them together because of these very decorations that throw light on the life of antiquity from an angle not reflected by the best classics, by the most perfect statuary, nor by the grandest remnants of architecture. But few mortals may be an Aeschylus or a Phidias, but we can be modest potters working our clay and decorating our simple ware with designs which, though crude, are nevertheless artistic in their way because they are self expressive. Let us do modestly the things we can do and do them well, not merely talk about them. Every frequenter of our section meetings, every member of the ASSOCIATION at large, should each year make some contribution to the archives that are to be used by the future historian of American pharmacy.

COMMITTEE REPORTS

REPORT OF THE NATIONAL FORMULARY COMMITTEE.*

BY WILBUR L. SCOVILLE, CHAIRMAN.

To the AMERICAN PHARMACEUTICAL ASSOCIATION:

With this report the present N. F. Committee concludes its work. This Committee was appointed in 1919 and the Fifth Edition of the National Formulary was issued in May 1926 and became official on July 1, 1926.

In this edition an attempt was made to supply tests for identity and purity, as well as standards for several classes of preparations not hitherto thus tested, but the task was too great for complete results. In the annual report of the Committee of 1926 there was pointed out the need of assistance in preparing such tests and standards for future editions, and plans were suggested by which such assistance might be secured. This Committee then took upon itself, voluntarily, the task of securing as much information as possible regarding the identification and standardization of National Formulary preparations which can be used by the next Revision Committee. The time since 1926 has been devoted to organizing such assistance and securing the desired information.

The most promising sources of such information are the pharmaceutical colleges and manufacturers. The colleges are in a position to accumulate data, if they so elect, through the regular curricula which will be indicative of results which may be expected of the average pharmacist and at the same time enlarge their educational methods. The manufacturers already possess considerable data which may be of use to the Committee, and which they are usually willing to share, and they are also willing to aid in proving out new tests or methods. The main effort has been to secure the coöperation of the colleges, since the aid of the manufacturers is more easily obtained when it is wanted.

A number of the colleges have responded cordially, and some of the results of their work are included in an appended report. Further reports are expected which will be available soon.

Continuous revision is the ideal method, and the next Committee may well put study and effort into further developing it.

Scope.—The most important question that will confront the next Committee will be that of the scope of the next edition. The National Formulary has adhered closely to its original purpose of supplying standard formulas for preparations not recognized in the U. S. Pharmacopœia, but the time has now come when the Committee must face squarely the fact that the demand for formulas in retail pharmacy is steadily diminishing, and if the National Formulary is to continue and to exert a real influence in pharmacy a somewhat radical change in policy may be necessary.

Conditions have changed very markedly in late years, both in pharmacy and in medical practice. The study of pharmacology, the development and increased use of vaccines, serums and other biological products, of glandular extracts and the abandonment of secrecy, have all

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tended to the development of specific medication and a lessened confidence in mixtures. Polypharmacy has been widely decried, whether wisely or not, and is having its effect. All this has resulted in a change of attitude toward compound (polypharmic) preparations which has decreased their influence if not their use.

This movement has been going on for many years, and is increasing in influence. In the last National Formulary the formulas for compound preparations (by which I mean preparations containing more than one active medicinal ingredient) were decreased about 20 per cent while formulas for simple (galenical) preparations were increased about 12 per cent. Since the first edition of the National Formulary the recognition of compound preparations in the U. S. P. and N. F. together has decreased about 25 per cent, while formulas for simple preparations have decreased only about 8 per cent.

The U. S. Pharmacopœia shows this tendency still more plainly. The U. S. P. X contains about 232 pharmaceutical preparations, of which only 38—or a little more than 16 per cent—are of the compound type. In the N. F. V, however, nearly 40 per cent of the pharmaceutical preparations are of the compound type. This may not be too large a proportion in the Formulary, but it tends to diminishing influence.

The records of the recent revisions all disclose that interest in compound formulas is progressively diminishing, both among physicians and pharmacists.

Yet compound preparations are still used, and will probably continue to be used, and that quite largely. But they are not regarded as of primary therapeutic importance. They may be used as placebos, as adjuvants—sometimes as vehicles, or as temporary agents. Thus it develops that the physician is not much concerned if the formulas vary, and his choice will be decided by the selling ability of the agents more than by the formula. And this attitude affects the influence of the National Formulary, and calls for consideration by its Committee and this Council.

Part II.—This presents another phase in the question of Scope. Up to the present time, *Part II* has consistently been limited to the standards for ingredients in the articles in *Part I* which are not standardized in the U. S. Pharmacopœia. This is the sole purpose of *Part II*, and it avoids any conflict with the Pharmacopœia.

The writer has felt very strongly that if the National Formulary is to continue as a legal standard it must be revised on a different basis from that of the Pharmacopœia. Otherwise the books will be rivals, not adjuvants. The scope of the Pharmacopœia is determined by therapeutic considerations, that of the National Formulary by common usage by physicians of all schools. The Pharmacopœia is essentially a book of standard therapeutic remedies; the National Formulary is essentially a book of standard formulas, not recognized by the Pharmacopœia. The Formulary has consistently denied any therapeutic judgment or responsibility. It can recognize any formula on this basis, but it is difficult to see how it can recognize any drug or chemical except as a standard ingredient or else therapeutic judgment.

Some members of the present Committee have considered that *Part II* should include some drugs and chemicals that are not used in *Part I*, and some outside of the Committee appear to share that opinion. This question merits some attention by the next Committee, and its crux lies in the problem how to admit such without rivaling, or seeming to criticize the Pharmacopœia on the one hand, or making a book so voluminous as to rival the Dispensatories on the other hand.

Perhaps the new Committee can find a way to solve the problem and avoid this dilemma. It will merit some careful study at the beginning of the revision.

The Dose Statements.—As pointed out in our report of 1926 there are four methods by which the modified dose statements may be made. A choice, however, will probably be made between two—the present method and approximate statements only. Each of these has advantages, and a careful consideration should be given to the choice if dose statements are to be continued.

Drug Extraction.—The entire subject of drug extraction needs reviewing and some revision. The plan of treating all drugs alike in most details except a choice of menstruum is not sound. Not only do drugs differ in ways that need individual study, but the requirements of the extracted products demand new attention in the light of later knowledge. Knowledge of plant life and plant chemistry is growing, and should be adapted to pharmaceutical needs. We ought to get out of the ruts and be up-to-date in this line.

This phase of revision will best be accomplished through a coöperative review and study of the subject in connection with the proper Sub-Committee of the next U. S. Pharmacopœia Revision Committee. The present methods are the result of a long series of disconnected studies, and should be reviewed along the following lines:

Menstrua.—The official menstrua now include twenty different alcoholic strengths, in some instances differing by as little as 1.5 per cent of alcohol. Such differences are too slight to be of importance. The number of menstrua can be materially reduced to advantage.

The value of 95 per cent alcohol as a menstruum is questioned. In the extraction of drugs penetration is essential as well as solvent action, and 95 per cent alcohol appears to be deficient in penetration. In Europe 90 per cent alcohol is preferred and its solvent properties on drug extractives seem to be satisfactory while its penetrative properties seem to be better.

On the other hand, our **Diluted Alcohol** of 49 per cent, which is our most frequently employed menstruum, might perhaps be replaced to advantage by the Continental Diluted Alcohol of 70 per cent in some cases.

A uniform menstruum for the fluidextract and tincture of the same drug is desirable. In most instances this is directed, but in a few cases not, and the reason for the latter is not apparent. In some cases it is simply a lack of coöperation between two sub-committees.

Glycerin is not a good menstruum except for astringent drugs, and should be eliminated from the menstruum in other cases. Its function is as a stabilizer and it can be better adapted to that purpose when omitted from the menstruum.

The rate of extraction has had but little attention except in the case of drugs that are difficult to exhaust. Rapid extraction produces better pharmaceutical products in some cases, as well as saves time. It is a mistake to establish the same rate of flow in the percolation of all drugs. The rate should be determined by a consideration of all the factors involved—*viz.*, the character of the drug, the type of menstruum and the character of the preparation desired. This last is a most important consideration.

The stability of galenical preparations is a subject that is too large for settlement by any revision committee, yet it needs their consideration. It is the most important factor with some preparations. Standardization fails of its purpose when the preparation that is standardized fails to holds its strength for a reasonable period. An instable preparation is independable, and a reflection upon pharmacy. It is a line of investigation that should be developed.

The foregoing are subjects which should receive early and a broad consideration. They are subjects which are apt to be unrecognized until some discrepancies or difficulties appear in the later stages of revision, when it is too late for satisfactory adjustment. An early attention will make the general revision more satisfactory and more complete.

The details of revision of the separate subjects, as involving nomenclature, chemistry, botany, pharmacy, pharmacognosy, etc., are, of course, important and regularly receive the attention of revisors. Some detail points of these are appended to this report.

Dr. Newcomb presents the following as a final report on *Botany and Pharmacognosy.*

"The Sub-Committee on Botany and Pharmacognosy carried out to completion an extensive program in preparing the standards for vegetable drugs as they appear in the Fifth Edition of the National Formulary. At the beginning this Committee made a careful survey of the work in its field. Following this a definite outline was prepared designed to bring the standards for vegetable drugs as laid down in the N. F. into conformity with respect to style and completeness with the standards appearing in the U. S. P. The work covered by this outline was very largely completed and to-day the standards for vegetable drugs as given in the N. F. compare very favorably in scientific accuracy and completeness with those of the U. S. P.

"Some of the specific suggestions which the Sub-Committee on Botany and Pharmacognosy hoped to incorporate in the Fifth Edition of the N. F. were not included. This was due to a lack of time to complete the surveys and compile the data necessary. These suggestions are enumerated here at this time so that the new N. F. Revision Committee may give to them due consideration.

"1. Tolerances for organic matter are provided in the present N. F. for practically all vegetable drugs. In many cases the allowances for individual drugs are identical. The incoming committee should study these tolerances with the thought in mind of adopting a blanket standard which may be placed under general requirements and applied to all drugs where not

otherwise specified. If this can be done it will obviate the necessity of reprinting, under most of the drug monographs, separate sentences covering this phase of the standard.

"2. An attempt was made to prepare and include descriptions of the microscopical characteristics of structure where it was felt same might be helpful in determining identification or adulteration. In the more important instances these descriptions now appear in the text. The incoming Committee should give consideration to the desirability of adding the descriptions of microscopical structures where they do not now appear. A list of the drugs which should be considered in this connection is appended herewith.

"3. The Committee gave consideration to the addition of paragraphs describing the microscopical characteristics of compound powders containing vegetable drugs, in line with such paragraphs appearing in the U. S. P. under *compound powders*. This work was not completed. A distinct irregularity prevails in this respect in the present N. F. The monograph on Aromatic Powder, for example, which was brought over from the U. S. P., contains a rather complete paragraph describing the microscopical characteristics of the powder. Other N. F. powders containing vegetable drugs make no mention of the microscopical characteristics. It is suggested that the new Committee give consideration to the addition of such paragraphs if these preparations are continued.

"4. The Sub-Committee on Botany and Pharmacognosy obtained most valuable assistance from pharmaceutical manufacturers and drug importers in preparing the standards of vegetable drugs. This was accomplished by means of a series of questionnaires asking for up-to-date information pertinent to the standards. The response was far beyond expectations and the value of the information thus obtained can hardly be overestimated. It is recommended that the new Sub-Committee on Botany and Pharmacognosy consider using this same plan."

LIST OF DRUGS FOR WHICH PREPARATION OF PARAGRAPHS ON MICROSCOPICAL STRUCTURE SHOULD BE CONSIDERED.

Adonis	Cocculus	Manaca	Rubus
Altheæ Folia	Coptis	Melilotus	Scoparius
Ascelpias	Damiana	Mitchella	Scutellaria
Baptisia	Eupatorium	Pareira	Senecio
Berberis	Euphorbia	Passiflora	Solanum
Bryonia	Farfara	Phytolacca	Stillingia
Canella	Galega	Pimenta	Sassafras
Castanea	Grindelia	Pinus Alba	Sumbul
Cataria	Kava	Piper	Thuja
Caulophyllum	Kola	Pulsatilla	Thymus
Centaurium	Lappa	Quercus	Trifolium
Chimaphila	Leptandra	Quillaja	Trillium
Verbasci Folia			Xanthoxyli Fructus

Propaganda.—While it is not the function of this Committee to propagate the use and sale of the National Formulary, it may not be out of place to call attention to this need.

The National Formulary is both a professional and a business proposition. As a professional work it will be judged by interested professional readers, and will receive such criticism or approval as it may merit. As a business proposition it will meet with success in proportion to the interest and use which it may arouse.

Its status as a legal standard, the laws which in some states compel its purchase by each drug store, and its use as a textbook in most of the pharmaceutical colleges insures a considerable sale and a measure of business success. But a forced attention is neither very lasting nor helpful, and the Formulary needs to exert a real influence if it is to continue through the coming years.

The writer has been chagrined several times in reading papers or listening to addresses by prominent members of this ASSOCIATION, wherein was advocated a more liberal policy of recognition of drugs by the Pharmacopœia to note that the official standing for which they pleaded is already furnished in the National Formulary but is overlooked.

Seemingly the National Formulary is very little in the minds of the leaders in pharmacy,

It lacks support from some of our own members from whom we might better expect defense. This lack indicates an ignorance of its contents rather than of the book itself.

How can this be corrected?

If the fault is due to defects in the book, to failure in supplying the needs, to a too widely scattered appeal in its contents, or to other inherent shortcomings, the flaw should be found and corrected in the next edition. If the fault is not primarily in the book, then a more efficient advertising is needed.

Since criticisms are not numerous, one wonders whether the National Formulary is more than a title to many of its possessors. Unless the title portrays to the owner a definite character, in a book, with its own peculiarities, just as a personal name portrays a personality, the title can have but little influence.

Familiarity with books comes with use. If the Formulary is not used it is because it is not fitting commercial conditions. A commercial influence is needed to develop its professional influence. This means that the book must appeal as a commercial help to professional pharmacy. And this involves a wider understanding of the purposes and advantages of its contents.

For instance—one needs to know not only that the book contains a line of preparations for external use known as Petroxolins but also know their special therapeutic and pharmaceutic advantages; that the dental formulas in the book were selected and endorsed by the National Dental Society, and the veterinary formulas by the American Veterinary Medical Association—also something about the identity and uses of these preparations; that the list of **Elixirs** includes practically all that are in demand, etc. In short how the book may connect the commercial demands with professional service.

Not only pharmacists but also physicians need to know how the book can supply commercial demands. Such information needs reiteration and expansion to become effective. The announcements made when the newly revised book is first issued are soon out of mind and are too meager to be effective. The contents should be kept before the physicians in sections to make the book appear as really useful.

The drug manufacturers of the United States are credited with expending $30,000,000 per year in advertising. This is spent on business already established. Some business men consider that 2 to 3 per cent of the gross earnings of a business should be spent in advertising to ensure a normal development. If such expenditures are considered profitable for well-known and established concerns, would not some proportionate expenditure be wise for the National Formulary?

Professional and commercial purposes are complementary, not antagonistic. Each needs the other in practical life, just as a physically perfect and mentally educated man needs clothing in which to appear in public. Were he to appear naked his physical and mental charms would not suffice to keep him from confinement. The highest and most ethical type of professionalism needs enough of commercialism to connect it with the needs of people and to supply its own physical needs.

I trust that the professional aspect of the National Formulary will always predominate, but let us not be blind to the fact that it needs to be sufficiently clothed with commercialism to keep its vitality warm and active.

I recommend that the Council give early and serious consideration to some plan for more effectively advertising the next edition of the National Formulary and its contents.

In conclusion I wish, as chairman, to express my hearty appreciation of the cordial attitude and help of the Council and the officers of this ASSOCIATION during the entire course of the revision now closed. No request has been denied, no embarrassing criticism offered, no hindrances by delay have come from that source. Throughout the revision I have met with cordial cooperation and the most pleasant of relations. This has made the work of revision a real pleasure, and meant an addition of new friends.

To my colleagues on the Committee, whom I respect and esteem most highly, I wish to pay tribute for their unfailing patience and courtesy, their cordial coöperation in all phases of the work, and their uniformly loyal support. I can wish the next chairman of the National Formulary Committee no better experience than that he may have a committee as able and as loyal as this one.

ADDENDA TO

REPORT OF THE NATIONAL FORMULARY COMMITTEE.

Following are specific criticisms of articles in the National Formulary V which merit attention for the coming revision in such cases as are retained.

Ampuls.—A test of ampul-glass with narcotine hydrochloride may well be considered. J. Rosin recommends the use of methyl red in place of phenolphthalein for titrating ampul solutions of emetine hydrochloride and quinine dihydrochloride.

Aqua Hamamelidis.—An alcohol rubric and limits of tolerance should be established. (J. Rosin.) The test for formaldehyde may be misleading if the conditions are not followed closely. The fuchsine-sulphite test is more generally reliable.

Caffeinæ Sodio-Salicylas.—Description and tests to distinguish it from Caffeine Sodio-benzoate are needed. Also a rubric, since an assay method is given. (J. Rosin.)

Elixir Calcii et Sodii Glycerophosphatum.—A definite acidity should be established to insure the stability of this elixir.

Extractum Ergotae Aquosum.—Should be standardized if continued. Its stability is questioned.

Fluidextracta.—Specific gravities and extractive limits are desirable for all that are not chemically or biologically standardized. Some data are available, and more can be obtained.

A general study to reduce the number of menstrua and to unify the menstrua for fluidextracts and tinctures, and the method of using glycerin, is desirable.

The fluidextracts of Aconite, Arnica, Calendula, Colchicum, Corm, Digitalis, Gelsemium and Valerian, each has a menstruum differing from that of the corresponding tincture. Unless a good reason can be given these should be made uniform.

Cubeb.—Mr. Ėwe suggests that this fluidextract be standardized on the basis of its ether-soluble extractive.

Sanguinaria.—Mr. Ėwe recommends an alkaloidal standard and assay method.

Stillingia and Stillingia Compound.—These fluidextracts sometimes gelatinize. A study of the menstruum to stabilize these is needed.

Glyceritum Bismuthi.—H. A. Bartlett reviews the manufacture and makes a suggestion that the first precipitate of bismuth salt should be washed until free from nitrate. (JOUR. A. PH. A. (1925), 789.) A better method of assay is desirable.

Linimenta.—Descriptions and some tests are desirable for all.

Liquor Antisepticus.—The specific gravity and tests should be checked.

Liquor Aromaticus Alkalinus.—Mr. Nitardy criticises the ash statement—probably correctly. The conditions of ashing will make a material difference.

Liquor Auri Bromidi et Arseni.—Identity tests and assay are needed.

Liquor Bismuthi.—Prof. Bachman has accepted this for study.

Liquor Calcis Sulphurata.—Prof. Bachman has accepted this for study.

Liquor Ferri Albuminati.—The ash is questioned. (Nitardy.)

Liquor Ferri Peptonati.—The description (color) is questioned. The specific gravity and assay should be added.

Liquor Ferri Peptonati et Mangani.—The specific gravity is questioned. (Nitardy.) The tests need to be verified.

Liquor Ferri Salicylatis.—Prof. Bachman has accepted this for study.

Liquor Hypophosphitum Compositum.—The test for manganese in the ash is faulty. (Rosin.)

Liquor Iodi Phenolatus.—See article by Krantz and Carr in JOUR. A. PH. A. (June 1929), 608. Prof. Bachman has also accepted this for study. The residues and ash are questioned. (Rosin.)

Liquor Pancreatini.—The assay method may be improved.

Liquor Phosphatum Acidus.—Further tests are needed.

Liquor Phosphatum Compositus.—Specific gravity and further tests are needed.

Liquor Phosphori.—An assay method is needed.

Liquor Sodæ et Menthæ.—Prof. Bachman has accepted this for study.

Liquor Sodii Arsenatis Dilutus.—More hydrochloric acid is needed in the assay. (Rosin.)

Liquor Sodii Phosphatis Compositus.—A limit tolerance in specific gravity is desirable.

Misturæ.—Descriptions are needed and some tests were applicable.

Oleum Phosphoratum.—Identification tests and an assay are needed. (See *Chem. Abst.*, 21 (1927), 3856.)

Petroxolins.—Descriptions are desirable.

Petroxolinum Iodi.—Dr. Zeigler reports a good absorption of iodine from this.

Phenol Iodatum.—See paper by Krantz and Carr—JOUR. A. PH. A. (June 1929), 608.

Pilulæ Ferri Iodide.—An assay process is desirable.

Sal Carolinum Factitium.—The crystalline form is declared to be not uniform, not satisfactory and little used. An assay for sodium chloride and bicarbonate is recommended. (Rosin.)

Sal Carolinum Factitium.—A test for the reaction of the solution is desirable. Mr. Rosin thinks an assay for citric acid is needed.

Sal Lithii Citralis Effervescens.—An assay for lithium citrate, and for citric acid is advised. (Rosin.) The reaction of the solution, with test, is desirable.

Sal Vichyanium Factitium.—Criticised by a Cleveland physician as containing too much magnesium sulphate. He gives analyses of the springs, which will be turned over to the next Committee.

Spiritus.—Descriptions and specific gravities are desirable for all.

Spiritus Acidi Formici.—See article by R. E. Terry, *Amer. Jour. Pharm.* (1928), 625.

Syrupi.—Descriptions and specific gravities are desirable for all.

Syrupus Calcii Iodide.—See article by Bradford and Langenhan, JOUR. A. PH. A. (1929), 135.

Syrupus Hypophosphitum Compositus.—The sodium citrate should be increased to 7.5 Gm.

Syrupus Iodotannicus.—Ewe proposes an assay for iodine.—See YEAR BOOK, A. PH. A. (1919), p. 110.

Tabellæ Hydrargyri Chloridi Mitis.—An assay for calomel is needed. (Rosin.)

Tabellæ Santonini and Tabellæ Santonini Compositum.—An assay process for santonin, with tolerance limits, is advisable.

Tincturæ.—Approximate specific gravities, descriptions and extractive limits (except for the tinctures otherwise standardized) should be included for all. Some manufacturers have already adopted extractive standards for such as they make.

Tinct. Arnicæ, Tinct. Calendulæ, Tinct. Colchici Cormi and Tinct. Gelsemii each are made with a menstruum differing from that of the corresponding fluidextract.

Tinct. Ferri Chloridi Aetherea.—J. Rosin criticises the term "ferroso-ferric chloride" as not based on fact.

Tinct. Ferri Citrochloridi.—J. Rosin questions the use of the term "citrochloride." Thinks that the tincture is merely a mixture, and the term "citrochloride" does not properly apply.

Unguentum Iodi Denigrescens.—Dr. Zeigler reports this ointment as showing no iodine absorption or any antiseptic action.

Acidum Formicum.—J. Rosin criticises the identification test as not characteristic. He suggests the following: To 10 cc. of the acid add sufficient sodium hydroxide solution to neutralize it, then add five drops of ferric chloride T.S. A red color is produced which is discharged by the addition of mineral acids.

Æther Aceticus.—The rubric should be not less than 99 per cent—now easily available. The assay should be by the saponification method. The physical method may be in error up to 3 per cent, due to the absorption of water.

The specific gravity of the 99 per cent ether is stated to be 0.892 to 0.896, and the boiling point 75° to 77° C.

Alumini Chloridi.—J. Rosin prefers the U. S. P. identity test for aluminum salts.

Ammonii Phosphas.—J. Rosin proposes a limit of insoluble matter of 0.05 per cent. Considers that the test should be quantitative.

Bromum.—The standard is questioned by the chemists of the Dow Chemical Co. as being commercially impracticable. The rubrics for the U. S. P. alkali bromides is 98.5 per cent. The rubric for Bromine should correspond.

Calcii Phosphas Præcipitatus.—J. Rosin states that provision should be made to exclude mixtures of dibasic and tribasic phosphates, which are not uncommon, or of dibasic with free lime. Tests for limit of calcium hydroxide or carbonate and of sulphate should be established.

Carbo Animalis Purificatus.—J. Rosin offers the following test for purification quality: Heat on a water-bath 2 Gm. of Purified Animal Charcoal with 30 cc. of diluted hydrochloric acid

for 30 minutes, cool, add water to restore the original volume and filter. Ten cc. of the filtrate on evaporation and gentle ignition leaves not more than 0.005 Gm. of residue.

Cascara Amarga.—O. A. Farwell states that this should be described as "The dried bark of *Sweetia Panamensis*," Benth. (Fam. **Leguminosæ**) (*Amer. Drug* (Feb. 1928)).

Cypripedium.—The name of the species has been questioned by Prof. Rusby. Correspondence on the subject will be turned over to the next Committee.

Ferri Glycerophosphas.—J. Rosin recommends that 1 Gm. be taken for the assay—requiring about 28 cc. of thiosulphate solution, and a blank also run.

Ferri Hypophosphis.—J. Rosin says that the test for calcium is too severe. The second paragraph under Tests for Purity gives identity tests—not purity.

Ferri Lactas.—The test for carbonizable impurities is criticised as too severe. A proposed test is: Triturate 1 Gm. of Ferrous Lactate with 5 cc. of sulphuric acid for two minutes. The mixture does not develop an offensive odor (*butyric acid*) nor assume more than a pale brown color (*carbonizable substances*).

Kaolinum.—J. Rosin proposes the following test for impurities: Digest 1 Gm. of Kaolin in 20 cc. of diluted hydrochloric acid for 15 minutes, and filter. Ten cc. of the filtrate evaporated to dryness and ignited leaves not more than 0.01 Gm. of residue.

Lithii Benzoas.—J. Rosin prefers the U. S. P. method for assay of benzoate as given under Ammonii Benzoas, U. S. P.

Lithii Bromidum.—J. Rosin offers the following test for bromates: Dissolve 0.5 Gm. of Lithium Bromide in 10 cc. of freshly boiled and cooled distilled water, add 2 drops of freshly prepared potassium iodide T.S. and then 2 drops of diluted hydrochloric acid; no yellow color is produced in one-half minute.

A limit test for sulphate is proposed, the turbidity to be no more than is produced by 1 cc. of fiftieth-normal sulphuric acid diluted to 5 cc.

Lithii Salicylas.—J. Rosin prefers for assay the separation, extraction and titration of the salicylic acid as directed for Ammonii Salicylas in the U. S. P. X.

Magnesii Chloridum.—The rubric—not less than 95 per cent—has been criticised as low when applied to a dried salt. If applied to the salt as employed, it would be more satisfactory.

Mangani Hypophosphis.—J. Rosin suggests the following modification of the test for phosphate: Boil 0.25 Gm. of the salt with 10 cc. of sodium hydroxide T.S. and 10 cc. of distilled water. Filter and acidulate the filtrate with hydrochloric acid, boil for one minute, add 2 cc. of magnesia mixture, then make alkaline with ammonia water. No precipitate appears.

A time limit of 1 minute is proposed in the sulphate test.

Mezereum.—The description which calls for "aerial" bark is not in accordance with supplies and usage. Root bark is universally supplied and used. The term "aerial" should be dropped. (Farwell.)

Plumbii Iodidum.—J. Rosin considers the identity tests inadequate. He prefers the U. S. P. identity tests for lead and for iodides.

Nomenclature.—Prof. C. C. Plitt has commented on the abbreviations of the U. S. P. and N. F. in an article published in the JOUR. A. PH. A. (May 1929), 487.

RULES FOR REGISTRATION OF DRUGS IN COSTA RICA.

A Costa Rican executive decree published July 25th, cancels the previous requirement that an applicant for registration of a pharmaceutical specialty should present a certificate issued by two pharmacists licensed by the College of Pharmacists, vouching for the exactness of the formula.

Applicants for such licenses, according to information received by the Department of Commerce from the Consul at San José, should forward three copies of the quantitative formula, in Spanish or Latin, and two samples of the preparation, with labels and reading matter, exactly as it will be placed on sale to the public.

At a meeting of the board of directors of the College of Pharmacists, June 6th, the time limit for the registration of pharmacetutical products was extended, and applicants now have until December 6th (instead of November 12th, as previously required) to effect registration of their products.