highest general average made 90 or above in six of the branches out of the eight and made the highest record in three branches—Materia Medica, Botany and Pharmacognosy, Physiology. The next candidate made 90 or above in four branches and highest record in two branches—Dispensing and General Chemistry.

Percentages made by the candidates: (*a*) Materia Medica; (*b*) Botany and Pharmacognosy; (*c*) Physiology; (*d*) Dispensing; (*e*) Pharmacy; (*f*) Qualitative Aanalysis; (*g*) Pharmaceutical Arithmetic; (*h*) General Chemistry.

	(*a*)	(*b*)	(*c*)	(*d*)	(*e*)	(*f*)	(*g*)	(*h*)
1.	98	94	96	76.5	96	90	70	90
2.	92	68	95	90	88	71	80	94
3.	87.5	88	85	61	98	83	70	80.5
4.	76	76	76	66	91	90.5	90	77
5.	81	58	86	77	91	88	55	93
6.	91	73	88	54	85.5	61	90	83
7.	77	80	85	62	83	80	80	69
8.	94	69	90	81	77	45.5	70	60
9.	90	73	90	68.5	78	51	60	74
10.	90	73	95	16	80	77	60	81
11.	70	49	78	69	78	57.5	40	59
12.	57	77	80	38.5	64	52	85	55.5
13.	63	67	68	64	60	34	10	33

Committee

THEODORE J. BRADLEY
D. B. R. Johnson
WILFORD HARRISON
E. G. EBERLE, *Chairman*

The candidate making the highest average, winner of the Fairchild Scholarship, is Martin Sams, 150 Stegman St., Jersey City, N. J., student of New Jersey College of Pharmacy.

REPORT OF THE NATIONAL FORMULARY COMMITTEE.

BY WILBUR L. SCOVILLE, *Chairman.*

To the American Pharmaceutical Association:

During the past year the National Formulary Committee has suffered its first loss in membership. Dr. H. Engelhardt passed out from this life on February 9, 1927. He was a greatly valued member of the Committee, both for his high qualifications and for his uniformly ready and helpful spirit. His long experience in analytical and pharmaceutical work, his close study of U. S. P. and N. F. standards—on both of which he had rendered helpful work as a consultant—his fair mindedness and logical conclusions, and his constant willingness to use his time and energies in trying out the problems of revision, have been important factors in making the National Formulary what it is. He had a strong sense of loyalty, and he was always true to it. His modesty did not allow him to become conspicuous, but his work and his judgment has left this ASSOCIATION, the National Formulary, and Pharmacy in general the richer for his efforts and the better for his spirit.

This Committee paid the only tribute that it could in recognition at the funeral and in the passing of resolutions which were sent to his widow and published in the May JOURNAL (p. 394).

No serious errors have been reported as appearing in the Fifth Edition during the past year. A few questions have been asked regarding the accuracy of some tests or statements, which will be investigated and the information passed along to the next Revision Committee.

Under date of April 30, 1927, a letter was received from the Lambert Pharmacal Company requesting "that steps be taken as promptly as may be possible to obtain from your colleagues a decision, effective on a certain date to be fixed at their discretion, to withdraw and abandon the formula for Liquor Antisepticus, and the use of the term Liquor Antisepticus, and to omit said formula and term from future editions of the National Formulary." The reason given for this

request was that "this preparation is commonly sold by retail druggists as and for 'Listerine,' or, in other words dispensed under the name of 'Listerine.'"

This request, together with a review of the history of Liquor Antisepticus as it has appeared in the U. S. Pharmacopœia and National Formulary was sent to the Committee for action in the usual way. In response to this, nine members expressed themselves as doubtful of the wisdom of such action, but no motion was made on which action could be taken. The question is still unsettled, and a conference is planned at this meeting in St. Louis to consider it.

The main efforts of the Committee during the past year have been directed to the securing of data which will be useful in the next revision. Last fall seventy-six letters were sent to the different colleges of pharmacy requesting their coöperation in securing the data needed, and also their criticism, constructive or otherwise, of any portion or portions of the National Formulary. Replies were received from nearly half of the schools, indicating their interest in this work, and since an immediate reply was not requested by the letter, it is expected that most, if not all, of the schools will respond. It is intended to follow up this plan by other letters this year, and also to enlist the pharmaceutical manufacturers in this work.

The requests involved data on:

1. Preparations which are at present lacking in official standards, such as extractive and specific gravity data on the non-standardized fluidextracts, tinctures, some liquors, syrups, etc.
2. A critical study of the standards now included, particularly the newly added tests and standards, and
3. A general criticism of the contents of the National Formulary from the standpoint of usefulness, with specific instances.

It was anticipated that results from such studies will be slow in coming in and also that there may be an unequal distribution of results, but it is hoped to equalize this in large measure in the follow-up process. This effort is, therefore, planned to continue during the existence of the present Committee.

This enlistment of the teachers and users of the book is not aimed at simply solving known or suspected problems, but is designed also to secure a wider viewpoint and study of the usefulness of the Formulary. It is preferred that the critics or workers shall select their own problems, rather than to have them assigned, in order to secure the individual interest and conception. To have those who respond act as individual and independent revisors of the National Formulary will be of far more value to it than to have them act as willing workers on problems that the present Committee has conceived or found.

We seek a widening of vision and a more comprehensive view of the functions and use of the Formulary, and this can come from those who view it from the standpoint of usefulness without too close a view of the traditions and standards under which it is now made.

But in order that the request shall not be too vague, some definite suggestions are offered.

Acetum Aromaticum.—Should have a specific gravity standard and titration test.

Ampuls.—Methyl red is recommended as a better indicator than phenolphthalein for those that require titration for excess of acid.

Aqua Hamamelidis.—An alcohol tolerance should be specified for this.

Caffeine Sodio-Salicylate.—Tests to distinguish it from Caffeine Sodio-Benzoate are needed.

Elixirs.—A description, with some identification tests, whenever practicable, and specific gravity is desirable for each of the elixirs. The specific gravity will, in most cases, be a sufficient check upon the strength, without a direct assay process. In some instances an assay may also be desirable.

Extracts, Fluidextracts and Tinctures.—Some manufacturers are now standardizing the non-alkaloidal and non-resinous fluidextracts and tinctures on the basis of dry extractive. This method, while not altogether satisfactory is better than no standard, and at least makes for uniformity. A reasonable tolerance should be allowed in each case, and data is desired on the amount of extractive that each drug should yield to the official menstruum. When glycerin is present in the preparation the drying of the extract must be limited and under uniform conditions to secure concordant results.

In 1926 Mr. L. W. Phillips, M.Sc., presented to the Australian Pharmaceutical Association a very interesting paper on "The Identification of Some Simple B. P. Tinctures," in which simple

and mostly easy tests were given whereby many of the tinctures could be identified and distinguished from others of a similar type. The application of such tests to the U. S. P. and N. F. preparations would be a decided forward step. The tests should be checked for reliability and others devised for the preparations not covered in that paper.

The menstrua for extraction of Aconite, Calendula, Gelsemium, Hop and Ignatia are not satisfactorily settled, and the tincture and fluidextract of these drugs should be made with the corresponding menstruum; which involves the establishment of the most satisfactory menstruum for each of these drugs.

Liquor Antisepticus and Liquor Aromaticus Alkalinus.—The residues and ash of both of these have been questioned. Since the first contains boric acid, which is probably partially volatilized on evaporation and is changed to pyroboric acid on ashing, and the second contains borax which ignites to meta or pyroborate, and also, perhaps, some magnesium bicarbonate, the conditions of evaporation and ashing may make a considerable difference in the results. Would not titration of the solutions afford a more reliable standard than residues and ash?

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

Liquor Bismuthi and Liquor Calcis Sulphuratæ.—The specific gravity, at least, should be stated, as a check on the strength.

Liquor Ferri Albuminati, Liquor Ferri Peptonati and Liquor Ferri Peptonati et Mangani.—Specific gravities, and an assay for iron content would seem to be preferable to residue and ash standards. The presence of syrup and glycerin in the preparations makes the residue uncertain and the ashing difficult.

Liquor Hydrastinæ Compositus.—An assay for hydrastine is desirable.

Liquor Phosphatum Acidus, Liquor Phosphatum Compositus and **Liquor Sodii Phosphatis Compositus** are all solutions which are likely to vary in strength, even with reasonable care in their preparation. Assay processes for these are lengthy, and perhaps are unwarranted, but a reasonable control can be secured by means of the specific gravity. Tolerances in this test should be established.

Liquor Phosphori and **Oleum Phosphoratum.**—Identity tests and assay processes are needed for these. The odor of phosphorus, particularly in the oil, is not distinct enough to be reliable, and it is too potent a remedy to rest on tests of doubtful reliability.

Liquor Procainæ Hydrochloridi.—An assay and rubric should be added.

Liquor Sodæ et Menthæ.—A titration standard can easily be applied to this preparation, and would insure practical uniformity without separate estimations of the two alkalies.

Misturæ.—Descriptions of the individual mixtures, with identity tests are desirable. The latter are particularly needed for the more potent mixtures, such as those containing chloroform or opium, or derivatives.

Oleatum Quininæ and **Oleatum Veratrinæ** should each have a rubric and an assay process.

Salia Effervescentia.—Tests for reaction in the final product are desirable in all cases.

Sal Carolinum Factitium in crystalline form is criticized as being not uniform and little used, and a standard for alkalinity is recommended for the effervescent form. The latter is also recommended for the effervescent Kissingen and Vichy. The Vichy formula has been criticized for its content of magnesium sulphate, which is regarded by some as undesirable. Analyses of the Vichy springs water shows only a very small proportion of magnesium salt in the natural waters.

Spiritus Acidi Formici and **Spiritus Ammoniæ Anisatus** should have a rubric and assay each. Specific gravity statements and descriptions are desirable for the other spirits.

Syrupi.—The syrups of calcium iodide, soluble saccharated iron, quinidine and possibly iodo-tannin should have a rubric and assay process. The other syrups should have descriptions, identity tests and specific gravities stated.

Tabellæ.—Assays have been suggested for tablets of calomel, of santonin and of santonin compound.

The above are suggestions which have come to the Chairman, together with some of his own. The advisability as well as the practicability of each should be carefully considered, and suggestions should be made freely. "In a multitude of counsellors there is safety" and it is hoped that before the next revision committee begins its work we can present to it not only much useful data but also some valuable suggestion that will result in a more serviceable book and an increased interest therein.