agitation, into a cold mixture of

Sodium Hydroxide Solution . . . . . 6 *pts.*

Distilled Water . . . . . 10 *pts.*

set aside, with constant stirring, for an hour at a proper temperature; wash the precipitate here obtained completely with warm distilled water, until the washing produces no change with silver nitrate solution and dry at 30° C., protecting from light.

A yellow, amorphous, heavy powder, almost completely insoluble in water, but readily soluble in dilute hydrochloric or nitric acid.

When heated in a glass tube, Yellow Mercuric Oxide volatilises, separating metallic mercury.

If 0.5 g. of it be warmed, under frequent agitation, with 10 ccm. of oxalic acid solution (1 : 10) on a water-bath, it should gradually change into a white, crystalline powder.

If it be shaken with water and filtered, the filtrate should produce no change with hydrogen sulphide solution.

If it be dissolved in water previously acidified with nitric acid, the resulting solution (1 : 50) should be clear, and produce no more than an opalescence with silver nitrate solution.

On heating 0.2 g. of it, no weighable solid residue should be obtained.

Keep with special care, protected from light.

HYDRARGYRUM OXYDATUM RUBRUM.

Red Mercuric Oxide.

$HgO = 216.3$

A yellowish-red, fine, crystalline powder, almost insoluble in water, but readily soluble in dilute hydrochloric or nitric acid.

When heated in a glass tube, it volatilises with separation of metallic mercury.

If 0.5 g. of Red Mercuric Oxide be warmed, under frequent shaking, with 10 ccm. of oxalic acid solution (1 : 10) on a water-bath, it should remain unchanged even after 2 hours.

If 1 g. of it be shaken with 2 ccm. of water, and 2 ccm. of sulphuric acid added, and after cooling, 2 ccm. of ferrous sulphate solution be carefully poured on to the mixture so as to make 2 layers of liquids, no brownish ring should be formed at their contact surface, even after a long standing.

If it be dissolved in water previously acidified with nitric acid, the resulting solution (1 : 50) should be clear, and produce no more than an opalescence with silver nitrate solution.

On heating 0.2 g. of it, no weighable solid residue should be obtained.

Keep with special care, protected from light.

HYDRARGYRUM PRÆCIPITATUM ALBUM.

Ammoniated Mercury.

$HgCl.NH_2 = 251.81$

Take

Mercuric Chloride . . . . . 2 *pts.*

dissolve it in

Warm distilled Water . . . . . 40 *pts.*

filter after cooling; gradually add to the filtrate, under stirring, more than 3 parts of ammonia water; collect the precipitate, here

produced by a slight excess of ammonia water, on a filter; after the liquid has been sufficiently drained, wash it with

Distilled Water . . . . . 18 *pts.*

and dry the precipitate between the sheets of filter-papers at a temperature not exceeding 30° C., protecting from light.

White, pulverulent pieces, or a white, amorphous powder, almost insoluble in water, and in alcohol, but soluble in dilute hydrochloric or warm, dilute nitric acid, and also in sodium thiosulphate solution.

When heated with sodium hydroxide solution, Ammoniated Mercury evolves ammonia and turns yellow.

It should completely dissolve in warm acetic acid.

On heating strongly in a glass tube, it should completely volatilise without melting.

Keep with care, protected from light.

HYDRARGYRUM SALICYLICUM.

Mercuric Salicylate.

$HgC_7H_4O_3 = 336.34$

A white, odorless, tasteless, amorphous powder, almost insoluble in water, and in alcohol, but soluble in a solution either of sodium hydroxide, or of sodium carbonate, and also soluble in a warm solution of sodium chloride.

If 0.1 g. of Mercuric Salicylate be shaken with 5 ccm. of water, and ferric chloride solution added, a violet coloration is produced. On heating 0.1 g. of the salt with a small piece of iodine in a test-tube, red mercuric iodide is formed on the inner surface of the tube.

If 0.2 g. of the salt be dissolved in 2 ccm. of sodium hydroxide solution, an almost colorless and clear solution should be obtained.

If 0.3 g. of the salt and 3 g. of sodium chloride be dissolved in 100 ccm. of boiling water and diluted with water to 400 ccm., and be acidified with a few drops of hydrochloric acid, then the black precipitate, produced by supersaturating it with hydrogen sulphide, should weigh, when dried, not less than 0.2 g.

It should not immediately redden a blue litmus paper moistened

with water, and on heating strongly in a porcelain crucible, it should volatilise without leaving any residue.

Keep with special care.

INFUSA.

Infusions.

In order to prepare infusions, pour boiling water on the prescribed medicament which must be finely cut if necessary; heat for 5 minutes, with frequent shaking, on a water-bath and strain after cooling.

In cases when the quantity of the medicaments to be used is not given in the prescription, take as much as will make 10 parts of the strained liquid for each 1 part of the medicament taken. The quantity of energetic or powerful medicaments should always be prescribed by the physician.

INFUSUM SENNÆ COMPOSITUM.

Compound Infusion of Senna.

Take

Senna Leaves, medium cut . . . . . 50 *pts.*

pour on them

Boiling Water . . . . . 450 *pts.*

extract by heating for 5 minutes on a water-bath; strain after cooling; in the strained liquid dissolve

Potassium Sodium Tartrate . . . . . 50 *pts.*

Sodium Carbonate . . . . . 1 *pt.*

Manna . . . . . 100 *pts.*

add boiling water to make the whole quantity up to 475 parts; mix this solution with

Alcohol . . . . . 25 *pts.*

set aside for 24 hours to subside and decant the clear, supernatant liquid.

IODOFORMIUM.

Iodoform.

$CHI_3 = 393.56$

Lustrous, yellow, fine laminæ, or a crystalline powder, with a fatty feeling when touched, and a penetrating odor somewhat resembling that of saffron; almost insoluble in water, but soluble in about 80 parts of cold or 10 parts of boiling alcohol, and also in 6 parts of ether. Melting point: about 120° C.

If 1 g. of Iodoform be shaken with 10 parts of water for 1 minute and filtered, the filtrate should be colorless and neutral to test-papers; the same filtrate should neither be rendered more than faintly opalescent by silver nitrate solution, nor should it undergo any change with barium nitrate solution.

On heating 0.1 g. of it, no weighable solid residue should be obtained.

Keep with care.

IODUM.

Iodine.

$I = 126.85$

Dry, grayish-black, rhombic plates or laminæ, with a metallic lustre and a characteristic odor; soluble in about 5000 parts of water, and with a brown color in 10 parts of alcohol; largely soluble, with a brown color, in ether and also in potassium iodide solution, but soluble with a violet color both in chloroform and in carbon disulphide.

When heated in a glass tube, Iodine emits a violet vapor; it colors a starch solution blue.

It contains not less than 98.3% of pure iodine, and should volatilise completely when heated.

Shake 0.5 g. of it in coarse powder with 20 cem. of water and filter; after decolorising a part of the filtrate with sulphurous acid,

warm it gently with small quantities each, of sodium hydroxide solution, and of ferrous sulphate solution, and with 5 drops of ferric chloride solution, and cool; then on supersaturating it with a slight excess of hydrochloric acid, no blue coloration should be produced. After adding an excess of ammonia water to another part of the filtrate, add silver nitrate solution in excess, until a complete precipitation takes place, and filter, the resulting filtrate, on being supersaturated with nitric acid, should become merely turbid and produce no precipitate. Another part of the filtrate should produce no change with barium nitrate solution.

If 0.2 g. of it and 1 g. of potassium iodide be dissolved in 20 ccm. of water, the resulting solution should require, for its complete decoloration, at least 15.5 ccm. of decinormal sodium thiosulphate solution.

Keep with care, in glass-stoppered bottles.

KALI CAUSTICUM.

Caustic Potash.

KOH = 56.16

White, dry masses, or pencils, with a strongly caustic nature and a crystalline fracture; deliquescent in the air; easily soluble in water.

Caustic Potash should contain not less than 90.26% of pure potassium hydroxide.

An aqueous solution of caustic potash, when mixed with an excess of tartaric acid solution, produces, after a short time, a white crystalline precipitate.

The solution of 1 g. of it in 2 ccm. of water, on being mixed with 10 ccm. of alcohol, should yield only a very slight precipitate after a short time.

If 1 g. of it be dissolved in 10 ccm. of water and heated to boiling with 15 ccm. of lime water, and filtered, the resulting filtrate, on being poured into an excess of nitric acid, should produce no effervescence.

If 2 ccm. of a dilute sulphuric acid solution (1 : 20) of it and 2 ccm. of sulphuric acid be mixed and cooled, and 1 ccm. of a satu-

rated ferrous sulphate solution be added so as to form 2 layers of liquids, no brownish ring should be produced at their contact surface.

Its aqueous solution (1 : 50), after being acidified with nitric acid, should neither be affected immediately by barium nitrate solution, nor should it produce any more than an opalescence with a solution of silver nitrate.

To neutralise 10 ccm. of the solution, obtained by dissolving 5.6 g. of it in 100 ccm. of water, at least 9 ccm. of normal hydrochloric acid solution should be required.

Keep with care, in well-stoppered bottles.

KALIUM BICARBONICUM.

Potassium Bicarbonate.

$KHCO_3 = 100.16$

Dry, colorless, transparent crystals, slowly soluble in 4 parts of water, showing a slightly alkaline reaction, but insoluble in absolute alcohol.

An aqueous solution of Potassium Bicarbonate, when mixed with an excess of tartaric acid solution, effervesces and yields, after a short time a white crystalline precipitate.

Its aqueous solution (1 : 20), after being acidified with nitric acid, should be affected neither by barium nitrate solution, nor by hydrogen sulphide solution; the same solution should produce no more than an opalescence with silver nitrate solution; 20 ccm. of the same solution, after being acidified with hydrochloric acid, should acquire no blue coloration with 0.5 ccm. of the solution of yellow prussiate of potash.

To neutralise 1 g. of the salt, 10 ccm. of normal hydrochloric acid solution should be required.

When strongly heated, it should leave 69 per cent of solid residue, acquiring no black color at the same time.

KALIUM BITARTARICUM.

Potassium Bitartrate.

$KC_4H_5O_6 = 188.2$

White, hard crystals, or a white, crystalline powder, showing an acid reaction; soluble in 192 parts of water, in 20 parts of boiling water, and in sodium hydroxide solution; also soluble with effervescence in potassium carbonate solution, but insoluble in alcohol.

When heated, Potassium Bitartrate carbonises, emitting an odor like that of burning sugar, and finally leaves an alkaline residue which, if dissolved in water and filtered, gives a filtrate, producing, with an excess of tartaric acid, a white crystalline precipitate easily soluble in sodium hydroxide solution.

It should contain not less than 97.86 per cent of pure potassium bitartrate.

If 5 g. of the powdered salt be shaken with 100 cem. of water and filtered, the resulting filtrate, after being acidified with dilute nitric acid, should neither produce any more than a slight turbidity, if at all, with barium nitrate solution, nor should it produce any more than an opalescence with silver nitrate solution.

A solution of 1 g. of the salt in ammonia water should not be affected by hydrogen sulphide solution.

If 1 g. of the salt be mixed, under occasional shaking, with 5 ccm. of acetic acid, and after half an hour, 25 cem. of water be added and allowed to settle, then the resulting clear solution, on being mixed with 8 drops of ammonium oxalate solution, should produce no change within a minute.

On heating the salt with sodium hydroxide solution, no ammonia should be evolved.

To neutralise 1 g. of the dry, powdered salt, at least 5.2 cem. of normal potassium hydroxide solution should be required.

KALIUM BROMATUM.

Potassium Bromide.

KBr = 119.11

Lustrous, white, cubical crystals, permanent in the air; soluble in 2 parts of water, and in about 200 parts of alcohol.

If an aqueous solution (1 : 20) of Potassium Iodide be mixed with a small quantity of chlorine water, and shaken with ether or chloroform, the latter is colored reddish-brown; the same aqueous solution, on being mixed with an excess of tartaric acid solution, also produces a white, crystalline precipitate after a short time.

On heating the salt upon a platinum wire loop in a non-luminous flame, no yellow color should be imparted to the latter.

If 1 or 2 drops of dilute sulphuric acid be poured on the powdered salt placed in a white porcelain dish, no yellow color should immediately be produced.

The powdered salt should not change a red litmus paper, moistened with water, to a violet-blue.

The aqueous solution (1 : 20) of the salt should produce no change with a solution either of hydrogen sulphide, or of barium nitrate, and also with dilute sulphuric acid; 20 ccm of the same solution, after being acidified with 1 or 2 drops of hydrochloric acid, should acquire no blue coloration with 0.5 ccm of the solution of yellow prussiate of potash.

If 10 ccm. of the solution, prepared by dissolving 3 g. of the salt, dried at 100° C., in 100 ccm. of water, be mixed with 1 or 2 drops of potassium chromate solution, the resulting mixture should require, for the production of a permanent red color, not more than 25.4 ccm. of decinormal silver nitrate solution.

KALIUM CARBONICUM.

Potassium Carbonate.

$K_2CO_3 = 138.3$

A white, granular powder of a hygroscopic nature, showing a

strongly alkaline reaction; soluble in equal parts of water, but insoluble in absolute alcohol.

An aqueous solution of the salt, when mixed with an excess of tartaric acid solution, effervesces and produces a white, crystalline precipitate.

The salt should contain not less than 94.7 per cent. of pure potassium carbonate.

On heating it upon a platinum wire loop in a non-luminous flame, no permanent yellow color should be imparted to the latter.

The aqueous solution (1 : 20) of the salt should not be affected by hydrogen sulphide solution; 1 volume of the same aqueous solution, when mixed with 10 volumes of decinormal silver nitrate solution, should yield a yellowish-white precipitate which, on heating gently, should acquire no dark color; the same aqueous solution, after being warmed gently with small quantities of a solution of ferrous sulphate and of ferric chloride, should produce no blue coloration on being supersaturated with an excess of hydrochloric acid.

If 2 ccm. of a dilute sulphuric acid solution of the salt be mixed with an equal volume of sulphuric acid, and after cooling, 1 ccm. of ferrous sulphate solution be poured upon it so as to form 2 layers of liquids, no brownish color should be produced at their contact surface.

The aqueous solution (1 : 20) of the salt should, after being supersaturated with acetic acid, produce no change with a solution either of hydrogen sulphide, or of barium nitrate; after supersaturating the same solution with dilute nitric acid, no more than an opalescence should be produced, after 2 minutes, with silver nitrate solution; the same solution should produce no more than a slight turbidity, if any, with ammonium molybdate solution.

If 20 ccm. of its aqueous solution (1 : 20) be supersaturated with hydrochloric acid, the resulting solution should acquire, with 0.5 ccm. of the solution of yellow prussiate of potash, no blue coloration.

If 10 ccm. of the aqueous solution (1 : 10) of the salt be supersaturated with dilute sulphuric acid, the resulting solution should not decolorise more than 5 drops of potassium permanganate solution.

To neutralise 1 g. of the salt, at least 13.7 ccm. of normal hydrochloric acid solution should be required.

Keep in well-stoppered bottles.

KALIUM CARBONICUM CRUDUM.

Crude Potassium Carbonate.

A white, dry, granular powder, almost completely soluble in equal parts of water, and showing a strongly alkaline reaction.

An aqueous solution of Crude Potassium Carbonate, when mixed with an excess of tartaric acid solution, effervesces and produces a white, crystalline precipitate.

It contains not less than 89.8 per cent of pure potassium carbonate ($K_2CO_3 = 138.3$).

To neutralise 1 g. of the salt, at least 13 ccm. of normal hydrochloric acid solution should be required.

Keep in well-stoppered bottles.

KALIUM CHLORATUM.

Potassium Chloride.

$KCl = 74.6$

White, cubical crystals, or a white, crystalline powder, having a bitter, saline taste; permanent in the air; soluble in 3 parts of water, and showing a neutral reaction, but insoluble in absolute alcohol.

An aqueous solution of Potassium Chloride produces, with an excess of tartaric acid solution, a white, crystalline precipitate after a short time, and also produces, with silver nitrate solution, a white, curdy precipitate soluble in ammonia water.

When heated on a platinum wire loop in a non-luminous flame, it should impart no permanent yellow color to the latter.

The aqueous solution (1 : 20) of the salt should undergo no change with a solution of hydrogen sulphide, barium nitrate, or of sodium bicarbonate; 20 ccm. of the same solution should produce, with 0.5 ccm. of the solution of yellow prussiate of potash, no blue coloration.

KALIUM CHLORICUM.

Potassium Chlorate.

$KClO_3 = 122.6$

Colorless, lustrous laminæ, or small plates, or a crystalline powder, soluble in 16 parts of water, in 2 parts of boiling water, and in 130 parts of alcohol, showing a neutral reaction.

An aqueous solution of Potassium Chlorate, when heated with hydrochloric acid, evolves a greenish-yellow gas, and, when mixed with an excess of tartaric acid solution, produces a white, crystalline precipitate after a short time.

The aqueous solution (1 : 20) of the salt should undergo no change with a solution of hydrogen sulphide, ammonium oxalate, or of silver nitrate ; 20 ccm. of the same solution should produce, with 0.5 ccm. of the solution of yellow prussiate of potash, no blue coloration.

If 1 g. of the salt be mixed with 5 ccm. of sodium hydroxide solution, and 0.5 g. each, of zinc and of iron powder, and heated, no ammonia should be evolved.

Keep with care.

KALIUM FERRO-TARTARICUM.

Potassium Iron Tartrate.

$KFeC_4H_4O_7 = 259.19$

Take

Ferric Sulphate Solution . . . . . 12 *pts.*

dilute it with

Distilled Water . . . . . 120 *pts.*

pour the diluted solution, under agitation, into

Ammonia Water . . . . . 10 *pts.*

previously diluted with

Distilled Water . . . . . 20 *pts.*

wash the precipitate here produced with distilled water, until the

washing gives only a very slight turbidity with barium nitrate solution; to the moist precipitate, add

Distilled Water	30 *pts.*
Potassium Bitartrate	4 *pts.*

dissolve them by stirring on a water-bath at a temperature not exceeding 60° C.; filter while the solution is still warm; after allowing the filtrate to stand in a cool and dark place for 24 hours, filter again; evaporate the filtrate to a syrupy consistence, and dry it in form of a thin film by heating gently on glass plates, till it can be removed as small scales.

A lustrous, transparent, reddish-brown, small scales, showing a neutral reaction; slightly hygroscopic; very easily soluble in water, but insoluble in alcohol.

An aqueous solution of Potassium Iron Tartrate produces, only after the addition of hydrochloric acid, a blue coloration with a solution of yellow prussiate of potash.

If its concentrated aqueous solution be boiled with an excess of potassium hydroxide solution, and filtered after the iron has completely been precipitated, then the resulting filtrate, on being acidified with acetic acid, yields a white, crystalline precipitate.

Its aqueous solution (1 : 5) should produce no precipitate with ammonia water, and should evolve, when heated with sodium hydroxide solution, no odor of ammonia.

If 1 g. of the salt be strongly heated, it should evolve an odor like that of burning sugar, and leave about 0.6 g. of a brown residue which reacts strongly alkaline, and should contain about 0.3 parts of ferric oxide.

Keep in well-stoppered bottles, protected from light.

KALIUM IODATUM.

Potassium Iodide.

KI=166

White, dry, cubical crystals, soluble in 0.75 parts of water, and in 12 parts of alcohol.

If an aqueous solution of Potassium Iodide be mixed with a small quantity of chlorine water and shaken with chloroform, the latter acquires a violet color; the same solution, when mixed with an excess of tartaric acid solution, slowly yields a white, crystalline precipitate.

When the salt is heated upon a platinum wire loop in a non-luminous flame, no yellow color should be imparted to the latter.

The powdered salt should not immediately turn a moistened red litmus paper violet-blue.

The aqueous solution (1 : 20) of the salt should produce no change with a solution either of hydrogen sulphide, or of barium nitrate. If the same solution be gently warmed with a small quantity of sodium hydroxide solution, a piece of ferrous sulphate, and 5 drops of ferric chloride solution, cooled, and oversaturated with hydrochloric acid, no blue color should be produced.

If 1 part of the salt be dissolved in 19 parts of water, which has been freshly boiled and cooled, and at once starch solution and dilute sulphuric acid be added, no coloration should immediately be produced.

If 20 ccm. of the aqueous solution (1 : 20) of the salt be acidified with 2 or 3 drops of hydrochloric acid, the resulting solution should, with 0.5 ccm. of the solution of yellow prussiate of potash, acquire no blue color.

If 1 g. of the salt be heated with a mixture of 5 ccm. of sodium hydroxide solution, and of 0.5 g. each, of zinc and of iron powder, no ammonia should be evolved.

If 0.2 g. of the salt be dissolved in 2 ccm. of ammonia water, and 13 ccm. of decinormal silver nitrate solution added under agitation, and be filtered, the filtrate, on being supersaturated with nitric acid, should neither be colored, nor rendered turbid, within 10 minutes.

Keep with care in well-stoppered bottles.

KALIUM NITRICUM.

Potassium Nitrate.

$KNO_3 = 101.19$

Colorless, transparent prisms, or a dry, crystalline powder, perma-

nent in the air; soluble in 4 parts of water, and in 0.5 parts of boiling water, but almost insoluble in alcohol.

If an aqueous solution of Potassium Nitrate be mixed with ferrous sulphate solution, the mixture acquires, on the addition of sulphuric acid, a blackish-brown color; the same solution, when mixed with an excess of tartaric acid solution, yields a white, crystalline precipitate after a short time.

When the salt is heated upon a platinum wire loop in a non-luminous flame, no yellow color should be imparted to the latter.

The aqueous solution (1 : 20) of the salt shows a neutral reaction, and undergoes no change with a solution of hydrogen sulphide, ammonium sulphide, ammonium oxalate, sodium phosphate, or of barium nitrate; the same solution should also produce only an opalescence with silver nitrate solution; 20 ccm. of the same solution, when mixed with 0.5 ccm. of the solution of yellow prussiate of potash, should produce no blue coloration.

If 0.1 g. of the salt be dissolved in 1 ccm. of sulphuric acid, no coloration should take place.

KALIUM PERMANGANICUM.

Potassium Permanganate.

$KMnO_4 = 158.15$

Dark purple-colored, dry prisms, having a metallic lustre; soluble, with a violet-red color, in 16 parts of cold and in 3 parts of boiling water; exploding when triturated with easily combustible substances.

An aqueous solution of Potassium Permanganate is decolorised, and yields a brown precipitate with ferrous salts, sulphurous acid, oxalic acid, alcohol, and also with other reducing agents.

If 0.5 g. of the salt be boiled with 2 ccm. of alcohol and 25 ccm. of water, and filtered, the resulting filtrate should be colorless, and, after being acidified with nitric acid, should produce no more than an opalescence with a solution either of barium nitrate or of silver nitrate.

If 0.5 g. of the salt be dissolved in 5 ccm. of boiling water and decolorised by gradually adding oxalic acid solution, and filtered, and

2 ccm. of the resulting, clear filtrate be mixed with an equal volume of sulphuric acid, and 1 ccm. of ferrous sulphate solution added carefully, after cooling, so as to form 2 layers of liquids, no brownish ring should appear at their contact surface.

Keep in well-stoppered bottles, protected from light.

KALIUM SULFURATUM.

Potassium Sulphide.

Take

Sublimed Sulphur	1 *pt.*
Crude Potassium Carbonate	2 *pts.*

mix them intimately and heat the mixture in a large crucible, with occasional stirring, until the effervescence of the fused mass ceases; when a small portion of it, on being thrown into water, easily dissolves in the latter, decant the fused mass on a wooden plate and, after cooling, break it into small pieces.

Brownish-yellow masses, which change gradually to greenish-yellow, emitting slightly an odor of hydrogen sulphide; deliquescent in moist air; soluble in about 2 parts of water, forming a faintly turbid, yellowish-green solution, and showing an alkaline reaction.

An aqueous solution (1 : 20) of Potassium Sulphide, when heated with an excess of acetic acid, evolves a large quantity of hydrogen sulphide, depositing sulphur at the same time; when filtered, the resulting filtrate yields, with tartaric acid solution, a white, crystalline precipitate.

If 5 g. of the salt be dissolved in water and, after adding 4.5 g. of copper sulphate, left for a short time in a warm place and filtered, the resulting filtrate should produce no change with hydrogen sulphide solution.

Keep in well-stoppered bottles.

KALIUM SULFURICUM.

Potassium Sulphate.

$K_2SO_4 = 174.36$

Colorless, hard crystals, or crystalline laminæ, soluble in 10 parts of water, and in 4 parts of boiling water, but insoluble in alcohol.

An aqueous solution of Potassium Sulphate yields, with tartaric acid solution, a white, crystalline precipitate after a short time, and also yields, with barium nitrate solution, a white precipitate insoluble in acids.

When the salt is heated on a platinum wire loop in a non-luminous flame, no yellow color should permanently be imparted to the latter.

The aqueous solution (1 : 20) of the salt reacts neutral to test-papers, and should produce no change with a solution of hydrogen sulphide, ammonium oxalate, silver nitrate, or of sodium phosphate.

If 20 cem. of the aqueous solution (1 : 20) of the salt be mixed with 0.5 cem. of the solution of yellow prussiate of potash, no blue coloration should take place; if 2 cem. of the same solution be mixed with 2 cem. of sulphuric acid, and 1 cem. of ferrous sulphate solution carefully added, after cooling, so as to form 2 layers of liquids, no brownish ring should be produced at their contact surface.

KALIUM TARTARICUM.

Potassium Tartrate.

$K_2C_4H_4O_6 = 226.34$

Colorless, transparent crystals, or a crystalline powder, permanent in the air; soluble in 0.7 parts of water, showing a neutral reaction, but almost insoluble in alcohol.

When heated strongly, Potassium Tartrate carbonises, evolving an odor like that of burning sugar, and finally leaves an alkaline residue which imparts a violet color to a non-luminous flame.

The salt contains not less than 98 per cent of pure potassium tartrate.

Its aqueous solution produces, on adding acetic acid, a white, crystalline precipitate.

If the aqueous solution (1 : 10) of the salt be shaken with 5 cem. of dilute acetic acid, and the precipitate produced allowed to settle, then the resulting clear solution, after being diluted with an equal volume of water, should undergo no change within 1 minute with 8 drops of ammonium oxalate solution.

The aqueous solution (1 : 20) of the salt should not be affected by hydrogen sulphide solution ; if the same solution be mixed with nitric acid, and the crystalline powder thereby produced, be separated, the resulting filtrate, should neither become turbid with barium nitrate solution, nor should produce any more than an opalescence with silver nitrate solution ; if 20 cem. of the same aqueous solution be mixed with 0.5 cem. of the solution of yellow prussiate of potash, no blue coloration should take place.

When heated with sodium hydroxide solution, it should evolve no ammonia.

If 2.26 g. of the salt be completely carbonised by heating strongly, and the residue boiled with water and filtered, the resulting filtrate should require, for its exact neutralisation, at least 19.6 cem. of normal hydrochloric acid solution.

KAMALA.

Kamala.

The glands and fasciculate hairs of the epidermis of the fruit of *Mallotus philippinensis* Muell.

An odorless, tasteless, red powder ; when examined under the microscope, the glands are irregularly spherical in outline, and contain, between the walls, about 60 club-shaped cells, arranged radially, and between these cells and the cuticula surrounding them, a red secretion. The hairs are arranged in astral form, colorless and thickly walled.

Kamala should contain, besides the glands and hairs, mineral constituents, if any, only in small quantities, and no more than traces of fruit texture.

On incineration, it should leave not more than 6 per cent. of solid residue.

KINO.

Kino.

The inspissated juice of *Pterocarpus Marsupium* Roxb., evaporated to dryness.

Shining, dark brownish-red or blackish-brown, irregular, brittle pieces; at the margin, reddish and transparent; pulverising, when crushed, to a reddish-brown powder; inodorous and very astringent.

Kino loses its color and swells in water which is in turn colored reddish; slowly but largely soluble in alcohol, and soluble with turbidity in boiling water which is colored dark reddish-brown.

Its solution in hot water produces, even when considerably diluted, a dark green precipitate with ferric chloride solution, and produces precipitates with potassium bichromate solution and also with mineral acids.

On incineration, it should leave not more than 5 per cent of solid residue.

KREOSOTUM.

Creosote.

A colorless or slightly yellowish, clear, highly refractive, oily liquid, of a neutral reaction; having a penetrating, empyreumatic odor and a burning taste; clearly soluble in about 120 parts of boiling water which, on cooling, becomes turbid and deposits oily drops; clearly miscible with ether, alcohol, or with carbon disulphide.

More than 75 per cent. of Creosote distills over at 200°—220° C., not solidifying even if cooled to −20° C. Specific gravity: above 1.08.

Its saturated aqueous solution yields, with bromine water, a reddish-brown precipitate; the same aqueous solution, on adding a few drops of a solution of ferric chloride, becomes turbid and acquires a grayish-green or a blue color, passing finally to a dirty brown; its alcoholic solution, when mixed with a small quantity of ferric chloride solution, acquires a deep blue color which subsequently changes to a dark green.

If 1 ccm. of it be shaken with 2.5 ccm. of sodium hydroxide solution, they should mix clearly, and become not dark colored, and the resulting solution, on being diluted with 50 ccm. of water, should not become turbid.

If 1 volume of it be mixed with 10 volumes of the solution of potassium hydroxide in absolute alcohol (1 : 5), a crystalline solid mass should be produced after 1 or 2 hours.

On shaking 1 volume of it with an equal volume of collodion, no gelatinous substance should be produced.

If 1 volume of it be added to 3 volumes of a mixture composed of 3 parts of glycerin and 1 part of water, it should remain almost completely insoluble.

If 1 ccm. of it be mixed with 2 ccm. of petroleum benzin, and the clear solution obtained be shaken with 2 ccm. of freshly prepared, saturated baryta water, neither the upper layer should acquire a blue or dirty brown color, nor should the lower layer acquire a red color.

Keep with care in well-stoppered bottles.

KREOSOTUM CARBONICUM.

Creosote Carbonate.

A clear, colorless or yellowish, thick liquid, having a slightly bitter taste, but almost without any odor; insoluble in water, soluble in alcohol, ether, and in chloroform.

When strongly cooled, Creosote Carbonate deposits crystals.

If it be dissolved in a mixture of equal parts of alcohol and potassium hydroxide solution, and warmed on a water-bath, until the alcohol is completely evaporated off, and the residue shaken with dilute sulphuric acid and ether, then the ethereal layer, on being separated and evaporated, leaves a residue having the odor of creosote, and producing, when dissolved in alcohol and mixed with dilute ferric chloride solution, a green coloration.

When boiled for a few minutes with a freshly prepared, clear alcoholic solution of potassium hydroxide, it produces a crystalline precipitate which, after being washed with absolute alcohol, evolves, on being mixed with hydrochloric acid, carbonic acid gas.

On heating, it should volatilise without leaving any solid residue.

The preparation, which contains crystals, should be used after melting them.

LACTYLPHENETIDINUM.

Lactyl Phenetidine.

$C_{11}H_{15}NO_3 = 209.19$

Colorless, odorless crystals, having a slightly bitter taste; soluble in about 500 parts of water, in 55 parts of hot water, and in 8.5 parts of alcohol. Melting point: about 118° C.

If 0.1 g. of Lactyl Phenetidine be boiled for a minute with 1 ccm. of hydrochlorie acid, diluted with 10 ccm. of water, and be filtered after cooling, the resulting filtrate produces, with 3 ccm. of chromie acid solution, a violet-red coloration.

If 0.1 g. of it be dissolved in 10 ccm. of hot water and filtered after cooling, the resulting filtrate, on adding bromine water till it gets a yellow color, becomes considerably turbid, but becomes clear again on adding a large quantity of water.

On heating, it should be consumed without leaving any solid residue.

LAPIS PUMICIS.

Pumice.

Whitish or grayish, hard, brittle, porous masses, having innumerable, large and small holes; floating, when thrown into water, on its surface.

Keep well dried, after Pumice has previously been boiled with water and washed.

LICHEN ISLANDICUS.

Iceland Moss.

The dried Iceland moss, *Cetraria islandica* Achar.

The thallus is 0.5 mm. or less in thickness, brown on one side, gray or pale brown on the other, foliaceous, irregularly lobed, smooth on both sides, fringed at the margin, and channelled at the base.

An aqueous solution of iodine, when dropped on a cross-section of the thallus, colors the hyphæ blue.

The solution, obtained by boiling 1 part of Iceland Moss with 20 parts of water, has a bitter taste, and gelatinises on cooling.

LIGNUM GUAIACI.

Pock Wood.

The heart-wood of *Guaiacum officinale* Linn.

Pock Wood is externally brown or greenish, internally brownish, hard and heavy, and sinks in water. When examined under the microscope, the transverse section of the wood exhibits medullary rays, which are 1 cell broad and 3—6, mostly 4 cells high. The tissue, lying between the medullary rays, usually contains isolated vessels, which are partly filled with brown-colored resins, and are often so broad as to fill up the space between medullary rays. The wood-parenchyma in the above-mentioned tissue is arranged in 1—2 cells broad, irregular, tangential rows, often containing oxalate crystals. The remaining portions of the tissue consist mainly of thick-walled sclerenchymatous fibres.

If a small quantity of it be shaken with alcohol, the resulting solution leaves, on being evaporated to dryness, a brownish residue which, with alcoholic solution of ferric chloride (1 : 100), produces a blue color disappearing in a short time.

It has a slightly pungent taste.

LIGNUM QUASSIAE.

Quassia Wood.

The wood of the trunk and branches of *Picrasma excelsa* Lindl., *Quassia amara* Linn. and *Picrasma quassioides* Benn.

(a)

The wood of *Picrasma excelsa* Lindl. is pale yellowish, and shows on transverse section medullary rays, each of which is 2—5 rows of

cells in width, and mostly 10—25 layers of cells in height. The medullary rays are connected by parenchymatous wood-cells, arranged in 2—5 tangential rows, and often containing large single oxalate crystals. Next to these cells, lie vessels singly or in groups of 2—5. The remaining tissue consists of slightly thickened sclerenchymatous fibres, which are mostly of uniform width throughout the length and pointed at both ends.

(b)

The wood of *Quassia amara* Linn. resembles in structure to that of the foregoing, excepting that medullary rays of the former are only 1, at most 2 cells wide, and 5—20 cells high, and are devoid of oxalate crystals.

(c)

The wood of *Picrasma quassioides* Benn. is very much like the above two, excepting that it is very compact and heavy, having very thickened woody fibres. The medullary rays are 1—5, mostly 2 rows of cells in breadth, and 5—20 layers of cells in height. The vessels are found singly or in groups of 2 or more. The wood is free from oxalate crystals.

Quassia Wood has a persistent, very bitter taste.

LIGNUM SANTALI RUBRUM.

Red Sanders Wood.

The wood of the trunk and branches of *Pterocarpus santalinus* Linn. fil.

Red Sanders Wood is dark reddish-brown, compact, hard, and almost without any odor or taste. It sinks in water which, however, it does not color red; alcohol dissolves out of it a red, resinous coloring matter.

LIGNUM SASSAFRAS.

Sassafras Wood.

The wood of the root of *Sassafras officinale* Nees.

Sassafras Wood is light, loose, reddish or brownish in color, and shows annual rings. When examined under the mieroseope, its transverse seetion exhibits medullary rays, each of whieh is 1—4 rows of eells in width. In the tissue between medullary rays, lie reservoirs whieh eontain a eolorless seeretion, add are as wide as the smaller vessels, and provided with a suberised wall. The vessels are furnished with eireularly bordered, slit-like pits. The selerenehymatous fibres have a moderately thiekened, sparsely and faintly pitted wall.

It has an aromatie, slightly sweet taste and odor.

LINIMENTUM AMMONIATUM.

Ammonia Liniment.

Take

Ammonia water	1 *pt.*
Sesame Oil	4 *pts.*

mix and shake them up till a white, homogeneous, thiek liquid is obtained.

LINIMENTUM CALCARIÆ.

Lime Liniment.

Take

Lime Water	1 *pt.*
Sesame Oil	1 *pt.*

mix and shake them up till a white, homogeneous, thiek liquid is obtained.

LINIMENTUM CHLOROFORMII.

Chloroform Liniment.

Take

Chloroform	1 *pt.*
Camphor Oil	1 *pt.*

mix and shake them up.

LINIMENTUM SAPONATO-CAMPHORATUM.

Soap Liniment. *Opodeldoc.*

Take

Soft Soap	40 *pts.*
Purified Camphor	10 *pts.*

dissolve them by a gentle heat in

Alcohol	420 *pts.*

filter while hot; to the filtrate add

Oil of Thyme	2 *pts.*
Oil of Rosemary	3 *pts.*
Ammonia Water	25 *pts.*

and quickly cool the mixture.

An almost colorless liquid.

Keep in well-stoppered bottles.

LIQUOR AMMONII ACETICI. *Spiritus Mindereri.*

Solution of Ammonium Acetate. *Spirit of Mindererus.*

Take

Ammonia Water	5 *pts.*

add to it

Acetic Acid	5 *pts.*

heat to boiling; after cooling, neutralise the mixture with ammonia water; filter; dilute the filtrate with distilled water, till it gets the specific gravity of 1.032 – 1.034.

A colorless, clear, volatile liquid, showing a neutral or a slightly acid reaction.

Solution of Ammonium Acetate contains about 15 per cent. of pure ammonium acetate ($NH_4.C_2H_3O_2 = 77.11$).

It should be affected neither by hydrogen sulphide solution, nor by barium nitrate solution. After being acidified with nitric acid, it should produce no more than an opalescence with silver nitrate solution.

LIQUOR ARSENI ET HYDRARGYRI IODATI.

Solution of Arsenious and Mercuric Iodide.

Solutio Donovani. *Donovan's Solution.*

Take

Arsenious Iodide . . . . . 1 *pt.*
Mercuric Iodide . . . . . 1 *pt.*

to the mixture add

Distilled Water . . . . . 17 *pts.*

dissolve by rubbing them in a mortar; filter, and to the filtrate add distilled water to make the whole quantity up to 100 parts.

A clear, yellowish liquid. Specific gravity: 1.015.

Keep with special care.

LIQUOR CRESOLI SAPONATUS.

Soap Solution of Cresol.

Take

Soft Soap . . . . . 1 *pt.*

melt it on a water-bath; add to it

Crude Cresol . . . . . 1 *pt.*

warm the mixture till it dissolves.

A clear, yellowish-brown liquid.

LIQUOR FERRI ALBUMINATI.

Solution of Iron Albuminate.

Take

Dried White of the Egg . . . . . 35 *pts.*

dissolve it in

Distilled Water . . . . . 1000 *pts.*

strain; slowly pour the strained liquid, under agitation, into the mixture of

Solution of Oxychloride of Iron	120 *pts.*
Distilled Water	1000 *pts.*

allow the iron albuminate here formed completely to precipitate; neutralise, if necessary, with the sodium hydroxide solution diluted with 24 times its weight of water. After waiting till the precipitate subsides, decant the clear upper liquid, and pour distilled water on the residue; decant the clear upper liquid again after subsidence, repeating the same operation several times, until a portion of the decanted liquid, acidified with nitric acid, produces no more than a slight opalescence with silver nitrate solution; collect the precipitate on a filter-cloth; transfer it into a large bottle previously weighed, and dissolve it by shaking in the mixture of

Sodium Hydroxide Solution	2.25 *pts.*
Distilled Water	50 *pts.*

to the resulting solution add

Alcohol	150 *pts.*
Cinnamon Water	100 *pts.*
Aromatic Tincture	2 *pts.*

and finally add distilled water so as to make the whole quantity up to 1000 parts.

By transmitted light a clear, and by reflected light a slightly turbid, reddish-brown liquid, showing almost no alkaline reaction, with a faint taste of cinnamon, but almost without ferruginous taste.

Solution of Iron Albuminate contains about 0.4 per cent. of pure iron (Fe = 56).

It mixes clearly with alcohol, and yields precipitates with decinormal sodium chloride solution, and also with hydrochloric acid solution.

If 5 ccm. of it be mixed with 5 ccm. of carbolic acid solution, and 5 drops of nitric acid added, a brownish precipitate is produced, and the solution obtained by filtering it off, should produce, on adding silver nitrate solution, no more than a slight opalescence.

If 40 ccm. of it be mixed with 0.5 ccm. of normal hydrochloric acid solution and filtered, a colorless filtrate should be obtained.

If 10 ccm. of it be evaporated to dryness in a porcelain crucible on a water-bath, the residue, after being moistened with nitric acid which is evaporated off by a gentle heat, should leave, when strongly heated, at least 0.054 g. of solid residue.

LIQUOR FERRI CITRICI OXYDATI.

Solution of ferric citrate.

Take

Ferric Sulphate Solution . . . . . 84 *pts.*

dilute it with

Distilled Water . . . . . 1000 *pts.*

pour the diluted solution, under shaking, into a mixture of

Ammonia Water . . . . . 84 *pts.*
Distilled Water . . . . . 200 *pts.*

transfer the precipitate here produced into a filter-cloth, and allow the liquid part to drain off; mix the precipitate with

Distilled Water . . . . . 1000 *pts.*

put it again on the filter-cloth and remove the liquid part; repeat the same operation several times, until the washing produces almost no opalescence with barium nitrate solution; transfer the moist precipitate into a porcelain dish, and add to it

Citric Acid . . . . . 30 *pts.*

after dissolving the precipitate by stirring on a water-bath, at a temperature not exceeding 60° C., evaporate down till the whole quantity makes 100 parts.

A clear, dark brown liquid, showing an acid reaction. Specific gravity: 1.26.

A Solution of Ferric Citrate, after being diluted with water and acidified with a small quantity of hydrochloric acid, yields, with a solution of yellow prussiate of potash, a dark blue precipitate.

It should produce no precipitate with an excess of ammonia water.

When boiled with twice its volume of potassium hydroxide solution till iron is completely precipitated, it should evolve no considerable odor of ammonia; a part of the filtrate obtained by separating the above precipitate should, when saturated with acetic acid, produce no crystalline precipitate even after long standing.

If it be diluted with twice its volume of water and mixed with a small quantity of nitric acid, no more than a slight turbidity should be produced with barium nitrate solution.

If it be evaporated to dryness in thin layers at a suitable temperature, it should leave about 44 per cent. of residue which, when strongly heated, should leave 11 per cent. of ferric oxide.

LIQUOR FERRI OXYCHLORATI.

Solution of Ferric Oxychloride.

Take

Ferric Chloride Solution . . . . . 35 *pts.*

dilute it with

Distilled Water . . . . . 160 *pts.*

pour the diluted solution, under agitation, into the mixture of

Ammonia Water . . . . . 35 *pts.*

Distilled Water . . . . . 320 *pts.*

completely wash the precipitate here produced with distilled water; press; on the precipitate pour

Hydrochloric Acid . . . . . 2.5 *pts.*

after setting aside for 3 days, dissolve the precipitate completely by warming to about 40° C., and dilute the solution with distilled water till it attains the specific gravity of 1.05.

A clear, brownish-red, inodorous liquid, having a faintly astringent taste.

It contains about 3.5 per cent. of pure iron (Fe=56).

If 1 cem. of it be diluted with 19 cem. of water, the solution, after being mixed with 1 drop each, of nitric acid and of silver nitrate solution, should be clear when seen by transmitted light.

Take 10 cem. of it in a glass bottle of 100 cem. in capacity, add water and hydrochloric acid each 10 cem., warm the mixture until the turbidity at first produced disappears, and a clear, yellow solution is produced. After cooling, add 2—3 g. of potassium iodide and set aside for an hour at ordinary temperatures, well-stoppered, and protected from light, and make the solution up to 100 cem. by adding water; 20 cem. of the solution thus prepared, after being diluted with water, should require, for its decoloration, about 13 cem. of decinormal sodium thiosulphate solution.

Keep protected from light.

LIQUOR FERRI SESQUICHLORATI.

Solution of Ferric Chloride.

Dissolve ferric chloride in about equal parts of distilled water so as to make a solution with a specific gravity of 1.280–1.282.

A clear, deep brownish-yellow liquid, containing 10 per cent. of pure iron (Fe=56).

Its aqueous solution produces, with silver nitrate solution, a white precipitate insoluble in dilute nitric acid; and after being acidified with dilute hydrochloric acid, the same aqueous solution also produces, with a solution of yellow prussiate of potash, a deep blue precipitate.

When approached with a glass rod moistened with ammonia water, it should produce no white fumes, nor should it color blue a moistened zinc-iodide-starch paper brought near to it.

If 1 volume of it be mixed with 3 volumes of stannous chloride solution, the mixture should acquire no dark coloration within an hour.

If 3 drops of it, after being mixed with 10 cem. of decinormal sodium thiosulphate solution, be gradually heated, the mixture, after cooling, should deposit a minute quantity of ferric hydroxide.

After diluting with water (1 : 10) and adding dilute hydrochloric acid, it should produce, with a solution of red prussiate of potash, no blue coloration.

When diluted with water (1 : 5) and mixed with an excess of ammonia water and filtered, it should yield a colorless filtrate which, on being evaporated to dryness and ignited, should leave no more than, if any, a very slight residue. A part of the same filtrate, when mixed with an equal part of sulphuric acid and cooled, and a saturated solution of ferrous sulphate carefully poured on its surface so as to form 2 separate layers, should produce no brownish ring at their contact surface. The same filtrate should, after adding an excess of acetic acid, produce no change with a solution either of barium nitrate, or of yellow prussiate of potash.

Keep in glass-stoppered bottles, protected from light.

LIQUOR FERRI SULFURICI OXYDATI.

Solution of Ferric Sulphate.

Take

Ferrous Sulphate	80 *pts.*
Distilled Water	40 *pts.*
Sulphuric Acid	15 *pts.*
Nitric Acid	12 *pts.*

put them into a glass flask; dissolve by heating on a water-bath, until a drop of the clear brown liquid, after being diluted with water, gives no blue coloration with a solution of red prussiate of potash; transfer the liquid into a porcelain dish previously weighed, and evaporate down till the whole makes 100 parts; add a small quantity of distilled water and evaporate again, repeating the same operation till the liquid shows no reaction of nitric acid, and finally make the solution up to 160 parts by adding distilled water.

A clear, brownish-yellow, somewhat thick liquid, containing 10 per cent. of pure iron (Fe=56). Specific gravity: 1.428–1.430.

Its diluted aqueous solution gives, with barium nitrate solution, a white precipitate, and with a solution of yellow prussiate of potash, a deep blue precipitate.

If 1 volume of it be mixed with 3 volumes of stannous chloride solution, the mixture should acquire no dark coloration within an hour.

Its dilute aqueous solution (1 : 10) should produce, with a solution of red prussiate of potash, no blue coloration, nor should it produce, with silver nitrate solution, any more than a slight turbidity; the same solution, when mixed with an equal volume of sulphuric acid and cooled, and a saturated solution of ferrous sulphate carefully poured on its surface so as to form 2 separate layers, should produce no brownish ring at their contact surface. The same dilute solution, when heated with an excess of ammonia water and filtered, gives a colorless filtrate which, on being evaporated to dryness and ignited, should leave, no more than, if any, a very slight residue; the same filtrate after adding an excess of acetic acid, should not be affected by a solution of yellow prussiate of potash.

Keep in glass-stoppered bottles.

LIQUOR GUTTAPERCHÆ.

Solution of Gutta Percha.

Take

Gutta Percha, *in thin scales*	1 *pt.*
Chloroform	10 *pts.*
Lead Carbonate	1 *pt.*

dissolve gutta percha by shaking it with 7 parts of chloroform in a well-stoppered bottle; add the remaining 3 parts of chloroform together with lead carbonate into the resulting solution; after setting aside with frequent shakings for several days, decant the clear upper solution.

A clear, colorless liquid which, when spread in thin layers and the chloroform allowed to volatilise, leaves a transparent, elastic film.

Keep with care, in small, well-stoppered bottles.

LIQUOR KALII ACETICI.

Solution of Potassium Acetate.

Take

Acetic Acid	50 *pts.*

gradually add to it

Potassium Bicarbonate	29 *pts.*

heat the solution to boiling; neutralise it with a fresh portion of potassium bicarbonate; after cooling, dilute it with water till it gets a specific gravity of 1.176–1.180.

A clear, colorless, neutral or very slightly acid liquid, containing about 34 per cent. of pure potassium acetate ($KC_2H_3O_2 = 98.18$).

Solution of Potassium Acetate should, after being diluted with an equal weight of water, produce no change with a solution either of hydrogen sulphide or of barium nitrate, and after being acidified with dilute nitric acid, the same solution should also produce no more than a slight opalescence with silver nitrate solution.

It should have no empyreumatic odor.

LIQUOR KALII ARSENICOSI.

Solution of Potassium Arsenite.

Liquor arsenicalis Fowleri. *Fowler's Solution.*

Take

Arsenious Acid	1 *pt.*
Potassium Bicarbonate	1 *pt.*
Distilled Water	2 *pts.*

dissolve them by boiling; to the solution add

Distilled Water	40 *pts.*
Alcohol	10 *pts.*
Spirit of Lavender	5 *pts.*

dilute the solution by adding distilled water to make the whole quantity up to 100 parts, and filter.

A clear, colorless, aromatic liquid, showing an alkaline reaction, and containing 1 per cent. of pure arsenious acid (As_2O_3=198).

Solution of Potassium Arsenite should not be affected by hydrochloric acid, but by the subsequent addition of hydrogen sulphide solution, a yellow precipitate should be produced.

If 5 ccm. of it be mixed with 1 g. of sodium bicarbonate, 20 ccm. of water, and a small quantity of starch solution, then in order to produce a permanent blue coloration, 10.1 ccm. of decinormal iodine solution should be required.

Keep with special care, but not for a long time.

LIQUOR NITROGLYCERINI.

Solution of Nitroglycerin.

Take

Nitroglycerin	1 *pt.*

dissolve it in

Alcohol	100 *pts.*

A colorless, clear liquid, showing a neutral reaction. Specific gravity: 0.84.

If 10 ccm. of Solution of Nitroglycerin be mixed with an equal volume of water at 15.5° C., it should give a clear solution which becomes turbid on the further addition of 1 ccm. of water.

Keep with care, protected from light.

LIQUOR PLUMBI SUBACETICI.

Solution of Lead Subacetate. *Lead Vinegar.*

Take

Lead Acetate	3 *pts.*
Lead Oxide	1 *pt.*

triturate them by adding

Distilled Water	0.5 *pts.*

drop by drop; put the resulting yellowish mixture into a covered vessel, and heat on a water-bath, until a homogeneous white or reddish-white mixture is obtained; add

Distilled Water	9.5 *pts.*

allow the liquid to settle in the covered vessel; decant the upper, clear liquid; dilute it with distilled water till it reaches a specific gravity of 1.23—1.24.

A clear, colorless liquid, with a sweet, astringent taste, and showing an alkaline reaction, but not reddening phenolphthalein solution.

Solution of Lead Subacetate acquires, on the addition of ferric chloride solution, a reddish coloration; and on standing, produces a white precipitate soluble in 50 parts of water, while the solution itself becomes dark reddish-colored.

After adding acetic acid, it should produce, with 2 drops of the solution of yellow prussiate of potash, a pure white precipitate.

Keep with care, in well-stoppered bottles.

LIQUOR PLUMBI SUBACETICI DILUTUS.

Dilute Solution of Lead Subacetate.

Aqua Goulardi. *Goulard's Water.*

Take

Solution of Lead Subacetate	2 *pts.*

mix with it

Distilled Water	98 *pts.*

Prepare the solution freshly when wanted.

LITHIUM CARBONICUM.

Lithium Carbonate.

$Li_2CO_3 = 74.06$

A white, light powder, fusible by heating; soluble in 80 parts of water, and in 140 parts of boiling water, showing an alkaline reaction, but insoluble in alcohol.

Lithium Carbonate dissolves with effervescence in nitric acid, yielding a solution which colors a non-luminous flame crimson-red.

It contains not less than 99.2 per cent. of pure lithium carbonate.

Its solution (1 : 50) in water which is acidified with nitric acid, should produce no more than an opalescence with silver nitrate solution; the same solution should neither be affected by barium nitrate solution, nor should produce, after being supersaturated with ammonia water, any change by adding a solution either of hydrogen sulphide or of ammonium oxalate.

If 0.2 g. of it be dissolved in 1 ccm. of hydrochloric acid, evaporated to dryness and cooled, the residue should clearly dissolve in 3 ccm. of alcohol and leave no more than, if any, a very little insoluble matter.

After drying at 100° C., 0.5 g. of it should require, for its neutralisation, at least 13.4 ccm. of normal hydrochloric acid solution.

LYCOPODIUM.

Lycopodium.

The spores of *Lycopodium clavatum* Linn. or of other species of Lycopodium.

A light yellow, very mobile powder, without odor or taste.

When shaken with water or chloroform, Lycopodium floats on the surface, its ingredients not being dissolved, but sinks on being boiled with water.

When examined under the microscope, the powder consists of reticulated, tetrahedral cells with 3 almost flat and 1 convex sides; they are almost of an equal size.

Not more than a small quantity, if any, of broken pieces of the stem and leaves should be found mixed with spores, nor should pollens of pine or of reed-mace, starch, sulphur, etc. be mixed with them.

On incineration, it should leave not more than 5 per cent. of solid residue.

MAGNESIA USTA.

Burnt Magnesia.

$MgO = 40.36$

A light, white, fine powder, almost insoluble in water.

A solution of Burnt Magnesia in dilute sulphuric acid, when mixed with ammonium chloride solution and supersaturated with ammonia water, yields, with sodium phosphate solution, a white crystalline precipitate.

If a mixture of 0.2 g. of it with 10 ccm. of water be heated to boiling, and filtered after cooling, the filtrate shows only a faintly alkaline reaction; 5 ccm. of the same filtrate, when evaporated to dryness, leave no more than a very slight residue. If 5 ccm. of acetic acid be poured on the insoluble matter in the filter-paper, no considerable amount of a gas should be evolved.

If 0.2 g. of it be shaken with 20 cem. of water and filtered, the filtrate should produce no more than an opaleseence, within 5 minutes, with ammonium oxalate solution.

If 0.4 g. of it be dissolved in 10 ccm. of acetie aeid, there should results a eolorless solution which is not affeeted by hydrogen sulphide solution; the same solution should produee, with barium nitrate solution, no more than an opaleseence within 5 minutes, and the same should also be the easc when, after aeidifying it with nitric acid, silver nitrate solution is added to the same solution.

If 20 ecm. of its solution (1 : 20) in water whieh is acidified with hydroehloric aeid, be mixed with 0.5 ecm. of the solution of yellow prussiate of potash, no blue coloration should immediately be produeed.

Keep well closed.

MAGNESIA USTA PONDEROSA.

Heavy Burnt Magnesia.

$MgO = 40.36$

A dense, heavy, white powder, almost insoluble in water; obtained by heating heavy magnesium carbonate strongly.

A solution of Heavy Burnt Magnesia in dilute sulphuric acid, when mixed with ammonium ehloride solution and supersaturated with ammonia water, yields, with sodium phosphate solution, a white crystalline precipitate.

Its tests should eonform with those given under *Magnesia Usta.*

Keep well closed.

MAGNESIUM CARBONICUM.

Magnesium Carbonate.

Light, friable white masses, or a bulky powder, sparingly soluble in water, and showing a slightly alkaline reaction.

Magnesium Carbonate dissolves with effervescence in dilute sulphuric acid, forming a solution which, when mixed with ammonium chloride solution and supersaturated with ammonia water, yields, with sodium phosphate solution, a white crystalline precipitate.

It dissolves with no coloration in dilute hydrochloric acid.

If 1 part of it be boiled with 20 parts of water and filtered, the filtrate, on evaporation, should leave no more than a slight residue.

Its solution (1 : 20) in water acidified with acetic acid, should not be affected by hydrogen sulphide solution; the same solution should produce, with barium nitrate solution, no more than an opalescence within 5 minutes; and the same should also be the same if, after acidifying it with nitric acid, silver nitrate solution be added to the same solution.

If 20 ccm. of its solution (1 : 20) in water which is acidified with nitric acid, be mixed with 0.5 ccm. of the solution of yellow prussiate of potash, no blue coloration should immediately be produced.

If 0.5 g. of it be heated strongly, there should result at least 0.2 g. of the residue which, when shaken with 20 ccm. of water and filtered, should yield a filtrate producing, with ammonium oxalate solution, no more than an opalescence within 5 minutes.

MAGNESIUM CARBONICUM PONDEROSUM.

Heavy Magnesium Carbonate.

Take

Magnesium Sulphate	125 *pts.*
Magnesium Carbonate	150 *pts.*

dissolve them separately in

Distilled Water	250 *pts.*

mix the 2 solutions, and evaporate the mixture to dryness; to the residue add

Boiling Distilled Water	500 *pts.*

extract by warming for half an hour; collect the insoluble portion on a filter; wash it repeatedly with boiling distilled water, until the

washing gives almost no turbidity with barium nitrate solution, and finally dry it at a temparature not above 100° C.

A granular, white powder, completely soluble with effervescence in dilute sulphuric acid, yielding a solution which, when mixed with ammonium chloride solution and oversaturated with ammonia water, yields, with sodium phosphate solution, a white crystalline precipitate.

The tests for Heavy Magnesium Carbonate should conform with those given under *Magnesium Carbonicum*.

On heating strongly, it should lose 58 per cent. of its weight.

MAGNESIUM CITRICUM EFFERVESCENS.

Effervescent Magnesium Citrate.

Take

Magnesium Carbonate	5 *pts.*
Citric Acid	15 *pts.*
Distilled Water	2 *pts.*

mix them thoroughly and dry the mixture at about 30° C.; reduce it to a medium powder; add to it

Sodium bicarbonate, ***in medium powder***	17 *pts.*
Citric Acid, ***in medium powder***	8 *pts.*
Sugar, ***in medium powder***	4 *pts.*

lightly triturate the above mixture by pouring alcohol, drop by drop, until a crummy mass is obtained; dry by a gentle heat, and pass through a sieve so as to get grains of a uniform size.

A white grain, deliquescent in the air; showing an acid reaction, and slowly soluble in water, evolving carbonic acid at the same time.

An aqueous solution (1 : 50) of Effervescent Magnesium Citrate should not be affected by hydrogen sulphide solution; the same solution, after being mixed with an excess of ammonium chloride solution and supersaturated with ammonia water, should give no more than an opalescence with ammonium oxalate solution; the same solution, after being mixed with nitric acid, should produce no more than an opalescence with a solution either of barium nitrate or of silver nitrate.

Its saturated aqueous solution should yield, with potassium acetate solution and a little acetic acid, no crystalline precipitate.

Keep in well-stoppered bottles.

MAGNESIUM SULFURICUM.

Magnesium Sulphate. *Epsom Salt.*

$$MgSO_4 + 7H_2O = 246.56$$

Small, colorless rhombic prisms, with a cooling, saline and bitter taste; scarcely efflorescent in the air; soluble in equal parts of water, and in 0.3 parts of boiling water, showing a neutral reaction, but insoluble in alcohol.

An aqueous solution of Magnesium Sulphate, after being mixed with ammonium chloride solution and ammonia water, produces, with sodium phosphate solution, a white crystalline precipitate; the same aqueous solution produces, with barium nitrate solution, a white precipitate insoluble in acids.

If 2 g. of the salt be triturated with 2 g. of burnt marble, previously disintegrated with a small quantity of water, and a mixture of 10 cem. each, of alcohol and of water be added, and set aside for 2 hours with frequent shakings, and 40 cem. of pure alcohol be added and filtered, then 20 cem. of the filtrate should acquire, after adding 2 cem. of turmeric tincture, no reddish-brown coloration.

If 1 g. of the powdered salt be mixed with 3 cem. of stannous chloride solution, no dark coloration should be produced within an hour.

The aqueous solution (1 : 20) of the salt should not change the color of test-papers; the same solution produces no change with hydrogen sulphide solution, nor should it produce, with silver nitrate solution, any more than an opalescence after 5 minutes.

The aqueous solution (1 : 20) of the salt should, with 0.5 cem. of the solution of yellow prussiate of potash, produce no blue coloration.

MANNA.

Manna.

The concrete exudation of *Fraxinus Ornus* Linn., naturally dried.

Round, flat or canalliculate, crystalline masses, of externally light yellowish, and internally whitish color, having a sweet taste.

If 2 g. of Manna be dissolved in 2 ccm. of water, and 10 times its volume of pure alcohol be added and heated to boiling, and filtered through cotton, and the alcohol evaporated off, then at least 1.5 g. of the residue should be obtained.

MEL.

Honey.

A syrupy liquid, almost colorless, or with a light yellowish or brownish-yellow color; having a characteristic, pleasant odor and a very sweet taste; translucent when fresh, but gradually producing crystalline grains as the time passes.

Honey shows a faintly acid reaction; when examined under the microscope, crystals of sugar and, in most cases, pollen grains are visible.

A solution of 1 part of it in 2 parts of water should have a specific gravity at least of 1.111; the same aqueous solution produces no more than a slight turbidity with a solution either of silver nitrate or of barium nitrate, and should produce no change with an equal volume of ammonia water; 1 ccm. of the same aqueous solution, when mixed with 2 ccm. of alcohol, should produce no more than a slightly turbidity.

If 10 g. of it be diluted with 5 times its volume of water, not more than 0.5 ccm. of normal potassium hydroxide solution should be required for its complete neutralisation.

On incineration, it should leave not more than 0.4 per cent. of solid residue.

MEL DEPURATUM.

Purified Honey.

Take

Honey . . . . . 2 *pts.*

heat it with

Distilled Water . . . . . 3 *pts.*

for an hour on a water-bath; after cooling to about 50° C., strain through a thick woolen cloth, and evaporate as quickly as possible on a water-bath till it gets the specific gravity of 1.33.

Purified Honey has an agreeable pleasant odor; clear when seen by transmitted light, but in a layer of 20 mm. in thickness, it has a yellow or faintly brownish color.

If 1 part of it be mixed with 1 part of ammonia water, no change of color is observed; and 1 part of it, when mixed with 2 parts of alcohol, should not become turbid.

If 1 part of it be mixed with 4 parts of water, a clear solution is obtained, which should produce no more than an opalescence with a solution either of silver nitrate or of barium nitrate.

If 10 g. of it be diluted with 5 times its volume of water, the resulting solution should require, for its complete neutralisation, not more than 0.4 cem. of normal potassium hydroxide solution.

On incineration, it should leave not more than 0.4 per cent. of solid residue.

Keep in well-stoppered bottles, in a cool place.

MEL ROSATUM.

Honey of Rose.

Take

Rose Leaves, *medium cut* . . . . . 1 *pt.*

pour on them

Dilute Alcohol . . . . . 5 *pts.*

extract, in the cold, with frequent shakings for 24 hours; express; with the filtered liquid, mix

Purified Honey	9 *pts.*
Glycerin	1 *pt.*

and evaporate the mixture down to 10 parts.

A clear, brown liquid, having a pleasant odor.

MENTHOLUM.

Menthol.

$C_{10}H_{20}O = 156.2$

Colorless, acicular crystals, with a characteristic, penetrating odor and a burning, followed by a cooling, taste; sparingly soluble in water, showing a neutral reaction, and readily soluble in alcohol, ether, and in chloroform. Melting point: about 43° C. Boiling point: 212° C.

If 1 part of Menthol be mixed with 40 parts of sulphuric acid, there results a turbid, brownish-red liquid which should, after 24 hours, separate a clear, colorless, oily layer having no odor of menthol.

If it be added to a mixture of 1 ccm. of glacial acetic acid, 6 drops of sulphuric acid, and of 1 drop of nitric acid, no coloration should take place.

If 0.1 g. of it be evaporated on a water-bath, no weighable solid residue should be obtained.

Keep in well-stoppered bottles.

METHYL SULFONALUM.

Methyl Sulphonal.

$C_8H_{18}O_4S_2 = 242.3$

Colorless, lustrous, odorless, crystalline scales, soluble in 320 parts of water, and in about 25 parts of boiling water, showing a neutral reaction, readily soluble in alcohol, and in ether. Melting point: 76° C.

When heated with powdered charcoal in a test-tube, Methyl Sulphonal evolves the odor of mercaptan.

If 1 part of it be dissolved in 50 parts of boiling water, no odor should be evolved; if the resulting solution be filtered after cooling, the filtrate should produce no change with a solution either of barium nitrate or of silver nitrate; if 10 ccm. of the same aqueous solution be mixed with 1 drop of potassium permanganate solution, immediate decoloration should not take place.

On heating strongly, 0.1 g. of it should leave no weighable solid residue.

Keep with care.

MINIUM.

Minium.

A red, heavy powder, insoluble in water.

When heated with hydrochloric acid, Minium evolves chlorine and produces a white, crystalline substance.

If 5 g. of it be triturated with 1 g. of oxalic acid and thrown into 20 ccm. of hot nitric acid, and 50 ccm. of hot water be gradually added, a clear solution should be obtained; and the insoluble substance, if any, should be not more than 0.07 g.

Keep with care.

MORPHINUM DIACETYLICUM HYDROCHLORICUM.

Diacetyl Morphine Hydrochloride.

$$C_{21}H_{23}NO_5.HCl = 405.73$$

A white, crystalline powder, easily soluble in water, and in alcohol, showing a neutral reaction, but insoluble in ether. Melting point: about 230° C.

If 0.1 g. of Diacetyl Morphine Hydrochloride be boiled for 2 or 3 minutes with 2 ccm. of dilute sulphuric acid, and then heated

with 2 or 3 drops of alcohol, a pleasant odor of ethyl acetate is evolved; if the above solution be almost neutralised with dilute sodium hydroxide solution (1 : 20), and evaporated to dryness on a water-bath, the resulting residue acquires a red color with nitric acid and a blue color with ferric chloride solution.

Its aqueous solution produces, with silver nitrate solution, a white precipitate insoluble in dilute nitric acid.

Its aqueous solution (1 : 50) should be affected neither by barium nitrate solution, nor by dilute sulphuric acid; the same should also be the case, if 5 ccm. of the same aqueous solution be mixed with 5 drops of the solution of a small quantity of red prussiate of potash in 5 ccm. of water, to which a drop of ferric chloride solution is added; the same aqueous solution, when heated with sodium hydroxide solution, should evolve no ammoniacal vapors.

On heating strongly, 0.01 g. of it should be consumed without leaving any solid residue.

It should dissolve colorless in sulphuric acid, but with a yellow color in nitric acid.

Keep with care, protected from light.

MORPHINUM HYDROCHLORICUM.

Morphine Hydrochloride.

$$C_{17}H_{19}NO_3.HCl + 3H_2O = 375.75$$

White, needle-shaped crystals, with a silky lustre, usually in white, cubical masses soluble in 25 parts of water, and in 50 parts of alcohol, showing a neutral reaction, but insoluble in ether.

A cold, saturated aqueous solution of Morphine Hydrochloride produces crystals on adding hydrochloric acid.

Its aqueous solution produces, with silver nitrate solution, a white, curdy precipitate insoluble in dilute nitric acid.

If a small crystal of it be dissolved in 5 drops of sulphuric acid in a dry test-tube, and heated for 15 minutes in a water-bath and cooled, the solution, on being mixed with a trace of nitric acid, acquires a blood-red coloration.

If 1 part of it be mixed with 4 parts of sugar, and sulphuric acid added, the mixture acquires a red color which becomes distinct on the subsequent addition of 1 drop of bromine water.

When triturated with sulphuric acid, it should dissolve colorless or only with a slightly reddish color, and when bismuth subnitrate is sprinked on that solution, a dark brown color should be produced.

A drop of potassium carbonate solution, when mixed with 5 ccm. of its aqueous solution (1 : 30), produces, immediately or after a few seconds, a pure white, crystalline precipitate which should, on exposure to the air, neither acquire any color nor should, on shaking it with chloroform, color the latter reddish.

A drop of ammonia water, when added to 5 ccm. of its aqueous solution (1 : 30), immediately produces a pure white, crystalline precipitate which easily dissolves colorless in sodium hydroxide solution, but dissolves somewhat difficultly in excess of ammonia water and also in lime water; if the above precipitate be dissolved in sodium hydroxide solution and shaken with an equal volume of ether, the clear ethereal solution, on being separated and evaporated, should leave no weighable residue.

Its aqueous solution should produce no turbidity with barium nitrate solution.

When dried at 100° C., it should diminish not more than 14.4 per cent. in weight, and the dried salt should be pure white, or only very slightly yellowish colored.

On ignition, 0.01 g. of it should leave no solid residue.

Keep with special care.

MORPHINUM SULFURICUM.

Morphine Sulphate.

$$(C_{17}H_{19}NO_3)_2.H_2SO_4 + 5H_2O = 758.64$$

Colorless or white, acicular crystals, having a silky lustre; soluble in 24 parts of water, and in 700 parts of alcohol, showing a neutral reaction, but insoluble in ether.

An aqueous solution of Morphine Sulphate, when mixed with barium nitrate solution, yields a white precipitate insoluble in acids.

The aqueous solution (1: 30) of it, after being acidified with dilute nitric acid, should produce no turbidity with silver nitrate solution.

The salt, when dried at 130° C., should lose not more than 11.9 per cent. of its weight.

Its other tests should conform with those given under *Morphinum Hydrochloricum*.

Keep with special care.

MOSCHUS.

Musk.

The secretion from the preputial follicles of *Moschus moschiferus* Linn.

More or less soft, when fresh, but appearing as a dark brownish or a dark reddish-brown mass consisting of crumbly, unctuous grains, when dried; having a characteristic, penetrating and persistent odor.

When moistened with turpentine oil, and examined under the microscope, Musk consists of almost uniform, semi-translucent, brown pieces or masses, and should be free from other impurities.

It should have no more than a faint odor, if at all, of ammonia.

On incineration, it should leave not more than 8 per cent. of solid residue.

MUCILAGO GUMMI ARABICI.

Mucilage of Gum Arabic.

Wash

Gum Arabic . . . . . 1 *pt.*

quickly with cold distilled water; add to it

Warm Distilled Water . . . . . 2 *pts.*

dissolve it by warming under agitation and strain.

Keep in a cool place, but not for a long time.

MUCILAGO SALEP.

Mucilage of Salep.

Thoroughly mix

Salep, *in medium powder*	1 *pt.*

by shaking with

Distilled Water	9 *pts.*

to the resulting mixture, add

Boiling Distilled Water	90 *p's.*

and shake till it cools.

Prepare freshly when wanted.

MUCILAGO TRAGACANTHÆ.

Mucilage of Tragacanth.

Take

Tragacanth	1 *pt.*
Glycerin	5 *pts.*

triturate them with

Tepid Distilled Water	94 *pts.*

MYRRHA.

Myrrh.

A gum-resin obtained from *Commiphora abyssinica* Engl. and *Commiphora Schimperi* Engl.

Yellowish, reddish or brown, granular or irregular masses; internally often marked, here and there, with whitish veins; translucent when broken into small pieces; having a characteristic aromatic odor, and a bitter, acrid taste.

When triturated with water, Myrrh yields a yellow emulsion.

If 1 g. of its powder be shaken with 2—3 g. of ether and filtered, there results a yellow solution which acquires, when brought in contact with bromine vapor, a pink-violet color.

If it be completely extracted with boiling alcohol, the residue, after being dried, should weigh not more than 70 per cent.

On incineration, it should leave not more than 6 per cent. of solid residue.

NAPHTHALINUM.

Naphtalin.

$C_{10}H_8 = 128.08$

Colorless, shining laminæ or prisms, having a characteristic, penetrating odor and a burning taste, volatilising slowly at ordinary temperatures. Melting point: 80° C. Boiling point: 218° C.

The vapor of Naphtalin is inflammable, burning with a luminous but smoky flame; largely soluble in boiling alcohol, ether, chloroform, and in carbon disulphide, but insoluble in water which, when boiled with it, acquires a faintly aromatic odor and taste.

It is insoluble in sodium hydroxide solution, and should not redden a moistened, blue litmus paper.

On shaking it with sulphuric acid, the latter should acquire only, if any, a slightly reddish tint which should also remain the same, even if the mixture be heated on a water-bath.

On igniting 0.2 g. of it, no weighable solid residue should be obtained.

NAPHTHOLUM.

Naphtol.

$C_{10}H_8O = 144.08$

Colorless, shining, crystalline laminæ, or a white, crystalline powder, with an odor resembling that of carbolic acid, and a sharp, pungent taste; difficultly soluble in water, but soluble in about 75 parts of

boiling water, showing a neutral reaction, easily soluble in alcohol, ether, chloroform, and also in sodium hydroxide solution. Melting point: 122° C. Boiling point: 286° C.

On mixing with ammonia water, its aqueous solution exhibits a violet fluorescence, while with chlorine water, the same solution produces a white turbidity, but becomes clear again, when an excess of ammonia water is added, acquiring at first a green color which afterwards changes to brown.

Its aqueous solution deposits, shortly after adding a solution of ferric chloride, a white flocculent precipitate.

If 1 part of it be added to 50 parts of ammonia water, it dissolves completely without leaving any residue, and should produce no more than a slightly pale yellow coloration.

A hot, saturated aqueous solution of it should acquire no violet color with ferric chloride solution.

On heating strongly, 0.2 g. of it should leave no weighable solid residue.

Keep protected from light.

NATRIO-KALIUM TARTARICUM. *Sal Seignetti.*

Potassium Sodium Tartrate. *Rochelle Salt.*

$$KNaC_4H_4O_6 + 4H_2O = 282.32$$

Colorless, transparent, rhombic prisms, or a white powder, with a mild saline taste; soluble in 1.4 parts of water, showing a neutral reaction, but almost insoluble in alcohol.

When heated strongly, Potassium Sodium Tartrate melts and then carbonises, emitting the odor of burning sugar, and produces a residue which shows an alkaline reaction, and colors a non-luminous flame yellow.

It contains above 98 per cent. of pure potassium sodium tartrate.

An aqueous solution of the salt yields, when mixed with acetic acid, a white crystalline precipitate.

If its aqueous solution (1 : 10) be shaken with 5 ccm. of dilute acetic acid, and after the crystalline precipitate has subsided, the clear solution be diluted with equal parts of water, the resulting solution should produce no change within 1 minute with 8 drops of ammonium oxalate solution.

An aqueous solution (1 : 20) of the salt should not be affected by hydrogen sulphide solution.

If its aqueous solution be mixed with nitric acid, and the crystalline precipitate here produced be filtered off, the filtrate should neither become turbid with barium nitrate solution, nor should it produce, with silver nitrate solution, any more than an opalescence.

When heated with sodium hydroxide solution, the salt should evolve no ammonia.

If 1.41 g. of the salt be strongly heated and completely carbonised, and the resulting residue boiled with water and be filtered, then the filtrate obtained should require, for its complete neutralisation, at least 9.8 ccm. of normal hydrochloric acid solution.

Keep in well-stoppered bottles.

NATRIUM ACETICUM.

Sodium Acetate.

$$NaC_2H_3O_2 + 3H_2O = 136.14$$

Colorless, odorless, transparent crystals, efflorescent in dry air; soluble in 1 part of water, showing a neutral or a slightly alkaline reaction, also soluble in 23 parts of cold, and in 1 part of boiling alcohol.

When heated, Sodium Acetate first dissolves in its own water of crystallisation, then become a white, dry mass which melts again on heating more strongly.

On heating to redness, it carbonises, emitting the odor of acetone, and the resulting solid residue shows a strongly alkaline reaction, and imparts a yellow color to a non-luminous flame.

An aqueous solution of the salt acquires, on adding ferric chloride solution, a dark red color.

The aqueous solution (1 : 20) of the salt produces no change with a solution of hydrogen sulphide, ammonium sulphide, barium nitrate, or of ammonium oxalate. The same aqueous solution, after being mixed with an equal volume of water and a small quantity of nitric acid, produces no change with silver nitrate solution. If 20 ccm. of the same aqueous solution be mixed with 0.5 ccm. of the solution of yellow prussiate of potash, no blue coloration should take place.

Keep in well-stoppered bottles.

NATRIUM BENZOICUM.

Sodium Benzoate.

$NaC_7H_5O_2 = 144.1$

A colorless, amorphous or crystalline powder, soluble in 2 parts of water, and in 50 parts of alcohol; melting and then charring, when heated, leaving finally a residue which reacts alkaline, and imparts a yellow color to a non-luminous flame.

An aqueous solution of Sodium Benzoate yields, with ferric chloride solution, a yellowish-brown precipitate.

If 0.1 g. of the salt be slightly heated, and the resulting residue dissolved in 30 ccm. of water and be filtered, the filtrate obtained, after being acidified with nitric acid, should produce, with silver nitrate solution, no more than an opalescence.

The salt should dissolve with no coloration in sulphuric acid.

The aqueous solution (1 : 20) of the salt shows a slightly acid reaction, and should not become turbid with barium nitrate solution.

NATRIUM BICARBONICUM.

Sodium Bicarbonate.

$NaHCO_3 = 84.06$

White, crystalline masses, or powder, permanent in the air; soluble in 14 parts of water, showing a slightly alkaline reaction, but insoluble in alcohol.

Sodium Bicarbonate imparts, when heated in a non-luminous flame, a yellow color to the latter, and when seen through a cobalt glass, no violet-red color should permanently be visible.

The salt dissolves with effervescence in acids.

If an aqueous solution (1 : 50) of the salt be heated with sodium hydroxide solution, no ammonia should be evolved; the same aqueous solution, after being acidified with acetic acid, produces no change with hydrogen sulphide solution, nor should it produce, with barium nitrate solution, any more than a slight turbidity even after 2 minutes.

Its aqueous solution (1 : 50), after being acidified with nitric acid, remains clear, and produces, on adding silver nitrate solution, no more than an opalescence after 10 minutes; the same aqueous solution should acquire no red color with ferric chloride solution.

If 1 g. of the salt be dissolved, without shaking strongly, in 20 cem. of water, at a temperature not above 15° C., and 3 drops of phenolphthalein solution be added, a red color should not appear immediately, and in cases when a slightly red coloration is produced, it should disappear on adding 0.2 cem. of normal hydrochloric acid solution.

If the salt, after being dried in a sulphuric acid desiccator, be heated to redness, it should leave not more than 63.8 per cent. of solid residue.

NATRIUM BROMATUM.

Sodium Bromide.

NaBr = 103.01

A white, slightly hygroscopic, crystalline powder, soluble in 1.2 parts of water, and in 10 parts of alcohol.

Sodium Bromide imparts, when heated in a non-luminous flame, a yellow color to the latter, and when seen through a cobalt glass, no violet-red color should permanently be visible.

It contains above 95 per cent. of pure sodium bromide.

If its aqueous solution be mixed with a little chlorine water and shaken with ether or chloroform, the latter acquires a reddish-brown color.

If the powdered salt be moistened with 1 or 2 drops of dilute sulphuric acid in a white porcelain dish, no yellow color should immediately be produced.

The powdered salt should not immediately change a moistened, red litmus paper to a violet-blue.

The aqueous solution (1 : 20) of the salt produces no change with a solution either of hydrogen sulphide or of barium nitrate, and the same also with dilute sulphuric acid; 20 ccm. of the same solution, after being acidified with 1 or 2 drops of hydrochloric acid, should acquire no blue coloration with 0.5 ccm. of the solution of yellow prussiate of potash.

If 3 g. of the salt, dried at 100° C., be dissolved in 100 ccm. of water, 10 ccm. of the resulting solution, after being mixed with 1 or 2 drops of potassium chromate solution, should require, in order to produce a permanent red color, not more than 29.3 ccm. of decinormal silver nitrate solution.

Keep in well-stoppered bottles.

NATRIUM CARBONICUM.

Sodium Carbonate.

$Na_2CO_3 + 10H_2O = 286.3$

Colorless, transparent crystals, showing a strongly alkaline reaction; efflorescent in the air; soluble in 1.6 parts of water, and in 0.2 parts of boiling water, but insoluble in alcohol.

Sodium Carbonate imparts, when heated in a non-luminous flame, a yellow color to the latter.

The salt dissolves with effervescence in acids.

It contains 37 per cent. of pure sodium carbonate ($Na_2CO_3 = 106.1$).

An aqueous solution (1 : 20) of the salt should produce no change with hydrogen sulphide solution, nor should the same solution produce, after being supersaturated with acetic acid, any change with a solution either of hydrogen sulphide or of barium nitrate; after being mixed with an excess of nitric acid, the same aqueous solution should produce, with silver nitrate solution, no more than an opalescence within 10 minutes.

If its aqueous solution (1 : 20), after being acidified with sulphuric acid, be mixed with an equal volume of sulphuric acid and after cooling, 1 cem. of ferrous sulphate solution be cautiously added so as to form 2 layers of liquids, no brownish ring should appear at their contact surface; the same solution should not decolorise an iodine solution.

If the salt be warmed with sodium hydroxide solution, no ammonia should be evolved.

In order to neutralise 1 g. of the salt, at least 7 ccm. of normal hydrochloric acid solution should be required.

Keep in well-stoppered bottles.

NATRIUM CARBONICUM CRUDUM.

Crude Sodium Carbonate.

Colorless crystals, or crystalline masses, efflorescent in the air; soluble in 2 parts of water, showing a strongly alkaline reaction.

Crude Sodium Carbonate imparts, when heated in a non-luminous flame, a yellow color to the latter.

The salt dissolves with effervescence in acids.

The salt contains above 34.5 per cent. of pure Sodium Carbonate ($Na_2CO_3 = 106.1$).

In order to neutralise 1 g. of the salt, at least 6.5 ccm. of normal hydrochloric acid solution should be required.

NATRIUM CARBONICUM SICCUM.

Anhydrous Sodium Carbonate.

Reduce sodium carbonate to a coarse powder, and allow it to effloresce completely at a temperature not above 25° C., protecting at the same time from dust, then dry at 40°—50° C. till it loses about one-half of its weight; finally pass through a sieve.

A white, bulky powder which does not stick together by pressing.

The tests for Anhydrous Sodium Carbonate should conform with those given under *Natrium Carbonicum*.

In order to neutralise 1 g. of the salt, at least 14 ccm. of normal hydrochloric acid solution should be required.

Keep in well-stoppered bottles.

NATRIUM CHLORATUM.

Sodium Chloride.

$NaCl = 58.5$

White, cubical crystals, or a white, crystalline powder, having a pure saline taste; permanent in the air; soluble in 2.7 parts of water, showing a neutral reaction, but insoluble in alcohol.

Sodium Chloride imparts, when heated in a non-luminous flame, a yellow color to the latter, and when seen through a cobalt glass, no violet-red color should permanently be visible.

An aqueous solution of the salt produces, when mixed with silver nitrate solution, a white, curdy precipitate soluble in ammonia water.

The aqueous solution (1 : 20) of the salt produces no change with a solution either of hydrogen sulphide or of barium nitrate, and the same also with dilute sulphuric acid; the same aqueous solution, after being mixed with ammonia water, produces no change with a solution either of ammonium oxalate or of sodium phoshate; 20 cem. of the same aqueous solution should acquire no blue color with 0.5 cem. of the solution of yellow prussiate of potash.

NATRIUM IODATUM.

Sodium Iodide.

NaI=149.9

A dry, white, crystalline powder, having a bitter, saline taste; deliqueseent; soluble in 0.6 parts of water, and in 3 parts of alcohol.

Sodium Iodide imparts, when heated in a non-luminous flame, a yellow color to the latter, and when seen through a cobalt glass, no violet-red color should permanently be visible.

It contains above 95 per cent. of pure sodium iodide.

If an aqueous solution of the salt be mixed with a small quantity of chlorine water, and shaken with chloroform, the latter acquires a violet coloration.

The powdered salt should not immediately change the color of a moistened, red litmus paper to violet-blue.

The aqueous solution (1 : 20) of the salt produces no change with a solution either of hydrogen sulphide or of barium nitrate; if the same aqueous solution be slightly warmed with a small quantity of sodium hydroxide solution, a piece of ferrous sulphate, and 5 drops of ferric chloride solution and cooled, the mixture, on being supersaturated with hydrochloric acid should acquire no blue color.

If 1 part of the salt be dissolved in 19 parts of water, which has freshly been boiled and cooled, and the resulting solution be mixed with a starch solution and dilute sulphuric acid, no immediate coloration should take place.

If 20 cem. of its aqueous solution (1 : 20) be acidified with 2 or 3 drops of hydrochloric acid, and mixed with 0.5 cem. of the solution of yellow prussiate of potash, no blue coloration should take place.

If 1 g. of the salt be heated with a mixture of 5 ccm. of sodium hydroxide solution and 0.5 g. each, of zinc and of iron powder, no ammonia should be evolved.

If 0.2 g. of the dried salt be dissolved in 2 ccm. of ammonia water, and 14 ccm. of decinormal silver nitrate solution be added to it under agitation, then the solution, which is obtained by filtering, on being supersaturated with nitric acid, should neither become turbid nor colored within 10 minutes.

Keep in well-stoppered bottles.

NATRIUM NITRICUM.

Sodium Nitrate.

$NaNO_3 = 85.09$

Colorless, transparent, rhombohedral crystals, or a crystalline powder, having a cooling, saline and slightly bitter taste; hygroscopical; soluble in 1.3 parts of water, and in 50 parts of alcohol, showing a neutral reaction.

If an aqueous solution of Sodium Nitrate be mixed with a saturated solution of ferrous sulphate, and sulphuric acid be added to the mixture, a blackish-brown coloration should be produced.

If it be taken on a platinum wire loop, and heated in a non-luminous flame, a yellow coloration is imparted to the latter, and when seen through a cobalt glass, no violet-red color should permanently be visible.

The aqueous solution (1 : 20) of the salt produces no change with hydrogen sulphide solution, nor should it produce, after being mixed with ammonia water, any change with a solution either of ammonium oxalate or of sodium phosphate; the same aqueous solution should produce no change, within 5 minutes, with a solution either of silver nitrate or of barium nitrate.

If 5 ccm. of its aqueous solution (1 : 20) be added to a mixture of dilute sulphuric acid and a solution of zinc iodide and starch, no blue coloration should immediately be produced; if the same aqueous solution be mixed with a small quantity of chlorine water and shaken with chloroform, the latter should acquire no violet coloration.

If 10 ccm. of its aqueous solution (1 : 20) be mixed with 0.2 ccm. of the solution of yellow prussiate of potash, no change should take place.

Keep in well-stoppered bottles.

NATRIUM PHOSPHORICUM.

Sodium Phosphate.

$$Na_2HPO_4 + 12H_2O = 358.35$$

Colorless, transparent crystals, efflorescent in dry air; soluble in 5.8 parts of water, showing an alkaline reaction. Melting point: 40° C.

Sodium Phosphate imparts, when heated in a non-luminous flame, a yellow color to the latter, and when seen through a cobalt glass, no violet-red color should permanently be visible.

An aqueous solution of the salt, when mixed with silver nitrate solution, produces a yellow precipitate which is soluble both in nitric acid and in ammonia water, and which does not turn brown on warming.

If 1 g. of the powdered and dehydrated salt be mixed with 3 ccm. of stannous chloride solution, no dark coloration should be produced within an hour.

The aqueous solution (1 : 20) of the salt should produce no change with hydrogen sulphide solution; the same aqueous solution, on being acidified with nitric acid, should produce no effervescence; and the same, acidified aqueous solution produces only opalescence, after 3 minutes, with a solution either of barium nitrate or of silver nitrate; 20 ccm. of the same aqueous solution should produce no change with 0.5 ccm. of the solution of yellow prussiate of potash.

On heating 1 g. of the salt to redness, 0.37—0.38 g. of a white residue should be obtained.

Keep in well-stoppered bottles.

NATRIUM SALICYLICUM.

Sodium Salicylate.

$NaC_7H_5O_3 = 160.1$

White, odorless scales, or a crystalline powder, having a sweetish, saline and slightly bitter taste; soluble in 1 part of water, and in 6 parts of alcohol.

When heated in a test-tube, Sodium Salicylate carbonises, giving off white vapors, and the residue dissolves with effervescence in acids, and imparts a yellow color to a non-luminous flame.

An aqueous solution of the salt yields, on adding hydrochloric acid, white crystals easily soluble in ether.

A very dilute aqueous solution (1 : 1000) of the salt acquires a violet color on adding ferric chloride solution.

The aqueous solution (1 : 5) of the salt is either colorless or slightly reddish, and the reaction, if acid, should be only very slight.

If 0.1 g. of the salt be mixed with 1 ccm. of sulphuric acid, it should dissolve with no effervescence, and also with almost no coloration.

The aqueous solution (1 : 20) of the salt should produce no change with a solution either of hydrogen sulphide or of barium nitrate; 2 volumes of the same aqueous solution, when mixed with 3 volumes of alcohol and acidified with nitric acid, should produce no more than an opalescence with silver nitrate solution.

On heating 1 g. of the salt to redness, it should leave about 0.32 g. of solid residue.

NATRIUM SULFOCARBOLICUM.

Sodium Sulphocarbolate.

$NaC_6H_5O_4S + 2H_2O = 232.2$

Colorless, transparent prisms, having no or almost no odor, but with a cooling, saline and slightly bitter taste; soluble in 6 parts of water, and in 150 parts of alcohol, showing a neutral reaction.

Sodium Sulphocarbolate carbonises, when heated, evolving the odor of carbolic acid, and finally leaves, on ignition, a solid residue which imparts, when heated in a non-luminous flame, a yellow color to the latter.

A dilute aqueous solution of the salt acquires, on adding ferric chloride solution, a violet coloration.

The aqueous solution (1 : 20) of the salt produces no change with a solution either of hydrogen sulphide or of ammonium sulphide; the same aqueous solution should produce no more than an opalescence with a solution either of barium nitrate or of silver nitrate.

On heating 1 g. of the salt to redness, about 0.3 g. of solid residue should be obtained.

When dried at 125° C., the salt should lose about 15.5 per cent. of its weight.

NATRIUM SULFURICUM.

Sodium Sulphate.

$$Na_2SO_4 + 10H_2O = 322.36$$

Colorless crystals, having a cooling, saline and slightly bitter taste; efflorescent in dry air; soluble in 3 parts of cold water, in 0.3 parts of water at 33° C., and in 0.4 parts of water at 100° C., but insoluble in alcohol; reacting neutral to test-papers, and easily melting when heated.

Sodium Sulphate, when heated in a non-luminous flame, imparts a yellow color to the latter.

An aqueous solution of the salt produces, on being mixed with barium nitrate solution, a white precipitate insoluble in acids.

If 1 g. of the finely powdered, anhydrous salt be mixed with 3 ccm. of stannous chloride solution, no dark coloration should take place within an hour.

The aqueous solution (1 : 20) of the salt produces no change with a solution either of hydrogen sulphide, or of sodium phosphate after adding ammonia water; the same aqueous solution should, with a solution of silver nitrate, produce no change within 5 minutes.

If 20 ccm. of its aqueous solution (1 : 20) be mixed with 0.5 ccm. of the solution of yellow prussiate of potash, no change should take place.

On heating the salt with sodium hydroxide solution, no ammonia should be evolved.

If 2 ccm. of its aqueous solution acidified with sulphuric acid, be mixed with an equal volume of sulphuric acid, and after cooling, 1 ccm. of ferrous sulphate solution be added so as to form 2 layers of liquids, no brownish ring should be formed at their contact surface.

Keep in well-stoppered bottles.

NATRIUM SULFURICUM SICCUM.

Anhydrous Sodium Sulphate.

After allowing coarsely powdered sodium sulphate to effloresce completely at a temperature not above 25° C., dry it at 40°—50° C., and when one-half of its weight is lost, pass it through a sieve.

A white, bulky powder, not sticking together even when pressed.

The tests for Anhydrous Sodium Sulphate should conform with those mentioned under *Natrium Sulfuricum*, an aqueous solution (1 : 40) being used.

NATRUM CAUSTICUM.

Sodium Hydroxide.

$NaOH = 40.06$

Dry, white masses or pencils, showing a crystalline fracture; strongly caustic; deliquescent in the air, and easily soluble in water.

Sodium Hydroxide, when heated in a non-luminous flame, imparts a yellow color to the latter.

It should contain above 90 per cent. of pure sodium hydroxide.

A aqueous solution of it, on being mixed with an excess of tartaric acid solution, should produce no change.

If 1 g. of it be dissolved in 2 ccm. of water, and 10 ccm. of alcohol added, a very slight precipitate should only be produced after a short time.

If 1 g. of it be dissolved in 10 ccm. of water, and the solution boiled with 20 ccm. of lime water, and be filtered, the filtrate should, on being poured into an excess of hydrochloric acid, produce no effervescence.

If 5 ccm. of its dilute sulphuric acid solution (1 : 20) be mixed with 2 ccm. of sulphuric acid, and after cooling, 1 ccm. of saturated ferrous sulphate solution be carefully poured on to the mixture so as to form 2 separate layers of liquids, no brownish ring should appear at their contact surface.

Its aqueous solution (1 : 50), after being acidified with nitric acid, should neither produce immediately any change with barium nitrate solution, nor produce any more than an opalescence with silver nitrate solution.

In order to neutralise 10 ccm. of its aqueous solution prepared by dissolving 4 g. in 100 ccm. of water, at least 9 ccm. of normal hydrochloric acid solution should be required.

Keep with care, in well-stoppered bottles.

NITROGLYCERINUM.

Nitroglycerin.

$C_3H_5N_3O_9 = 227.17$

A colorless, odorless, oily liquid of a sweet taste; soluble in 800 parts of water, and in 4 parts of alcohol; miscible, in all proportions, with ether, chlorform, acetic acid, and also with fats.

Nitroglycerin explodes when struck or suddenly heated to 200° C., and often spontaneously also by accident.

Its aqueous solution should show no more than a slightly acid reaction, and produce no precipitate with barium nitrate solution.

It can only be preserved as an alcoholic solution (1 : 100).

Keep with special care, protected from light.

OLEUM AMYGDALARUM.

Almond Oil.

A thin fatty oil obtained by expression from bitter or sweet almond.

A clear, light yellow liquid, almost inodorous; having a bland taste. Specific gravity: 0.915—0.920.

Almond Oil should be free from rancid odor or taste, not solidifying even when cooled to −10° C.

If 2 ccm. of the oil be strongly shaken with a mixture of fuming nitric acid and of water, each 1 ccm., a whitish mixture should be formed, and no red or brown color should be produced; the above mixture, after standing for 2—6 hours, should separate into a white solid mass and an almost colorless liquid.

If 10 ccm. of the oil be mixed with 15 ccm. of sodium hydroxide solution and 10 ccm. of alcohol, and the mixture be allowed to stand at a temperature of 35°—40° C. until it becomes clear, and diluted with 100 ccm. of water, a clear solution is obtained; the oily liquid, which is set free by adding an excess of hydrochloric acid to the above clear solution, is separated, washed with warm water, and left on a water-bath, then the clear oil thus prepared should remain in oily state at 15° C., and 1 volume of that oil should dissolve clearly in 1 volume of alcohol, and the alcoholic solution should deposit no solid fatty acid at 15° C., and also produce no turbidity on the fresh addition of 1 volume of alcohol.

Dissolve about 0.2 g. of the oil in 15 ccm. of chloroform in a glass-stoppered bottle; add 10 ccm. each, of alcoholic solutions of iodine and of mercuric chloride, and if, after setting aside the above mixture for 4 hours, protected from direct sun-light, 2.5 g. of potassium iodide and 100 ccm. of water be added, and the resulting solution be decolorised by titrating the excess of iodine with decinormal sodium thiosulphate solution, then 100 parts of the oil should absorb more than 95 parts, but not more than 100 parts of iodine.

OLEUM AURANTII CORTICIS.

Oil of Orange Peel.

A volatile oil obtained by expression from the peel of the fruit of several species of Citrus.

A colorless or yellowish, thin liquid, having a characteristic, aromatic odor and a somewhat bitter taste; not clearly miscible with equal parts of alcohol, and exploding violently when mixed with iodine. Specific gravity: 0.85—0.86.

OLEUM AURANTII FLORUM.

Oil of Orange Flower.

A volatile oil obtained by distilling the fresh flowers of the several species of Citrus with water.

A brownish-yellow, thin liquid, showing a neutral reaction; having a very pleasant odor; clearly miscible with 1—2 parts of alcohol. Specific gravity: 0.86—0.88.

If a small quantity of Oil of Orange Flower be taken into a test-tube, and a little alcohol be carefully added so as to form 2 layers of liquids, then a beautiful, violet fluorescence is produced on agitation.

OLEUM BERGAMOTTÆ.

Bergamot Oil.

A thin volatile oil obtained by expression from the fresh pericarp of *Citrus Bergamia* Risso et Poiteau.

A greenish or greenish-yellow liquid, having a very pleasant, characteristic odor and an aromatic, bitter taste; miscible, in all proportions, with glacial acetic acid. Specific gravity: 0.880—0.886.

If 2 volumes of Bergamot Oil be mixed with 1 volume of alcohol, a clear, slightly acid liquid should be formed, and should, on the further addition of a large quantity of alcohol, not become turbid.

If 1 volume of the oil be mixed at 20° C. with 1.5—2.0 volumes of a mixture of 80 cem. of alcohol and 10 cem. of water, a clear solution should be obtained, and no oily drops should be deposited, though it might become turbid.

If about 2 g. of the oil be evaporated on a water-bath, until its odor ceases to be recognised, not more than 6 per cent. of a soft, green, homogeneous substance should be left behind.

If 1 cem. of the oil be shaken with the mixture of 5 cem. of water and 5 drops of acetic acid, and filtered, the filtrate should produce, with hydrogen sulphide solution, no more than a slight coloration.

Keep in well-stoppered bottles, protected from light, in a cool place.

OLEUM CACAO.

Butter of Cacao.

The fat obtained by expression from the peeled seed of *Theobroma Cacao* Linn.

A white or faintly yellowish solid, having a weak characteristic odor and a mild taste; hard and brittle at 15° C. Melting point: 30°—33° C.

Butter of Cacao should have no rancid smell.

A solution of 1 part of it in 2 parts of ether should not become turbid at 12°—15° C. within a day.

Dissolve 0.5 g. of it in 15 cem. of chloroform in a glass-stoppered bottle; add 10 cem. each, of alcoholic iodine solution and of alcoholic mercuric chloride solution, and if, after setting aside the above mixture for 4 hours, protected from direct sun-light, 2.5 g. of potassium iodide and 100 cem. of water be added, and the resulting solution be decolorised by pouring in, drop by drop, decinormal sodium thiosulphate solution, then 100 parts of the oil should absorb more than 34 parts, but not more than 38 parts of iodine.

OLEUM CAJEPUTI.

Oil of Cajuput.

A volatile oil obtained by distilling the leaves of *Melaleuca Leucadendron* Linn. with water.

A colorless or light yellowish or greenish, neutral, thin liquid, having a characteristic camphoraceous, penetrating odor; miscible clearly, in all proportions, with alcohol. Specific gravity: 0.91—0.93.

If 5 cem. of Oil of Cajuput be gradually mixed with 1 g. of iodine at 50° C. and cooled, it solidifies to a crystalline mass.

If 1 cem. of the oil be mixed with 20 cem. of water, and then shaken with a drop of acetic acid, no coloration should take place on adding a drop of the solution of yellow prussiate of potash.

OLEUM CAMPHORATUM.

Camphorated Oil.

Take

Camphor . . . . . 1 *pt.*

dissolve it in

Olive Oil . . . . . 4 *pts.*

and filter.

OLEUM CANTHARIDATUM.

Oil of Cantharides.

Take

Cantharides, *in medium powder* . . . . . 3 *pts.*

Olive Oil . . . . . 10 *pts.*

in a glass flask; cork it tightly; warm on a water-bath with occasional shakings for 10 hours; press and filter the resulting oil.

A greenish-yellow liquid.

OLEUM CARYOPHYLLORUM.

Oil of Cloves.

A volatile oil obtained by distilling cloves with water.

A clear, colorless or yellowish, somewhat thick liquid, having a characteristic odor, and becoming gradually brown in the air; sparingly soluble in water, but readily in alcohol, ether, and in glacial acetic acid. Specific gravity: 1.060—1.074.

If 5 drops of Oil of Cloves be strongly shaken with 10 ccm. of lime water, the mixture separates into a soft, flocculent, crystalline mass and a yellow liquid.

If 2 drops of the oil be dissolved in 4 ccm. of alcohol, and a drop of ferric chloride solution added, a green color will be produced.

If 1 g. of the oil be shaken with 20 ccm. of hot water and filtered after cooling, the resulting clear filtrate shows a neutral reaction, and should acquire, with a drop of ferric chloride solution, only a grayish-green, but not a blue color.

If 1 ccm. of the oil be shaken with 5 ccm. of dilute acetic acid and filtered, the resulting filtrate should not be more than slightly colored, if at all, by hydrogen sulphide solution.

If 1 part of the oil be mixed with 2 parts of dilute alcohol, a clear solution should be obtained.

If 1 part of the oil be mixed with a solution of 1 g. of sodium salicylate in 1 ccm. of water, a clear solution should be obtained.

If 1 drop of the oil be added to 5 ccm. of nitric acid (specific gravity: 1.4), neither a red coloration should take place, nor should the coloration, if any, be permanent.

OLEUM CHLOROFORMII.

Chloroform Oil.

Mix

Chloroform	1 *pt.*
Olive Oil	1 *pt.*

A clear, yellow liquid, with an odor resembling that of chloroform.

OLEUM CINNAMOMI.

Oil of Cassia.

A volatile oil obtained by distilling cassia bark with water.

A clear, yellow or brownish, somewhat thick liquid, having a characteristic odor and a burning, slightly sweet taste, and showing a slightly acid reaction; soluble in 3 parts of dilute alcohol, and clearly miscible, in all proportions, with alcohol. Specific gravity: 1.055—1.070.

Oil of Cassia contains above 70 per cent. by volume of pure cinnamic aldehyde ($C_9H_8O=132.08$).

If 4 drops of it be shaken with 4 drops of crude nitric acid, it forms, at a temperature not above 5° C., a white, crystalline mass.

A solution of 4 drops of the oil in 10 ccm. of alcohol should acquire, with a few drops of ferric chloride solution, only a brown but not a green or blue coloration.

A solution of 1 part of the oil in 3—4 parts of dilute alcohol, when mixed with one-half its volume of a freshly prepared, saturated solution of lead acetate in dilute alcohol, should produce no precipitate at ordinary temperatures.

If 5 ccm. of the oil be mixed with 45 ccm. of sodium bisulphite solution, and warmed on a water-bath with occasional shakings for 2 hours, there should remain not more than 1.5 ccm. of insoluble substance.

When evaporated to dryness on a water-bath, it should leave not more than 8 per cent. of residue.

If 1 ccm. of the oil be shaken with 5 ccm. of dilute acetic acid and filtered, the resulting filtrate should, after being mixed with 5 ccm. of alcohol, produce no precipitate, after 3 hours, by passing hydrogen sulphide.

OLEUM CITRI. *Oleum Limonis.*

Oil of Citron. *Oil of Lemon.*

A volatile oil obtained from the fresh peel of lemon.

A light yellow, thin liquid, having a characteristic, aromatic odor and a somewhat bitter taste; clearly miscible with about 7 parts of alcohol, and exploding violently when mixed with iodine. Specific gravity: 9.858—0.861.

OLEUM CROTONIS.

Croton Oil.

A fatty oil obtained by expression from the peeled seeds of *Croton Tiglium* Linn.

A brownish-yellow, somewhat thick liquid, having a characteristic, disagreeable odor, and showing an acid reaction; soluble by warming in 2 volumes of absolute alcohol, and producing rubefaction when applied to the skin. Specific gravity: 0.94—0.96.

If 2 ccm. of Croton Oil be strongly shaken with a mixture of 1 ccm. each, of fuming nitric acid and of water, the mixture should neither completely nor partially solidify within 1—2 days.

If 1 drop of the oil be mixed with 20 drops of sulphuric acid, a clear, dark brown liquid should be obtained.

If a piece of paper, moistened with the oil, be set on fire and blown out, it should not emit the odor like that of burning animal fat.

Keep with special care, in well-stoppered bottles.

OLEUM EUCALYPTI.

Oil of Eucalyptus.

A volatile oil obtained by distilling ths leaves of Eucalyptus with water.

A clear, colorless or pale yellow, thin liquid, having a characteristic, fragrant odor, and showing a neutral reaction; clearly miscible, in all proportions, with alcohol, and not exploding when mixed with iodine.

If 1 ccm. of Oil of Eucalyptus be mixed with 2 ccm. of glacial acetic acid, and 2 ccm. of the saturated aqueous solution of sodium nitrite be added, the mixture, on being gently shaken, should form no crystalline masses.

OLEUM FŒNICULI.

Oil of Fennel.

A volatile oil obtained by distilling fennel with water.

A colorless or yellowish liquid, having a characteristic, fragrant odor and a sweetish, slightly bitter, camphoraceous taste; soluble in an equal volume of alcohol. Specific gravity: 0.965—0.975.

On cooling to 0° C., Oil of Fennel deposits crystals which completely melt again at 5° C.

OLEUM GYNOCARDIÆ.

Oil of Gynocardia.

A whitish or yellowish, ointment-like mass, having a weak characteristic odor and a characteristic, fat-like, not acrid taste; melting at 25°—20° C. to a clear liquid.

OLEUM HYOSCYAMI.

Oil of Hyoscyamus.

Take

Hyoscyamus Leaves, *medium cut* . . . . . 4 *pts.*

moisten them with

Alcohol . . . . . 3 *pts.*

set aside for 2—3 hours; add to them

Olive Oil . . . . . 40 *pts.*

warm the mixture on a water-bath, until the alcohol is completely volatilised; press and filter the resulting liquid.

A brownish-green liquid.

OLEUM JECORIS.

Cod Liver Oil.

A fatty oil obtained from the liver of several species of Gadus.

A clear, straw-yellow or golden-yellow liquid, having a weak characteristic odor and a mild taste. Specific gravity: 0.924—0.931.

If 5 drops of Cod Liver Oil be mixed with a drop of sulphuric acid, the mixture acquires a bluish-violet or a violet-red coloration.

If 15 drops of the oil be shaken with 3 drops of fuming nitric acid, the mixture acquires a rose color changing afterwards to lemon-yellow.

The oil should have no disagreeable, rancid odor or taste, and should only slightly redden, if at all, a blue litmus paper which is moistened with alcohol.

On leaving for about 3 hours at 0° C., the oil should remain clear, and deposit no white solid substance.

A mixture of 1 volume each, of the oil and of nitric acid, and a small quantity of copper filings, should remain, for a long time, in a clear liquid state.

If 1 ccm. of the oil be shaken with 5 ccm. of dilute acetic acid and filtered, the resulting filtrate should not be affected by hydrogen sulphide solution.

OLEUM JUNIPERI.

Oil of Juniper.

A volatile oil obtained by distilling juniper with water.

A clear, colorless or pale yellowish, thin liquid, having a characteristic, fragrant taste; soluble with a slight turbidity in 10 parts of alcohol, but soluble clearly in carbon disulphide. Specific gravity: 0.865—0.880.

OLEUM LAURI.

Oil of Bay.

A mixture of the fatty and volatile oils, obtained by expression from the fruit of *Laurus nobilis* Linn.

A green, crystalline, ointment-like mass, melting at about 40° C. to a dark green, aromatic liquid which is soluble both in ether and in benzene.

If 1 part of Oil of Bay be heated with 2 parts of alcohol and cooled, then the liquid obtained by decantation should not be colored brown on adding ammonia water.

OLEUM LAVANDULÆ.

Oil of Lavender.

A volatile oil obtained by distilling the flowers of lavender with water.

A colorless or yellowish liquid, having an agreeable, aromatic odor and a somewhat bitter taste; clearly soluble in 3 parts of dilute alcohol. Specific gravity: 0.885–0.900.

If 1 g. of Oil of Lavender be heated with a reversed condenser on a water-bath for half an hour, with 10 ccm. of half-normal potassium hydroxide solution, and after cooling, 1 or 2 drops of phenolphthalein solution be added, and decolorised by titrating back the excess of the alkali with half-normal hydrochloric acid solution, then not more than 7 ccm. of the latter solution should be required.

OLEUM LINI.

Linseed Oil.

A fatty oil obtained by expression from linseed.

A clear, yellow liquid, having a characteristic odor; remaining in a liquid state even at −20° C., but drying when left aside in a thin layer. Specific gravity: 0.93–0.94.

If 20 parts of Linseed Oil be warmed in a deep, spacious porcelain dish on a water-bath, and a mixture of 27 parts of potassium hydroxide and 2 parts of alcohol added under agitation, and the oil completely saponified, the soap thereby produced should dissolve completely without leaving any residue.

If a piece of paper, moistened with the oil, be set on fire and blown out, it should emit no odor like that of burning animal fat.

A mixture of a small quantity of copper filings with 1 volume each, of the oil and of nitric acid, after standing for a long time, should remain in a clear liquid state.

If 1 ccm. of the oil be shaken with 5 ccm. of dilute acetic acid and filtered, the filtrate, on being mixed with 5 ccm. of alcohol, should yield, by passing hydrogen sulphide gas, no precipitate after 3 hours.

Dissolve about 0.1 g. of the oil in 15 ccm. of chloroform in a glass-stoppered bottle; add 10 ccm. each, of alcoholic iodine solution and of alcoholic mercuric chloride solution, and set aside the mixture for 18 hours, protected from direct sun-light; add 2.5 g. of potassium iodide and 100 ccm. of water, and decolorise the resulting solution by pouring in, drop by drop, decinormal sodium thiosulphate solution, then 100 parts of the oil should absorb more than 150 parts of iodine.

OLEUM MENTHÆ.

Peppermint Oil.

A volatile oil obtained by distilling the leaves of peppermint with water, and removing the solid ingredient which separates on cooling.

A clear, colorless or yellowish, thin liquid, having a characteristic, penetrating odor, with a burning and cooling after-taste; producing no heat when brought in contact with iodine; clearly miscible, in all proportions, with alcohol. Specific gravity: 0.90–0.91.

If 1 ccm. of Peppermint Oil be added, at about 15° C., to 3.5 ccm. of the mixture of 29.5 ccm. of water and 100 ccm. of alcohol, it should dissolve clearly, and produce no more than an opalescence on the further addition of 5–10 ccm. of the same mixture.

If 1 drop of the oil be mixed with 5 ccm. of nitric acid (specific gravity: 1.4), no permanent red coloration, if any, should take place.

OLEUM MYRISTICÆ ÆTHEREUM.

Ethereal Oil of Nutmeg.

A volatile oil obtained by distilling nutmeg with water.

A colorless or pale yellow liquid, having an odor and taste of nutmeg. Specific gravity: 0.87—0.91.

If 1 volume of Ethereal Oil of Nutmeg be added to 1 volume of the mixture of 24 volumes of absolute alcohol and 1 volume of water, a clear solution should be obtained.

If about 5 ccm. of the oil be evaporated to dryness on a water-bath, it should leave no residue which deposits crystals on cooling.

OLEUM OLIVARUM.

Olive Oil.

A fatty oil obtained by expression in the cold from the fruit of *Olea europæa* Linn.

A pale greenish or yellow liquid, having a faint characteristic odor and a mild taste, free from rancidity. Specific gravity: 0.915—0.920.

Olive Oil becomes turbid at about 10° C. and deposits crystalline substances, and it forms at 0° C. an ointment-like mass.

If 2 ccm. of the oil be shaken strongly at 10° C. with a mixture of 1 ccm. each, of fuming nitric acid and of water, neither red nor brown coloration should take place, but there results a greenish-white mixture which, after 2—6 hours, separates into a white solid mass and an almost colorless liquid.

If 1 g. of the oil be added to the mixture of 1 g. each, of carbon disulphide, and of the cooled mixture of 1 volume of sulphuric acid and 2 volumes of nitric acid, and shaken for 1 or 2 minutes, neither green nor red layer of liquid should be formed.

If 5 ccm. of the oil be shaken in a test-tube with a solution obtained by dissolving 0.05 g. of silver nitrate in a mixture of 3.8 ccm. of ether, 12 ccm. of alcohol and 2 drops of dilute nitric acid, and heated for 15 minutes in a water-bath, neither brown nor black coloration should be produced.

Dissolve about 0.2 g. of the oil in 15 ccm. of chloroform in a glass-stoppered bottle; add 10 ccm. each, of alcoholic iodine solution and of alcoholic mercuric chloride solution, and set aside the mixture for 4 hours, protected from direct sun-light; add 2.5 g. of potassium iodide and 100 ccm. of water, and decolorise the resulting solution by pouring in, drop by drop, decinormal sodium thiosulphate solution, then 100 parts of the oil should absorb more than 80 parts, but not more than 86 parts of iodine.

OLEUM RESINÆ EMPYREUMATICUM.

Oil of Empyreumatic Resin.

A resin oil obtained by the dry distillation of colophonium.

A clear, yellow or yellowish-brown, thick liquid, with an empyreumatic odor, completely soluble in ether, chloroform, and also in glacial acetic acid. Specific gravity: 0.96—0.99.

OLEUM RICINI.

Castor Oil.

A fatty oil obtained by expression from the husked seeds of *Ricinus communis* Linn.

A clear, colorless or yellowish, thick liquid, with a faint characteristic odor and a bland, afterwards slightly acrid taste; soluble, in all proportions, in absolute alcohol and in glacial acetic acid, and also in 3 parts of alcohol. Specific gravity: 0.95—0.97.

When cooled to 0° C., Castor Oil becomes thick or turbid, and on further cooling, it congeals to a butter-like mass.

A mixture of 3 ccm. each, of the oil and of carbon disulphide with 1 ccm. of sulphuric acid should not, after shaking for 3 minutes, acquire a blackish-brown coloration.

OLEUM ROSÆ.

Rose Oil.

A volatile oil obtained by distilling the flowers of several species of Rosa with water.

A pale yellowish liquid, having a characteristic, agreeable, fragrant odor; miscible clearly with about 100 parts of alcohol.

Rose Oil deposits acicular crystals at 18°—21° C., melting at a somewhat higher temperature.

OLEUM ROSMARINI.

Oil of Rosemary.

A volatile oil obtained by distilling the fresh flowers of *Rosmarinus officinalis* Linn. with water.

A colorless or greenish-yellow, thin liquid, having a camphoraceous, penetrating, aromatic odor and taste; soluble clearly in an equal volume of carbon disulphide, and in half its volume of alcohol. Specific gravity: 0.900—0.915.

OLEUM SABINÆ.

Oil of Savin.

A volatile oil obtained by distilling the twigs of *Juniperus Sabina* Linn. with water.

A colorless or yellowish, thin liquid, having a disagreeable, narcotic odor and a camphoraceous taste. Specific gravity: 0.895—0.940.

Oil of Savin should dissolve in equal volumes of alcohol and of glacial acetic acid.

Keep with care in well-stoppered bottles.

OLEUM SANTALI.

Oil of Santal.

A volatile oil obtained by distilling Sandal Wood with water.

A pale yellowish or yellow, thick liquid; lævorotatory; showing a slightly acid reaction; clearly soluble in 5.5 parts of dilute alcohol at 20° C., and having a spicy, amber-like odor and not a sharp, but somewhat bitter taste. Boiling point: 300° C. Specific gravity: 0.970 – 0.985.

Keep in well-stoppered bottles, protected from light, in a cool place.

OLEUM SESAMI.

Oil of Sesame.

A fatty oil obtained by expression from the seed of *Sesamum indicum* D. C.

A yellowish or golden-colored liquid, having a faint characteristic odor and a mild taste; solidifying to a yellowish-white, ointment-like mass at −5° C. Specific gravity: 0.915 – 0.925.

If 10 ccm. of Oil of Sesame be shaken with 2 or 3 drops of a cold mixture of 1 volume each, of sulphuric acid and of nitric acid, a deep green color is produced, changing immediately to dark red.

If 2 ccm. of the oil be strongly shaken with a mixture of 1 ccm. each, of fuming nitric acid and of water, it acquires an orange-red color, and should separate, after a few hours, into a yellowish-white, granular mass and a reddish-yellow liquid.

If 5 ccm. of the oil be shaken with an equal volume of strong hydrochloric acid (specific gravity: 1.197), and 0.5 g. of sugar added and freshly shaken, then a reddish-violet coloration is produced.

Dissolve about 0.2 g. of the oil in 15 ccm. of chloroform in a glass-stoppered bottle; add 10 ccm. each, of alcoholic iodine solution and of alcoholic mercuric chloride solution, and set aside the mixture for 4 hours, protected from direct sun-light; add 2.5 g. of potassium iodide and 100 ccm. of water, and decolorise the resulting solution by pouring in, drop by drop, decinormal sodium thiosulphate solution, then 100 parts of the oil should absorb 103 – 113 parts of iodine.

OLEUM SINAPIS ÆTHEREUM.

Volatile Oil of Mustard.

A volatile oil obtained by distilling mustard with water.

A clear, colorless or yellowish, thin liquid, having a powerful, irritating odor; clearly miscible, in all proportions, with alcohol and with carbon disulphide. Boiling point: 148°—152° C. Specific gravity: 1.018—1.025.

When dropped into water, Volatile Oil of Mustard sinks to the bottom in form of clear drops which should not acquire a whitish color within a minute.

If 3 g. of the oil be gradually mixed, under careful cooling, with 6 g. of sulphuric acid and shaken, a clear yellow liquid is produced with evolution of a gas, and subsequently becomes thick, and rarely congeals and becomes crystalline, losing at the same time the pungent odor of the volatile oil of mustard.

A solution, obtained by diluting 1 volume of the oil with 5 volumes of alcohol, should acquire no coloration with a few drops of ferric chloride solution.

Take 5 ccm. of a solution of the oil in alcohol (1: 50) into a flask measuring 100 ccm. in capacity; add 50 ccm. of decinormal silver nitrate solution and 10 ccm. of ammonia water; cork it tightly and set aside, with occasional shakings, for 24 hours; dilute the solution to 100 ccm. with water and filter, then 50 ccm. of the clear filtrate, after being mixed with 6 ccm. of nitric acid and 2 ccm. of dilute ferric sulphate solution (1: 20), should require, in order to produce a permanent red coloration, 16.6—17.2 ccm. of decinormal ammonium sulphocyanate solution.

Keep with care.

OLEUM TEREBINTHINÆ.

Turpentine Oil.

A volatile oil obtained by distilling turpentine with water.

A colorless or pale yellow, thin liquid, having a characteristic odor and a pungent taste; soluble in 12 parts of alcohol, and mostly distilling at 155°—162° C. Specific gravity: 0.865—0.875.

Turpentine Oil should have no empyreumatic odor.

OLEUM TEREBINTHINÆ RECTIFICATUM.

Rectified Turpentine Oil.

Take

Turpentine Oil	1 *pt.*
Lime Water	6 *pts.*

mix and shake them together; distill; when about three-fourth of the oil has distilled over, separate it from the distillate, and filter through a dry filter-paper.

Rectified Turpentine Oil distills over completely at 155°—162° C. Specific gravity: 0.86—0.87.

A clear, colorless liquid, showing a neutral reaction; soluble clearly in 5—10 parts of alcohol.

OLEUM THYMI.

Oil of Thyme.

A volatile oil obtained by distilling with water, the leaves and flowering tops of *Thymus vulgaris* Linn., collected in the flowering season.

A clear, colorless liquid, having a strong, aromatic odor and taste. Specific gravity: above 0.9.

If 1 part of Oil of Thyme be added to 3 parts of a mixture of 100 volumes of alcohol and 14 volumes of water, a clear solution should be obtained.

If 5 ccm. of the oil be strongly shaken in a graduated cylinder with 30 ccm. of the mixture of 10 ccm. of sodium hydroxide solution and 20 ccm. of water, and set aside until the aqueous layer becomes clear, then the oily layer floating on it should be not more than 4 ccm.

OPIUM.

Opium.

The dried milky exudation obtained by incising the unripe capsule of *Papaver somniferum* Linn.

Usually soft, flattened, more or less rounded masses, becoming hard and brittle on drying, internally brown, with somewhat lustrous fracture, having a narcotic odor and a strong, bitter taste.

Opium is used in form of powder which is prepared by drying finely cut pieces, at a temperature not above 60° C.

When dissolved in water, its powder should leave not more than 40 per cent. of insoluble matter, nor should it lose, when dried at 100° C., more than 8 per cent. of weight.

When assayed by the method given below, it should yield 10—11 per cent. of crystallised morphine.

Introduce 10 g. of its powder with 4.5 g. of slaked lime into a glass bottle; add 100 cem. of water, cork the bottle, and extract by shaking it strongly in the cold for 2 hours. Transfer the contents of the bottle to a piece of cloth placed over a filter-paper, and filter the liquid obtained by squeezing. Take 50 cem. of the filtrate together with 5 cem. of alcohol into a bottle, cork it tightly, shake and filter; mix 44 cem. of this second filtrate with 20 cem. of ether and 2.5 g. of ammonium chloride, in a suitable glass vessel which is to be stoppered; shake it strongly for half an hour, and after setting aside for 24 hours, collect the precipitate here produced upon a filter-paper previously dried and weighed, wash it with 10 cem. of water, and dry at a temperature not above 60° C.; after cooling, wash the precipitate on the filter-paper again with 10 cem. of pure ether, and after drying by heating first gently, and then at 96°—100° C. for about 4 hours, put it into a desiccator, allow to cool, then the crystals should weigh 0.4—0.44 g.

On shaking the crystals with 100 parts of lime water, there results, after 1 or 2 hours, a yellowish solution which acquires a permanent reddish-brown coloration by gradually adding chlorine water, and a bluish-green coloration by adding ferric chloride solution.

Keep with care.

OXYMEL.

Oxymel.

Take

Acetic Acid	1 *pt.*
Refined Honey	8 *pts.*
Distilled Water	1 *pt.*

and mix them together.

OXYMEL SCILLÆ.

Oxymel of Squill.

Take

Vinegar of Squill	1 *pt.*
Refined Honey	2 *pts.*

evaporate on a water-bath, till the whole weight is reduced to one-half and strain.

A clear, brownish liquid.

PANKREATINUM.

Pancreatin.

A mixture of the enzymes existing in the pancreas of warm-blooded animals, usually obtained from the fresh pancreas of the hog.

A yellowish or yellowish-white or grayish, amorphous powder, odorless or having a not unpleasant, characteristic odor, and a somewhat meat-like taste; slowly but almost completely soluble in water, but insoluble in alcohol.

Pancreatin digests albuminoids and saccharifies starch, but its digestive power is diminished, when it is left in contact with mineral acids for a long time.

If 0.28 g. of it and 1.5 g. of sodium biearbonate be mixed with 100 eem. of tepid water in a glass bottle, and 400 eem. of fresh cow's milk, previously heated to 38° C., be added, and the mixture allowed to maintain this same temperature for 30 minutes, the milk should be so eompletely peptonised that, if a small portion of it be taken into a test-tube and nitric acid dropped in, no eoagulation should take plaee.

The peptonised milk, obtained by the above method, may acquire a considerably bitter taste, but should be free from rancidity.

PARAFFINUM LIQUIDUM.

Liquid Paraffin.

A elear, colorless or almost colorless, odorless, tasteless, oily liquid, obtained from petroleum, and showing no fluoreseence; insoluble in water, sparingly soluble in alcohol, but readily in ether, chloroform, and in earbon disulphide. Specifie gravity: 0.875—0.945.

If 3 eem. of Liquid Paraffin be introduced into a test-tube together with an equal volume of sulphuric acid, and heated in a water-bath with oecasional shakings for 15 minutes, no change in color should take plaee; nor should the sulphurie aeid aequire any more than, if at all, a faintly brown color.

Metallic sodium, when thrown into it, should not lose its lustre.

The solution, obtained by boiling it with an equal part of alcohol, should show no acid reaction.

If 5 g. of it be mixed with 5 g. of sodium hydroxide and 25 eem. of water, and the mixture heated on a water-bath for half an hour, then the aqueous solution should, on being supersaturated with sulphurie aeid, separate no oily substanee.

PARAFFINUM SOLIDUM.

Solid Paraffin.

A white, erystalline mass, having no odor. Melting point: 74°—80° C.

If 3 g. of Solid Paraffin be taken into a test-tube together with 3 eem.

of sulphuric acid, and heated in a water-bath with occasional shakings for 15 minutes, no change in color should take place, nor should the sulpuric acid acquire any more than, if at all, a faintly brown color.

The solution obtained by boiling it with an equal part of alcohol, should not redden a blue litmus paper.

PARALDEHYDUM.

Paraldehyde.

$C_6H_{12}O_3 = 132.12.$

A clear, colorless liquid, showing a neutral or a slightly acid reaction, with a characteristic, ethereal, but not pungent odor, and a burning and cooling taste; solidifying to a crystalline mass, when strongly cooled; soluble in 8.5 parts of water which becomes turbid on warming; miscible, in all proportions, with alcohol and with ether. Melting point: 10.5° C. Boiling point: 123°—125° C. Specific gravity: 0.995—0.998.

The solidified crystals of Paraldehyde, which are obtained by cooling, should not melt again below 10° C.

It dissolves in 10 parts of cold water, forming a clear solution which should deposit no oily drops by long standing.

Its aqueous solution, after being acidified with nitric acid, should produce no change with a solution either of silver nitrate or of barium nitrate.

A mixture of it with alcohol, each 1 ccm., should show no acid reaction after adding a drop of normal potassium hydroxide solution.

When heated on a water-bath, 5 ccm. of it should volatilise completely.

Keep with care, protected from light.

PASTILLI.

Pastils. *Troches.*

With exception of those specially prescribed, pastils are prepared by mixing well-dried and finely powdered medicinal substances with

finely powdered milk sugar or cane sugar, and moistening with dilute alcohol so as to form a suitable mass for making them, each piece being made to weigh 1 g. In cases when the mass does not well stick together, a small quantity of gum arabic may be added.

PASTILLI ACIDI BORICI.

Pastils of Boric Acid.

Take

Boric Acid . . . . . 100 *pts.*

Each pastil should contain 2 g. of boric acid.

PASTILLI ACIDI TANNICI.

Pastils of Tannic Acid.

Mix

Tannic Acid . . . . . 5 *pts.*
Milk Sugar . . . . . 95 *pts.*

Each pastil should contain 0.05 g. of tannic acid.

PASTILLI ANTIPYRINI.

Pastils of Antipyrine.

Mix

Antipyrine . . . . . 25 *pts.*
Milk Sugar . . . . . 75 *pts.*

Each pastil should contain 0.25 g. of antipyrine.

Keep with care.

PASTILLI BISMUTI SUBNITRICI.

Pastils of Bismuth Subnitrate.

Mix

Bismuth Subnitrate	30 *pts.*
Milk Sugar	70 *pts.*

Each pastil should contain 0.3 g. of bismuth subnitrate.

PASTILLI COCAINI HYDROCHLORICI.

Pastils of Cocaïne Hydrochloride.

Mix

Cocaïne Hydrochloride	5 *pts.*
Milk Sugar	995 *pts.*

Each pastil should contain 0.005 g. of cocaïne hydrochloride.
Keep with care.

PASTILLI FERRI LACTICI.

Pastils of Iron Lactate.

Mix

Iron Lactate	5 *pts.*
Milk Sugar	95 *pts.*

Each pastil should contain 0.05 g. of iron lactate.

PASTILLI HYDRARGYRI BICHLORATI.

Pastils of Mercuric Chloride.

Mix

Mercuric Chloride	50 *pts.*
Sodium Chloride	50 *pts.*

and color the mixture with a red coal tar dye.

Each pastil should contain 0.5 g. of mercuric chloride.

Keep with special care in well-stoppered bottles, protected from light.

PASTILLI HYDRARGYRI CHLORATI CUM TALCO.

Pastils of Mercurous Chloride with Talc.

Mix

Mercurous Chloride	50 *pts.*
Milk Sugar	36 *pts.*
Starch	22 *pts.*
Talc	12 *pts.*

Each pastil should contain 0.5 g. of mercurous chloride.

Keep with care, protected from light.

PASTILLI IPECACUANHÆ.

Pastils of Ipecacuanha.

Mix

Ipecacuanha	1 *pt.*
Milk Sugar	99 *pts.*

Each pastil should contain 0.01 g. of ipecacuanha.

PASTILLI KALII CHLORICI.

Pastils of Potassium Chlorate.

Mix

Potassium Chlorate	10 *pts.*
Milk Sugar	90 *pts.*

with care.

Each pastil should contain 0.1 g. of potassium chlorate.

PASTILLI MENTHÆ.

Pastils of Peppermint Oil.

Mix

Peppermint Oil	1 *pt.*
Sugar	99 *pts.*

Each pastil should contain 0.01 g. of peppermint oil.

PASTILLI MORPHINI HYDROCHLORICI.

Pastils of Morphine Hydrochloride.

Mix

Morphine Hydrochloride	5 *pts.*
Milk Sugar	995 *pts.*

Each pastil should contain 0.005 g. of morphine hydrochloride.
Keep with special care.

PASTILLI NATRII BICARBONICI.

Pastils of Sodium Bicarbonate.

Mix

Sodium Bicarbonate	10 *pts.*
Milk Sugar	90 *pts.*

Each pastil should contain 0.1 g. of sodium bicarbonate.

PASTILLI NATRII SALICYLICI.

Pastils of Sodium Salicylate.

Mix

Sodium Salicylate	50 *pts.*
Milk Sugar	50 *pts.*

Each pastil should contain 0.5 g. of sodium salicylate.

PASTILLI OPII ET IPECACUANHÆ.

Pastils of Opium and Ipecacuanha.

Mix

Opium	5 *pts.*
Ipecacuanha	5 *pts.*
Saffron	5 *pts.*
Milk Sugar	85 *pts.*

Each pastil should contain opium and ipecacuanha, each 0.025 g.
Keep with care in well-stoppered bottles.

PASTILLI SANTONINI.

Pastils of Santonin.

Mix

Santonin	2 *pts.*
Milk Sugar	98 *pts.*

Each pastil should contain 0.02 g. of santonin.

PEPSINUM SACCHARATUM.

Saccharated Pepsin.

A mixture of milk sugar and pepsin which is obtained from the mucous membrane of the hog or cattle. A fine, almost white, slightly deliquescent powder, having a faint characteristic odor and a slightly sweet, followed by a somewhat bitter, taste; soluble with a slight turbidity in 100 parts of water, showing a weak acid reaction, but almost insoluble in alcohol.

Saccharated Pepsin should have neither disagreeable nor ammoniacal odor.

If 0.1 g. of it be dissolved in a mixture of 100 ccm. of water and 0.5 ccm. of hydrochloric acid, and to the resulting solution, 10 g. of the white of a fresh egg, previously boiled for about 6 minutes and passed through the sieve No. 4., be added and the temperature

kept at 45° C. with frequent shaking, then the white of the egg should be almost completely dissolved within 2 hours.

When dried at 100° C., it should lose not more than 0.5 per cent. of its weight, nor should it leave, on ignition, more than 0.5 per cent. of solid residue.

PHENACETINUM.

Phenacetin.

$C_{10}H_{13}NO_2 = 179.17$

Colorless, glistening, odorless, tasteless, scaly crystals, difficultly soluble in water, but soluble in about 70 parts of boiling water, and in about 16 parts of alcohol, showing a neutral reaction. Melting point: 134°—135° C.

On shaking with nitric acid, Phenacetin develops a yellow coloration.

If 0.1 g. of it be boiled for 1 or 2 minutes with 1 ccm. of hydrochloric acid, and the solution diluted with 20 ccm. of water, cooled and filtered, the filtrate acquires a violet coloration on adding a drop of potassium bichromate solution.

If 0.1 g. of it be dissolved in 10 ccm. of hot water, the resulting solution, after being cooled and filtered, should not become turbid on adding bromine water till the solution assumes a permanent yellow coloration.

A mixture of 0.3 g. of it with 1 ccm. of alcohol, on being diluted with 3 times its volume of water and boiled with a drop of iodine solution, should acquire no reddish-violet coloration.

On dissolving 0.1 g. of it in 1 ccm. of sulphuric acid, no more than a slight coloration should be produced.

On heating strongly, 0.1 g. of it should leave no weighable solid residue.

Keep with care.

PHENYLDIHYDROCHINAZOLINUM TANNICUM.

Phenyldihydroquinazoline Tannate.

A white or yellowish-white powder, without odor or taste; sparingly soluble in water, but easily soluble in alcohol, and also in water acidified with hydrochloric acid.

A mixture of 0.5 g. of Phenyldihydroquinazoline Tannate with 2 ccm. of alcohol and 8 ccm. of dilute hydrochloric acid (1 : 20), yields a white precipitate with mercuric chloride solution, and a dark turbidity with potassium chromate solution. The same mixture yields a yellowish-white precipitate with sodium hydroxide solution, and on shaking this with ether, and evaporating the ethereal solution, a residue, which is soluble in alcohol and in chloroform, and melts at 95° C., is obtained.

Its solution in water acidified with hydrochloric acid produces, when mixed with ferric chloride solution, a blue coloration.

On heating, it should be consumed without leaving any solid residue.

PHENYLUM SALICYLICUM.

Phenyl Salicylate.

$C_{13}H_{10}O_3 = 214.1$

A white, crystalline powder, having a faint aromatic odor and taste; almost insoluble in water, soluble in 10 parts of alcohol, and in 0.3 parts of ether, and also in chloroform. Melting point: about 42° C.

An alcoholic solution of Phenyl Salicylate acquires a violet coloration with ferric chloride solution which is diluted with 4 times its volume of water.

If 0.2 g. of it be dissolved by warming in 2 ccm. of sodium hydroxide solution, and the solution oversaturated with hydrochloric acid, a white precipitate of salicylic acid should be deposited, evolving at the same time the odor of phenol.

It should not redden a blue litmus paper which is previously moistened with water.

If 1 part of it be shaken with 50 parts of water, and the solution filtered, the resulting filtrate should produce no change with a dilute ferric chloride solution, barium nitrate solution, or with silver nitrate solution.

On heating strongly, 0.1 g. of it should be consumed without leaving any solid residue.

PHOSPHORUS.

Phosphorus.

P = 31.

A white or yellowish, translucent solid, with a waxy lustre; usually in the form of cylindrical sticks. On exposure to the air, Phosphorus emits white fumes, giving off a characteristic odor; easily inflammable, luminous in the dark, becoming red and occasionally black by long keeping; practically insoluble in water, but easily soluble in carbon disulphide; difficultly soluble in fatty and in volatile oils, slightly soluble in alcohol, and in ether. It melts in water at 44° C.

Keep with special care in glass-stoppered bottles, filled with water and placed in tinned-iron vessels.

PHYSOSTIGMINUM SALICYLICUM.

Physostigmine Salicylate.

Eserinum Salicylicum. *Eserine Salicylate*

$C_{15}H_{21}N_3O_2.C_7H_6O_3 = 413.39$

Lustrous, colorless or faintly yellow crystals, soluble slowly in 150 parts of water, and readily in 12 parts of alcohol.

An aqueous solution (1 : 100) of Physostigmine Salicylate should not immediately redden a blue litmus paper. The dried salt is permanent in the air, even on exposure to light, but its aqueous solution and its alcoholic solution acquire a reddish tint after a short time.

The aqueous solution of the salt produces, with ferric chloride solution, a violet coloration, and becomes turbid with a solution of iodine.

The salt dissolves colorless in sulphuric acid which, however, becomes gradually yellow.

A piece of the salt dissolves with a yellowish-red coloration, by warming in ammonia water which, when evaporated to dryness on a water-bath, leaves a blue or bluish-gray substance; the residue here obtained dissolves with a blue coloration in alcohol which, on being supersaturated with acetic acid, develops a red fluorescence; the same residue also dissolves in a drop of sulphuric acid, with a green coloration which changes to red on gradually diluting with alcohol, but becomes green again on evaporating off the alcohol.

On ignition, 0.2 g. of it should leave no solid residue.

Keep with special care, protected from light.

PHYSOSTIGMINUM SULFURICUM.

Physostigmine Sulphate.

$$(C_{15}H_{21}N_3O_2)_2.H_2SO_4 = 648.74$$

A white or yellowish, crystalline powder of a bitter taste; deliquescent in moist air; readily soluble in water, and in alcohol, showing a neutral reaction.

An aqueous solution of the salt produces, with barium nitrate solution, a white precipitate insoluble in acids.

The salt should, with ferric chloride solution, produce no more than, if any, a very faintly violet coloration.

The other tests should conform with those mentioned under *Physostigminum Salicylicum*.

Keep with special care in well-stoppered bottles, protected from light.

PILOCARPINUM HYDROCHLORICUM.

Pilocarpine Hydrochloride.

$C_{11}H_{16}N_2O_2.HCl = 244.7$

White crystals, having a faintly bitter taste; deliquescent in the air; easily soluble in water, and in alcohol, showing a slightly acid reaction, but sparingly soluble in ether, and in chloroform. Melting point: 193°—195° C.

On adding a small quantity of sodium hydroxide solution, Pilocarpine Hydrochloride produces oily drops which dissolve on heating to a clear solution, and on further heating, the latter evolves the odor of trimethylamine.

An aqueous solution of the salt produces, with silver nitrate solution, a white precipitate insoluble in dilute nitric acid.

Its aqueous solution (1 : 100) should yield precipitates with a solution either of iodine or of mercuric chloride, and also with bromine water, but should become turbid neither with ammonia water, nor with potassium bichromate solution.

The salt should dissolve colorless in sulphuric acid, but with a slightly green color in fuming nitric acid.

On heating it strongly, the salt should be consumed without leaving any solid residue.

Keep in bottles with special care.

PILULÆ.

Pills.

In order to prepare pills, their constituents should be mixed most intimately.

A suitable mass for making pills is prepared by employing usually licorice powder or licorice extract as their vehicle.

They should be uniform in size, each weighing about 0.1 g. except in those cases specially prescribed. Lycopodium or finely powdered licorice is commonly used as their coating.

PILULÆ ALOES.

Pills of Aloes.

Take

Aloes, ***in medium powder***

with equal parts of

Medicinal Soap

then incorporate sufficient water to form a suitable mass for making pills.

PILULÆ ALOES ET ASÆ FŒTIDÆ.

Pills of Aloes and Asafetida.

Take

Aloes, ***in fine powder***

with equal parts of

Asafetida, ***in fine powder***

Medicinal Soap, ***in fine powder***

Honey

and incorporate them to form a suitable mass for making pills, each weighing about 0.1 g.

PILULÆ ALOES ET FERRI.

Pills of Aloes and Iron.

Take

Exsiccated Ferrous Sulphate

with equal parts of

Aloes, ***in medium powder***

then incorporate sufficient alcohol to form a suitable mass for making pills.

PILULÆ ALOES ET JALAPÆ.

Pills of Aloes and Jalap.

Take

Aloes, *in medium powder*

with equal parts of

Jalap Soap

Licorice, *in fine powder*

and incorporate them to form a suitable mass for making pills, each weighing about 0.15 g.

PILULÆ CHININI SULFURICI.

Pills of Quinine Sulphate.

Take

Quinine Sulphate	30 *pts.*
Tartaric Acid	1 *pt.*
Tragacanth	1 *pt.*
Glycerin	4 *pts.*

and incorporate them to form a suitable mass for making pills, each weighing about 0.12 g.

Each pill contains about 0.1 g. of quinine sulphate.

PILULÆ COLOCYNTHIDIS ET HYOSCYAMI.

Pills of Colocynth and Hyoscyamus.

Take

Colocynth, *in medium powder*	10 *pts.*
Aloes, *in medium powder*	20 *pts.*
Root of Jalap, *in medium powder*	20 *pts.*
Extract of Hyoscyamus	25 *pts.*
Potassium Sulphate, *in fine powder*	3 *pts.*
Oil of Cloves	1 *pt.*

and incorporate sufficient alcohol to form a suitable mass for making pills, each weighing about 0.15 g.

Keep with care.

PILULÆ FERRI CARBONICI BLAUDII.

Blaud's Iron Carbonate Pills.

Take

Exsiccated Ferrous Sulphate	9 *pts.*
Powdered Sugar	3 *pts.*
Potassium Carbonate, ***in fine powder***	7 *pts.*
Burnt Magnesia	0.7 *pts.*
Root of Althæa, ***in fine powder***	1.3 *pts.*
Glycerin	4 *pts.*

and incorporate them to form a suitable mass for making pills, each weighing about 0.25 g.

Each pill contains about 0.02 g. of iron.

PILULÆ HYDRARGYRI.

Pills of Mercury.

Take

Mercury	3 *pts.*
Sugar	5 *pts.*
Purified Honey	1 *pt.*

thoroughly triturate them, until no globules of mercury are seen, then add

Licorice, ***in fine powder***	2 *pts.*

and incorporate sufficient water to form a suitable mass for making pills, each weighing about 0.2 g.

Each pill contains about 0.05 g. of mercury.

PILULÆ KREOSOTI.

Pills of Creosote.

Take

Creosote	10 *pts.*
Licorice, ***in fine powder***	19 *pts.*
Glycerin	1 *pt.*

and incorporate them to form a suitable mass for making pills, each weighing about 0.15 g., using powdered cassia bark as their coating.

Each pill contains about 0.05 g. of creosote.

PILULÆ RHEI COMPOSITÆ.

Compound Pills of Rhubarb.

Take

Extract of Aloes	2 *pts.*
Extract of Rhubarb	6 *pts.*
Resin of Jalap	1 *pt.*
Medicinal Soap	4 *pts.*

and incorporate sufficient water to form a suitable mass for making pills, using finely powdered rhubarb as their coating.

PIX BETULÆ LIQUIDA.

Birch Tar.

Oleum Rusci. *Oil of Betula.*

A tar obtained by the dry distillation of the wood of *Betula alba* Linn.

A blackish-brown, oily, thick liquid, having a characteristic, penetrating odor; transparent in thin layers.

If 1 part of it be shaken with 20 parts of water and filtered, 10 ccm. of the resulting filtrate acquires a permanent green color with 15 drops of a solution which is formed by mixing 1 part of ferric chloride solution with 200 parts of water.

PIX JUNIPERI LIQUIDA.

Juniper Tar.

Oleum Cadinum. *Oil of Cade.*

A tar obtained by the dry distillation of the wood of *Juniperus Oxycedrus* Linn. and various other species of Juniperus.

A dark brown, oily, thick liquid, transparent in thin layers; soluble in chloroform, ether, and in aniline, and almost completely soluble in turpentine oil.

If 1 part of it be shaken with 20 parts of water and filtered, 10 cem. of the resulting filtrate produce a permanent red color with 15 drops of a solution which is formed by mixing 1 part of ferric chloride solution and 200 parts of water.

PIX LIQUIDA.

Wood Tar.

A tar obtained by the dry distillation of the wood of several species of Pinus.

A brownish-black, translucent, thick liquid, having a characteristic odor; somewhat granular; soluble completely in pure alcohol, partly soluble in turpentine oil, forming a brownish-yellow solution.

When poured into water, Wood Tar sinks under its surface.

When it is examined under the microscope, fine crystals are recognisable.

If 1 part of it be shaken with 10 parts of water, a yellowish tar water, having a characteristic odor and an acid reaction, is obtained; 10 cem. of the tar water thus prepared, when mixed with 20 cem. of water and 10 drops of ferric chloride solution, acquire a greenish-brown coloration. The same tar water, on being mixed with equal volumes of lime water, should have a dark brown color.

PLUMBUM ACETICUM.

Lead Acetate.

$$Pb(C_2H_3O_2)_2 + 3H_2O = 379.02$$

Colorless, transparent crystals, or white, crystalline masses, having a faint odor of acetic acid; slightly efflorescent in the air; soluble in 2.3 parts of water, and in 29 parts of alcohol.

A cold, saturated aqueous solution of Lead Acetate shows an alkaline reaction, but on diluting it with water, shows a slightly acid reaction; the salt has a slightly sweetish and astringent taste.

Its aqueous solution produces a black precipitate with hydrogen sulphide solution, a yellow precipitate with potassium iodide solution, a white precipitate with sulphuric acid, and lastly a white precipitate with ferric chloride solution; the clear supernatant solution in the last case has a red color.

The aqueous solution (1 : 10) of the salt should be clear, or if slightly turbid, should become clear on adding 1 or 2 drops of acetic acid; the precipitate, obtained by adding a small quantity of a solution of yellow prussiate of potash to the same aqueous solution, should have a pure white color. If the same aqueous solution be completely precipitated by passing hydrogen sulphide, and filtered, the resulting filtrate, on being evaporated to dryness, should leave no solid residue.

Keep with care.

PLUMBUM CARBONICUM.

Lead Carbonate.

A heavy, white powder, insoluble in water, and in alcohol.

When strongly heated, Lead Carbonate acquires a yellow color, and when heated with powdered charcoal, it produces metallic globules.

It is soluble with effervescence in acetic acid and in dilute nitric acid.

If its acetic acid solution (1 : 10) be completely precipitated by saturating it with hydrogen sulphide, and filtered, the resulting filtrate on evaporation should leave no weighable solid residue, and the precipitate, obtained by adding a small quantity of a solution of yellow prussiate of potash to the same solution, should have a pure white color.

PLUMBUM OXYDATUM. *Lithargyrum.*

Lead Oxide. *Litharge.*

PbO = 222.9

A yellowish or reddish-yellow, heavy powder, or crystalline masses, consisting of minute scales; insoluble in water, and in alcohol, but soluble in dilute nitric acid; fusible on heating, and becoming dark colored.

A solution of Lead Oxide in dilute nitric acid yields, with hydrogen sulphide solution, a black precipitate, and with sulphuric acid, a white precipitate soluble in sodium hydroxide solution.

If 1 part of it be dissolved in 10 parts of dilute nitric acid, it should form a clear or almost clear, colorless solution, with but a little, if any, evolution of gas. If the solution thus prepared be mixed with half a volume of dilute sulphuric acid, and completely precipitated and filtered, the resulting filtrate acquires, when supersaturated with ammonia water, no more than a bluish coloration, and should produce no more than a small quantity, if any, of a reddish-brown precipitate.

If 5 g. of it be shaken with 5 ccm. of water, and 20 ccm. of acetic acid added, and the mixture boiled for a few minutes, then the insoluble part, if any, should be not more than 0.05 g.

When strongly heated, it should lose not more than 1 per cent. of its weight.

Keep with care in well-stoppered bottles.

PULPA TAMARINDORUM.

Tamarind.

The fruit of *Tamarindus indica* Linn., freed from the brittle outer part of the pericarp.

A blackish-brown, somewhat tough, soft mass, having a strong, pure acid taste, mixed with a small quantity of seeds, the membraneous, hard film of fruit cells, the vascular bundle of the fruit, and the broken pieces of its outer invocular film.

If 20 g. of Tamarind be mixed with 190 g. of water and thoroughly extracted by shaking, and filtered, then 100 g. of the filtrate, when evaporated to dryness, should leave at least 5 g. of the residue.

PULPA TAMARINDORUM DEPURATUM.

Purified Tamarind.

Pour hot water on tamarind and soften it uniformly; press it out through the sieve No. 4. into a porcelain dish; evaporate till it gets the consistence of a thick extract, and add while it is still warm

Jam	5 *pts.*
Powdered Sugar	1 *pt.*

Purified Tamarind should have a blackish-brown color and an agreeable acid taste.

When dried at 100° C., it should lose not more than 40 per cent. of its weight.

If 2 g. of it be shaken with 50 ccm. of hot water, and filtered after cooling, then 25 ccm. of the resulting filtrate should require, for its exact neutralisation, at least 1.2 ccm. of normal potassium hydroxide solution.

If 2 g. of it be incinerated, and 5 ccm. of dilute hydrochloric acid added to the residue, warmed, and be filtered, the resulting filtrate should produce no change with hydrogen sulphide solution.

PULVIS ÆROPHORUS.

Effervescing Powder.

Take

Sodium Bicarbonate, *in medium powder* . . . . . 2 *pts.*
Tartaric Acid, *in medium powder* . . . . . 15 *pts.*

Wrap the former in a colored paper, and the latter in a white paper.

PULVIS ÆROPHORUS LAXANS.

Purgative Effervescing Powder.

Take

Potassium Sodium Tartrate, *in medium powder* . . 75 *pts.*
Sodium Bicarbonate, *in medium powder* . . . . . 25 *pts.*

mix them and wrap the mixture in a colored paper; besides, take

Tartaric Acid, *in medium powder* . . . . . 2 *pts.*

and wrap it in a white paper.

PULVIS AROMATICUS.

Aromatic Powder.

Take

Cassia Bark, *in medium powder*

and mix it thoroughly with equal parts of

Cardamom, *in medium powder*
Ginger, *in medium powder*

PULVIS DOVERI.

Dover's Powder.

Take

Opium . . . . . 1 *pt.*

Ipecacuanha Root, *in fine powder* . . . . . 1 *pt.*
Potassium Sulphate, *in fine powder* . . . . . 8 *pts.*
and mix them intimately.

Dover's Powder contains 10 per cent. of opium. = 1·0 to 1·10 % Morph G
Keep with care, in well-stoppered bottles.

PULVIS GUMMOSUS.

Gum Powder.

Take
Gum Arabic, *in fine powder* . . . . . 5 *pts.*
Licorice Root, *in fine powder* . . . . . 3 *pts.*
Sugar, *in medium powder* . . . . . 2 *pts.*
and mix them thoroughly.

PULIVS INFANTUM.

Infant's Powder.

Pulvis Magnesiæ cum Rheo. *Magnesia Rhubarb Powder.*

Take
Magnesium Carbonate, *in fine powder* . . . . . 10 *pts.*
Rhubarb, *in fine powder* . . . . . 3 *pts.*
Fennel Oil Sugar . . . . . 7 *pts.*
and mix them thoroughly.
Keep in well-stoppered bottles.

PULVIS LIQUIRITIÆ COMPOSITUS.

Compound Licorice Powder.

Take
Licorice Root, *in fine powder* . . . . . 15 *pts.*
Senna, *in fine powder* . . . . . 15 *pts.*

Fennel, *in medium powder*	10 *pts.*
Purified Sulphur	10 *pts.*
Sugar, *in medium powder*	50 *pts.*

and mix them thoroughly.

A dry, brownish powder.

PULVIS RHEI COMPOSITUS.

Compound Powder of Rhubarb.

Take

Rhubarb, *in fine powder*	2 *pts.*
Burnt Magnesia	6 *pts.*
Ginger, *in fine powder*	1 *pt.*

and mix them thoroughly.

PULVIS SALICYLICUS CUM TALCO.

Salicylic Acid Powder with Talc.

Take

Salicylic Acid, *in fine powder*	3 *pts.*
Starch, *in fine powder*	10 *pts.*
Talc, *in fine powder*	87 *pts.*

and mix them thoroughly.

A dry, white powder.

PYROGALLOLUM.

Pyrogallol.

Acidum Pyrogallicum. *Pyrogallic Acid.*

$C_6H_6O_3 = 126.06$

White, lustrous, light laminæ, or acicular crystals, odorless; having a bitter taste; soluble in 1.7 parts of water, forming a colorless

clear solution which reacts neutral, however, acquires gradually a brown color when exposed to the air, and shows an acid reaction; soluble also in equal parts of alcohol, and in 1.2 parts of ether.

When heated to about 132° C., Pyrogallol melts and then sublimes unchanged.

If it be shaken with lime water, the latter at first acquires a violet color, then becomes turbid and finally assumes a brown to black coloration.

The freshly prepared aqueous solution of it acquires a blue coloration with a freshly prepared solution of ferrous sulphate, and a brownish-red coloration with ferric chloride solution.

Its aqueous solution, when mixed with silver nitrate solution, deposits silver.

Keep protected from light.

RADIX ACONITI NAPELLI.

Aconite Root.

The dried tuberous root of *Aconitum Napellus* Linn., collected at the end of the flowering season.

Aconite Root is of a blackish color, somewhat wrinkled longitudinally, turnip-shaped, more or less pointed below, and beset profusely with bases of rootlets. It weighs about 6 g. The upper portion of the root is marked laterally with the scars of the axis, and the summit is crowned either with a stem scar, or with an undeveloped bud covered with brownish scales. The root appears white in transverse section; the primary cortex is thin and blackish, while the secondary cortex and wood are white, and rich in starch. The cambium zone is irregular and star-shaped.

Strongly shake 12 g. of it in medium powder, dried at 100° C., with 125 ccm. of ether and 25 ccm. of chloroform, add 10 ccm. of a mixture of 2 parts of sodium hydroxide solution and 1 part of water, and set aside with frequent shakings for 3 hours. Add 10 ccm. or more of water, and shake strongly so as to make the powder collect into a mass, and allow to stand for an hour. Take 125 ccm. of the

clear chloroform-ether solution, filter through a dry filter-paper placed in a well-covered funnel, into a small glass flask, and distill the solution till it becomes about one-half of its original bulk. Transfer the remaining chloroform-ether solution to a separating-funnel, wash the flask thrice, each time, with 5 ccm. of a mixture of 6 ccm. of ether and 1 ccm. of chloroform, add the washings to the main solution in the separating-funnel, and thoroughly shake up the mixed liquid with 25 ccm. of centinormal hydrochloric acid solution, adding, if necessary, a suitable quantity of ether. When the layer of chloroform-ether solution separates completely, filter the lower, clear, acid solution through a small filter-paper moistened with water, into a colorless glass bottle of about 100 ccm. in capacity; shake up the chloroform-ether solution thrice more, each time, with 10 ccm. of water, filter the aqueous solution through the same filter-paper which is finally washed with water. Mix all the filtrates and washings, and dilute the mixture to 100 ccm. by adding water; transfer 50 ccm. of the resulting solution to a colorless glass bottle of about 200 ccm. in capacity, add about 50 ccm. of water, and pour some ether on it, till the ethereal layer in the bottle measures about 1 cm. thick. After adding 5 drops of iodeosin solution, titrate the excess of the acid in the resulting solution, under strong agitation, with centinormal potassium hydroxide solution, then not more than 8.5 ccm. of the latter solution should be required before the lower aqueous layer acquires a pale red color.

It has a strong, pungent taste.

Keep with care.

RADIX ALTHÆÆ.

Marshmallow Root.

The dried rootlets of *Althæa officinalis* Linn., deprived of the periderm.

Marshmallow Root is 2 dm. long, more than 1.5 mm. in diameter, externally whitish, marked with wart-like scars, and covered with fine fibres. The wood and cortex, which are rich in starch, contain

the bundles of sclerenchymatous fibres arranged in tangential rows, also oxalate cells, and mucilage cells. The mucilage is deposited in layers on the inner side of the cell-wall. The cross-section of the root, with the exception of the pale brownish cambium zone, should be white in color.

It should give, with 10 parts of cold water, a faintly yellowish mucilage with an insipid taste, but with neither acid nor ammoniacal odor.

It is unfit for use, when it becomes dirty white in color or lignified.

RADIX COLOMBO.

Calumba Root.

The dried, transversely sliced root of *Jateorrhiza palmata* Miers.

Calumba Root is yellow in color, about 3—6 cm. in diameter; the periderm is grayish-brown and wrinkled, and at a distance of about 5 mm. from it, the dark cambium zone lies. The tissue of the root consists chiefly of parenchymatous cells which contain starch-grains. The latter shows an excentric stratification, and are 0.09 mm. or less in length. In the cortical tissue are found isolated lignified sclerenchymatous cells which partly contain oxalate crystals. On a cross-section, the wood exhibits yellow, shortly articulate, reticulate vessels which are arranged in irregular radial rows, interrupted by the parenchyma.

It has a bitter taste.

RADIX COPTIDIS.

Coptis Root.

The dried rhizome of *Coptis anemonæfolia* S. et Z., and of several other species of Coptis.

Coptis Root is about 1—5 mm. in diameter, 4 cm. in length, curved, beset with numerous thin rootlets, and provided here and there with spiny protuberances. It often bears at the crown the

remains of leaf-stalks. It has externally a yellowish-gray color and shows a sharp, rough fracture. A cross-section of the rhizome exhibits a thick, dark orange-colored cortex and a pale yellow wood; at the centre of the latter lies a large pith which is often hollow.

It has no odor, but a very bitter taste.

RADIX FILICIS.

Male Fern Rhizome.

The dried rhizome of *Aspidium Filix mas* Swartz, collected in autumn together with stipe-bases, about 3 cm. long.

Male Fern Rhizome should be freed, as much as possible, from the roots and scales, but it should never be peeled. The stipe is brown and edged, attaining a diameter of about 1 cm. Its cross-section is greenish, showing 6—10 fibro-vascular bundles. The scale has 1—2 glands at its base, and is sharply serrate at the margin.

It has almost no odor, but a slightly sweet, sharp and faintly astringent taste.

RADIX GELSEMII.

Gelsemium Root.

The dried roots and rhizome of *Gelsemium sempervirens* Ait. fil.

Gelsemium Root is 3 cm. or less in diameter. The bark is fibrous in structure and only 2 mm. thick. The periderm is yellowish-brown, while the wood is white, hard, loose and devoid of pith, showing radial lines on its cross-section. The rhizome has a pith. The bark has a very bitter taste, but that of the wood is weaker.

If 1 g. of it be mixed with 50 ccm. of lime water, the mixture acquires a pale yellowish coloration, and shows a bluish fluorescence which, on adding dilute sulphuric acid, disappears or becomes weak.

If 1 part of it be extracted by heating with 10 parts of water, a clear liquid, which yields a greenish-brown precipitate with ferric chloride solution, is obtained; the same liquid produces no precipitate with potassium bichromate solution.

The stem, which is easily recognised by opposite leaf-scars, should not be employed.

Keep with care.

RADIX GENTIANÆ.

Gentian Root.

The dried roots and rhizome of *Gentiana lutea* Linn., *Gentiana pannonica* Scop., *Gentiana purpurea* Linn., and *Gentiana punctata* Linn.

Gentian Root is of a dark brown color, showing marked longitudinal wrinkles and even fractures. The tissue is devoid of sclerenchymatous cells, and contains very minute oxalate crystals, and rarely a few simple starch-grains. The wood is characterised by the fact that it possesses sieve-tubes, besides reticulated vessels. The cross-section should be yellowish to light brown in color.

It has a very bitter taste.

RADIX GENTIANÆ SCABRÆ.

Japanese Gentian Root. *Ryutan.*

The dried rhizome and lateral roots of *Gentiana scabra* Bge. var. *Buergeri* Maxim.

Japanese Gentian Root is dark grayish-brown, about 10 cm. long and 5 cm. thick. It has irregular transverse rings, and bears on the upper side stem-bases, occasionally stem-remnants, and on the lateral and lower sides numerous roots. The cross-section of the rhizome is of a dark brown color, and shows at the centre fibro-vascular bundles running irregularly. The lateral roots are brownish-yellow, about 2 dm. in length, 3 mm. or less in diameter, and longitudinally wrinkled. The cross-section of the roots is brown, having a darker colored wood. The latter shows radially arranged vessels at the periphery.

It contains no starch, and has a very bitter taste.

RADIX HIBISCI.

Hibiscus Root.

The dried primary root of *Hibiscus japonicus* Miq., divested of the periderm.

Hibiseus Root is more than 1 dm. in length, and 0.5—1 mm. in thickness; whitish in color, and rich in starch. The cross-section of the root is whitish in color; the bark exhibits fibre-bundles tangentially arranged, and a small pith at the centre.

If 1 part of it be mixed with 10 parts of water, a yellowish mucilage, which has an insipid taste but neither acid nor ammoniacal odor, should be obtained.

RADIX HYDRASTIS.

Yellow Root.

The dried rhizome and roots of *Hydrastis canadensis* Linn.

Yellow Root is dark brownish-gray in color, 5—8 mm. in diameter, 5 cm. in length, and shows a greenish-yellow fracture. The surface of the rhizome is beset with numerous roots, about 1 mm. in diameter, having a yellow cross-section. When examined under the microscope, the cross-section of the rhizome exhibits a thin coating of the periderm, and consists chiefly of parenchymatous cells which contain starch-grains, 0.003—0.02 mm. in size. The pith is large and surrounded by 10—20, usually 14 fibro-vascular bundles.

If 1 part of it be extracted in the cold with 100 parts of water, a yellow, bitter extract is produced; 2 ccm. of the extract here obtained, after being poured into 1 ccm. of sulphuric acid, produce a dark red layer on the addition of chlorine water.

When a thin cross-section of the root is immersed in a drop of nitric acid, numerous yellow, needle-shaped crystals, easily recognisable under the microscope, are immediately produced in the tissue.

It has a faint odor and a bitter taste.

RADIX IPECACUANHÆ.

Ipecacuanha Root.

The dried thickened root of *Uragoga Ipecacuanha* Bail.

Ipecacuanha Root is 5 mm. or less in diameter, externally grayish-brown, and annulated with thickened rings. The cortex appears whitish in cross-section, covered with a brown cork layer, and consisting, besides the sieve-tubes, only of parenchymatous cells which usually contain compound starch-grains and bundles of needle-shaped oxalate crystals.

The hard, pale yellow wood consists of the thick-walled, lignified, intermediate cells, elongated in the longitudinal axis, and having slit-like pits placed obliquely, and also of the vessels, the members of which resemble intermediate cells, but are provided with bordered pits and perforated by round holes, mostly lying laterally near both ends. The diameter of the largest starch-grains should not exceed 0.012 mm.

Shake strongly 12 g. of it in fine powder, previously deprived of the wood and dried at 100° C., with 125 ccm. of ether and 25 ccm. of chloroform; add 10 ccm. of a mixture of 2 parts of sodium hydroxide solution and 1 part of water, and set aside the mixed solution, with occasional strong shakings, for 3 hours. Let the powder collect together by adding 10 ccm. or still more quantity of water and shaking strongly, and set aside for an hour, then take 125 ccm. of the clear chloroform-ether solution, filter it through a dry filter-paper placed in a well-covered funnel, into a small glass flask, and distill the solution till it becomes about one-half of its original bulk. Transfer the remaining chloroform-ether solution to a separating-funnel, wash the flask thrice, each time, with 5 ccm. of ether, and add the washings to the main solution in the separating-funnel, and thoroughly shake up the combined liquid with 12 ccm. of decinormal hydrochloric acid solution and set aside, adding, if necessary, a suitable quantity of ether, till the complete separation of the chloroform-ether solution takes place. Filter the lower, clear, acid liquid through a small filter-paper moistened with water, into a small, colorless glass

bottle of 100 ccm. in capacity; shake up the chloroform-ether solution thrice, each time, with 10 ccm. of water, filter the aqueous part through the same filter-paper which is finally washed with water; mix all the filtrates and washings, and dilute the mixture to 100 ccm. by adding water. Take 50 ccm. of the resulting, diluted solution in a colorless glass bottle of about 200 ccm. in capacity, add about 50 ccm. of water, and pour ether on it, till the ethereal layer in the bottle measures about 1 cm. thick. After adding 5 drops of iodeosin solution, titrate the excess of the acid in the resulting solution by pouring carefully, under strong agitation, centinormal potassium hydroxide solution; then not more than 20 ccm. of the latter solution should be required before the lower aqueous solution acquires a pale red color.

It should be used after removing the wood.

Keep with care.

RADIX IRIDIS.

Orris Root.

The dried rhizome of *Iris germanica* Linn., *Iris pallida* Linn., and *Iris florentina* Linn., divested of the periderm.

Orris Root is white, 4 cm. or less in thickness, somewhat flattened on the upper side which is marked with minute, transverse scars due to leaf bundles, and bearing brownish root-bases on the lower side. The tissue is rich in starch, having suberised oxalate cells which mostly contain a single, rhombic, prismatic crystal, attaining a length of 0.25 mm. and surrounded by mucilage. It is free from sclerenchymatous cells.

It has a characteristic odor and a faintly aromatic, somewhat sharp taste.

RADIX JALAPÆ.

Jalap.

The dried tuberous root of *Exogonium Purga* Benth., divested of rootlets and root-tips.

Jalap is externally dark brown, bearing transverse, short lenticels, and marked with scars of rootlets. The fracture appears dark whitish, when the starch is not turned into paste, and dark brown and resinous, when it is dried at high temperatures. It shows numerous dark-colored, concentric or irregularly distributed rings, owing to the abnormal cambium which produces internally vascular strands, and externally phlœm-strands and secretory cells.

It tastes insipid and acrid.

If it be subjected to the test described under the article of *Resina Jalapæ*, more than 9 per cent. of the resin should be obtained, which should have the properties mentioned under the same article.

Keep with care.

RADIX LIQUIRITIÆ.

Licorice Root.

The peeled, dried roots and rhizome of *Glycyrrhiza glabra* Linn. var. *glandulifera* Waldstein et Kitaibel.

The wood and bark have a radial, loose structure, and the lignified portion is of a yellow color.

Licorice Root has a characteristic, sweet taste.

RADIX PHYTOLACCÆ.

Phytolacca Root.

The dried rhizome of *Phytolacca acinosa* Roxb. var. *esculenta* Maxim.

Phytolacca Root is 10 cm. long, 3—7 mm. thick, 7 cm. broad, bent, dirty white, and provided with prominent lines arranged almost parallelly, both sides being covered with reddish-white bark. The drug is occasionally mixed with transverse or irregular slices. The transverse slices are curved and annulate with thick rings.

It is tenaceous, hard to break; internally white and pulverulent; almost inodorous.

RADIX RATANHIÆ.

Rhatany Root.

The dried root of *Krameria triandra* Ruiz et Pav.

Rhatany Root is 3 cm. or less in diameter. The bark is 1 mm. thick, externally dark brown, not warty, and breaks with a fibrous fracture. It leaves a reddish-brown trace on paper. The bark but not the wood tastes strongly astringent.

A clear solution, obtained by extracting 1 part of it in the cold with 10 parts of alcohol, should, on the addition of an excess of alcoholic lead acetate solution, yield a red precipitate, and the filtrate therefrom should be distinctly red-colored.

RADIX RHEI.

Rhubarb.

The dried rhizome of Rheum., grown in the northern regions of Asia, deprived of most of the bark.

The fresh fracture of Rhubarb is granular and reddish. It is characterised by numerous small, open, vascular bundles, occupying the pith-region. These bundles are radially arranged, and provided with a ring-formed cambium, and internally with sieve-tubes.

Its powder is of orange-yellow color, and should only contain fibre-like vessels, fragments of parenchymatous cells and sieve-tubes, clustered crystals, attaining a size of 0.145 mm., and spherical starch-grains, 0.003—0.018 mm. in diameter.

It tastes faintly aromatic and bitter.

RADIX SALEP.

Salep.

The dried root of several orchidaceous plants, collected in the flowering season, and previously immersed in boiling water for a short time.

Salep is napiform or nearly ovoid, gray or yellowish, crowned with a bud at the top, and 0.5 – 2 cm. in size. The root collected from *Cremastra Wallichiana* Lindl. bears the ring-shaped bases of leaves. The transverse section should be horny and of a uniform color. The powdered root is whitish in color. When a pale brownish iodine water is added to the powder, observing it the while under the microscope, mucilage cells assume a brownish-red color before swelling, and the fully swollen starch-grains turn blue.

If 1 part of the powdered root be boiled with 100 parts of water, there results a liquid which, when cooled, should become a thick, insipid mucilage containing only, if any, a little insoluble part.

RADIX SARSAPARILLÆ.

Sarsaparilla.

The dried root of several species of Smilax, cultivated in America.

Sarsaparilla is brownish-gray, cylindrical, 4 mm. thick, and more or less wrinkled longitudinally. Its transverse section shows a brown endodermis which is surrounded by a purely white, cortical parenchyma; the starch-grains of the parenchyma are not swollen up.

It tastes slimy and afterwards acrid.

RADIX SCOPOLIÆ.

Scopolia Root.

The dried rhizome of *Scopolia japonica* Maxim.

Scopolia Root is externally grayish-brown, considerably shrivelled, about 1.5 dm. in length, 2 cm. or less in thickness, more or less bent, contracted here and there into ring-shaped segments, and occasionally provided with the remains of the stem at the apex; on the upper side of each segment are seen bases of the stem, and on both sides and on the lower surface, remnants of cut rootlets. It has a granular fracture, and a whitish or grayish-brown, transverse section which appears often loose and spongy. The bark has a somewhat lighter color, and near outer limit of the wood lie vascular bundles, arranged almost radially and surrounding the big pith.

It smells unpleasant, and tastes slightly bitter and acrid.

Keep with care.

RADIX SENEGÆ.

Senega Root.

The dried under-ground parts of *Polygala Senega* Linn.

The crown of the root bears numerous stem-remnants, and buds with reddish scales. The yellowish tap-root, not exceeding 1.5 cm. in thickness, is more or less branched and curved in zigzag form. It is provided, on the inner side of each curvature, with a prominent keel, and on the outer side, it exhibits a flat or fissured yellow wood on removal of the bark. The vessels are short-membered, with transverse walls perforated by small circular holes, and show slit-like bordered pits placed obliquely.

Senega Root is free from starch.

It tastes slimy and afterwards acrid, and smells weak but characteristic.

RADIX SERPENTARIÆ.

Snake-Root.

The rhizome of *Aristolochia Serpentaria* Linn., collected in spring or in autumn.

Snake-Root is 2—3 mm. thick, about 25 mm. long, winding and somewhat flattened; the upper side provided with slender, short stem-bases; the lower surface bearing numerous thin rootlets which are pale brown, friable, and 10 cm. or less in length. The wood is thicker on the lower side, and arranged in irregular radial rows.

It has a bitter taste, and a camphoraceous odor somewhat resembling Valerian.

RADIX TARAXACI CUM HERBA.

Dandelion.

The dried plant of *Taraxacum officinale* Wigg. var. *glaucescens* Koch., gathered in spring prior to the flowering season.

The radical leaves are roughly serrate; the roots are 1—2 dm. long, 0.5—2.5 cm. thick, brown in color, longitudinally wrinkled. A transverse section of the root shows a not radially disposed yellow wood. The cortex is thick, and contains numerous laticiferous vessels, arranged in concentric rows.

RADIX VALERIANÆ.

Valerian Root.

The dried rhizome and roots of *Valeriana officinalis* Linn. var. *angustifolia* Miq., and *Valeriana officinalis* Linn.

(a)

The rhizome of *Valeriana officinalis* Linn. var. *angustifolia* Miq. is about 1.5 cm. long, 1 cm. thick, tapering below, bearing buds on the top, and leaf-bases arranged in 2 alternate rows; laterally it has short, branched stolones covered with leaves or their remnants. The root is about 2 mm. thick, and provided with the primary cortex which still contains starch; the suberised, single-layered hypodermis contains a fragrant excretion. It has a characteristic, aromatic odor and a faintly bitter taste.

(b)

The rhizome of *Valeriana officinalis* Linn. is very large, attaining 5 cm. in length, and 2 cm. in thickness, and agrees in all respects with (a), except the odor and taste, characteristic to this species.

RADIX ZEDOARIÆ.

Zedoary Root.

The tuberous rhizome of *Curcuma Zedoaria* Rosc., mostly cut transversely or longitudinally.

Zedoary Root is 2.5 – 4 cm. in diameter, externally gray, marked with numerous root-bases. The transverse section is gray, and shows the bark, about 2 – 5 mm. thick. The disc-shaped drug shows mostly depressed vascular strands. The parenchyma contains large and flat starch-grains with an excentric stratification.

It has a camphoraceous odor and a bitter taste.

RADIX ZINGIBERIS.

Ginger.

The dried rhizome of *Zingiber officinale* Rosc.

Ginger is branched in one plane and compressed, mostly deprived of the corky layer on the upper and lower surface, but covered with gray corky layer on the lateral sides. The fracture is whitish or pale grayish-white, granular and pulverulent, showing numerous vascular bundles. The axial cylinder is very thick and surrounded by a cortex, not thicker than 1 mm.; secretory-reservoirs are uniformly distributed in the parenchyma.

It has a characteristic, aromatic odor and a pungent, hot taste.

RESINA DAMMAR.

Dammar Resin.

The resin obtained from *Shorea Wiesneri* Stapf., and other plants belonging to the Dipteroearpaceæ.

Yellowish-white, transparent stalaetitie, pear-shaped or elub-shaped masses, variable in size; easily soluble in ether, chloroform, and in earbon disulphide, but almost insoluble in aleohol.

When ground, Dammar Resin beeomes a white, odorless powder, not softening at 100° C.

If 1 part of its powder be shaken with 10 parts of ammonia water, set aside for half an hour and be filtered, the resulting elear or slightly opalescent filtrate should, on being supersaturated with acetie acid, not be rendered turbid.

RESINA GUAIACI.

Guaiacum Resin.

The resin obtained from the wood of *Guaiacum officinale* Linn.

Greenish-brown or reddish-brown masses with a vitreous fraeture, transparent in their splinters; when powdered, turning to green eolor on exposure to the air.

On heating, Guaiacum Resin melts, giving off an odor somewhat resembling that of benzoin.

It is soluble in aleohol, and in potassium hydroxide solution, leaving no more than a small quantity of impurities. Its alcoholie solution should, on the addition of ferrie ehloride solution, aequire a blue color.

If 1 part of it be shaken with about 5 parts of petroleum ether and filtered, then the resulting filtrate should, on being mixed with an equal volume of eopper acetate solution (1 : 1000), produee no turbidity.

RESINA JALAPÆ.

Resin of Jalap.

Take

Jalap Root, *in coarse powder* . . . . . 1 *pt.*

pour on it

Alcohol . . . . . 4 *pts.*

and extract by heating, under frequent agitation, for 24 hours; press; on the residue, pour again

Alcohol . . . . . 2 *pts.*

and extract by heating as before; press; collect the expressed liquids; filter; distill the alcohol off; repeatedly wash the remaining resin with warm water, until the washing becomes colorless; dry the residue, with constant stirrings, on a water-bath.

Very brittle, brown masses, transparent in the margin; having a lustrous fracture; easily soluble in alcohol, but insoluble in carbon disulphide.

If 1 part of Resin of Jalap be warmed with 10 parts of ammonia water in a stoppered glass bottle, it dissolves and forms a solution which, on cooling, will not become gelatinous, and which, on being evaporated, yields a residue soluble in water, leaving no more than a little insoluble resin. The same solution, on being supersaturated with acetic acid, should produce no more than a slight turbidity.

If 1 g. of the powdered resin be warmed with 10 g. of chloroform and filtered, the resulting filtrate should, on being evaporated to dryness, leave not more than 0.1 g. of residue.

If it be triturated with 10 parts of water and filtered, an almost colorless filtrate should be obtained.

Keep with care.

RESINA PINI.

Resin of Pine.

The resin obtained by drying turpentine, which exudes from the stems of several species of Pinus.

Yellow or brownish-yellow masses, having a faint, turpentine-like odor and a conchoidal fracture; more or less transparent; very brittle; melting when heated on a water-bath; soluble in alcohol, and in alkalies.

When dissolved in alcohol, Resin of Pine should leave not more than a small quantity of impurities.

RESINA PODOPHYLLI.

Podophyllum Resin.

The resin obtained from the root of *Podophyllum peltatum* Linn.

A yellow or greenish-brown powder, or yellowish or brownish-gray masses, having a bitter taste; when heated to 100° C., turning to dark color without melting; almost insoluble in water, but considerably soluble in ether.

If Podophyllum Resin be shaken with water and filtered, the resulting filtrate is almost colorless, showing a neutral reaction. The same filtrate acquires, with ferric chloride solution, a light brown color; and, with lead subacetate solution, it acquires a yellow color, producing a slight turbidity, and depositing, after 2 or 3 hours, a reddish-yellow, flocculent precipitate.

If 1 part of it be dissolved in 10 parts of warm alcohol in which it readily dissolves, and water be added to the resulting solution, a brown precipitate should be produced.

If 1 part of it be dissolved in 100 parts of ammonia water in which it readily dissolves, and the resulting solution be neutralised with acid, a brown precipitate should also be produced.

On incineration, it should leave not more than 1 per cent. of solid residue.

Keep with care.

RESORCINUM.

Resorcin.

$C_6H_6O_2 = 110.06$

Colorless or faintly pinkish crystals, having a charaeteristic odor and an acrid, faintly sweetish taste ; soluble in about 1 part of water, and also in about 1 part of aleohol, easily soluble in ether, and in glycerin, difficultly soluble in chloroform, and in earbon disulphide. Melting point : 100°—111° C.

An aqueous solution (1 : 20) of Resorcin produees a white preeipitate with lead subacetate solution.

If 0.05 g. of it be cautiously warmed with a mixture of 0.1 g. of tartaric aeid and 10 drops of sulphurie aeid, a dark carmine-red liquid is produced.

The aqueous solution (1 : 20) of it should be eolorless, and almost neutral to litmus papers, and should, when gently warmed, emit no odor of phenol.

On heating strongly, 0.2 g. of it should be eonsumed without leaving any weighable solid residue.

Keep proteeted from light.

SACCHARINUM.

Saccharin.

$C_7H_5NO_3S = 183.15$

A white, odorless, crystalline powder, with an exeeedingly sweet taste, being still recognisable even when dissolved in 10,000 times its weight of water, and showing an aeid reaction ; soluble in about 400 parts of water, and in 24 parts of boiling water, also in 25 parts of alcohol, difficultly soluble in ether, but readily soluble in sodium hydroxide solution, and in sodium carbonate solution. Melting point : about 224° C.

If Saccharin be carefully fused with potassium hydroxide and dissolved in water, the resulting solution acquires, after being slightly acidified with hydrochloric acid, a violet coloration with ferric coloride solution.

It should neither be colored by sulphuric acid, nor should it thereby acquire, even when warmed on a water-bath, any more than a faintly yellow coloration.

On heating strongly, it should leave no solid residue or, if any, only a trace of it.

SACCHARINUM SOLUBILE.

Soluble Saccharin.

A white, crystalline powder, or colorless, transparent crystals, showing a neutral reaction, and having an exceedingly sweet taste, being still recognisable even when dissolved in 10,000 times its weight of water; readily soluble in water, and in dilute alcohol; efflorescent in the air.

If Soluble Saccharin be carefully fused with potassium hydroxide and dissolved in water, the resulting solution acquires, after being slightly acidified with hydrochloric acid, a violet coloration with ferric chloride solution.

The residue, obtained by heating it strongly, imparts, when heated in a non-luminous flame, a yellow color to the latter.

An aqueous solution (1 : 10) of it should not immediately color a red litmus paper blue. If the same aqueous solution be mixed with nitric acid, and the precipitate thereby produced be filtered off, the resulting filtrate should neither be affected by barium nitrate solution, nor should it acquire, with silver nitrate solution, any more than an opalescence.

On warming 0.1 g. of it with 5 ccm. of sulphuric acid on a water-bath, no more than a faintly brown color should be produced.

On heating strongly, 0.5 g. of it should be consumed, leaving 0.14 – 0.17 g. of residue.

SACCHARUM.

Sugar.

$C_{12}H_{22}O_{11} = 342.22$

Purely white, dry crystals, or purely white, dry, crystalline masses, or powder, having a very sweet taste; inodorous; and soluble in 0.5 parts of water.

If 10 g. of Sugar be mixed with 5 ccm. of water, a clear, colorless solution should be obtained, not changing the color of litmus papers, and clearly miscible, in all proportions, with alcohol.

An aqueous solution (1 : 20) of it should not be affected by hydrogen sulphide solution, nor should it produce any more than an opalescence with a solution of ammonium oxalate, silver nitrate, or of barium nitrate.

On heating strongly, 0.5 g. of it should leave no weighable solid residue.

SACCHARUM LACTIS.

Milk Sugar.

$C_{12}H_{22}O_{11} + H_2O = 360.24$

Whitish, crystalline masses, or a purely white powder, having a faintly sweet taste; odorless; soluble in 7 parts of water, and in 1 part of boiling water.

If an aqueous solution of Milk Sugar be heated with sodium carbonate solution, a yellow-colored liquid is formed, and on boiling it for 2 or 3 minutes with bismuth subnitrate, a black coloration is produced.

The aqueous solution (1 : 20) of it should be clear and colorless, not changing the color of litmus papers; the same aqueous solution should produce no more than a very slight turbidity with a solution either of silver nitrate or of barium nitrate.

If 1 g. of it be sprinkled upon 5 ccm. of sulphuric acid contained in a shallow dish, only a faint coloration should be produced, after keeping for an hour at a temperature not above 15° C.

If 15 g. of its powder be thoroughly shaken with 50 ccm. of dilute alcohol for half an hour, and be filtered, 10 ccm. of the resulting filtrate should, on the addition of an equal volume of absolute alcohol, produce no turbidity; if 10 ccm. of the same filtrate be evaporated to dryness on a water-bath, not more than 0.04 g. of residue should be obtained.

On heating strongly, 0.2 g. of it should leave no weighable solid residue.

SAL CAROLINUM FACTITIUM.

Artificial Salt of Karlsbad.

Take

Exsiccated Sodium Sulphate	47 *pts.*
Potassium Sulphate	2 *pts.*
Sodium Chloride	15 *pts.*
Sodium Bicarbonate	36 *pts.*

all in medium powder, and mix them together.

A dry, white powder which dissolves in water, and effervesces briskly in acids.

If 6 g. of the salt be dissolved in 1 litre of water, a liquid resembling Karlsbad water is obtained.

SANDARACA.

Sandarac.

The resin obtained from the stem of *Callitris quadrivalvis* Vent.

Light lemon-yellow, transparent granules, with a faintly bitter taste; when heated, emitting a pleasant odor and melting, and finally burning off on further heating; partly soluble in cold alcohol, and completely soluble in hot alcohol, and also in turpentine oil.

SANTONINUM.

Santonin.

$C_{15}H_{18}O_3 = 246.18$

Shining, colorless, neutral, crystalline laminæ, having a bitter taste; turning yellow on exposure to light; soluble in 5000 parts of water, 44 parts of alcohol, and in 4 parts of chloroform; melting at about 170° C., and on further rise of temperature, subliming with partial carbonisation.

If Santonin be dissolved by boiling in a mixture of equal volumes of sulphuric acid and of water, and a few drops of ferric chloride solution be added, a violet coloration is produced.

When moistened with either sulphuric or nitric acid, it should not be colored immediately.

If 1 part of it be boiled together with 100 parts of water and 5 parts of sulphuric acid, and filtered after cooling for a long time, the resulting filtrate should neither taste bitter, nor produce any precipitate with 2 or 3 drops of potassium bichromate solution.

On shaking 0.01 g. of its powder with a cold mixture of 1 ccm. each, of sulphuric acid, and of water, no coloration should be produced.

On igniting 0.2 g. of it, no weighable solid residue should be obtained.

Keep with care, protected from light.

SAPO JALAPINUS.

Jalap Soap.

Mix

Resin of Jalap, ***in fine powder***

with equal parts of

Medicinal Soap.

SAPO KALINUS.

Soft Soap.

Warm

Linseed Oil . . . . . 20 *pts.*

in a porcelain dish on a water-bath; add to it, under stirring, a mixture of

Potassium Hydroxide Solution (*Specific gravity*: 1.14) . . 27 *pts.*

Alcohol . . . . . 2 *pts.*

and warm the mixture, until the complete saponification takes place.

A transparent, brownish-yellow, homogeneous, soft mass, having a faint, not disagreeable odor; soluble in water, and in alcohol.

A solution of 10 g. of Soft Soap in 30 ccm. of alcohol, when mixed with 0.5 ccm. of normal hydrochloric acid solution, should neither become turbid, nor red-colored, on the further addition of a drop of phenolphthalein solution.

SAPO MEDICATUS.

Medicinal Soap.

Warm

Sodium Hydroxide Solution (*Specific gravity*: 1.17) . . . 120 *pts.*

on a water-bath; gradually add to it, under stirring, a mixture of

Hog's Lard . . . . . 50 *pts.*

Olive Oil . . . . . 50 *pts.*

after warming the mixture for half an hour, add

Alcohol . . . . . 12 *pts.*

stir the resulting mixture, until a homogeneous mass is obtained, then gradually add

Water . . . . . 200 *pts.*

and heat the mixture, adding, if necessary, a small quantity more of sodium hydroxide solution, until the complete saponification takes place. When a portion of the saponified mass clearly dissolves in hot water, add to it the filtered solution of

Sodium Chloride	25 *pts.*
Sodium Carbonate	3 *pts.*

in

Water	80 *pts.*

heat the whole mass, under stirring, until the soap is completely separated; after cooling, remove the mother liquor; wash it repeatedly with a small quantity of water; press strongly; cut into small pieces and dry in a warm place.

A white mass, having no rancid odor; soluble in water, and in alcohol.

If 1 g. of Medicinal Soap be dissolved by warming in 5 ccm. of alcohol, the resulting solution should neither be colored red with a drop of phenolphthalein solution, nor should it be affected by hydrogen sulphide solution.

SAPO VIRIDIS.

Green Soap.

A transparent, yellowish-brown or greenish, unctuous, soft mass, clearly or almost clearly soluble in water.

If 5 g. of Green Soap be dissolved in 10 ccm. of boiling water, and after cooling, 1 volume of the resulting solution be mixed with an equal volume of alcohol, the resulting mixture should remain clear, and should yield, on adding 2 drops of hydrochloric acid, no flocculent precipitate.

Dissolve 5 g. of it in 100 ccm. of boiling water in a glass bottle, and warm the solution on a water-bath with 15 ccm. of dilute sulphuric acid, until a clear layer of oleic acid appears on the surface after cooling, add 50 ccm. of petroleum benzin, and close the bottle and thoroughly shake the mixture, until the oleic acid layer disappears; then 25 ccm. of the resulting solution, on being transferred to a glass vessel and petroleum ether being evaporated off by a gentle heat, leaves a residue which, when dried at a temperature not exceeding 75° C., should weigh not less than 1 g.

SCOPOLAMINUM HYDROBROMICUM.

Scopolamine Hydrobromide.

$C_{17}H_{21}NO_4.HBr + 3H_2O = 438.28$

Colorless, odorless, prismatic crystals, having a bitter and acrid taste; readily soluble in water, and in alcohol, forming a colorless, slightly acid solution; sparingly soluble in ether, and in chloroform, and melting, when dried in a desiccator, at about 180° C.

An aqueous solution (1 : 20) of Scopolamine Hydrobromide yields, with silver nitrate solution, a yellowish precipitate, and with sodium hydroxide solution, a whitish turbidity which disappears in a short time; the same solution undergoes no change with ammonia water.

If about 0.01 g. of it be mixed with 5 drops of fuming nitric acid in a porcelain dish on a water-bath, and be evaporated, it leaves a very slightly yellowish-colored substance which acquires, after cooling, a violet coloration with an alcoholic solution of potassium hydroxide.

On drying at first in a desiccator, and then at 100° C., it should lose not more than about 12 per cent. of its weight.

On igniting 0.02 g. of it, no solid residue should be obtained.

Keep with special care.

SEBUM BOVINUM.

Ox-Tallow.

A fat obtained by heating the fatty tissues of *Bos Taurus* Linn. with water, washed and then deprived of water.

A white or slightly yellow mass, melting at 45°—50° C. to a perfectly clear liquid, with no rancid odor. The melted Ox-Tallow, when shaken with warm alcohol and filtered after cooling, gives a filtrate which, after being diluted with water, should not change the color of litmus papers.

SECALE CORNUTUM.

Ergot.

The sclerotium of *Claviceps purpurea* Tul., developed especially on *Secale cereale* Linn., dried by the application of a gentle heat.

Ergot is obscurely 3– or 4–angled, usually somewhat curved, 10—30 mm. long, 2.5—5 mm. thick, tapering towards both ends, mostly longitudinally furrowed; externally dark violet to black, and reddish or whitish in fracture. When examined under the microscope, it consists of a colorless, uniform tissue, except the violet-colored cortical layer.

It has an insipid taste, and emits, when 10 parts of hot water are poured upon 1 part of it, a characteristic odor which is free from an ammoniacal or rancid smell.

It should not be kept in form of powder.

After drying it in a desiccator, keep well-closed, with care.

SEMEN COLCHICI.

Colchicum Seed.

The seed of *Colchicum autumnale* Linn.

Colchicum Seed is nearly spherical, 3 mm. in diameter, externally brown, at first adhesive through the excretion of sugar, marked with small pits or finely wrinkled, and bears on one side a somewhat prominent hilum. The thin, brown seed-coat consists of collapsed cells, and encloses the endosperm, and the embryo not longer than 0.5 mm. The endosperm is composed of gray, thick-walled cells which contain fat, and are furnished with circular pits.

It has a very bitter taste.

Keep with care.

SEMEN LINI.

Linseed.

The seed of *Linum usitatissimum* Linn.

Linseed is ovoid, flattened, 4 – 6 mm. long, yellowish to brown, and glossy. The epidermis of seed-coat consists of mucilage cells. The thin endosperm and embryo contain fat, but no starch.

It has a mild, oily, mucilaginous, but not rancid taste.

SEMEN MYRISTICÆ.

Nutmeg.

The seed of *Myristica fragrans* Houtt., divested of its testa.

Nutmeg is ovoid or ellipsoidal, about 3 cm. long and 2 cm. broad; externally brown, covered with white lime powder, and marked with broad, flat, longitudinal furrows and narrow, finely reticulated ones. A transverse section shows brown strips, containing aromatic secretion in the endosperm which is filled with fat and starch.

It has an aromatic odor and a bitter taste.

SEMEN PHYSOSTIGMATIS. *Faba Calabarica.*

Calabar Bean.

The seed of *Physostigma venenosum* Balfour.

Calabar Bean is oblong, somewhat curved like a kidney, about 30 mm. long, 15 mm. broad and 10 mm. thick. The hilum groove extends nearly the entire length of the elevated margin. The testa is hard, brown and glossy, and encloses 2 whitish cotyledons.

Keep with care.

SEMEN PRUNI ARMENIACÆ.

Apricot Seed.

The seed of *Prunus armeniaca* Linn.

Apricot Seed is asymmetrically ovoid, flattened, about 15 mm. long, 12 mm. broad, pointed at one end, and rounded at the other, where it measures to 6 mm. or less in thickness. The seed-coat is brown, externally covered with powders consisting of crumbly, thick-walled epidermal cells, and internally marked with numerous vascular bundles, starting from the chalaza. When macerated in warm water, the seed-coat may be removed together with the thin endosperm. The cotyledons are white in color.

It has a very bitter taste, free from rancidity. When moistened with water and crushed, it should emit the aromatic odor of the volatile oil of bitter almond.

SEMEN SINAPIS.

Mustard.

The seed of *Sinapis cernua* Thunb. and *Brassica nigra* Koch.

Mustard is nearly spherical, 1.5 mm. in diameter, brownish-yellow or dark brown in color; showing minute pits, when examined with a magnifying glass. The cotyledons are greenish-yellow and conduplicate.

Its powder should, when microscopically examined, be free from oxalate crystals, starch, and other ingredients.

Take 5 g. of its powder in a stoppered glass bottle, pour on it 100 ccm. of water at 20°—25° C., and set aside, with frequent shakings, for 2 hours; add 20 ccm. of alcohol and 2 ccm. of olive oil, and distill the mixture with careful cooling. Take 40 – 50 ccm. of the first distillate into a measuring glass flask of 100 ccm. in capacity, which is previously filled with 10 ccm. of ammonia water, add 20 ccm. of decinormal silver nitrate solution, and make the solution up to 100 ccm. by adding water, put on the stopper and set aside, with

frequent shakings, for 24 hours, and filter; then 50 eem. of the elear filtrate, after being mixed with 6 eem. of nitrie aeid and 1 eem. of dilute ferrie sulphate solution (1: 20), should require, for the appearanee of a red eoloration, not more than 7.2 ecm. of deeinormal ammonium sulphoeyanate solution.

SEMEN STROPHANTHI.

Strophanthus Seed.

The seed of a speeies of Strophanthus, deprived of its awn.

Strophanthus Seed is lanee-ovoid, 17 mm. long, 5 mm. broad, and 3 mm. thiek, densely eovered with elosely appressed unieellular hairs whieh are direeted towards the apex of the seed. When observed in the direetion of the hairs, the seed appears light greenish-brown, otherwise more grayish. The raphe runs from the eentre of the flattened side to the base of the awn. The seed-eoat is thin and eomposed of eollapsed, thin-walled eells; the epidermal eells, from the middle of whieh hairs spring, show striation in the thiekened radial walls. The endosperm is thin and white. The white, straight embryo in ripe seed is either free from stareh, or eontains stareh-grains not exeeeding 0.008 mm. in size The tissue of the embryo does not eontain any oxalate erystal. The 2 eotyledons are flat. If the transverse seetion of the seed be moistened with a drop of sulphurie aeid, the endosperm assumes a eonsiderably bluish-green eolor, ehanging gradually to red.

It tastes very bitter.

Keep with eare.

SEMEN STRYCHNI.

Nux Vomica.

The seed of *Strychnos Nux Vomica* Linn.

Nux Vomiea is diseoidal, mostly somewhat eurved, grayish-yellow, 20—25 mm. in diameter, 3—5 mm. thick; both surfaees are eovered with silky, glossy, appressed hairs whose ends are direeted towards the margin. The hard, horny endosperm eneloses the embryo, about 7 mm.

long, which stretches out its straight radicle against the edge of the seed, and causes thereby a slight elevation of the latter. The endosperm consists of thick-walled cells, devoid of pits, and free from starch. The sections of endosperm assume, when treated with fuming nitric acid, an orange-yellow color.

It tastes very bitter.

Mix 15 g. of it in medium powder, dried at 100° C., with 139 ccm. of ether and 33.5 ccm. of chloroform, and shake strongly, add 10 ccm. of a mixture of 2 parts of sodium hydroxide solution and 1 part of water, and allow the mixture to stand, with frequent shakings, for 3 hours. Then add to the mixture 15 ccm. or more of water, and let the powder collect together by shaking strongly, and set aside for an hour. Filter 115 ccm. of the clear chloroform-ether solution into a small glass flask, through a dry filter-paper placed in a well-covered funnel; distill the filtrate till it becomes about one-half of the original bulk; transfer the remaining chloroform-ether solution to a separating-funnel, and wash the small flask thrice, each time, with 5 ccm. of a mixture of 6 parts of ether and 1 part of chloroform; add the washings to the main solution in the separating-funnel, and shake the mixed liquid strongly with 10 ccm. of decinormal hydrochloric acid solution. After complete separation of the chloroform-ether solution, adding, if necessary, a suitable quantity of ether, filter the lower, clear, acid layer into a colorless glass flask of 100 ccm. in capacity, through a small filter-paper which is previously moistened with water; shake the chloroform-ether solution successively for three times, each, with 10 ccm. of water, the aqueous layer being separated and filtered, each time, through the same filter-paper which is finally washed with water; mix all the filtrates, and dilute the mixture to 100 ccm. by adding water. Transfer 50 ccm. of the diluted solution to a colorless glass flask of about 200 ccm. in capacity; add about 50 ccm. of water and some ether, until the latter forms in the bottle a layer of about 1 cm. in thickness, and after adding 5 drops of iodeosin solution, titrate the excess of the acid in the resulting solution by pouring, drop by drop, centinormal potassium hydroxide solution, under strong shakings; then not more than 15.6 ccm. of the latter solution should be required, before the lower aqueous layer acquires a light red coloration.

Keep with care.

SEMEN TONCO. *Faba Tonco.*

Tonka Bean.

The seed of *Dipterix odorata* Willd.

Tonka Bean is oblong, straight or somewhat bent, 3—4 cm. long, about 15 mm. broad. The seed-coat is of dark brown color with a fatty lustre, smooth, or more or less wrinkled, thin and brittle, enclosing a pale brown, fatty kernel which consists of 2 cotyledons.

It has an agreeable, aromatic odor and a bitter taste.

SERUM ANTIDIPHTHERICUM.

Antidiphtheric Serum. *Diphtheria Antitoxin.*

The blood-serum of a horse, immunised through the inoculation of diphtheric toxin. Antidiphtheric Serum should be kept sealed in glass bottles, furnished with a label bearing the name of its factory, the strength, expressed in units of antitoxic power, possessed by 1 ccm. of it, and the same of the whole content of the bottle, the number of application, and the date when it was tested. The bottle is packed so as to be proteeted from light.

It should prove sterile when tested by ærobic, and anærobic culture in bouillon, and also in agar.

(a)

SERUM ANTIDIPHTHERICUM LIQUIDUM.

Liquid Antidiphtheric Serum.

A yellowish, clear or slightly turbid liquid, having an odor of the antiseptic used as a preservative.

Liquid Antidiphtheric Serum should possess not less than 500 units of antitoxic power in 1 ccm. of it. The calculation of antitoxic unit is done according to the method of Behring and Ehrlich.

It is usually divided into 3 classes, according to the numbers of antitoxic units possessed by the serum contained in one bottle:—

No. 1.	600	antitoxic units.
No. 2.	1000	„ „
No. 3.	1500	„ „

If it be injected subcutaneously, 0.5 ccm. should not kill a mouse of about 15 g. in weight, and also 10 ccm. of it should not prove fatal to a guinea-pig.

It should not be used when it is considerably turbid, or when it contains a large quantity of precipitate.

Keep with care, in a cool dark place, but not over a year.

(b)

SERUM ANTIDIPHTHERICUM SICCUM.

Exsiccated Antidiphtheric Serum.

The dried antidiphtheric serum, usually in the form of yellow, transparent scales, or of a yellowish-white powder.

At least 5000 antitoxic units should be possessed by 1 g. of exsiccated antidiphtheric serum, and neither antiseptic, nor any other substance should be mixed with it.

A solution of 1 part of it in 10 parts of water should have the same external appearance as liquid antidiphtheric serum.

The tests for a solution of 1 part of it in 10 parts of sterilised water should conform with those given under the article of *Serum Antidiphthericum Liquidum*.

It should be dissolved, before using, either in carbolic acid water (1 : 200), or in sterilised water.

Keep with care, in a cool dark place.

SERUM ANTITETANICUM.

Antitetanic Serum.

The blood-serum of a horse, immunised through the inoculation of

tetanic toxin. Antitetanic Serum should be kept sealed in glass bottles, furnished with a label bearing the name of the factory where it was prepared, the strength, expressed in units of antitoxic power, possessed by 1 ccm. of it, and the same also of the whole content of the bottle, the number of application, and the date when it was tested; the bottle is packed so as to be protected from light.

It should prove sterile when tested by ærobic, and anærobic culture in bouillon, and also in agar.

(a)

SERUM ANTITETANICUM LIQUIDUM.

Liquid Antitetanic Serum.

A yellowish, clear or slightly turbid liquid, having an odor of the antiseptic used as a preservative.

At least 5 antitoxic units should be possessed by 1 ccm. of Liquid Antitetanic Serum, the calculation of antitoxic units being conducted according to Behring's method.

If 0.5 ccm. of it be injected subcutaneously to a mouse, about 15 g. in weight, and 10 ccm. to a guinea-pig, it should prove not fatal in both cases.

It should not be used when it is considerably turbid, or when it contains a large quantity of precipitate.

Keep with care, in a cool dark place, but not over a year.

(b)

SERUM ANTITETANICUM SICCUM.

Exsiccated Antitetanic Serum.

A dried antitetanic serum in the form of translucent, small scales, or of a yellowish-white powder.

At least 50 antitoxic units should be possessed by 1 g. of Exsiccated Antitetanic Serum which should contain neither antiseptic, nor any other substance added to it.

A solution of 1 part of it in 10 parts of water should have the same external appearance as liquid antitetanic serum.

The tests for a solution of 1 part of it in 10 parts of sterilised water, should conform with those given under the article of *Serum Antitetanicum Liquidum*.

It should be dissolved, before using, in carbolic acid water (1: 200), or in sterilised water.

Keep with care, in a cool dark place.

SIRUPI.

Syrups.

Syrups are prepared, except in those cases specially described, by mixing the prescribed medicinal liquids with sugar or simple syrup, each, in proper proportions, and after once boiling the mixture, straining through a piece of cloth while still hot.

They should be kept in well-dried vessels, filled quite full, in a cool place, and those which have undergone fermentation, or those which contain precipitates should not be used.

SIRUPUS ALTHÆÆ.

Syrup of Althæa.

Wash

Althæa Root, *coarse cut* . . . . . 2 *pts.*

with distilled water; add to it

Alcohol . . . . . 1 *pt.*

Distilled Water . . . . . 50 *pts.*

extract in the cold, without stirring, for 3 hours; strain through a piece of cloth; in the

Strained Liquid . . . . . 37 *pts.*

dissolve

Sugar . . . . . 63 *pts.*

A clear, slightly yellow, thick liquid.

SIRUPUS AURANTII CORTICIS.

Syrup of Bitter Orange Peel.

Prepare by mixing

Tincture of Bitter Orange Peel . . . . . 15 *pts.*
Simple Syrup . . . . . 85 *pts.*

A clear, yellowish-brown syrup, having a pleasant, aromatic odor.

SIRUPUS CINNAMOMI.

Syrup of Cassia.

Take

Cassia Bark, *in coarse powder* . . . . . 1 *pt.*

pour on it

Cinnamon Water . . . . . 5 *pts.*

and extract in the cold, with frequent shakings, for 2 days; filter; in the

Filtrate . . . . . 4 *pts.*

dissolve

Sugar . . . . . 6 *pts.*

A reddish-brown syrup.

SYRUPUS CROCI.

Syprup of Saffron.

Take

Saffron . . . . . 2 *pts.*

pour on it

White Wine . . . . . 45 *pts.*

extract in the cold for 2 days; filter; in the

Filtrate . . . . . 40 *pts.*

dissolve

Sugar . . . . . 60 *pts.*

A clear, yellowish-red syrup.

SIRUPUS FERRI IODATI.

Syrup of Ferrous Iodide.

Introduce

Iodine . . . . . 41 *pts.*
Distilled Water . . . . . 50 *pts.*

into a glass flask; gradually add to them, under continual shakings

Iron Powder . . . . . 12 *pts.*

filter the resulting, greenish liquid by means of a small filter into a porcelain dish, containing

Simple Syrup . . . . . 850 *pts.*

wash the filter with

Distilled Water . . . . . **a suitable quantity**

and make the whole quantity up to 1000 parts.

An almost colorless or slightly green, or yellow, clear syrup, containing 5 per cent. of pure ferrous iodide ($FeI_2 = 309.7$).

Mix 5 g. of Syrup of Ferrous Iodide with 10 ccm. each, of water, and of dilute sulphuric acid; to the mixture, add potassium permanganate solution (1: 100), drop by drop, until the red color does not fade away for a short time; after allowing the mixture to stand, with frequent shakings, for 3 hours at ordinary temperatures, add 2 g. of potassium iodide, and set aside again for another hour; then in order to decolorise the resulting solution, 24.2 ccm. of decinormal sodium thiosulphate solution should be required.

Keep in well-stoppered, colorless bottles to which a piece of iron wire is introduced.

SIRUPUS IPECACUANHÆ.

Syrup of Ipecacuanha.

Prepare by mixing

Tincture of Ipecacuanha . . . . . 10 *pts.*
Simple Syrup . . . . . 90 *pts.*

A clear, yellowish syrup.

SIRUPUS MANNÆ.

Syrup of Manna.

Dissolve

Manna . . . . . 10 *pts.*

in a mixture of

Alcohol . . . . . 2 *pts.*

Distilled Water . . . . . 33 *pts.*

filter the resulting solution, and in the

Filtrate . . . . . 45 *pts.*

dissolve

Sugar . . . . . 55 *pts.*

A yellowish syrup.

SIRUPUS MENTHÆ.

Syrup of Peppermint.

Moisten

Peppermint Leaves, ***medium cut*** . . . . . 2 *pts.*

with

Alcohol . . . . . 1 *pt.*

pour on them

Distilled Water . . . . . 10 *pts.*

extract in the cold, with frequent shakings, for 24 hours; press; filter; in the

Filtrate . . . . . 7 *pts.*

dissolve

Sugar . . . . . 13 *pts.*

A greenish-brown syrup.

SIRUPUS RHEI.

Syrup of Rhubarb.

Take

Rhubarb, ***coarse cut*** . . . . . 10 *pts.*

Potassium Carbonate . . . . . 1 *pt.*
Sodium Borate . . . . . 1 *pt.*
pour on them
Distilled Water . . . . . 80 *pts.*
extract in the cold for 12 hours; strain; boil the strained liquid; filter; in the
Filtrate . . . . . 60 *pts.*
dissolve
Cinnamon Water . . . . . 20 *pts.*
Sugar . . . . . 120 *pts.*
and make the whole quantity up to 200 parts.

A clear, brownish-yellow syrup.

SIRUPUS RUBI IDÆI.

Syrup of Raspberry.

Crush fresh raspberries, cover, and set aside with frequent stirrings at a temperature of about 20° C., until a small portion of the filtered juice, on being mixed with half its volume of alcohol, produces no turbidity; press; filter; in the
Filtrate . . . . . 7 *pts.*
dissolve
Sugar . . . . . 13 *pts.*

A red syrup.

If 10 ccm. of Syrup of Raspberry be diluted with an equal volume of water, mixed with 5 ccm. of potassium bisulphate solution, and 2 or 3 pieces of woolen strings, free from fat, be introduced into the mixed liquid, boiled for 10 minutes and be well washed with water, then they should not be dyed red.

SIRUPUS SENEGÆ.

Syrup of Senega.

Take
Senega Root, *medium cut* . . . . . 5 *pts.*
pour on it

Distilled Water . . . . . 45 *pts.*
Alcohol . . . . . 5 *pts.*
extract in the cold for 2 days; press; filter; in the
Filtrate . . . . . 40 *pts.*
dissolve
Sugar . . . . . 60 *pts.*

A clear, yellowish syrup which acquires, on adding ferric chloride solution, a brownish-green coloration.

SIRUPUS SENNÆ.

Syrup of Senna.

Take
Senna Leaves, *medium cut* . . . . . 10 *pts.*
Fennel, *Crushed* . . . . . 1 *pt.*
moisten them with
Alcohol . . . . . 5 *pts.*
pour on them
Distilled Water . . . . . 60 *pts.*
and extract in the cold for 12 hours; strain without pressing; boil the strained liquid; filter; after cooling, dissolve
Sugar . . . . . 65 *pts.*
in the resulting
Filtrate . . . . . 35 *pts.*

A clear, brown syrup.

SIRUPUS SENNÆ CUM MANNA.

Syrup of Senna with Manna.

Take
Senna Leaves, *medium cut* . . . . . 35 *pts.*
Fennel, *Crushed* . . . . . 2 *pts.*
pour on them
Boiling Distilled Water . . . . . 350 *pts.*
set aside for 12 hours; express; in the

Expressed Liquid . . . . . 350 *pts.*
dissolve
Manna . . . . . 50 *pts.*
Sugar . . . . . 400 *pts.*
allow to subside; decant the upper clear liquid; evaporate till it attains a syrupy consistence, and strain.

A dark brown syrup.

SIRUPUS SIMPLEX.

Simple Syrup.

Take
Sugar . . . . . 65 *pts.*
dissolve it in
Hot Distilled Water . . . . . 35 *pts.*

A clear, colorless, odorless syrup. Specific gravity: 1.32.

SIRUPUS ZINGIBERIS.

Syrup of Ginger.

Take
Tincture of Ginger . . . . . 10 *pts.*
Simple Syrup . . . . . 90 *pts.*
mix them together

A slightly turbid, pale yellow syrup.

SPARTEINUM SULFURICUM.

Sparteine Sulphate.

$$C_{15}H_{26}N_2.H_2SO_4 + 5H_2O = 422.52$$

Colorless prisms, or a white, granular powder, odorless; soluble in 2 parts of water, and in 5 parts of alcohol, showing an acid reaction.

An aqueous solution (1: 20) of Sparteine Sulphate yields a white precipitate with barium nitrate solution, a yellowish-white precipitate with tannic acid solution, and a reddish-brown precipitate with iodine solution. The same aqueous solution gradually deposits, with a solution of yellow prussiate of potash, a yellow crystalline laminæ.

The aqueous solution (1: 10) of it produces, with sodium hydroxide solution, a white turbidity, and subsequently deposits oily drops which are easily soluble in ether.

When heated to about 83° C., it melts and loses the water of crystallisation; the resulting, anhydrous substance should melt again at about 136° C.

It should dissolve colorless in sulphuric acid, and the resulting solution should, with a small piece of potassium bichromate, produce a green, but not a violet coloration.

On warming 0.1 g. of it with a mixture of 20 drops of chloroform and 5 drops of alcoholic sodium hydroxide solution, no penetrating odor should be evolved.

When dried at 110° C. till it attains a constant weight, not more than 21.3 per cent. of its weight should be lost.

On ignition, 0.02 g. of it should leave no solid residue.

Keep with care.

SPECIES.

Tea.

Cut, rasp, or crush the medicinal substances to be used for the preparation of tea, to small pieces of as uniform a size as possible, and mix them together, removing the fine powder.

The medicinal substances to be used for preparing infusion or decoction, should have different state of division, according to the case with which their ingredients are extracted.

The tea-mixture should be finely cut, and those to be used for fomentation should be in state of coarse powder.

SPECIES LAXANTES.

Laxative Tea.

Take

Senna Leaves, *medium cut*	160 *pts.*
Elder Flowers	100 *pts.*
Fennel, *Crushed*	50 *pts.*
Anise Seed, *Crushed*	50 *pts.*
Potassium Tartrate	25 *pts.*
Tartaric Acid	15 *pts.*

At first, dissolve potassium tartrate in 50 parts of distilled water; uniformly moisten the fennel and anise seed with the resulting solution; after half an hour, uniformly moisten them again with the solution of tartaric acid in 15 parts of distilled water; after drying, add the remaining medicinal substances to the resulting mixture.

SPECIES PECTORALES.

Pectoral Tea.

Prepare by mixing

Althæa Root, *coarse cut*	8 *pts.*
Licorice Root, *coarse cut*	3 *pts.*
Orris Root, *coarse cut*	1 *pts.*
Coltsfoot Leaves, *coarse cut*	4 *pts.*
Mullein Flowers, *coarse cut*	2 *pts.*
Anise Seed, *crushed*	2 *pts.*

SPIRITUS. *Alcohol.*

Spirit. *Alcohol.*

A clear, colorless, volatile liquid, having a characteristic, penetrating odor and a burning taste; showing a neutral reaction; burning, when set on fire, with a pale blue flame. Specific gravity: 0.830—0.834.

Alcohol should be free from foreign odor, and miscible with water without any turbidity. It contains 90—91.2 per cent. by volume, or 85.6—87.2 per cent. by weight, of pure alcohol. ($C_2H_6O = 46.06$).

If 10 ccm. of it be mixed with 5 ccm. of silver nitrate solution, it should become neither turbid nor colored, even on heating.

If 10 ccm. of it be mixed with 0.2 ccm. of potassium hydroxide solution, and evaporated down to 1 ccm., no odor of fusel oil should be evolved on saturating with dilute sulphuric acid.

If 5 ccm. of it be carefully introduced into a test-tube, previously containing 5 ccm. of sulphuric acid, so as to form 2 layers of liquids, no rose-red ring should, after a long standing, be formed at their contact surface.

A mixture of 10 ccm. of it with 1 ccm. of potassium permanganate solution should not change its color within 20 minutes.

It should be colored neither by hydrogen sulphide solution, nor by ammonia water.

If 5 ccm. of it be volatilised on a water-bath, no weighable residue should be obtained.

Keep in well-stoppered bottles.

SPIRITIS ÆTHEREUS. *Liquor Hoffmann.*

Spirit of Ether. *Hoffmann's Solution.*

Prepare by mixing

Ether	1 *pt.*
Alcohol	3 *pts.*

A clear, colorless, volatile liquid, showing a neutral reaction. Specific gravity: about 0.805—0.809.

If 1 volume of Spirit of Ether be shaken with 1 volume of potassium acetate solution, half a volume of ether should be separated on the surface of the liquid.

If it be sprinkled over a filter-paper and allowed to volatilise, no foreign odor should be perceptible.

Keep in well-stoppered bottles, in a cool place.

SPIRITUS ÆTHERIS NITROSI.

Spirit of Nitrous Ether. *Sweet Spirit of Nitre.*

Pour

Alcohol . . . . . 5 *pts.*

on

Nitric Acid . . . . . 3 *pts.*

so as to form 2 layers of liquids; after standing for 2 days, distill on a water-bath; collect the distillate in a receiver, previously containing

Alcohol . . . . . 5 *pts.*

but stop the distillation immediately, when a yellow vapor becomes visible; neutralise the distillate here obtained with burnt magnesia; after 24 hours, distill it again on a water-bath, at first, by a very gentle heat; collect the distillate in a receiver, which previously contains

Alcohol . . . . . 2 *pts.*

till the whole distillate becomes 8 parts.

A colorless or faintly yellow, clear liquid, having an agreeable, ethereal odor and a slightly sweet, burning taste; miscible clearly with water, and showing a neutral or a slightly acid reaction. Specific gravity: 0.84—0.85.

Spirit of Nitrous Ether should completely volatilise on a water-bath without leaving any residue.

If 5 ccm. of it be introduced into a test-tube, about 2 cm. in diameter, and 15 ccm. of ferrous sulphate solution (1: 10) and 5 ccm. of dilute sulphuric acid be added to it, tightly corked, and be shaken, then a blackish-brown coloration should take place.

If 10 ccm. of it be mixed with 0.2 cm. of normal potassium hydroxide solution, the mixture should show no acid reaction.

Keep in well-stoppered bottles.

SPIRITUS AMMONIÆ AROMATICUS.

Aromatic Spirit of Ammonia.

Take

Ammonium Carbonate . . . . . 40 *pts.*

Ammonia Water	100 *pts.*
Oil of Lemon	8 *pts.*
Oil of Cloves	1 *pt.*
Oil of Lavender	1 *pt.*
Alcohol	650 *pts.*
Distilled Water	200 *pts.*

At first, mix ammonia water with distilled water; in the resulting mixture, dissolve ammonium carbonate; separately dissolve the volatile oils in alcohol; mix these 2 solutions and filter.

A clear, slightly yellow or yellow liquid, having an aromatic and ammoniacal odor, and containing about 2 per cent. of pure ammonia ($NH_3=17.07$).

Keep in well-stoppered bottles.

SPIRITUS AMMONIÆ FŒNICULATUS.

Fœniculated Spirit of Ammonia.

Take

Oil of Fennel	3 *pts.*

dissolve it in

Alcohol	80 *pts.*

and with the resulting solution, mix

Ammonia Water	17 *pts.*

A clear, slightly yellow or yellow liquid, containing about 1.7 per cent. of pure ammonia ($NH_3=17.07$).

Keep in well-stoppered bottles.

SPIRITUS AROMATICUS.

Aromatic Spirit.

Take

Cloves	15 *pts.*
Cassia Bark	15 *pts.*
Nutmeg	30 *pts.*
Cardamom	30 *pts.*

Crush them and introduce into a distillation apparatus, ; pour on them

Alcohol	800 *pts.*
Oil of Lemon	1 *pt.*
Oil of Peppermint	2 *pts.*
Water	1200 *pts.*

and distill until about 1000 parts are obtained.

A clear liquid, having the aromatic odor and taste.

Keep in well-stoppered bottles.

SPIRITUS CAMPHORATUS.

Spirit of Camphor. *Tincture of Camphor.*

Take

Refined Camphor	1 *pt.*

dissolve it in

Alcohol	7 *pts.*

and to the resulting solution, add

Distilled water	2 *pts.*

A clear, colorless liquid, having a specific gravity of 0.885—0.889.

Keep in well-stoppered bottles.

SPIRITUS CHLOROFORMII.

Spirit of Chloroform.

Prepare by mixing

Chloroform	5 *pts.*
Alcohol	95 *pts.*

A clear, colorless liquid, having a specific gravity of about 0.857.

Keep in well-stoppered bottles.

SPIRITUS CINNAMOMI.

Spirit of Cassia.

Prepare by mixing

Oil of Cassia	2 *pts.*
Alcohol	98 *pts.*

A clear liquid.

Keep in well-stoppered bottles.

SPIRITUS CITRI.

Spirit of Lemon.

Prepare by mixing

Oil of Lemon	10 *pts.*
Alcohol	90 *pts.*

A clear, colorless liquid.

Keep in well-stoppered bottles.

SPIRITUS DILUTUS.

Dilute Alcohol.

Prepare by mixing

Alcohol	7 *pts.*
Distilled Water	3 *pts.*

A clear, colorless liquid, containing 60—61 per cent. of pure alcohol ($C_2H_6O = 46.06$). Specific gravity: 0.892—0.896.

Dilute Alcohol should produce no change with a solution of silver nitrate, barium nitrate, or of ammonium oxalate.

Keep in well-stoppered bottles.

SPIRITUS FŒNICULI.

Spirit of Fennel.

Prepare by mixing

Oil of Fennel	5 *pts.*
Alcohol	95 *pts.*

A clear, colorless liquid.
Keep in well-stoppered bottles.

SPIRITUS JUNIPERI.

Spirit of Juniper.

Prepare by mixing

Oil of Juniper	2 *pts.*
Alcohol	98 *pts.*

A clear, colorless liquid.
Keep in well-stoppered bottles.

SPIRITUS LAVANDULÆ.

Spirit of Lavender.

Prepare by mixing

Oil of Lavender	3 *pts.*
Alcohol	97 *pts.*

A clear, colorless liquid.
Keep in well-stoppered bottles.

SPIRITUS MENTHÆ.

Spirit of Peppermint.

Prepare by mixing

Oil of Peppermint	10 *pts.*

Alcohol . . . . . 90 *pts.*

A clear, colorless liquid.

Keep in well-stoppered bottles.

SPIRITUS ROSMARINI.

Spirit of Rosemary.

Prepare by mixing

Oil of Rosemary . . . . . 1 *pts.*

Alcohol . . . . . 9 *pts.*

A clear, almost colorless liquid, having a specific gravity of 0.838 —0.840.

SPIRITUS SAPONATUS.

Spirit of Soap.

Take

Olive Oil . . . . . 6 *pts.*

Potassium Hydroxide Solution . . . . . 7 *pts.*

Alcohol . . . . . 8 *pts.*

introduce them into a glass bottle; put on a stopper; shake frequently, until a soap paste is formed, and a portion of it clearly dissolves both in alcohol and in water, whereupon add to it

Alcohol . . . . . 22 *pts.*

Distilled Water . . . . . 17 *pts.*

and filter.

A clear, yellow liquid, showing an alkaline reaction. Specific gravity: 0.925—0.935.

On shaking with water, Spirit of Soap should foam considerably.

SPIRITUS SINAPIS.

Spirit of Mustard.

Prepare by mixing

Oil of Mustard	1 *pt.*
Alcohol	49 *pts.*

A clear, colorless liquid, having the odor of mustard oil. Specific gravity: 0.833–0.837.

Introduce 5 ccm. of Spirit of Mustard, 50 ccm. of decinormal silver nitrate solution, and 10 ccm. of ammonia water into a measuring flask of 100 ccm. in capacity; put on a stopper, and set aside with frequent shakings for 24 hours; make the mixture up to 100 ccm. by adding water, and filter; 50 ccm. of the resulting clear filtrate, after being mixed with 6 ccm. of nitric acid and 1 ccm. of dilute ferric sulphate solution (1 : 20), should require, for the appearance of a red coloration, 16.6–17.2 ccm. of decinormal ammonium sulphocyanate solution.

STIBIO-KALIUM TARTARICUM.

Potassium Antimony Tartrate. *Tartar Emetic*

$$2KSbC_4H_4O_7 + H_2O = 664.4$$

Fine, transparent crystals, or a white, crystalline powder, slowly efflorescent in the air; soluble in 17 parts of water, and in 3 parts of boiling water, showing a weak acid reaction, but insoluble in alcohol.

When heated strongly, Potassium Antimony Tartrate emits an odor resembling that of burning sugar, and leaves an alkaline residue.

An aqueous solution of the salt yields, on adding lime water, a white precipitate readily soluble in acetic acid, and, after being acidified with hydrochloric acid, an orange-red precipitate on adding hydrogen sulphide solution.

If 1 g. of the powdered salt be mixed with 3 ccm. of stannous chloride solution, no dark coloration should take place within 1 hour.

An aqueous solution (1 : 100) of the salt, after being mixed with a small quantity of tartaric acid, should not be rendered turbid by a solution of barium nitrate, silver nitrate, or of ammonium oxalate, and should also produce no blue coloration with a solution of yellow prussiate of potash.

If 2 g. each, of the salt, and of tartaric acid be dissolved in 100 ccm. of water, and 2 g. of sodium bicarbonate, and 1 or 2 drops of starch solution be added, then, in order to produce a blue coloration, 12 ccm. of decinormal iodine solution should be required.

Keep with care.

STIBIUM SULFURATUM AURANTICUM.

Antimony Sulphide.

An orange-red, fine powder, having almost no odor.

When Antimony Sulphide is heated in a glass tube, sulphur sublimes and a black substance is left behind.

If 0.5 g. of it be repeatedly shaken with 5 ccm. of cold, saturated aqueous solution of ammonium carbonate, and set aside at a temperature of 50°—60° C. for 2 minutes, and be filtered, the resulting filtrate, after being supersaturated with hydrochloric acid, should yield no yellow, flocculent precipitate within 6 hours.

If 1 g. of it be shaken with 20 ccm. of water and filtered, the resulting filtrate should produce, with silver nitrate solution, no brown coloration, and yield therewith no more than a slight opalescence; the same filtrate should not become immediately turbid with barium nitrate solution.

Keep with care, protected from light.

STRYCHNINUM NITRICUM.

Strychnine Nitrate.

$C_{21}H_{22}N_2O_2.HNO_3 = 397.35$

Colorless, acicular crystals, having a bitter taste; soluble in 90

parts of water, showing a neutral reaction, also soluble in 3 parts of boiling water, 70 parts of alcohol, and in 5 parts of hot alcohol; almost insoluble in ether, chloroform, and in carbon disulphide.

An aqueous solution of Strychnine Nitrate produces, after adding ferrous sulphate solution, a blackish-brown coloration with sulphuric acid, and deposits, on adding potassium bichromate solution, reddish-yellow crystals which give, with sulphuric acid, a transient bluish-violet coloration.

The salt should dissolve with almost no color in sulphuric acid.

When triturated with nitric acid, it should produce no red coloration.

The aqueous solution of the salt, after being acidified with dilute nitric acid, produces, with barium nitrate solution, no more than a slight turbidity.

On heating strongly, 0.01 g. of the salt should be consumed without leaving any solid residue.

STYRAX LIQUIDUS.

Liquid Storax.

A balsam obtained from the inner bark of *Liquidambar orientalis* Mill., by boiling it with water and pressing.

A gray sticky liquid, having an agreeable odor; sinking when thrown into water, and leaving thereby a small quantity of colorless oily drops, floating on the surface.

If 1 part of Liquid Storax be mixed with 10 parts of alcohol, there results a grayish-brown, turbid liquid which, on filtering, gives a clear acid solution; the latter, on being evaporated, leaves a brown, semi-fluid substance which is transparent in thin layers; the residue thus obtained is more than 65 per cent., and is soluble in ether, carbon disulphide, and in benzene, but is almost completely insoluble in petroleum benzin.

If it be completely extracted with boiling alcohol, the insoluble portion, after drying, should be not more than 2.5 per cent.

STYRAX LIQUIDUS DEPURATUS.

Purified Liquid Storax.

Warm liquid storax on a water-bath, and remove a most part of water; dissolve the residue in equal parts of alcohol; filter and evaporate the filtrate till a thick extract is obtained.

A brown sticky substance, transparent in thin layers; soluble clearly in equal parts of alcohol, but becoming turbid in a larger quantity; also soluble in ether, carbon disulphide, and in benzene, leaving a small quantity of flocculent substances.

SUCCUS LIQUIRITIÆ.

Licorice Juice.

An extract obtained by boiling licorice with water, expressing, and evaporating the decoction thus obtained.

Lustrous, black masses, having a very sweet taste, and with a conchoidal fracture.

At least 60 per cent. of Licorice Juice should be soluble in water.

When examined under the microscope, no starch-grains should be visible.

On incineration, it should leave not more than 8 per cent. of solid residue.

SULFONALUM.

Sulphonal.

$C_7H_{16}O_4S_2 = 228.28$

Colorless prisms, or a crystalline powder, inodorous and tasteless; soluble in 500 parts of water, 15 parts of boiling water, 65 parts of alcohol, 2 parts of boiling alcohol, and also in 135 parts of ether, showing a neutral reaction. Melting point: 125°—126° C.

When heated with charcoal powder in a test-tube, Sulphonal emits the odor of mercaptan.

If 1 part of it be dissolved in 50 parts of boiling water, no odor should be evolved, and the filtrate, obtained after cooling, should not be affected by a solution either of barium nitrate or of silver nitrate. If 10 ccm. of the same aqueous solution be mixed with a drop of potassium permanganate solution, no immediate decoloration should take place.

On heating strongly, 0.1 g. of it should leave no weighable solid residue.

Keep with care.

SULFUR DEPURATUM.

Purified Sulphur.

S = 32.06

Take

Sublimed Sulphur	100 *pts.*

after sifting, triturate it with a mixture of

Distilled Water	70 *pts.*
Ammonia Water	10 *pts.*

set aside, with frequent shakings, for a day; to the resulting mixture, add

Distilled Water	100 *pts.*

filter; wash with a sufficient quantity of distilled water; dry by warming at a suitable temperature, and pass through a sieve.

A fine, dry, yellow powder, without odor or taste; melting when heated, and burning, when set on fire, with a blue flame, emitting at the same time the odor of sulphur dioxide.

When boiled with sodium hydroxide solution, Purified Sulphur should dissolve completely in it, and when moistened with water, it should not redden a blue litmus paper.

If 1 part of it be mixed with 20 parts of ammonia water, and set aside, with frequent shakings, at 35°—40° C. and filtered, the resulting filtrate, on being acidified with hydrochloric acid, should not

become yellow, and the same also on the further addition of hydrogen sulphide solution.

On ignition, it should leave not more than 1 per cent. of solid residue.

SULFUR PRÆCIPITATUM.

Precipitated Sulphur.

S = 32.06

A very fine, yellowish-white, amorphous powder, melting when heated, and burning, when set on fire, with a blue flame, emitting at the same time the odor of sulphur dioxide; insoluble in water, and in alcohol, but readily soluble in carbon disulphide, and also soluble in boiling sodium hydroxide solution.

When moistened with water, Precipitated Sulphur should not redden a blue litmus paper.

If 1 part of it be mixed with 20 parts of ammonia water, and set aside, with frequent shakings, at a temperature of 35°—40° C. and filtered, the resulting filtrate, on being acidified with hydrochloric acid, should not become yellow, and the same also on the further addition of hydrogen sulphide solution.

On heating strongly, 1 g. of it should leave no weighable solid residue.

SULFUR SUBLIMATUM.

Sublimed Sulphur.

A fine, lemon-yellow powder which melts on heating, and burns, when set on fire, with a blue flame, emitting at the same time the odor of sulphur dioxide.

When boiled with sodium hydroxide solution, Sublimed Sulphur should completely dissolve in it.

On ignition, it should leave not more than 1 per cent. of solid residue.

SUPPOSITORIA.

Suppositories.

Unless otherwise prescribed, use cacao butter as a vehicle, and mix medicinal substances mostly in their original form or together with a suitable liquid.

Powerful, poisonous or solid medicines, unless clearly stated in the prescription, should not be put into hollow suppositories.

The rectal suppositories should be conical, usually 3–4 cm. in length, and 1–1.5 cm. in diameter at the base.

The shapes of suppositories should be cylindrical, spherical, oval, or conical, according to the general rules or as the prescription specifies.

The rectal suppositories should generally weigh 2–3 g., and the vaginal suppositories should weigh 4–6 g.

SUPPOSITORIA GLYCERINI.

Suppositories of Glycerin.

Take

Sodium Carbonate	3 *pts.*
Glycerin	60 *pts.*
Stearic Acid	5 *pts.*

at first, dissolve sodium carbonate in glycerin; to the resulting solution, add stearic acid and melt it by heating carefully; when carbonic acid gas ceases to evolve, mould the product into 10 pieces.

Each of these suppositories contains about 6 g. of glycerin.

Prepare freshly when wanted.

SUPPOSITORIA OPII.

Suppositories of Opium.

Take

Opium	0.72 *pts.*
Cacao Butter	a suitable quantity.

triturate the opium intimately with a part of cacao butter; to the resulting mixture, add the remaining cacao butter after melting, and mould the product into 12 pieces.

Each of these suppositories contains about 0.06 g. of opium.

SUPPOSITORIA SCOPOLIÆ.

Suppositories of Scopolia.

Take

Extract of Scopolia	1.2 *pts.*
Cacao Butter	**a suitable quantity.**

and prepare according to the method described under the article of *Suppositoria Opii*, and mould the product into 12 pieces.

Each of these suppositories contains about 0.1 g. of extract of scopolia.

TALCUM.

Talc.

Finely crushed magnesium silicate in the form of a white powder, giving a fatty feeling when touched, and not changing even when strongly heated.

Talc should contain no ingredients soluble in water, alcohol, hydrochloric acid, or in sodium hydroxide solution.

TANNICUM ACETYLICUM.

Acetyl Tannic Acid.

A yellowish-white or whitish powder, almost inodorous and tasteless; difficultly soluble in water, alcohol, or in ether, but readily soluble in sodium carbonate solution, and in sodium borate solution.

Acetyl Tannic Acid, when boiled with ammonia water for 5 min-

ntes and diluted with water, yields, on adding ferric chloride solution, a bluish-black precipitate.

After warming with potassium hydroxide solution, it evolves, on being supersaturated with dilute sulphuric acid, the vapor of acetic acid.

If 1 part of it be shaken with 20 parts of water which is previously acidified with nitric acid, and filtered, the resulting filtrate should not be affected by a solution of silver nitrate, barium nitrate, or of hydrogen sulphide.

On heating strongly, 0.2 g. of it should leave no weighable solid residue.

Keep in well-stoppered bottles.

TELA ACIDI BORICI.

Boric Acid Gauze.

Take

Boric Acid	12 *pts.*
Glycerin	6 *pts.*

dissolve them in

Hot Distilled Water	116 *pts.*

in the resulting solution, soak

Purified Gauze	120 *pts.*

press and dry.

TELA DEPURATA.

Purified Gauze.

A white, clean cloth woven with pure cotton thread.

Purified Gauze is usually about 30 cm. broad, and 918 sq.cm. of it has a weight at least of 3 g., and each sq.cm. should have at least 24 threads.

Its quality and tests are the same as those described under the article of *Gossipium Depuratum*.

TELA HYDRARGYRI BICHLORATI.

Mercuric Chloride Gauze.

Take

Mercuric Chloride	2 *pts.*
Potassium Chloride	2 *pts.*

dissolve them in

Distilled Water	1300 *pts.*

slightly color the resulting solution with a red coal tar coloring matter; in the colored solution, soak

Purified Gauze	1000 *pts.*

press and dry by a gentle heat.

Keep well-closed, with care, protected from light.

TELA IODOFORMIATA.

Iodoform Gauze.

Take

Iodoform	55 *pts.*
Liquid Paraffin	3 *pts.*

dissolve them in a mixture of

Alcohol	200 *pts.*
Ether	800 *pts.*

in the resulting solution, soak

Purified Gauze	1000 *pts.*

and when the latter becomes uniformly yellow-colored, dry in a dark place.

TELA SALICYLATA.

Salicylic Acid Gauze.

Take

Salicylic Acid	58 *pts.*
Glycerin	100 *pts.*

dissolve them in a mixture of

Alcohol	550 *pts.*
Distilled Water	550 *pts.*

in the resulting solution, soak

Purified Gauze	1000 *pts.*

press and dry at ordinary temperatures.

TEREBINTHINA.

Turpentine.

A balsam obtained from several species of Pinus.

A yellowish or pale brownish, thick liquid, having a characteristic odor and a bitter taste, and containing 70—85 per cent. of resin, and 15—30 per cent. of turpentine oil.

The crystalline precipitate usually contained in Turpentine disappears, when heated on a water-bath, and there results a yellowish-brown, clear liquid which becomes turbid again on cooling.

If 1 part of it be mixed with 5 parts of alcohol, there results a clear solution which reddens a blue litmus paper moistened with water.

TERPINUM HYDRATUM.

Terpin Hydrate.

$$C_{10}H_{20}O_2 + H_2O = 190.22$$

Colorless, glistening, rhombic crystals, having a faintly aromatic and somewhat bitter taste; almost odorless; soluble in about 250 parts of water, 32 parts of boiling water, 10 parts of alcohol, 100 parts of ether, 200 parts of chloroform, and lastly in 1 part of boiling acetic acid.

When heated, Terpin Hydrate sublimes in fine needles, melting at 116°—117° C., and losing water of crystallisation, and the anhydrous substance thus produced again melts at 102°—105° C.

When heated in the air, it burns with a luminous flame.

It dissolves with an orange-yellow color in sulphuric acid.

A hot aqueous solution of it, when mixed with 2 or 3 drops of sulphuric acid, becomes turbid, and also evolves a strongly aromatic odor.

It should have almost no turpentine-like odor, and its hot aqueous solution should not change the color of litmus papers.

On ignition, 0.1 g. of it should leave no weighable solid residue.

THEOBROMINUM NATRIO-SALICYLICUM.

Theobromine Sodium Salicylate.

A white, odorless powder, having a sweet, saline, somewhat alkaline taste; soluble in equal parts of water, and showing an alkaline reaction.

An aqueous solution (1 : 5) of Theobromine Sodium Salicylate is colorless, and acquires, after being acidified with acetic acid, a violet color with ferric chloride solution. The same aqueous solution, on being mixed with hydrochloric acid, deposits salicylic acid, and also a white precipitate of theobromine after a short time; the above precipitate is soluble in sodium hydroxide solution, but not completely soluble in ammonia water.

If a clear solution prepared by dissolving 1 g. of it in 10 ccm. of sodium hydroxide solution, be shaken with an equal volume of chloroform, and the latter be separated, the residue, which is obtained by evaporating the chloroform solution, should weigh, after drying, not more than 0.005 g.

It should dissolve with no or almost no coloration in sulphuric acid.

On heating strongly, 0.2 g. of it should be consumed, leaving about 0.06 g. of solid residue.

If its aqueous solution (1 : 10) be acidified with dilute nitric acid and filtered, the resulting clear filtrate should produce no more than a slight turbidity with a solution either of barium nitrate or of silver nitrate.

Dissolve 2 g. of it in 10 ccm. of water by heating gently in a porcelain dish; to the resulting solution, add 5 ccm. or a necessary quantity of normal hydrochloric acid solution, till a blue litmus paper is just slightly reddened, then add a drop of dilute ammonia

water (1: 10), and set aside the resulting, very slightly alkaline solution, thoroughly stirring at 15°—20° C., for 3 hours. Collect the precipitate here produced on a filter-paper of about 8 cm. in diameter, which is previously dried at 100° C. and weighed; wash the precipitate twice, each time, with 10 ccm. of water, and finally dry it at 100° C. and weigh; then its weight should be at least 0.8 g. If 1 part of the above precipitate be quickly evaporated on a water-bath with 100 parts of chlorine water, there should remain a yellowish-red residue which acquires, when mixed with a small quantity of ammonia water, a beautiful violet-red color.

Keep with care, in well-stoppered bottles.

THYMOLUM.

Thymol.

$C_{10}H_{14}O = 150.14$

Colorless, transparent, large crystals, having the aromatic odor and taste; almost insoluble in water, but readily soluble in alcohol, ether, chloroform, and in 2 parts of sodium hydroxide solution.

Thymol completely volatilises, when heated on a water-bath, and it sinks when thrown into water. On heating, it melts and becomes a colorless, oily liquid, and floats on the surface of water. Melting point: 50°—51° C. Boiling point: 228°—230° C.

If 1 part of it be dissolved in 4 parts of sulphuric acid and slightly warmed, a blood-red coloration is produced.

If a piece of its crystals be dissolved in 1 ccm. of glacial acetic acid, and 6 drops of sulphuric acid be added, the resulting solution acquires, when mixed with a drop of nitric acid, a deep blue coloration.

A saturated aqueous solution of it shows a neutral reaction, and should produce, on being mixed with bromine water, a milky turbidity. The same aqueous solution should not be colored by adding ferric chloride solution.

When heated on a water-bath, 0.1 g. of it should leave no weighable residue.

TINCTURÆ.

Tinctures.

Unless otherwise prescribed, introduce the medicinal substances, medium cut or coarsely powdered, into a proper vessel; pour the menstruum to be used for extraction, and after well closing the vessel, extract in the cold, with frequent shakings, for 7 days in a shady place; strain and, if necessary, express; set aside the strained liquid in a shady place, and after allowing the precipitate to settle, filter by using a funnel covered with a glass plate. Tinctures should be kept in a cool shady place.

TINCTURA ACONITI NAPELLI.

Tincture of Aconite.

Prepare by taking

Aconite Root, *coarse powder*	1 *pt.*
Dilute Alcohol	10 *pts.*

A yellowish-brown liquid, having a faintly bitter taste, followed by a pungent and burning after-taste.

Keep with care.

TINCTURA ALOES.

Tincture of Aloes.

Prepare by taking

Aloes, *in coarse powder*	1 *pt.*
Alcohol	5 *pts.*

and filtering it.

A greenish-brown liquid, having a very bitter taste.

TINCTURA ALOES COMPOSITA.

Compound Tincture of Aloes.

Prepare by taking

Aloes, *in coarse powder*	6 *pts.*
Rhubarb, *medium cut*	1 *pt.*
Gentian Root, *medium cut*	1 *pt.*
Zedoary Root, *medium cut*	1 *pt.*
Saffron	1 *pt.*
Dilute Alcohol	200 *pts.*

A yellowish, reddish-brown, aromatic liquid, having a very bitter taste.

TINCTURA AMARA.

Bitter Tincture.

Prepare by taking

Bitter Orange Peel, *medium cut*	5 *pts.*
Japanese Gentian Root, *medium cut*	5 *pts.*
Zedoary Root	2 *pts.*
Dilute Alcohol	100 *pts.*

A yellowish-brown liquid.

TINCTURA AROMATICA.

Aromatic Tincture.

Take

Cloves, *in coarse powder*	2 *pts.*
Cassia Bark, *in coarse powder*	10 *pts.*
Cardamom, *in coarse powder*	2 *pts.*
Ginger, *medium cut*	5 *pts.*
Dilute Alcohol	100 *pts.*

extract in the cold for 7 days; press; filter; to the filtrate, add

Spirit of Lemon	5 *pts.*

A reddish-brown liquid.

TINCTURA AROMATICA ACIDA.

Acid Aromatic Tincture. *Aromatic Sulphuric Acid.*

Pour

Sulphuric Acid . . . . . 10 *pts.*

gradually, under agitation, into

Dilute Alcohol . . . . . 90 *pts.*

to the resulting mixture, add

Cassia Bark, ***in coarse powder*** . . . . . 5 *pts.*

Ginger, ***in coarse powder*** . . . . . 5 *pts.*

A brownish-red liquid.

Keep well-closed, in glass-stoppered bottles.

TINCTURA ASÆ FŒTIDÆ.

Tincture of Asafetida.

Prepare by taking

Asafetida, ***in coarse powder*** . . . . . 1 *pt.*

Alcohol . . . . . 5 *pts.*

A yellowish, brownish-red liquid.

TINCTURA AURANTII CORTICIS.

Tincture of Bitter Orange Peel.

Prepare by taking

Bitter Orange Peel, ***medium cut*** . . . . . 1 *pt.*

Dilute Alcohol . . . . . 5 *pts.*

A brownish liquid.

TINCTURA BENZOES.

Tincture of Benzoin.

Prepare by taking

Benzoin, *in coarse powder*	1 *pt.*
Alcohol	5 *pts.*

A yellowish, reddish-brown liquid which, on adding water, becomes milky and shows a strongly acid reaction.

TINCTURA CANNABIS INDICÆ.

Tincture of Indian Hemp.

Take

Extract of Indian Hemp	1 *pt.*
Alcohol	20 *pts.*

dissolve extract of Indian hemp in alcohol, and filter.

A dark greenish liquid, having a characteristic, somewhat bitter taste.

TINCTURA CANTHARIDUM.

Tincture of Cantharides.

Prepare by taking

Cantharides, *in coarse powder*	1 *pt.*
Alcohol	10 *pts.*

A yellowish-brown liquid which, when mixed with an equal volume of water, produces a milky turbidity.

Keep with care.

TINCTURA CAPSICI.

Tincture of Capsicum.

Prepare by taking

Red Pepper, *medium cut*	1 *pt.*
Alcohol	10 *pts.*

A reddish-yellow liquid, having a sharp, burning taste.

TINCTURA CASCARILLÆ.

Tincture of Cascarilla.

Prepare by taking

Sweet Wood Bark, *in coarse powder*	1 *pt.*
Dilute Alcohol	5 *pts.*

A reddish-brown liquid.

TINCTURA CATECHU.

Tincture of Catechu.

Prepare by taking

Catechu, *in coarse powder*	1 *pt.*
Dilute Alcohol	5 *pts.*

A dark brown liquid.

TINCTURA CHINÆ.

Tincture of Cinchona.

Take

Cinchona Bark, *in coarse powder*	1 *pt.*
Dilute Alcohol	5 *pts.*

extract in the cold for 10 days; press and filter.

A reddish-brown liquid, having a strongly bitter taste.

Evaporate 50 g. of Tincture of Cinchona in a porcelain dish previously weighed, down to 10 g.; transfer the residue to a glass bottle with 6 cem. of pure alcohol; add 70 cem. of ether and 14 cem. of chloroform, and thoroughly shake the mixture, then add 10 ccm. of sodium carbonate solution (1 : 3) and set aside, with frequent shakings, for an hour. When a clear chloroform-ether solution separates, take 60 cem. of it, and filter into a small flask, through a dry filter-paper placed in a well-covered funnel, and distill the filtrate till it becomes about one-half of its original bulk. Introduce the remaining chloroform-ether solution into a separating-funnel; wash the flask thrice, each time, with 5 cem. of a mixture of 6 cem. of ether and 1 cem. of chloroform, and add the washings to the solution in the separating-funnel. Thoroughly shake the mixed liquid with 30 ccm. of decinormal hydrochloric acid solution; when the layer of chloroform-ether solution separates, adding, if necessary, a suitable quantity of ether, take the lower, clear, acid layer, and filter it into a glass flask of 100 cem. in capacity, by means of a small filter-paper which is previously moistened with water. Then shake the chloroform-ether solution thrice, each time, with 10 cem. of water, separating and filtering the aqueous part through the same filter-paper which is finally washed with water. Dilute all the filtrates and washings put together to 100 cem. by adding water, take 50 cem. of the diluted solution, pour in 1 cem. of alcohol in which a small piece of hæmatoxylin is dissolved, and add drop by drop, under agitation, decinormal potassium hydroxide solution, and shake the yellowish liquid; then for the immediate production of a bluish-violet coloration, not more than 12.5 cem. of potassium hydroxide solution should be required. If 5 cem. of the remaining solution in the glass flask be mixed with 1 ccm. of chlorine water, and ammonia water be added, a beautiful green coloration should be produced.

TINCTURA CHINÆ COMPOSITA.

Compound Tincture of Cinchona.

Prepare by taking

Cinchona Bark, *in coarse powder*	6 *pts.*
Bitter Orange Peel, *medium cut*	2 *pts.*

Gentian Root, *medium cut*	2 *pts.*
Cassia Bark, *in coarse powder*	1 *pt.*
Dilute Alcohol	50 *pts.*

A reddish-brown liquid, having an aromatic odor and a very bitter taste.

TINCTURA CHLOROFORMII ET MORPHINI COMPOSITA.

Compound Tincture of Chloroform and Morphine.

Take

Morphine Hydrochloride	10 *pts.*

dissolve it in

Dilute Hydrogen Cyanide	50 *pts.*

with the resulting solution, mix

Chloroform	112 *pts.*
Tincture of Indian Hemp	84 *pts.*
Tincture of Capsicum	10.5 *pts.*
Oil of Peppermint	1.4 *pts.*
Glycerin	311 *pts.*
Alcohol	425 *pts.*

A greenish, yellowish-brown liquid.

Keep with care.

TINCTURA CINNAMOMI.

Tincture of Cinnamon.

Prepare by taking

Cassia Bark, *in coarse powder*	1 *pt.*
Dilute Alcohol	5 *pts.*

A reddish-brown liquid.

TINCTURA COLCHICI.

Tincture of Colchicum.

Take

Colchicum Seed, *in coarse powder* . . . . . 1 *pt.*

and extract it, in the cold, for 10 days with

Dilute Alcohol . . . . . 10 *pts.*

press and filter.

A yellow liquid.

If 20 drops of Tincture of Colchicum be mixed with 5 drops of sulphuric acid, and a small piece of potassium nitrate be added and shaken, then a bluish-violet coloration, which disappears immediately, is produced.

Keep with care.

TINCTURA COLOCYNTHIDIS.

Tincture of Colocynth.

Take

Colocynth Fruit, *medium cut* . . . . . 1 *pt.*

deprived of its seed, and add

Alcohol . . . . . 10 *pts.*

A yellow liquid, having a very bitter taste.

Keep with care.

TINCTURA COLOMBO.

Tincture of Calumba.

Prepare by taking

Calumba Root, *medium cut* . . . . . 1 *pt.*

Dilute Alcohol . . . . . 10 *pts.*

A yellowish-brown liquid, having a bitter taste.

TINCTURA CROCI.

Tincture of Saffron.

Prepare by taking

Saffron, ***medium cut***	**1** *pt.*
Dilute Alcohol	**10** *pts.*

A dark orange-yellow liquid.

TINCTURA DIGITALIS.

Tincture of Digitalis.

Prepare by taking

Digitalis Leaves, ***medium cut***	**1** *pt.*
Dilute Alcohol	**10** *pts.*

A brownish-green liquid, having a bitter taste, and the odor of digitalis leaves.

Keep with care.

TINCTURA FERRI ÆTHEREA.

Ethereal Tincture of Iron.

Mix

Ferric chloride Solution	**1** *pt.*
Ether	**2** *pts.*
Alcohol	**7** *pts.*

transfer the resulting solution to a well-stoppered, colorless glass bottle, expose it to sunshine, till the brownish-yellow color entirely disappears; then keep the bottle in a shady place, removing the stopper, from time to time, until the liquid acquires a bright yellow color.

A bright yellow liquid. Specific gravity: 0.85—0.86.

Ethereal Tincture of Iron contains 1 per cent. of pure iron. (Fe = 56).

If it be diluted with water, the resulting solution acquires a blue coloration with a solution either of yellow prussiate of potash, or of

red prussiate of potash. The same solution acquires, with ammonia water, a dirty green to brown coloration, and produces a white precipitate with silver nitrate solution.

If 10 ccm. of it be mixed with an equal volume of potassium acetate solution, and shaken, then, 3—4 ccm. of ethereal solution should be separated on standing.

TINCTURA FERRI POMATI.

Tincture of Iron Malate.

Take

Extract of Iron Malate . . . . . 1 *pt.*

dissolve it in a mixture of

Alcohol . . . . . 2 *pts.*
Cinnamon Water . . . . . 7 *pts.*

and filter.

A dark brownish-black liquid.

TINCTURA GALLARUM.

Tincture of Japanese Galls.

Prepare by taking

Japanese Galls, ***in coarse powder*** . . . . . 1 *pt.*
Dilute Alcohol . . . . . 5 *pts.*

A yellowish-brown liquid.

TINCTURA GELSEMII.

Tincture of Gelsemium.

Prepare by taking

Gelsemium Root, ***in coarse powder*** . . . . . 15 *pts.*
Alcohol . . . . . 83 *pts.*
Distilled Water . . . . . 38 *pts.*

A brownish-yellow liquid, having a bitter taste.

Keep with care.

TINCTURA GENTIANÆ COMPOSITA.

Compound Tincture of Gentian.

Prepare by taking

Gentian Root, *medium cut*	100 *pts.*
Bitter Orange Peel, *medium cut*	37.5 *pts.*
Cardamom, *in coarse powder*	12.5 *pts.*
Alcohol	416 *pts.*
Distilled Water	500 *pts.*

A reddish, yellowish-brown liquid.

TINCTURA GENTIANÆ SCABRÆ.

Tincture of Japanese Gentian (*Ryutan*).

Prepare by taking

Japanese Gentian Root, *medium cut*	1 *pt.*
Dilute Alcohol	5 *pts.*

A yellowish, reddish-brown liquid, having a very bitter taste.

TINCTURA GUAIACI.

Tincture of Guaiac.

Prepare by taking

Guaiac, *in coarse powder*	1 *pt.*
Alcohol	5 *pts.*

A dark reddish-brown liquid.

TINCTURA IPECACUANHÆ.

Tincture of Ipecacuanha.

Prepare by taking

Ipecacuanha Root, *in coarse powder*	1 *pt.*
Dilute Alcohol	10 *pts.*

A reddish, brownish-yellow liquid.

Evaporate 50 g. of Tincture of Ipecacuanha in a porcelain dish previously weighed, down to 10 g.; transfer the residue to a glass bottle with 6 ccm. of pure alcohol; add 70 ccm. of ether and 14 ccm. of chloroform, and shake strongly; on the mixture, pour 10 ccm. of sodium carbonate solution (1 : 3) and set aside, with frequent shakings, for an hour. Take 60 ccm. of the clear chloroform-ether solution, filter it through a dry filter-paper placed in a well-covered funnel, into a small glass flask, and distill the filtrate, till it becomes about one-half of its original bulk. Introduce the remaining chloroform-ether solution into a separating funnel; wash the small flask thrice, each time, with 5 ccm. of a mixture of 6 ccm. of ether and 1 ccm. of chloroform, and add the washings to the main solution in the separating-funnel. Thoroughly shake the mixed liquid with 40 ccm. of centinormal hydrochloric acid solution; after the complete separation of chloroform-ether layer, adding, if necessary, a suitable quantity of ether, take the lower, clear, acid liquid; filter it through a small filter-paper previously moistened with water, into a colorless glass bottle of about 200 ccm. in capacity; shake the chloroform-ether solution thrice more, each time, with 10 ccm. of water, separating and filtering the aqueous part through the same filter-paper which is finally washed with water; dilute all the filtrates and washings put together to 100 ccm. by adding water, and add ether to it, till the ethereal layer measures about 1 cm. thick. After adding 5 drops of iodeosin solution to the resulting solution, pour in centinormal potassium hydroxide solution under strong agitation; then, for the appearance of a light red color in the lower aqueous solution, not more than 15 ccm. of potassium hydroxide solution should be required.

Keep with care.

TINCTURA IODI.

Tincture of Iodine.

Take

Iodine	1 *pt.*

dissolve it in

Alcohol	12 *pts.*

A dark reddish-brown liquid, having the odor of iodine, and completely volatilising on application of heat. Specific gravity: about 0.89.

A mixture of 2 g. of Tincture of Iodine, 0.5 g. of potassium iodide and 25 ccm. of water, should require, for its complete decoloration, 11—12 ccm. of decinormal sodium thiosulphate solution.

Keep with care, in glass-stoppered bottles.

TINCTURA LAVANDULÆ COMPOSITA.

Compound Tincture of Lavender.

Take

Cassia Bark, *in coarse powder*	20 *pts.*
Nutmeg, *in coarse powder*	10 *pts.*
Cloves, *in coarse powder*	4 *pts.*
Red Sanders Wood, *in coarse powder*	10 *pts.*
Alcohol	700 *pts.*
Distilled Water	300 *pts.*

extract in the cold for 7 days; express; mix

Oil of Lavender	8 *pts.*
Oil of Rosemary	2 *pts.*

with the expressed liquid, and filter.

A dark red, aromatic liquid.

TINCTURA LOBELIÆ.

Tincture of Lobelia.

Prepare by taking

Indian Tobacco, *medium cut*	1 *pt.*
Dilute Alcohol	10 *pts.*

A brownish-green liquid.

Keep with care.

TINCTURA MYRRHÆ.

Tincture of Myrrh.

Prepare by taking

Myrrh	1 *pt.*
Alcohol	5 *pts.*

A brownish, reddish-yellow liquid.

TINCTURA OPII.

Tincture of Opium.

Prepare by taking

Opium	1 *pt.*
Dilute Alcohol	5 *pts.*
Distilled Water	5 *pts.*

A reddish-brown liquid, having a bitter taste. Specific gravity: 0.974 – 0.978.

The soluble constituents of 1 part of opium are contained in 10 parts of Tincture of Opium.

If 100 g. of it be evaporated almost to dryness on a water-bath, and the residue treated according to the method described under the article of *Opium*, then 0.4 – 0.44 g. of morphine should be obtained, and the tests for the morphine thus obtained should conform with those given under the same article.

Keep with care.

TINCTURA OPII BENZOICA.

Benzoated Tincture of Opium.

Prepare by taking

Opium	1 *pt.*
Benzoic Acid	4 *pts.*
Purified Camphor	2 *pts.*

Oil of Fennel	1 *pt.*
Dilute Alcohol	192 *pts.*

A pale brownish-yellow liquid.

The soluble constituents of 1 part of Opium are contained in 200 parts of Benzoated Tincture of Opium.

Keep with care.

TINCTURA QUASSIÆ.

Tincture of Quassia.

Prepare by taking

Quassia Wood, *medium cut*	1 *pt.*
Dilute Alcohol	5 *pts.*

A pale brownish-yellow liquid.

TINCTURA RATANHIÆ.

Tincture of Ratanhia.

Prepare by taking

Ratanhia Root, *medium cut*	1 *pt.*
Dilute Alcohol	5 *pts.*

A dark reddish-brown liquid, having a strongly astringent taste, and becoming bright red on dilution.

TINCTURA RHEI.

Tincture of Rhubarb.

Take

Rhubarb, *coarse cut*	10 *pts.*
Cassia Bark, *coarse cut*	1 *pt.*
Cardamom, *coarse cut*	1 *pt.*
Alcohol	50 *pts.*
Distilled Water	50 *pts.*

and extract in the cold; press and filter.

A clear, brownish-yellow liquid.

TINCTURA RHEI AQUOSA.

Aqueous Tincture of Rhubarb.

Take

Rhubarb, ***coarse cut***	10 *pts.*
Potassium Carbonate	1 *pt.*
Sodium Borate	1 *pt.*

pour on them

Boiling Distilled Water	90 *pts.*

set aside for 15 minutes; add

Alcohol	9 *pts.*

after the lapse of an hour, strain the solution by applying a slight pressure; with every 85 parts of the strained liquid, mix

Cinnamon Water	15 *pts.*

A reddish-brown liquid, showing a strongly alkaline reaction, and having the odor and taste of rhubarb; miscible with water without producing any turbidity.

Prepare freshly when required.

TINCTURA SCILLÆ.

Tincture of Squill.

Prepare by taking

Squill, ***medium cut***	1 *pt.*
Dilute Alcohol	5 *pts.*

A yellow liquid.

TINCTURA SCOPOLIÆ.

Tincture of Scopolia.

Prepare by taking

Scopolia Root, ***medium cut***	1 *pt.*
Dilute Alcohol	5 *pts.*

A yellowish-brown liquid.

Evaporate 50 g. of Tincture of Scopolia in a porcelain dish previously weighed, down to 10 g.; transfer the residue to a glass bottle with 6 ccm. of pure alcohol; add 70 ccm. of ether and 14 ccm. of chloroform, and shake strongly; on the mixture, pour 10 ccm. of sodium carbonate solution (1: 3) and set aside, with frequent shakings, for an hour. Take 60 ccm. of the clear chloroform-ether solution, and filter it through a dry filter-paper placed in a well-covered funnel, into a small glass flask, and distill the filtrate till it becomes about one-half of its original bulk. Introduce the remaining chloroform-ether solution into a separating-funnel, wash the small flask thrice, each time, with 5 ccm. of a mixture of 6 ccm. of ether and 1 ccm. of chloroform, and add the washings to the main solution in the separating-funnel. Thoroughly shake the mixed liquid with 40 ccm. of centinormal hydrochloric acid solution; after the complete separation of chloroform-ether layer, adding, if necessary, a suitable quantity of ether, take the lower, clear, acid liquid, and filter it through a small filter-paper previously moistened with water, into a colorless glass bottle of about 200 ccm. in capacity; shake the chloroform-ether solution thrice more, each time, with 10 ccm. of water, separating and filtering the aqueous part through the same filter-paper which is finally washed with water. Dilute all the filtrates and washings put together to 100 ccm. by adding water, and add ether to it, till the ethereal layer measures about 1 cm. thick; after adding 5 drops of iodeosin solution to the resulting solution, pour in centinormal potassium hydroxide solution under strong agitation; then, for the appearance of a light red color in the lower aqueous solution, not more than 33 ccm. of the potassium hydroxide solution should be required.

Keep with care.

TINCTURA SERPENTARIÆ.

Tincture of Serpentaria.

Prepare by taking

Snake-Root, *in coarse powder*	100 *pts.*
Dilute Alcohol	894 *pts.*

A reddish-yellow liquid, having a bitter taste.

TINCTURA STROPHANTHI.

Tincture of Strophanthus.

Prepare by taking

Strophanthus Seed, *in medium powder*	1 *pt.*
Dilute Alcohol	10 *pts.*

A clear, brownish-yellow liquid, having a bitter taste.

If 10 drops of Tincture of Strophanthus be mixed with 10 drops of sulphuric acid, there results at first a yellowish-brown coloration which, however, changes to green after the lapse of half an hour.

If 10 drops of it be introduced into a porcelain dish, and after mixing a drop of ferric chloride solution, 1 or 2 drops of sulphuric acid be added to the mixture, there results a reddish-violet coloration which immediately changes to green.

Keep with care.

TINCTURA STRYCHNI.

Tincture of Nux Vomica.

Prepare by taking

Nux Vomica, *in coarse powder*	1 *pt.*
Dilute Alcohol	10 *pts.*

A yellow liquid, having a very bitter taste.

If 5 drops of Tincture of Nux Vomica be mixed with 10 drops of sulphuric acid, and evaporated to dryness on a water-bath, there results a violet-red coloration which disappears on pouring 2 or 3 drops of water, but reappears on drying.

Evaporate 50 g. of it in a porcelain dish previously weighed, down to 10 g.; transfer the residue to a glass bottle with 6 ccm. of pure alcohol; add 70 ccm. of ether and 14 ccm. of chloroform, and shake strongly; on the resulting solution, pour 10 ccm. of sodium carbonate solution (1: 3) and set aside, with frequent shakings, for an hour. Take 60 ccm. of the clear chloroform-ether solution, and filter it through a dry filter-paper placed in a well-covered funnel, into a small glass flask, and distill the filtrate till it becomes about one-half

of its original bulk. Introduce the remaining chloroform-ether solution into a separating-funnel; wash the small flask thrice, each time, with 5 ccm. of a mixture of 6 ccm. of ether and 1 ccm. of chloroform, and add the washings to the main solution in the separating-funnel. Thoroughly shake the mixed liquid with 40 ccm. of centinormal hydrochloric acid solution; after the complete separation of chloroform-ether solution, adding, if necessary, a suitable quantity of ether, take the lower, clear, acid liquid, and filter it through a small filter-paper previously moistened with water, into a colorless glass bottle of about 200 ccm. in capacity; shake the chloroform-ether solution thrice more, each time, with 10 ccm. of water, separating and filtering the aqueous part through the same filter-paper which is finally washed with water. Dilute all the filtrates and the washings put together to 100 ccm. by adding water; pour ether on the diluted solution, till the ethereal layer measures about 1 cm. thick; after adding 5 drops of iodeosin solution to the resulting mixture, pour in centinormal potassium hydroxide solution under strong agitation; then, for the appearance of a light red coloration in the lower aqueous solution, not more than 17 ccm. of the potassium hydroxide solution should be required.

Keep with care.

TINCTURA VALERIANÆ.

Tinctura of Valerian.

Prepare by taking

Valerian Root, *medium cut*	1 *pt.*
Dilute Alcohol	10 *pts.*

A yellowish-brown liquid.

TINCTURA VALERIANÆ ÆTHEREA.

Ethereal Tincture of Valerian.

Prepare by taking

Valerian Root, *medium cut*	1 *pt.*
Spirit of Ether	5 *pts.*

A yellow liquid, having a characteristic odor and taste.

TINCTURA ZINGIBERIS.

Tincture of Ginger.

Prepare by taking

Ginger, ***medium cut***	1 *pt.*
Dilute Alcohol	5 *pts.*

A yellowish-brown liquid.

TRAGACANTHA.

Tragacanth.

A solidified, slimy exudation from the stem of several species of Astragalus. It is found in form of laminæ or in band-shaped or falcate stripes, white and transparent, about 1—3 mm. thick, at least 5 mm. broad and striped, swelling up when soaked in water.

If 1 part of powdered Tragacanth be mixed with 50 parts of water, there results a turbid, insipid mucilage which, when warmed with sodium hydroxide solution on a water-bath, acquires a yellow coloration. If the above mucilage be diluted by adding water and filtered, the residue acquires a dark blue color with iodine water, whereas the filtrate thereby assumes no coloration.

TUBERCULINUM.

Tuberculin.

A liquid obtained by filtering the glycerin-bouillon culture of tubercle bacillus, which has been concentrated by evaporating to one-tenth of its original bulk.

Tuberclin should be kept sealed in glass bottles, furnished with a label bearing the name of the factory where it was prepared, the number of application, and the date when it was examined, and the bottles should be packed so as to be protected from light.

A clear, brown liquid, having a characteristic odor; miscible easily with water, and containing, besides the active principles, about 40 per cent. of glycerin together with the constituents of bouillon.

If 0.15—0.25 g. of it be injected subcutaneously to a guinea-pig, about 300. g. in weight, which has been inoculated 3 weeks ago, with such an amount of tubercle culture as causes death in 7—9 weeks, it should prove fatal within 24 hours. The guinea-pig which has died therefrom should, on dissection, show a change characteristic to tuberculin, but no symptoms of other diseases.

If 2 g. of it be injected subcutaneously to a healthy guinea-pig, it should not prove fatal to that animal.

It should prove sterile when tested by an ærobic, and an anærobic culture, both in bouillon, and also in agar.

It should be diluted, before using, with carbolic acid water (1 : 200) or with sterilised water.

Keep with care, in a cool dark place, but not over a year.

UNGUENTA.

Ointments.

In order to prepare ointments, melt, unless otherwise prescribed, the difficultly melting substance at first, then add to it the easily melting substances, and finally mix the medicinal substances intimately with the melted mass, which has partially cooled, until the whole forms a homogeneous mass.

Ointments should not be stored in large quantities; those which decompose easily, should be prepared freshly when required, and those which smell rancid, should not be used.

UNGUENTUM ACIDI BORICI.

Boric Acid Ointment.

Prepare by rubbing

Boric Acid, *in fine powder* . . . . . 1 *pt.*

together with

Paraffin Ointment . . . . . 9 *pts.*

Boric Acid Ointment is white in color.

UNGUENTUM CANTHARIDUM.

Cantharides Ointment.

Prepare by rubbing

Oil of Cantharides . . . . . 3 *pts.*

together with

Yellow Wax . . . . . 2 *pts.*

Cantharides Ointment is yellow in color.

UNGUENTUM GLYCERINI.

Glycerin Ointment.

Take

Starch . . . . . 10 *pts.*

Distilled Water . . . . . 15 *pts.*

Glycerin . . . . . 90 *pts.*

shake up the starch with distilled water; to the mixture, add glycerin and heat it on a water-bath, thoroughly agitating until the whole becomes a homogeneous, transparent mass which, after cooling, attains the state of ointment.

UNGUENTUM HEBRÆ.

Hebra's Ointment.

Mix

Lead Plaster . . . . . 1 *pt.*

Olive Oil . . . . . 1 *pt.*

and melt them on a water-bath, then stir the mixture till it cools.

Hebra's Ointment is almost white in color.

UNGUENTUM HYDRARGYRI ALBUM.

Ammoniated Mercury Ointment.

Prepare by rubbing

Ammoniated Mercury . . . . . 1 *pt.*

together with

Vaselin . . . . . 9 *pts.*

Ammoniated Mercury Ointment is white in color.

Prepare freshly when required.

UNGUENTUM HYDRARGYRI CINEREUM.

Mercury Ointment.

Prepare by taking

Mercury . . . . . 30 *pts.*
Hog's Lard . . . . . 18 *pts.*
Ox-Tallow . . . . . 42 *pts.*

melt hog's lard together with ox-tallow by warming gently; after cooling, rub 3 parts of the melted mass with a small quantity, at a time, of mercury until no globules it are recognised by the naked eye, whereupon add the rest of the melted mass and rub very intimately.

Mercury Ointment is bluish-gray in color, and no globules of mercury should be visible by the naked eye.

If 3 g. of it be treated with ether to remove the fat, about 1 g. of mercury should be obtained.

UNGUENTUM HYDRARGYRI FLAVUM.

Yellow Mercuric Oxide Ointment.

Prepare by rubbing

Yellow Mercuric Oxide . . . . . 1 *pt.*

together with

Vaselin . . . . . 9 *pts.*

Yellow Mercuric Oxide Ointment is pale yellow in color.

Prepare when required.

UNGUENTUM HYDRARGYRI RUBRUM.

Red Mercuric Oxide Ointment.

Prepare by rubbing

Red Mercuric Oxide . . . . . 1 *pt.*

together with

Vaselin . . . . . 9 *pts.*

Red Mercuric Oxide Ointment is red in color.

Prepare when required.

UNGUENTUM KALII IODATI.

Potassium Iodide Ointment.

Take

Potassium Iodide . . . . . 20 *pts.*

Sodium Thiosulphate . . . . . 0.25 *pts.*

dissolve them by rubbing together in

Distilled Water . . . . . 15 *pts.*

to the resulting solution, add

Hog's Lard . . . . . 165 *pts.*

Potassium Iodide Ointment is white in color.

If it be prescribed together with free iodine, it should be prepared without adding sodium thiosulphate.

UNGUENTUM PARAFFINI.

Paraffin Oinment.

Prepare by rubbing

Solid Paraffin . . . . . **1** *pt.*

together with

Liquid Paraffin . . . . . **4** *pts.*

Paraffin Ointment is white in eolor. Melting point: 40—50° C.

UNGUENTUM PICIS LIQUIDÆ.

Wood Tar Ointment.

Take

Yellow Wax . . . . . **4** *pts.*

Wood Tar . . . . . **10** *pts.*

melt them together by warming gently, and stir the mixture till it eools.

Wood Tar Ointment is dark brown in eolor.

UNGUENTUM SCOPOLIÆ.

Scopolia Ointment.

Prepare by rubbing

Extract of Scopolia . . . . . **1** *pt.*

with a small quantity of distilled water, until the produet aequires the eonsistence of a thin extraet, whieh is again rubbed with

Hog's Lard . . . . . **9** *pts.*

Prepare when required.

UNGUENTUM SIMPLEX.

Simple Ointment.

Take

Yellow Wax . . . . . 1 *pt.*
Sesame Oil . . . . . 2 *pts.*

melt them on a water-bath, and stir till the mixture cools.

UNGUENTUM STIBIATUM.

Antimony Ointment.

Prepare by rubbing

Tartar Emetic, ***in fine powder*** . . . . . 2 *pts.*

together with

Vaselin . . . . . 8 *pts.*

Antimony Ointment is white in color.

Prepare when required.

UNGUENTUM SULFURATUM.

Sulphur Ointment.

Prepare by rubbing

Sublimed Sulphur, ***in fine powder*** . . . . . 1 *pt.*

together with

Hog's Lard . . . . . 2 *pts.*

Sulphur Ointment is yellow in color.

UNGUENTUM VESICANS FORTIUS.

Strong Blistering Ointment.

Take

Cantharides, ***in medium powder*** . . . . . 40 *pts.*
Olive Oil . . . . . 90 *pts.*

mix them together, and extract by warming on a water-bath for 12 hours; to the mixture, add

Yellow Wax . . . . . 70 *pts.*
Turpentine . . . . . 30 *pts.*

melt them together, and stir the resulting mixture till it cools.

UNGUENTUM VESICANS MITIUS.

Mild Blistering Ointment.

Take

Cantharides, *in medium powder* . . . . . 5 *pts.*
Olive Oil . . . . . 79 *pts.*

mix them together, and extract by warming on a water-bath for 12 hours; to the mixture, add

Yellow Wax . . . . . 125 *pts.*

which is previously melted, and stir the resulting mixture till it cools.

UNGUENTUM ZINCI.

Zinc Ointment.

Prepare by rubbing

Zinc Oxide . . . . . 1 *pt.*

together with

Hog's Lard . . . . . 9 *pts.*

Zinc Ointment is white in color.

VASELINUM.

Vaselin.

A white or pale yellowish, homogeneous, semi-transparent, ointment-like substance which, when observed under a magnifying glass, shows

neither crystalline nor granular structure; without odor or taste; emitting, however, a faint odor of petroleum on warming; completely insoluble in water, and almost insoluble in alcohol. Melting point: 35°—42° C.

A solution, obtained by shaking Vaselin with warm water, should not change the color of litmus papers.

If 10 g. of it be warmed, under agitation, on a water-bath with 2.5 ccm. of a mixture of 5 parts of distilled water and 15 parts of sulphuric acid, no brown color should be produced within 15 minutes.

If 4 g. of it be extracted by warming for half an hour with 20 ccm. of sodium hydroxide solution, and sufficiently cooled after adding an equal volume of water, and be filtered; then the resulting filtrate, on being supersaturated with dilute sulphuric acid, should neither produce any precipitate, nor deposit any oily substance.

VERATRINUM.

Veratrine.

A white, loose powder, or white, amorphous masses which, when inhaled in form of the dust, causes an intense irritation and sneezing, on reaching the nasal mucous membrane; soluble in 4 parts of alcohol, in 2 parts of chloroform, and also in ether; readily soluble in dilute acids, but sparingly soluble in boiling water without melting, giving a slightly alkaline solution which has a pungent taste.

When boiled with hydrochloric acid, Veratrine produces a solution which has a blood-red coloration.

If 1 part of it be shaken with about 100 parts of sulphuric acid, a greenish-yellow fluorescence, followed by a blood-red coloration, is produced.

An alcoholic solution of it should produce no precipitate with platinum chloride solution.

On heating strongly, 0.2 g. of it should be consumed without leaving any weighable solid residue.

Keep with special care.

VINA.

Wines.

The preparation and preservation of wines should be conducted according to the methods described under the article of *Tincturæ*.

VINUM.

Wine.

A beverage obtained by the alcoholic fermentation of the juice of grapes.

Wines should be pure and good in quality.

The adulterated, imitated, or sour wines should not be used.

Those which are mixed, during manufacture or after manufacture, with one or more of the following substances, should not be used:—

The soluble compounds of aluminium, barium, magnesium, bismuth, fluorine, or of strontium, glycerin, oxalic acid, impure alcohol containing fusel oil, impure starch sugar, coloring matters, artificial sweetening materials, or antiseptics. Those which are mixed with another wine containing one of the above-mentioned substances, should also not be used.

A quantity of sulphuric acid, corresponding to more than 0.2 g. of potassium sulphate, should not be contained in 100 ccm. of a wine.

Sweetened wines such as sherry, madeira, marsala, malaga and port-wine should contain in 100 ccm., 11—16 g. of alcohol and not more than 8 g. of the extract.

VINUM CHINÆ.

Cinchona Wine.

Dissolve

White Gelatin	1 *pt.*

by warming in

Distilled Water	10 *pts.*

to the resulting solution, add

Sherry	1000 *pts.*
Cinchona Bark, ***in coarse powder***	40 *pts.*

extract in the cold for 8 days; press; in the expressed liquid, dissolve

Sugar	100 *pts.*
Tincture of Bitter Orange Peel	2 *pts.*

set aside in a cool place for 14 days, and filter.

A reddish-brown liquid, having an agreeable bitter taste.

VINUM COLCHICI.

Colchicum Wine.

Take

Colchicum Seed, ***in coarse powder***	1 *pt.*
Sherry	10 *pts.*

extract in the cold, with occasional shakings, for 8 days; press and filter

A clear, yellowish-brown liquid, having a bitter taste. It should give, on adding ferric chloride solution, a greenish-brown and not a dark green coloration.

Keep with care.

VINUM CONDURANGO.

Condurango Wine.

Take

Condurango Bark, ***fine cut***	1 *pt.*
Sherry	10 *pts.*

extract in the cold, with repeated shakings, for 8 days; press and filter.

A brown liquid, emitting considerably, when warmed, the odor of condurango bark.

VINUM FERRI.

Iron Wine.

Take

Ammonium Iron Citrate	2 *pts.*

dissolve it in

White Wine	98 *pts.*

and filter.

A clear, yellowish-brown liquid.

VINUM IPECACUANHÆ.

Ipecacuanha Wine.

Take

Ipecacuanha Root, *fine cut*	1 *pt.*
Sherry	10 *pts.*

extract in the cold, with occasional shakings, for 8 days; press and filter.

A clear, yellowish-brown liquid.

Keep with care.

VINUM OPII AROMATICUM.

Aromatic Opium Wine.

Take

Saffron, *medium cut*	1 *pt.*
Cassia Bark, *in coarse powder*	1 *pt.*
Cloves, *in coarse powder*	1 *pt.*
Dilute Alcohol	7 *pts.*
Sherry	85 *pts.*

extract in the cold for 5 days; press; to the

Expressed Liquid	10 *pts*

add

Opium	1 *pt.*

extract again in the cold for 7 days; press and filter.

A dark yellowish-brown, clear, aromatic liquid.

The soluble constituents of 1 part of opium are contained in 10 parts of Aromatic Opium Wine.

If 100 g. of it be evaporated almost to dryness on a water-bath, and the residue assayed according to the method described under the article of *Opium*, it should yield 0.4—0.44 g. of morphine, and the tests for the morphine thus obtained, should conform with those given under the same article.

VINUM PEPSINI.

Pepsin Wine.

Take

Saccharated Pepsin	100 *pts.*
Glycerin	50 *pts.*
Distilled Water	50 *pts.*

triturate them till a thin paste is formed, add to it

Hydrochloric Acid	5 *pts.*
White Wine	1800 *pts.*

allow the mixture to stand, with frequent shakings, for 7 days and filter.

A clear, yellowish or reddish liquid.

VINUM STIBIATUM.

Antimony Wine.

Take

Tartar Emetic	1 *pt.*

dissolve it in

Sherry	250 *pts.*

and allow the resulting solution to stand for 3 days in a slightly warm place, and filter.

A clear, brownish-yellow liquid.

Keep with care.

ZINCUM CHLORATUM.

Zinc Chloride.

$ZnCl_2 = 136.3$

A white, crystalline powder, or white, small sticks, deliquescent in the air; soluble easily in alcohol, and in water; showing an acid reaction.

When heated, Zinc Chloride fuses and decomposes, emitting white fumes, and leaving a yellow residue which assumes a white color on cooling.

An aqueous solution of it yields, with silver nitrate solution, a white precipitate insoluble in dilute nitric acid. The same aqueous solution produces, with ammonia water, a white precipitate soluble in excess of the reagent.

Its aqueous solution (1: 2) should be clear or, if not, the turbidity should be only very slight. If 1 part of the same aqueous solution be mixed with 3 parts of alcohol, there results a floeculent precipitate which disappears again on adding a drop of hydrochloric acid.

Its aqueous solution (1: 10), after being mixed with hydrochloric acid, should become neither turbid with barium nitrate solution, nor colored by hydrogen sulphide solution; 1 g. of it dissolves clearly in a mixture of 10 ccm. of water and 10 ccm. of ammonia water, and the resulting solution should, with an excess of hydrogen sulphide solution, yield a pure white precipitate, the filtrate from which, when evaporated to dryness and heated strongly, leaves no weighable solid residue.

Keep with care, in well-stoppered bottles.

ZINCUM OXYDATUM. *Flores Zinci.*

Zinc Oxide. *Flower of Zinc.*

$ZnO = 81.4$

A white or faintly yellowish, amorphous powder, odorless and tasteless; insoluble in water.

When heated to a red-hot temperature, Zinc Oxide assumes a yellow color, but recovers its original color on cooling.

If 1 g. of it be mixed with 3 ccm. of stannous chloride solution, no dark coloration should be produced within an hour.

If 2 g. of it be shaken with 20 ccm. of water, and filtered, the filtrate should produce no more than a turbidity with a solution either of barium nitrate or of silver nitrate.

After being moistened with water, it should completely dissolve without effervescence in 10 ccm. of acetic acid; the acetic acid solution thus obtained should not be rendered turbid by dilute sulphuric acid; the same solution, on being mixed with an excess of ammonia water, should remain clear and colorless, and the resulting solution, when saturated with hydrogen sulphide, should produce a white or almost white precipitate, and the filtrate therefrom, on being evaporated and heated strongly, should leave no solid residue.

ZINCUM SULFOCARBOLICUM.

Zinc Sulphocarbolate.

$$ZnC_6H_6O_8S_2 + 8H_2O = 555.78$$

Colorless, transparent crystals, easily efflorescent in the air; soluble in 2.5 parts of water, and in 5 parts of alcohol, showing a weak acid reaction.

An aqueous solution of Zinc Sulphocarbolate produces a violet coloration with ferric chloride solution, and a white precipitate with ammonium sulphide solution.

Its aqueous solution (1: 10) should, on being mixed with dilute sulphuric acid, produce no turbidity; and the same also on being mixed with ammonium oxalate solution, after an excess of ammonia water is added. The same solution should produce no more than an opalescence with barium nitrate solution; 10 ccm. of the same solution, when mixed with ammonia water, should remain clear and colorless, and the resulting alkaline solution, when mixed with 2 or 3 drops of hydrogen sulphide solution, should acquire neither brown nor blackish color; if the same alkaline solution be supersaturated

with hydrogen sulphide solution, there results a white precipitate, and the filtrate therefrom, on being evaporated to dryness, should leave no weighable residue.

On heating strongly, 1 g. of it should leave about 0.146 g. of residue.

When dried at 125° C., it should lose not more than about 26 per cent. of its weight.

Keep with care, in well-stoppered bottles.

ZINCUM SULFURICUM.

Zinc Sulphate.

$$ZnSO_4 + 7H_2O = 287.6$$

Colorless crystals, slowly efflorescent in dry air; soluble in 0.6 part of water, showing an acid reaction; insoluble in alcohol.

An aqueous solution (1: 10) of Zinc Sulphate should yield, with barium nitrate solution, a white precipitate insoluble in acids. The same solution yields, with sodium hydroxide solution, a precipitate which is soluble in an excess of the reagent, forming a clear, colorless solution which produces a white precipitate with hydrogen sulphide solution.

If 0.5 g. of it be dissolved in a mixture of 10 ccm. of water and 5 ccm. of ammonia water, there results a clear solution which, with an excess of hydrogen sulphide solution, produces a white precipitate.

When mixed with sodium hydroxide solution, it should evolve no ammonia.

If 2 ccm. of its aqueous solution (1: 10) be mixed with an equal volume of sulphuric acid, and after cooling, 1 ccm. of ferrous sulphate solution be cautiously added so as to form 2 layers of liquids, no brownish zone should be formed at their contact surface, even after standing for a long time.

Its aqueous solution (1: 20) should not become turbid with silver nitrate solution.

If 2 g. of the salt be shaken with 10 ccm. of alcohol for 10 minutes and filtered, the resulting filtrate, after being diluted with 10 ccm. of water, should not change the color of a blue litmus paper.

Keep with care.

ZINCUM VALERIANICUM.

Zinc Valerianate.

$$Zn(C_5H_9O_2)_2 + 2H_2O = 303.62$$

Pearly, white scales, or a crystalline powder, having the smell of valerianic acid, and also a slightly sweet, astringent taste; soluble in about 100 parts of water, and in 15 parts of pure alcohol, showing an acid reaction.

An aqueous solution of the salt produces a white precipitate with ammonium sulphide solution.

After being moistened with water, the salt deposits, on adding hydrochloric acid, oily drops having the smell of valerianic acid.

If 0.5 g. of the salt be dissolved in a mixture of 0.5 cem. of hydrochloric acid and 4.5 cem. of water, and the oily substance deposited be filtered off, the resulting clear filtrate should produce no change with an equal volume of hydrogen sulphide solution.

If 0.5 g. of the salt be mixed with ammonia water, there should results a clear solution which, with ammonium sulphide solution, should yield a pure white precipitate, and the filtrate therefrom, when evaporated to dryness and strongly heated, should leave no weighable residue.

If 0.5 g. of the salt be mixed with 2 cem. of water, and 4 drops of ferric chloride solution added, and the reddish-brown precipitate produced be filtered off, the resulting filtrate should not be of a red color.

A cold saturated solution of the salt should not be rendered turbid by a strong solution of copper acetate.

If the solution, obtained by shaking 1 part of the salt with 20 parts of water, be acidified with 2 or 3 drops of nitric acid, the resulting solution should produce no more than a slight turbidity with a solution either of barium nitrate or of silver nitrate.

On heating strongly, 1 g. of the salt, after being repeatedly moistened with nitric acid and dried at a gentle heat, should leave 0.26 – 0.3 g. of solid residue.

Keep with care.

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APPENDICES.

I.

Reagentia.—*Reagents.*

Note.—All the reagents to be used should be as pure as possible.

Acidum aceticum.—*Acetic acid.*—Use the official acetic acid.

Acidum aceticum glaciale.—*Glacial acetic acid.*—Use the official glacial acetic acid.

Acidum hydrochloricum.—*Hydrochloric acid.*—Use the official hydrochloric acid.

Acidum hydrochloricum concentratum.—*Concentrated hydrochloric acid.*—A clear fuming liquid, having a specific gravity of about 1.197.

Acidum hydrochloricum dilutum.—*Dilute hydrochloric acid.*—Use the official dilute hydrochloric acid.

Acidum hydrochloricum fumans.—*Fuming hydrochloric acid.*—A colorless fuming liquid, having a specific gravity of 1.19.

Acidum nitricum.—*Nitric acid.*—Use the official nitric acid.

Acidum nitricum crudum.—*Crude nitric acid.*—Use the official crude nitric acid.

Acidum nitricum dilutum.—*Dilute nitric acid.*—Use the official dilute nitric acid.

Acidum nitricum fumans.—*Fuming nitric acid.*—Use the official fuming nitric acid.

Acidum oxalicum.—*Oxalic acid.*—Use oxalic acid, recrystallised from its aqueous solution, and dried in the air; it completely volatilises, when heated on a platinum plate, without leaving any residue.

Acidum sulfuricum.—*Sulphuric acid.*—Use the official sulphuric acid.

Acidum sulfuricum dilutum.—*Dilute sulphuric acid.*—Use the official dilute sulphuric acid.

Æther.—*Ether.*—Use the official ether.

Æther absolutus.—*Pure ether.*—Use pure ether, having a specific gravity of 0.72.

Æther Petrolei.—*Petroleum ether.*—Use petroleum ether, boiling at 40° —50° C.

Alcohol absolutus.—*Absolute alcohol.*—Use the official absolute alcohol.

Alcohol Amylicus.—*Amyl alcohol.*—A colorless, clear, volatile liquid, having a specific gravity of 0.814, and boiling at 129°—131° C.

Ammonium sulfuratum.—*Ammonium sulphide.*—Saturate 3 parts of ammonia water with hydrogen sulphide, and to the resulting solution, add 2 parts of ammonia water.

Amylum.—*Starch.*—Use the official starch.

Amylum e Solano tuberoso paratum.—Starch prepared from potatoes.

Anilinun.—*Aniline.*

Aqua Ammoniæ.—*Ammonia water.*—Use the official ammonia water.

Aqua Barytæ.—*Baryta water.*—Dissolve 1 part of crystallised barium hydroxide in 19 parts of distilled water.

Aqua bromata.—*Bromine water.*—A saturated aqueous solution of bromine.

Aqua Calcariæ.—*Lime water.*—Use the official lime water.

Aqua chlorata.—*Chlorine water.*—A saturated aqueous solution of chlorine.

Aqua hydrosulfurata saturata.—*Hydrogen sulphide water.*—A saturated aqueous solution of hydrogen sulphide.

Aqua iodata.—*Iodine water.*—A saturated aqueous solution of iodine.

Benzinum Petrolei.—*Petroleum benzene.*—Use the official petroleum benzene.

Benzolum.—*Benzene.*—Use benzene, having a specific gravity of 0.88—0.89, and boiling at 80°—82° C.

Bismutum subnitricum.—*Bismuth subnitrate.*—Use the official bismuth subnitrate.

Bromum.—*Bromine.*—Use the official bromine.

Calcaria hydrata.—*Slaked lime.*—A fine powder freshly prepared by adding 1 part of water to 2 parts of quick lime.

Calcaria usta e Marmore parata.—*Burnt marble.*—Quick lime prepared by calcining marble.

Carboneum sulfuratum.—*Carbon disulphide.*—Use carbon disulphide, having a specific gravity of 1.272, and boiling at 46° C.

Charta exploratoria cærulea.—*Blue litmus paper.*—Filter paper impregnated in an aqueous solution of litmus, and dried.

Charta exploratoria lutea.—*Turmeric paper.*—A filter paper impregnated in a solution which is prepared by diluting 1 part of turmeric tincture, with 3 parts of alcohol and 4 parts of water, and dried.

Charta exploratoria rubra.—*Red litmus paper.*—A filter-paper impregnated in a solution which is prepared by adding dilute sulphuric acid, drop by drop, to an aqueous solution of litmus, until 1 part of the solution, when diluted with about 100 parts of water, assumes a light red color, and dried.

Charta Zinci iodati cum Amylo.—*Zinc-iodide-starch paper.*—A filter-paper impregnated in a solution of zinc iodide and starch, and dried.

Chloroformium.—*Chloroform.*—Use the official chloroform.

Chloroform absolutum.—*Pure chloroform.*—Use chloroform, having a specific gravity of 1.502.

Collodium.—*Collodion.*—Use the official collodion.

Cuprum raspatum.—*Copper filings.*

Ferrum pulveratum.—*Iron powder.*—Use the official iron powder.

Glycerinum.—*Glycerin.*—Use the official glycerin.

Hæmatoxylinum.—*Hæmatoxylin.*—Colorless, acicular crystals, sparingly soluble in water, but readily soluble in hot water, alcohol, and in ether. Its aqueous solution, when shaken with a mixture of sodium hydroxide and sodium carbonate solution, produces a bluish-violet color.

Hydrogenium sulfuratum.—*Hydrogen sulphide.*—Hydrogen sulphide gas washed and purified by passing through water.

Iodum.—*Iodine.*—Use the official iodine.

Kali causticum.—*Potassium hydroxide.*—Use the official potassium hydroxide.

Kalium nitricum.—*Potassium nitrate.*—Use the official potassium nitrate.

Lac Calcariæ.—*Milk of lime.*—A mixture of calcium hydroxide and water.

Liquor Kali caustici.—*Potassium hydroxide solution.*—A solution obtained by dissolving 1 part of potassium hydroxide in about 5 parts of distilled water. Specific gravity : 1.139.

Liquor Kali caustici spirituosus.—*Alcoholic potassium hydroxide solution.*—A solution of 1 part of potassium hydroxide, freshly fused when required, in 9 parts of alcohol.

Liquor Natri caustici.—*Sodium hydroxide solution.*—A solution obtained by dissolving 1 part of sodium hydroxide in about 5 parts of distilled water. Specific gravity: 1.17.

Liquor Plumbi subacetici.—*Lead subacetate solution.*—Use the official lead subacetate solution.

Magnesia hydrata.—*Magnesium hydroxide.*—Dissolve 1 part of magnesium sulphate in 5 parts of distilled water, and add 2 parts of sodium hydroxide solution, well wash the precipitate thereby produced, and add distilled water to make the whole up to 4 parts. The resulting filtrate should produce no turbidity with barium nitrate solution.

Manganum hyperoxydatum.—*Manganese dioxide.*—It contains more than 60 per cent. of manganese dioxide.

Natrio-Kalium tartaricum.—*Potassium sodium tartrate.*—Use the official potassium sodium tartrate.

Natrium boricum.—*Sodium borate.*—Use the official sodium borate.

Natrium chloratum.—*Sodium chloride.*—Use the official sodium chloride.

Natrium metallicum.—*Metallic sodium.*—Keep in petroleum, and when required, dry between filter-papers and remove the impurities on the surface.

Natrium nitrosum.—*Sodium nitrite.*

Natrium sulfuricum.—*Sodium sulphate.*—Use the official sodium sulphate.

Natrum causticum.—*Sodium hydroxide.*—Use the official sodium hydroxide.

Pepsinum purum.—*Pure pepsin.*

Reagens Nessleri.—*Nessler's solution.*—Dissolve 5 g. of potassium iodide in 5 cem. of hot distilled water, and add a hot solution of 2.5 g. of mercuric chloride in 10 cem. of distilled water. To the turbid, red solution here obtained, add a solution of 16 g. of potassium hydroxide in 40 cem. of distilled water, and finally make the whole solution up to 100 cem. by adding water, set aside and allow the precipitate to subside, and decant the clear, supernatant solution when required.

Saccharum.—*Sugar.*—Use the official sugar.

Saccharum Lactis.—*Milk sugar.*—Use the official milk sugar.

Solutio Acidi carbolici.—*Carbolic acid solution.*—Dissolve, when required, 1 part of carbolic acid in 12 parts of distilled water.

Solutio Acidi rosolici.—*Rosolic acid solution.*—Dissolve 1 part of rosolic acid in 100 parts of dilute alcohol.

Solutio Acidi sulfurosi.—*Sulphurous acid solution.*—Acidify, when required, freshly prepared solution of sodium sulphite (1 : 10) with dilute sulphuric acid.

Solutio Acidi tannici.—*Tannic acid solution.*—Dissolve, when required, 1 part of tannic acid in 19 parts of distilled water.

Solutio Acidi tartarici.—*Tartaric acid solution.*—Dissolve, when required, 1 part of tartaric acid in 4 parts of distilled water.

Solutio Albuminis.—*Albumen solution.*—When required, dissolve the white of eggs in distilled water.

Solutio Ammonii carbonici.—*Ammonium carbonate solution.*—Dissolve 1 part of ammonium carbonate in a mixture of 3 parts of distilled water and 1 part of ammonia water.

Solutio Ammonii chlorati.—*Ammonium chloride solution.*—Dissolve 1 part of ammonium chloride in 9 parts of distilled water.

Solutio Ammonii molybdænici.—*Ammonium molybdate solution.*—Dissolve 7.5 g. of Ammonium molybdate in a mixture of 10 ccm. of ammonia water and 40 ccm. of distilled water, at a temperature not exceeding 50°C.; after cooling, filter and mix the filtrate, under stirring, with 50 ccm. of nitric acid. Specific gravity: 1.2.

Solutio Ammonii oxalici.—*Ammonium oxalate solution.*—Dissolve 1 part of ammonium oxalate in 24 parts of distilled water.

Solutio Amyli.—*Starch solution.*—Boil, when required, starch with distilled water, dilute the resulting solution and filter.

Solutio Argenti nitrici.—*Silver nitrate solution.*—Dissolve 1 part of silver nitrate in 19 parts of distilled water.

Solutio Baryi chlorati.—*Barium chloride solution.*—Dissolve 1 part of barium chloride in 9 parts of distilled water.

Solutio Baryi nitrici.—*Barium nitrate solution.*—Dissolve 1 part of barium nitrate in 19 parts of distilled water.

Solutio Calcariæ chloratæ.—*Solution of chlorinated lime.*—When required, rub 1 part of chlorinated lime with 9 parts of distilled water, and filter.

Solutio Calcii chloraci.—*Calcium chloride solution.*—Dissolve 1 part of calcium chloride in 9 parts of distilled water.

Solutio Calcii sulfurici.—*Calcium sulphate solution.*—A saturated aqueous solution of calcium sulphate.

Solutio Cupri acetici.—*Copper acetate solution.*—When required, dissolve 1 part of copper acetate in 1000 parts of distilled water.

Solutio Eosini iodati.—*Iodeosin solution.*—Dissolve 1 part of iodeosin in 500 parts of alcohol. If 100 ccm. of water be introduced into a colorless glass bottle, and such a quantity of ether poured on it, until it forms a layer about 1 cm. in thickness, and 1 drop of centinormal hydrochloric acid solution and 5 drops of iodcosin solution be added and strongly shaken, then the lower, aqueous layer should remain unchanged, but when 2 drops of centinormal potassium hydroxide solution be added and strongly shaken, a pale red coloration should take place.

Solutio Fehlingi.—*Fehling's solution.*—Dissolve 35 g. of copper sulphate in 300 ccm. of distilled water, and mix the resulting solution, when required, with a solution of 175 g. potassium sodium tartrate in 300 ccm. of distilled water, to which 400 g. of sodium hydroxide solution have previously been added.

Solutio Ferri sesquichlorati.—*Ferric chloride solution.*—Dissolve 1 part of ferric chloride in 9 parts of distilled water.

Solutio Ferri sulfurici.—*Ferrous sulphate solution.*—Dissolve, when required, 1 part of ferrous sulphate in a mixture of 1 part of distilled water and 1 part of dilute sulphuric acid.

Solutio Ferri sulfurici oxydati.—*Ferric sulphate solution.*—Use the official solution of ferric sulphate.

Solutio Ferri sulfurici oxydati ammoniati.—*Ammonium ferric sulphate solution.*—Dissolve, when required, 1 part of ammonium ferric sulphate in a mixture of 8 parts of distilled water with 1 part of dilute sulphuric acid.

Solutio Gelatinæ.—*Gelatin solution.*—When required, dissolve white gelatin in distilled water.

Solutio Hydrargyri bichlorati.—*Mercuric chloride solution.*—Dissolve 1 part of mercuric chloride in 19 parts of distilled water.

Solutio Hydrargyri bichlorati spirituosa.—*Alcoholic mercuric chloride solution.*—Dissolve 30 g. of mercuric chloride in 500 ccm. of alcohol.

Solutio Iodi.—*Iodine solution.*—Use decinormal iodine solution.

Solutio Iodi spirituosa.—*Alcoholic iodine solution.*—Dissolve 25 g. of iodine in 500 ccm. of alcohol.

Solutio Kalii acetici.—*Potassium acetate solution.*—Dissolve 1 part of potassium acetate in 2 parts of distilled water. Specific gravity: 1.176–1.180.

Solutio Kalii bichromici.—*Potassium bichromate solution.*—Dissolve 1 part of potassium bichromate in 19 parts of distilled water.

Solutio Kalii bisulfurici.—*Hydrogen potassium sulphate solution.*—Dissolve 1 part of hydrogen potassium sulphate in 9 parts of distilled water.

Solutio Kalii carbonici.—*Potassium carbonate solution.*—Dissolve 11 parts of potassium carbonate in about 20 parts of distilled water. Specific gravity: 1.330–1.334.

Solutio Kalii chromici.—*Potassium chromate solution.*—Dissolve 1 part of potassium chromate in 19 parts of distilled water.

Solutio Kalii ferricyanati.—*Solution of red prussiate of potash.*—When required, dissolve 1 part of red prussiate of potash, which is previously washed with water, in 19 parts of distilled water.

Solutio Kalii ferrocyanati.—*Solution of yellow prussiate of potash.*—When required, dissolve 1 part of yellow prussiate of potash in 19 parts of distilled water.

Solutio Kalii iodati.—*Potassium iodide solution.*—Dissolve, when required, 1 part of potassium iodide in 9 parts of distilled water.

Solutio Kalii permanganici.—*Potassium permanganate solution.*—Dissolve 1 part of potassium permanganate in 1000 parts of distilled water.

Solutio Kalii sulfocyanati.—*Potassium sulphocyanate solution.*—Dissolve 1 part of potassium sulphocyanate in 9 parts of distilled water.

Solutio Kalii sulfurati.—*Potassium sulphide solution.*—Dissolve 1 part of potassium sulphide in 4 parts of distilled water.

Solutio Laccæ musicæ.—*Litmus solution.*—Extract powdered litmus several times with hot water, filter, slightly acidify the filtrate with acetic acid, evaporate down on a water-bath, till it attains the consistence of a thick extract, and rub the residue by pouring alcohol on it; transfer it into a large glass bottle, freshly add a large quantity of alcohol, and after setting aside for several hours, filter, wash the precipitate on the filter-paper several times with alcohol, dry at a gentle heat, and filter the solution obtained by dissolving 1 part of it in 10 parts of water. To the filtrate add, drop by drop, a very dilute sulphuric acid obtained by adding 1 drop of dilute sulphuric acid to 100 ccm. of water, until 1 part of the

solution will assume a violet-blue color upon dilution with about 100 parts of water. Keep in bottles, stoppered with cotton plugs.

Solutio Magnesii sulfurici.—*Magnesium sulphate solution.*—Dissolve 1 part of magnesium sulphate in 9 parts of distilled water.

Solutio Natrii acetici.—*Sodium acetate solution.*—Dissolve 1 part of sodium acetate in 4 parts of distilled water.

Solutio Natrii bicarbonici.—*Sodium bicarbonate solution.*—When required, dissolve 1 part of powdered sodium bicarbonate by gently shaking in 19 parts of distilled water.

Solutio Natrii bisulfurosi.—*Hydragen sodium sulphite solution.*—It contains about 30 per cent. of hydrogen sodium sulphite.

Solutio Natrii carbonici.—*Sodium carbonate solution.*—Dissolve 1 part of sodium carbonate in 4 parts of distilled water.

Solutio Natrii phosphorici.—*Sodium phosphate solution.*—Dissolve 1 part of sodium phosphate in 19 parts of distilled water.

Solutio Natrii subsulfurosi.—*Sodium thiosulphate solusion.*—Use decinormal solution of sodium thiosulphate.

Solutio Natrii sulfurosi.—*Sodium sulphite solution.*—When required dissolve 1 part of sodium sulphite in 9 parts of distilled water.

Solutio Phenolphthaleini.—*Phenolphthalein solution.*—A colorless solution obtained by dissolving 1 part of phenolphthalein in 99 parts of dilute alcohol.

Solutio Plumbi acetici.—*Lead acetate solution.*—Dissolve 1 part of lead acetate in 9 parts of distilled water.

Solutio Stanni chlorati.—*Stannous chloride solution.*—A saturated solution obtained by dissolving granulated tin in warm hydrochloric acid. Keep in bottles, with 2 or 3 pieces of granulated tin thrown into it.

Solutio Zinci iodati cum Amylo.—*Zinc-iodide-starch solution.*—Boil a mixture of 4 parts of starch, 20 parts of zinc chloride, and 100 parts of distilled water, until an almost clear liquid is formed, and mix the resulting solution with a colorless filtrate obtained by filtering a mixture of 1 part of zinc filing, 10 parts of water, and 2 parts of iodine, and finally make the whole solution up to 1000 parts by adding distilled water, and filter.

Spiritus.—*Alcohol.*—Use the official alcohol.

Spiritus dilutus.—*Dilute alcohol.*—Use the official dilute alcohol.

Stannum raspatum.—*Granulated tin.*

Tinctura Curcumæ.—*Turmeric tincture.*—Digest 10 parts of coarsely powdered turmeric root with 75 parts of alcohol, under repeated shakings, at a suitable temperature for 24 hours, and filter.

Zincum raspatum.—*Granulated Zinc.*

Zincum purum.—*Pure Zinc.*—It should be free from arsenic.

II.

Solutiones volumetricæ normales.—*Volumetric solutions.*

Solutio Kali volumetrica normalis.

Normal potassium hydroxide solution.

A solution containing 56.16 g. of potassium hydroxide (KOH) in 1 litre, 10 ccm. of which should neutralise an aqueous solution of 0.6303 g. of oxalic acid ($C_2H_2O_4 + 2H_2O$).

1 ccm. of Normal Potassium Hydroxide Solution is the equivalent of:

	Gramme
Acetic acid, $C_2H_4O_2$	0.06004
Camphoric acid, $C_{10}H_{16}O_4$	0.10008
Hydrogen chloride, HCl	0.03646
Lactic acid, $C_3H_6O_3$	0.09006
Nitric acid, HNO_3	0.06305
Sulphuric acid, H_2SO_4	0.04904
Hydrogen potassium tartrate, $KC_4H_5O_6$	0.18820

Solutio Kali spirituosa volumetrica seminormalis.

Half-normal Alcoholic Potassium Hydroxide solution.

A colorless or faintly pale yellowish alcoholic solution containing 28.08 g. of potassium hydroxide (KOH) in 1 litre, 10 ccm. of which, when titrated before using, should neutralise 10 ccm. of half-normal hydrochloric acid solution.

Solutio Kali volumetrica decinormalis.

Decinormal Potassium Hydroxide Solution.

A solution containing 5,616 g. of potassium hydroxide (KOH) in 1 litre, 10 ccm. of which should neutralise 10 ccm. of decinormal hydrochloric acid solution.

Solution Kali volumetrica centinormalis.

Centinormal Potassium Hydroxide Solution.

A solution containing 0.5616 g. of potassium hydroxide (KOH) in 1 litre, 10 ccm. of which should neutralise 10 ccm. of centinormal hydrochloric acid solution.

Acidum Hydrochloricum volumetricum normale.

Normal Hydrochloric Acid Solution.

A solution containing 36.46 g. of hydrogen chloride (HCl) in 1 litre, 10 ccm. of which should neutralise 10 ccm. of normal potassium hydroxide solution.

1 ccm. of Normal Hydrochloric Acid Solution is the equivalent of:

	Gramme
Ammonia, NH_3	0.01707
Potassium hydroxide, KOH	0.05616
Potassium carbonate, K_2CO_3	0.06915

Potassium tartrate, $K_2C_4H_4O_6$	0.11317
Lithium carbonate, $LiCO_3$	0.03703
Sodium potassium tartrate, $KNaC_4H_4O_6 + 4H_2O$	0.14116
Sodium carbonate, $Na_2CO_3 + 10H_2O$	0.14315
Anhydrous sodium carbonate, Na_2CO_3	0.05305
Sodium hydroxide, NaOH	0.04006

Acidum Hydrochloricum volumetricum seminormale.

Half-normal Hydrochloric Acid Solution.

A solution containing 18.23 g. of hydrogen chloride (HCl) in 1 litre, 10 ccm. of which should neutralise 10 ccm. of half-normal alcoholic potassium hydroxide solution.

Acidum Hydrochloricum volumetricum decinormale.

Decinormal Hydrochloric Acid Solution.

A solution containing 3.646 g. of hydrogen chloride (HCl) in 1 litre, 10 ccm. of which should neutralise 10 ccm. of decinormal potassium hydroxide solution.

Acidum Hydrochloricum volumetricum centinormale.

Centinormal Hydrochloric Acid Solution.

A solution containing 0.3646 g. of hydrogen chloride (HCl) in 1 litre, 10 ccm. of which should neutralise 10 ccm. of centinormal potassium hydroxide solution.

Solutio Ammonii Sulfocyanati volumetrica decinormalis.

Decinormal Ammonium Sulphocyanate Solution.

A solution containing 7.618 g. of ammonium sulphocyanate (NH_4CSN) in 1 litre, 10 ccm. of which should be required to produce a blood-red coloration in 10 ccm. of decinormal silver nitrate solution, to which 0.8 ccm. of nitric acid and 0.5 ccm. of ammonium ferrous sulphate solution have previously been added.

Solutio Argenti nitrici volumetrica decinormalis.

Decinormal Silver Nitrate Solution.

A solution containing 16.997 g. of silver nitrate ($AgNO_3$) in 1 litre.

1 ccm. of Decinormal Silver Nitrate Solution is the equivalent of:

	Gramme
Allyl iso-sulphocyanate, C_3H_5CNS	0.0049575
Ammonium bromide, NH_4Br	0.0098040
Hydrogen cyanide, HCN	0.0054100
Potassium bromide, KBr	0.0119110
Potassium iodide, KI	0.0166000
Sodium bromide, NaBr	0.0103010
Sodium iodide, NaI	0.0149900

Solutio Natrii chlorati volumetrica decinormalis.

Decinormal Sodium Chloride Solution.

A solution containing 5.85 g. of sodium chloride (NaCl) in 1 litre, 10 ccm. of which should be required in order to produce a permanent reddish color in 10 ccm. of decinormal silver nitrate solution, to which 1 or 2 drops of potassium chromate solution have previously been added.

1. ccm. of Decinormal Sodium Chloride Solution is the equivalent of:

	Gramme
Silver nitrate, $AgNO_3$	0.016997

Solutio Iodi volumetrica decinormalis.

Decinormal Iodine Solution.

A solution containing 12.685 g. of iodine (I) in 1 litre, dissolved by the aid of 20 g. of potassium iodide, 10 ccm. of which should be decolorised by 10 ccm. of decinormal sodium thiosulphate solution.

1 ccm. of Decinormal Iodine Solution is the equivalent of:

	Gramme
Arsenious oxide, As_2O_3	0.00495
Iron, Fe	0.00560

Solutio Natrii subsulfurosi volumetrica decinormale.

Decinormal Sodium Thiosulphate Solution.

A solution containing 24.832 g. of sodium thiosulphate ($Na_2S_2O_3 + 5H_2O$) in 1 litre, 10 ccm. of which should be required for the decoloration of 0.12685 g. of iodine dissolved by the aid of 0.2 g. of potassium iodide in 10 ccm. of distilled water.

1 ccm. of Decinormal Sodium Thiosulphate Solution is the equivalent of:

	Gramme
Chlorine, Cl	0.003545
Iron, Fe	0.005600
Ferrous iodide, FeI_2	0.010323
Iodine, I	0.012685

III.

Table A.

List of the common official medicines which should always be kept in a dispensary.

Acetanilidum.—*Acetanilide.*
Acidum acetsalicylicum.—*Acetyl salicylic acid.*
„ **arsenicosum.**—*Arsenious acid.*
„ **boricum.**—*Boric acid.*
„ **carbolicum.**,—*Carbolic acid.*
„ **hydrochloricum dilutum.**—*Dilute hydrochloric acid.*
„ **salicylicum.**—*Salicylic acid.*
„ **sulfuricum dilutum.**—*Dilute sulphuric acid.*
„ **tannicum.**—*Tannic acid.*
„ **tartaricum.**—*Tartaric acid.*
Adeps Lanæ cum Aqua.—*Hydrous wool fat.*
Æther pro narcosi.—*Narcotic ether.*
Aloë.—*Aloes.*
Ammonium chloratum.—*Ammonium chloride.*
Amylum.—*Starch.*
Antidotum Arsenici.—*Antidote for arsenic.*
Antipyrinum.—*Antipyrine.*
Apomorphinum hydrochloricum.—*Apomorphine hydrochloride.*
Aqua Ammoniæ.—*Ammonia water.*
„ **carbolisata.**—*Carbolic acid water.*
„ **destillata.**—*Distilled water.*
„ **Pruni armeniacæ.**—*Apricot water.*
Argentum nitricum fusum.—*Fused silver nitrate.*
Atropinum sulfuricum.—*Atropine sulphate.*
Balsamum peruvianum.—*Peru balsam.*
Bismutum subnitricum.—*Bismuth subnitrate.*
Bismutum subsalicylicum.—*Bismuth subsalicylate.*
Calcaria usta.—*Quick lime.*
Calcium sulfuricum usta.—*Exsiccated calcium sulphate.*
Camphora depurata.—*Refined camphor.*
Chininum hydrochloricum.—*Quinine hydrochloride.*
Chloralum hydratum.—*Chloral hydrate.*
Chloroformium.—*Chloroform.*
Cocainum hydrochloricum.—*Cocaine hydrochloride.*
Cortex Chinæ.—*Cinchona bark.*
Cuprum sulfuricum.—*Copper sulphate.*

Emplastrum adhæsivum anglicum.—*Court plaster.*
Extractum Filicis.—*Extract of male fern.*
„ Gentianæ.—*Extract of gentian.*
„ Scopoliæ.—*Extract of scopolia.*
„ Secalis cornuti.—*Extract of ergot.*
Ferrum reductum.—*Reduced iron.*
Folia Digitalis.—*Digitalis leaves.*
„ Sennæ.—*Senna leaves.*
Formalinum.—*Formaline.*
Glycerinum.—*Glycerin.*
Gummi arabicum.—*Gum arabic.*
Hydrargyrum bichloratum.—*Mercuric chloride.*
„ chloratum.—*Mercurous chloride.*
Iodoformium.—*Iodoform.*
Kalium bitartaricum.—*Potassium bitartrate.*
„ bromatum.—*Potassium bromide.*
„ chloricum.—*Potassium chlorate.*
„ iodatum.—*Potassium iodide.*
Kreosotum.—*Creosote.*
Liquor Ferri sesquichlorati.—*Solution of ferric chloride.*
Liquor Kalii acetici.—*Solution of potassium acetate.*
Liquor Kalii arsenicosi.—*Solution of potassium arsenite.*
Liquor Plumbi subacetici.—*Solution of lead subacetate.*
Magnesia usta.—*Burnt magnesia.*
Magnesium sulfuricum.—*Magnesium sulphate.*
Morphinum hydrochloricum.—*Morphine hydrochloride.*
Natrium bicarbonicum.—*Sodium bicarbonate.*
Natrium chloratum.—*Sodium chloride.*
„ salicylicum.—*Sodium salicylate.*
„ sulfuricum.—*Sodium sulphate.*
Oleum Cacao.—*Cacao butter.*
„ Jecoris.—*Cod liver oil.*
„ Olivarum.—*Olive oil.*
„ Ricini.—*Castor oil.*
„ Sesami.—*Sesame oil.*
Opium.—*Opium.*

Pulvis Doveri.—*Dover's powder.*
Radix Ipecacuanhæ.—*Ipecacuanha root.*
„ **Rhei.**—*Rhubarb.*
Resina Jalapæ.—*Resin of jalap.*
Saccharum Lactis.—*Milk sugar.*
Sal Calorinum factitium.—*Artificial salt of Karlsbad.*
Santoninum.—*Santonin.*
Secale cornutum.
Sirupus Ferri iodati.—*Syrup of ferrous iodide.*
Sirupus simplex.—*Simple syrup.*
Spiritus.—*Spirit.*
Succus Liquiritiæ.—*Licorice juice.*
Tinctura amara.—*Bitter tincture.*
„ **Aurantii corticis.**—*Tincture of bitter orange peel.*
„ **Iodi.**—*Tincture of iodine.*
„ **Ipecacuanhæ.**—*Tincture of ipecacuanha.*
„ **Opii.**—*Tincture of opium.*
„ **Strophanthi.**—*Tincture of strophanthus.*
„ **Strychni.**—*Tincture of nux vomica.*
„ **Valerianæ.**—*Tincture of valerian.*
Unguentum Hydrargyri cinereum.—*Mercury ointment.*
Unguentum simplex.—*Simple ointment.*
„ **Zinci.**—*Zinc ointment.*
Vaselinum.—*Vaselin.*
Zincum sulfuricum.—*Zinc sulphate.*

IV.

Table B.

List of the official medicines which belong to the class of poisonous medicines, and should be kept with special care, separated from others, in a place which can be shut up.

Acidum arsenicosum.—*Arsenious acid.*
„ hydrocyanatum dilutum.—*Dilute hydrogen cyanide.*
Apomorphinum hydrochloricum.—*Apomorphine hydrochloride.*
Arsenum Iodatum.—*Arsenious iodide.*
Atropinum sulfuricum.—*Atropine sulphate.*
Extractum Aconiti Napelli.—*Extract of aconite.*
„ Physostigmatis.—*Extract of calabar bean.*
Homatropinum hydrobromicum.—*Homatropine hydrobromide.*
Hydrargyrum bichloratum.—*Mercuric chloride.*
Hydrargyrum biiodatum.—*Mercuric iodide.*
„ oxydatum flavum.—*Yellow oxide of mercury.*
„ „ rubrum.—*Red oxide of mercury.*
„ Salicylicum.—*Mercury salicylate.*
Liquor Arseni et Hydrargyri iodati.—*Solution of arsenious and mercuric iodide.*
Liquor Kalii arsenicosi.—*Solution of potassium arsenite.*
Morphinum hydrochloricum.—*Morphine hydrochloride.*
„ sulfuricum.—*Morphine sulphate.*
Nitroglycerinum.—*Nitroglycerin.*
Oleum Crotonis.—*Croton oil.*
Pastilli Hydrargyri bichlorati.—*Pastils of mercuric chloride.*
Pastilli Morphini hydrochlorici.—*Pastils of morphine hydrochloride.*
Phosphorus.—*Phosphorus.*
Physostigminum salicylicum.—*Physostigmine salicylate.*
Physostigminum sulfuricum.—*Physostigmine sulphate.*
Pilocarpinum hydrochloricum.—*Pilocarpine hydrochloride.*
Strychninum nitricum.—*Strychnine nitrate.*
Veratrinum.—*Veratrine.*

V.

Table. C.

List of the official medicines which belong to the class of strong or energetic medicines, and should be kept with care, separated from others.

Acetanilidum.—*Acetanilide.*
Acidum carbolicum.—*Carbolic acid.*
„ „ **crudum.**—*Crude carbolic acid.*
„ „ **liquefactum.**—*Liquefied carbolic acid.*
„ **chromicum.**—*Chromic acid.*
„ **hydrochloricum.**—*Hydrochloric acid.*
„ **nitricum.**—*Nitric acid.*
„ „ **crudum.**—*Crude nitric acid.*
„ „ **fumans.**—*Fuming nitric acid.*
„ **picrinicum.**—*Picric acid.*
„ **sulfuricum.**—*Sulphuric acid.*
„ „ **crudum.**—*Crude sulphuric acid.*
„ **trichloraceticum.**—*Trichloracetic acid.*
Agaricinum.—*Agaricine.*
Amylum nitrosum.—*Amyl nitrite.*
Antipyrinum.—*Antipyrine.*
„ **salicylicum.**—*Antipyrine salicylate.*
Aqua Amygdalarum amararum.—*Bitter almond water.*
„ **Pruni armeniacæ.**—*Apricot water.*
„ „ **macrophyllæ.**—*Bakuchi water.*
Argentum nitricum.—*Silver nitrate.*
„ „ **cum Kalio nitrico.**—*Silver nitrate mitigated with potassium nitrate.*
Argentum nitricum fusum.—*Fused silver nitrate.*

Bromum.—*Bromine.*
Caffeino-Natrium benzoicum.—*Caffeine sodium benzoate.*
Caffeino-Natrium salicylicum.—*Caffeine sodium salicylate.*
Caffeinum.—*Caffeine.*
Camphora monobromata.—*Monobromated camphor.*
Cantharides.—*Cantharides.*
Cerium oxalicum.—*Cerium oxalate.*
Chloralum hydratum.—*Chloral hydrate.*
Chloroformium.—*Chloroform.*
Cocainum hydrochloricum.—*Cocaine hydrochloride.*
Codeinum phosphoricum.—*Codeine phosphate.*
Collodium episplasticum.—*Cantharidal collodion.*
Cuprum aluminatum.—*Copper alum.*
„ sulfuricum.—*Copper sulphate.*
Dimethyamidoantipyrinum.—*Dimethylamidoantipyrine.*
Extractum Cannabis indicæ.—*Extract of Indian hemp.*
„ Colocynthidis.—*Extract of colocynth.*
„ Hyoscyami.—*Extract of hyoscyamus.*
„ Opii.—*Extract of opium.*
„ Phytolaccæ.—*Extract of phytolacca.*
„ Scopoliæ.—*Extract of scopolia.*
„ Secalis cornuti.—*Extract of ergot.*
„ Strychni.—*Extract of nux vomica.*
Folia Belladonnæ.—*Belladona leaves.*
„ Digitalis.—*Digitalis leaves.*
„ Hyoscyami.—*Henbane leaves.*
„ Stramonii.—*Stramonium leaves.*
Formalinum.—*Formaline.*
Fructus Colocynthidis.—*Colocynth fruit.*
Gossypium Hydrargyri bichlorati.—*Corrosive sublimate cotton.*
Gossypium iodoformiatum.—*Iodoform cotton.*
Guaiacolum.—*Guaiacol.*
Gutti.—*Gamboge.*
Herba Cannabis indicæ.—*Indian hemp.*
„ Lobeliæ.—*Indian tobbacco.*
Hydrargyrum chloratum.—*Mercurous chloride.*

Hydrargyrum chloratum vapore paratum.—*Mercurous chloride prepared by steam.*

Hydrargyrum iodatum.—*Mercurous iodide.*

„ **oleinicum.**—*Mercury oleate.*

„ **præcipitatum album.**—*Ammoniated mercury.*

Iodoformium.—*Iodoform.*

Iodum.—*Iodine.*

Kalium causticum.—*Potassium hydroxide.*

Kalium chloricum.—*Potassium chlorate.*

„ **iodatum.**—*Potassium iodide.*

Kreosotum.—*Creosote.*

Liquor Guttaperchæ.—*Solution of gutta percha.*

Liquor Nitroglycerini.—*Solution of nitroglycerin.*

„ **Plumbi subacetici.**—*Solution of lead subacetate.*

Methylsulfonalum.—*Methyl sulphonal.*

Minium.—*Minium.*

Morphinum diacetylicum hydrochloricum.—*Diacetyl morphine hydrochloride.*

Natrum causticum.—*Sodium hydroxide.*

Oleum Sinapis æthereum.—*Volatile oil of mustard.*

Opium.—*Opium.*

Paraldehydum.—*Paraldehyde.*

Pastilli Antipyrini.—*Pastils of antipyrine.*

Pastilli Cocaini hydrochlorici.—*Pastils of cocaine hydrochloride.*

Pastilli Hydrargyri chlorati.—*Pastils of mercurous chloride.*

Pastilli Opii et Ipecacuanhæ.—*Pastils af opium and ipecacuanha.*

Phenacetinum.—*Phenacetin.*

Pilulæ Colocynthidis et Hyoscyami.—*Pills of colocynth and hyoscyamus.*

Plumbum aceticum.—*Lead acetate.*

Plumbum oxydatum.—*Lead oxide.*

Pulvis Doveri.—*Dover's powder.*

Radix Aconiti Napelli.—*Aconite root.*

„ **Gelsemii.**—*Gelsemium root.*

„ **Ipecacuanhæ.**—*Ipecacuanha root.*

„ **Jalapæ.**—*Jalap.*

„ **Scopoliæ.**—*Scopolia root.*

Resina Jalapæ.—*Resin of jalap.*
Resina Podophilli.—*Resin of podophyllum.*
Santoninum.—*Santonin.*
Secale cornutum.—*Ergot.*
Semen Colchici.—*Colchicum seed.*
„ **Physostigmatis.**—*Calabar bean.*
„ **Strophanthi.**—*Strophanthus seed.*
„ **Strychni.**—*Nux vomica.*
Serum antidiphthericum.—*Antidiphtheric serum.*
Serum antitetanicum.—*Antitetanic serum.*
Sparteinum sulfuricum.—*Sparteine sulphate.*
Stibio-Kalium tartaricum.—*Tartar emetic.*
Stibium sulfuratum aurantiacum.—*Antimony sulphide.*
Sulfonalum.—*Sulphonal.*
Tela Hydrargyri bichlorati.—*Mercuric chloride gauze.*
Tela iodoformiata.—*Iodoform gauze.*
Theobrominum natrio-salicylicum.—*Theobromine sodium salicylate.*
Tinctura Aconiti Napelli.—*Tincture of aconite root.*
„ **Cantharidum.**—*Tincture of cantharides.*
„ **Chloroformii et Morphini composita.**—*Compound tincture of chloroform and morphine.*
Tinctura Colchici.—*Tincture of colchicum.*
„ **Colocynthidis.**—*Tincture of colocynth.*
„ **Digitalis.**—*Tincture of digitalis.*
„ **Gelsemii.**—*Tincture of gelsemium.*
„ **Ipecacuanhæ.**—*Tincture of ipecacuanha.*
„ **Iodi.**—*Tincture of iodine.*
„ **Lobeliæ.**—*Tincture of lobelia.*
„ **Opii.**—*Tincture of opium.*
„ **Opii benzoica.**—*Benzoated tincture of opium.*
„ **Scopoliæ.**—*Tincture of scopolia.*
„ **Strophanthi.**—*Tincture of strophanthus.*
„ **Strychni.**—*Tincture of nux vomica.*
Tuberculinum.—*Tuberculin.*
Vinum Colchici.—*Colchicum wine.*
Vinum Ipecacuanhæ.—*Ipecacuanha wine.*

Vinum Opii aromaticum.—*Aromatic opium wine.*
Vinum stibiatum.—*Antimony wine.*
Zincum chloratum.—*Zinc chloride.*
Zincum sulfocarbolicum.—*Zinc sulphocarbolate.*
Zincum sulfuricum.—*Zinc sulphate.*
Zincum Valerianicum.—*Zinc valerianate.*

VI.

Table D.

List of medicines showing their doses for an adult.

Physicians are not allowed to prescribe the following medicines in doses greater than those given in the following table, unless they specially notify that by putting an exclamation mark (!) under the name of a medicine in the prescription.

Names of medicines.	Maximum dose at a time.	Maximum dose for a day.
	Gramme.	Gramme.
Acetanilidum	0.5	1.5
Acidum arsenicosum	0.005	0.015
„ carbolicum	0.1	0.3
„ hydrocyanatum dilutum	0.1	0.3
Agaricinum	0.1	—
Apomorphinum hydrochloricum	0.02	0.06
Aqua amygdaralum amararum	2.0	6.0
„ Pruni armeniacæ	2.0	6.0
„ Pruni macrophyllæ	2.0	6.0
Argentum nitricum	0.03	0.1

Names of medicines.	Maximum dose at a time.	Maximum dose for a day.
	Gramme.	Gramme.
Argentum nitricum fusum	0.03	0.1
Arsenum iodatum	0.005	0.015
Atropinum sulfuricum	0.001	0.003
Caffeino-Natrium benzoicum	1.0	6.0
„ „ salicylicum	1.0	6.0
Caffeinum	0.5	1.5
Camphora monobromata	0.3	1.0
Cantharides	0.05	0.15
Cerium oxalicum	0.3	1.0
Chloralum hydratum	2.0	6.0
Cocainum hydrochloricum	0.05	0.15
Codeinum hydrochloricum	0.1	0.3
Cuprum sulfuricum (*the quantity to be taken at a time as an emetic*)	1.0	—
Dimethylamidoantipyrinum	0.5	1.5
Extractum Aconiti Napelli	0.015	0.05
„ Cannabis indicæ	0.1	0.3
„ Colocynthidis	0.05	0.15
„ Hyoscyami	0.1	0.3
„ Opii	0.15	0.5
„ Physostigmatis	0.02	0.06
„ Phytolaccæ	0.5	1.50
„ Scopoliæ	0.05	0.15
„ Secalis cornuti	0.2	0.6
„ Strychni	0.05	0.1
Folia Digitalis	0.2	1.0
„ Hyoscyami	0.3	1.0
Guaiacolum	0.3	1.0
Gutti	0.3	1.0
Herba Lobeliæ	0.1	0.3
Homatropinum hydrobromicum	0.001	0.003
Hydrargyrum bichloratum	0.02	0.06

Names of medicines.	Maximum dose at a time.	Maximum dose for a day.
	Gramme.	Gramme.
Hydrargyrum biiodatum	0.02	0.06
„ iodatum	0.02	0.06
„ oxydatum flavum	0.02	0.06
„ „ rubrum	0.02	0.06
„ salicylicum	0.02	0.06
Iodoformium	0.2	0.6
Iodum	0.02	0.06
Kreosotum	0.5	1.5
Liquor Arseni et Hydrargyri iodati	0.5	1.5
„ Kalii arsenicosi	0.5	1.5
Methylsulfonalum	2.0	4.0
Morphinum diacetylicum hydrochloricum	0.01	0.03
Morphinum hydrochloricum	0.03	0.1
„ sulfuricum	0.03	0.1
Oleum Crotonis	0.05	0.15
Opium	0.15	0.5
Paraldehydum	5.0	10.0
Phenacetinum	1.0	3.0
Phosphorus	0.001	0.003
Physostigminum salicylicum	0.001	0.003
„ sulfuricum	0.001	0.003
Pilocarpinum hydrochloricum	0.02	0.06
Pilulæ Colocynthidis et Hyoscyami	0.5	1.5
Plumbum aceticum	0.1	0.3
Radix Scopoliæ	0.1	0.3
Resina Jalapæ	1.0	3.0
Resina podophylli	0.1	0.3
Santoninum	0.1	0.3
Secale cornutum	1.0	5.0
Semen strychni	0.1	0.2
Stibio-Kalium tartaricum	0.2	0.6
Stibium sulfuratum aurantiacum	0.2	0.6

Names of medicines.	Maximum dose at a time.	Maximum dose for a day.
	Gramme.	Gramme.
Strychninum nitricum	0.005	0.015
Sulfonalum	2.0	4.0
Tinctura Cantharidum	0.5	1.5
„ Colchicum	2.0	6.0
„ Colocynthidis	1.0	3.0
„ Digitalis	1.5	5.0
„ Gelsemii	0.5	1.5
„ Iodi	0.2	0.6
„ Lobeliæ	1.0	3.0
„ Opii	1.5	5.0
„ Scopoliæ	1.0	3.0
„ Strophanthi	0.5	1.5
„ Strychni	1.0	2.0
Veratrinum	0.005	0.015
Vinum Colchici	2.0	6.0
„ Opii aromaticum	1.5	5.0
Zincum sulfuricum (*the quantity to be taken at a time as an emetic*)	1.0	—

VII.

Table E.

Names, symbols and atomic weights of the more important elements.

Names of elements.	Symbols.	Atomic weights.
Aluminium, *Aluminium*	Al	27.1
Argentum, *Silver*	Ag	107.93
Arsenicum, *Arsenic*	As	75.0
Baryum, *Barium*	Ba	137.4
Bismutum, *Bismuth*	Bi	208.5
Borum, *Boron*	B	11.0
Bromum, *Bromine*	Br	79.96
Calcium, *Calcium*	Ca	40.0
Carboneum, *Carbon*	C	12.00
Cerium, *Cerium*	Ce	140.25
Chlorum, *Chlorine*	Cl	35.45
Chromium, *Chromium*	Cr	52.1
Cuprum, *Copper*	Cu	63.6
Ferrum, *Iron*	Fe	56.0
Hydrargyrum, *Mercury*	Hg	200.3
Hydrogenium, *Hydrogen*	H	1.01
Iodum, *Iodine*	I	126.85
Kalium, *Potassium*	K	39.15
Lithium, *Lithium*	Li	7.03
Magnesium, *Magnesium*	Mg	24.36
Manganum, *Manganese*	Mn	55.0
Natrium, *Sodium*	Na	23.05
Nitrogenium, *Nitrogen*	N	14.04
Oxygenium, *Oxygen*	O	16.0
Phosphorus, *Phosphorus*	P	31.0
Plumbum, *Lead*	Pb	306.9
Stannum, *Tin*	Sn	118.5
Stibium, *Antimony*	Sb	120.0
Sulfur, *Sulphur*	S	32.06
Zincum, *Zinc*	Z	65.4

VIII.

A comparative table of the official and the ordinary popular names of medicines.

(*a*)

Acidum acetsalicylicum. Acetylsalicylic acid.	***Aspirinum.*** *Aspyrine.*
Albuminum tannicum. Albumen tannate.	***Tannalbinum.*** *Tannalbine.*
Ammonium sulfoichthyolicum. Ammonium sulpho-ichthyolate.	***Ichthyolum.*** *Ichthyol.*
Antipyrinum salicylicum. Antipyrine salicylate.	***Salipyrinum.*** *Salipyrine.*
Argentum proteinatum. Proteine silver.	***Protargolum.*** *Protargol.*
Bismutum subgallicum. Bismuth subgallate.	***Dermatolum.*** *Dermatol.*
Bismutum tribromphenylicum. Bismuth tribromphenolate.	***Xeroformum.*** *Xeroform.*
Chininum æthylcarbonicum. Quinine ethylcarbonate.	***Euchininum.*** *Euquinine.*
Dimethylamidoantipyrinum. Dimethylamidoantipyrine.	***Pyramidonum.*** *Pyramidon.*

Hexamethylentetraminum. Hexamethylenetetramine.	***Urotropinum.*** *Urotropine.*
Lactylphenetidinum. Lactylphenetidine.	***Lactopheninum.*** *Lactophenine.*
Methylsulfonalum. Methylsulphonal.	***Trionalum.*** *Trional.*
Morphinum diacetylicum hydrochloricum. Diacetylmorphine hydrochloride.	***Heroinum hydrochloricum.*** *Heroine hydrochloride.*
Phenyldihydrochinazolinum tannicum. Phenyldihydroquinazoline tannate.	***Orexinum tannicum.*** *Orexine tannate.*
Phenylum salicylicum. Phenyl salicylate.	***Salolum.*** *Salol.*
Tannicum acetylicum. Acetyl tannate.	***Tannigenum.*** *Tannigen.*
Theobrominum natrio-salicylicum. Theobromine sodium salicylate.	***Diuretinum.*** *Diuretin.*

(*b*)

Aspirinum. Aspyrine.	***Acidum acetsalicylicum.*** *Acetylsalicylic acid.*
Dermatolum. Dermatol.	***Bismutum subgallicum.*** *Bismuth subgallate.*
Diuretinum. Diuretin.	***Theobrominum natrio-salicylicum.*** *Theobromine sodium salicylate.*

Euchininum.	***Chininum æthylcarbonicum.***
Euquinine.	*Quinine ethylcarbonate.*
Heroinum hydrochloricum.	***Morphinum diacetylicum hydrochloricum.***
Heroine hydrochloride.	*Diacetylmorphine hydrochloride.*
Ichthyolum.	***Ammonium sulfoichthyolicum.***
Ichthyol.	*Ammonium sulpho-ichthyolate.*
Lactopheninum.	***Lactylphenetidinum.***
Lactophenine.	*Lactylphenetidine.*
Orexinum tannicum.	***Phenyldihydrochinazolinum tannicum.***
Orexine tannate.	*Phenyldihydroquinazoline tannate.*
Protargolum.	***Argentum proteinum.***
Protargol.	*Proteine silver.*
Pyramidonum.	***Dimethylamidoantipyrinum.***
Pyramidon.	*Dimethylamidoantipyrine.*
Salipyrinum.	***Antipyrinum salicylicum.***
Salipyrine.	*Antipyrine salicylate.*
Salolum.	***Phenylum salicylicum.***
Salol.	*Phenyl salicylate.*
Tannalbinum.	***Albuminum tannicum.***
Tannalbine.	*Albumen tannate.*
Tannigenum.	***Tanninum acetylicum.***
Tannigen.	*Acetyl tannate.*

Trionalum.	***Methylsulfonalum.***
Trional.	*Methylsulphonal.*
Urotropinum.	***Hexamethylentetraminum.***
Urotropine.	*Hexamethylenetetramine.*
Xeroformum.	***Bismutum tribromphenylicum.***
Xeroform.	*Bismuth tribromphenolate.*

IX.

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