Comparison with reports sent in previously:

Year	Total	Above	Below	Percent Above
1909	395	313	82	79.3
1910	340	291	49	85.6
1911	263	224	39	85.1
1912	298	235	63	78.8
1913	382	264	118	69.1
1914	286	221	65	77.2
1915	133	98	35	73.6

Last year the drugs running habitually below standard were Aconite Root, Calabar Bean, Hyoscyamus, Jalap, Mandrake and Nux Vomica.

This year Aconite Root, Hyoscyamus and Nux Vomica are running low.

The Smith, Kline and French Co. found that Hyoscyamus, Nux Vomica and Stramonium Seed were generally below standard.

Respectfully submitted,

COMMITTEE ON DRUG MARKET,
J. G. ROBERTS, Acting Chairman,
CHAS. E. VANDERKLEED,
HENRY C. BLAIR,
D. M. KRAUSER.

SUGGESTIONS FOR A COURSE IN MICRO-ANALYSIS AND BACTERIOLOGY FOR COLLEGES OF PHARMACY.

ALBERT SCHNEIDER.

(Concluded from July.)

The following blank report sheets should be used. The sample reports given will indicate how these are to be filled out based upon the results of the analysis:

Form No. 1. Blank report sheet for the microscopical examination of organic drugs and dry food substances.

No. (I. S. Laboratory or other serial number).

Label .....
.....
Sample received.....Sample examined.....
Conditions of wrappings and seals.....
Organoleptic tests .....
    Consistency of Feel.....
    Color .....
    Odor .....
    Taste .....
Adjunct Tests .....
    Ash .....%
    Acid-insoluble .....%
    Sand (beaker test).....%
Special Tests .....
.....
.....
Microscopical Findings .....
.....
.....
.....
.....

Conclusions .....
.....
.....
.....
.....
.....Analyst.

The following is a sample report of analysis using the proposed report card:

No.: 5432.

Label: *Broken Senna, U. S. P., John Smith & Co., Kalamazoo, Michigan.*

Sample received: *August* 15, 1912. Sample examined: *August* 20, 1912.

Conditions of wrappings and seals: *Good.*

Organoleptic Tests .....
- Consistency or Feel: *Dry, gritty, sandy, dirty.*
- Color: *Not unusual.*
- Odor: *Senna-like.*
- Taste: *Sandy, gritty.*

Adjunct Tests .....
- Ash: 19.6%.
- Acid-insoluble: 9.4%.
- Sand (beaker test): 9%, *sand and small pebbles.*

Special Tests: *Pebbles picked out by hand. About 4% senna seeds and pod fragments and stems present.*

Microscopical Findings: *The histological characters of African senna. Stem tissue excessive. Sand and dirt excessive. Senna seeds and pods present in considerable quantity.*

Conclusions: *Adulterated with sand, pebbles, senna seeds, senna pods and stems* 25%. *Misbranded because labeled U. S. P., whereas it is below the U. S. P. standard.*

RICHARD ROE, Analyst.

Form No. 11. Blank report sheet for the microscopical examination of catsups, jams, jellies, etc.:

(No., label, dates, condition of seal and organoleptic tests, as for Form No. 1.)

Adjunct Tests.
- Sublimation tests for.....
  - Benzoic acid .....
  - Salicylic acid .....
- Boric acid (curcuma thread).....
- Iodine reaction .....
  - Intracellular .....
  - Extracellular .....

Special Tests .....
.....

Microscopical Findings.
- General .....
.....
.....
- Cytometric counts.
  - Dead yeast cells.....per cc.
  - Living yeast cells.....per cc.
  - Bacteria .....per cc.
  - Mold (hyphal fragments and clusters).....per cc.
  - Mold spores .....per cc.

Conclusions .....
.....
.....
.....Analyst.

We may give an example of a report as follows:

FORM NO. II.

Lab. No. 462.
Label: *Pure currant jelly. Made by Smith, Jones & Co., Nantucket, Wis.*
Sample received *August* 5, 1914. Sample examined *August* 5, 1914.
Condition of seals: *Good, unbroken sample.*
Organoleptic tests: *Not conclusive.*
Consistency or feel: *Poorly jellied.*
Color: *Normal for Currant jelly.*
Odor: *Faint, somewhat disagreeable.*
Taste: *Not characteristic, bitterish, quite acid.*
Adjunct tests.
Sublimation tests for
Benzoic acid: *Negative.*
Salicylic acid: *Very marked.*
Boric acid (curcuma thread): *Negative.*
Iodine reaction: *Very marked.*
Intracellular: *Negative.*
Extracellular: *Positive, very marked.*
Special tests: *Salicylic acid color reaction, with ferric chloride very marked.*
Microscopical examination.
General. *Some apple tissue (window cells and pulp cells) and currant tissue sclerenchyma present. Added wheat starch about 5 percent.*
Cytometric counts.
Dead yeast cells, 80,000,000.....per cc.
Living yeast cells, *none*.....per cc.
Bacteria, 600,000,000 .....per cc.
Mold (hyphal fragments and clusters), 84,000.....per cc.
Mold spores, 5,000,000.....per cc.
Smut spores, *none*.....per cc.
Conclusions: *Misbranded. Adulterated with apple and with wheat starch and made from fermented and decomposed material, preserved with salicylic acid. Not fit for human consumption because of the quantity of yeast, mold and bacteria present.*

JOHN DOE, Analyst.

Part II. Bacteriological.—Quantitative and Qualitative Determinations of Organisms in Foods and Drugs.

A laboratory course of at least one hour each day extending throughout the entire college year. The time necessary to do the laboratory work will vary from day to day. The work is to be supplemented by lectures, special reading and seminar work. The laboratory methods employed are those of the Laboratory Section of the American Public Health Association, The U. S. Public Health Service and the Bureau of Chemistry of the U. S. Department of Agriculture, in-so-far as these methods are applicable.

I. Substances to be analyzed.
1. Liquids of all kinds.
2. Semiliquids and semisolids miscible with water.
3. Solids of all kinds.

II. Numerical and quantitative limits of contamination in different substances.
1. For molds—quantity of spores and hyphæ.
2. For yeasts—number and kind.
3. For bacteria—number and kind.
4. For pus, dirt, sand, etc.

III. Methods.
1. Making concentrations.
2. Making dilutions.
3. Making the counts and estimates.
   a. Bacteria.
   b. Yeasts.
   c. Mold spores and mold hyphæ.
   d. Algæ, in drinking waters, etc.
   e. Protozoa.
   f. Pus cells, in milk, etc.
   g. Dirt, sand, etc.
4. Plate counts—Petri dish cultures.
   a. Culture media used.
   b. Optimum temperature.
   c. Time of incubation.

IV. Qualitative determinations.
1. Apparatus.
2. Culture media.
3. Stains.
4. Special methods.
   a. Colon group of bacilli.
   b. Presumptive colon bacillus test.
   c. Sewage streptococci.
   d. Dysentery bacilli and amoebæ.
   e. Bacillus typhosus.
   f. Paratyphoid group.
   g. Cholera vibrio.
   h. Yeasts.
   i. Molds.
   j. Animal parasites.
   k. Larvæ, ovæ, etc.

V. Biological water analysis.
1. Bacteria, number and kind.
2. Diatoms.
3. Desmids.
4. Nostoc.
5. Other algæ.
6. Molds; significance of.
7. Evidence of soil and sewage contamination.

VI. Bacteriological milk analysis.
1. Quantitative.
   a. Standards for different geographic areas.
   b. Summer and winter standards—temperature standards.
2. Qualitative.
3. Pus and blood corpuscles; significance of.
4. Milk diseases.
   a. Blue milk.
   b. Ropy milk
   c. Bad odors, bad taste, etc.
5. Sour milk.
6. "Buttermilk" tablets.
7. Kefir, koumys, etc.

VII. Bacteriological Examination of Shellfish.
1. Selection of sample.
2. Making a record of the sample.
3. Transportation of the sample.
4. Laboratory procedure.
5. Bacterial counts.
6. Determining bacteria of the colon bacillus group.
7. Statement of results. Rating.

VIII. The Bacteriological and Toxicological Examination of Meat and Meat Products.
1. Direct microscopical examination of meats.
   a. Bacteria on the surface of meats.
   b. Mold and mold spores, as in moldy bacon, pork, fish, etc.
   c. Presence of bladder worm, larvæ of parasites, etc.
   d. Trichinæ in pork and examination for trichinæ.
   e. Cereal fillers and starches in sausage meats.
   f. Preservatives and coloring substances in meats.
2. Plate cultures.
   a. Numerical counts of bacteria.
   b. Number of gas formers and of acid formers.
   c. Bacillus botulinus in pork. Botulism.
3. Toxicological tests.
   a. Inoculation tests (Guinea pigs) to prove the absence or presence of toxins or ptomaines.
   b. Tests for tuberculous meats and for the tubercle bacillus.
4. Biological Tests. Determining the Source of the Meat.
   a. Sugar test for horse meat.
   b. The precipitin test for meats from different animals.
   c. Microscopical examination of tissues, fats, fat crystals, etc.

IX. The Bacteriological Examination of Eggs and Egg Products.
1. Direct microscopical examination.
   a. Bacteria.
   b. Molds.
   c. Mold spores.
2. Plating methods.
3. Egg tests.
   a. Candling.
   b. Brine test.
   c. Organoleptic tests, etc.
4. Evaporated eggs.
5. Cold storage eggs, etc.

X. Bacteriological Examination of Pharmaceutical Products.
1. Direct microscopical examination.
   a. Bacteria.
   b. Molds.
   c. Mold spores.
   e. Yeasts.
2. Plating methods.
3. Colon bacillus test.
4. Tetanus bacillus test.
5. Tests for the staphylococcus and streptococcus groups.

XI. The Microscopical and Bacteriological Examination of Syrups.
1. Medicinal syrups.
   a. Official, simple and medicated.
   b. Patent and proprietary medicated syrups.
   c. Medicinal preparations containing syrup.
2. Soda fountain syrups.
3. Fruit juices containing sugar. Fruit juice concentrates.
4. Syrups, molasses, treacle, corn syrup, etc.

XII. The Microscopical and Bacteriological Examination of Fermented Foods and Drinks.
1. Whisky and brandy.
2. Beer. Beer diseases.
3. Wines. Wine diseases.
4. Other fermented drinks.
   a. Sake or Japanese rice wine.
   b. Arrak.
   c. Yoghurt.
   d. Kephir.
   e. Koumiss.
   f. Soja sauce.
   g. Mazun.
   h. Leban.
   i. Ginger beer.
   j. Beebe wine.

XIII. The Bacteriological Examination of Mineral Waters.
1. Examination of centrifugalized sediments.
2. Plating methods.
3. Presumptive colon bacillus test.

XIV. Determining the Efficiency Value of Disinfectants.
1. Phenol germ destroying coefficient.
2. Toxic Coefficient.
3. Albumen coagulating coefficient.
4. Comparative cost.

XV. Determining the Purity and Quality of Sera, Bacterins and of Related Products.
1. Purity and freedom from bacteriological contamination.
2. The purity of smallpox vaccines.
3. Purity of bacterial vaccines.

XVI. Special Biological and Toxicological Tests.
1. Arsenic in foods. Biological test for arsenic.
2. Toxicity tests with defibrinated blood.
   a. Toxalbumins and toxins.
   b. Saponins.
   c. Chemical hemolysis.
3. Frog tests for the presence of alkaloids.

The following report blank will be found useful in making reports of bacteriological examinations. In many instances however, it will be found necessary to supplement the report or to make a special report.

FORM No. III.

Bacteriological Examination.

(No., label, dates, condition of seals as for Form I.)

I. Direct count. (Thoma-Zeiss hemacytometer with Türck ruling.)
1. Bacilli per cc.....
2. Cocci per cc.....

II. Plate and tube cultures. (Lactose-litmus-agar.)
1. Temperature differential test.
a. (20° C.) colonies per cc.....
b. (38° C.) colonies per cc.....
2. Color differential test.
a. Pink or yellow colonies per cc.....
b. Not pink or yellow colonies per cc.....
3. Gelatine liquefying colonies per cc.....
4. Indol reaction (±).....
5. Neutral red reduction (±).....
6. Gas (hydrogen) formula.....
7. Gram-stain behavior (±).....
8. Presumptive colon bacillus test (±),
a. Amounts used .....
b. Number of tests.....
c. Rating .....

III. Special tests .....
.....
.....

IV. Conclusions .....
.....
.....
.....Analyst.

WHITE MINERAL OILS, AMERICAN—PARAFFINUM LIQUIDUM—LIQUID PETROLATUM.

S. L. HILTON.

White Mineral Oils, or Paraffinum Liquidum, U. S. P. now on the American market are of American refining, for the reason that the Russian oils are unobtainable owing to various causes incident to the European War. A fact, not generally known, was that while these oils were made from crude material obtained in the Baku district they were not refined there and the processes of refining are held secret.

The Russian crude product differs chemically from that found in America, consequently, it has been necessary to devise and develop new processes that were applicable to refining and purifying the crude American product so as to be able to furnish an oil of similar character as the Russian, for internal administration, that would give equally as good results in intestinal stasis.

The requirements of the British Pharmacopoeia are more exacting than required by the U. S. P. VIII. No doubt the U. S. P. IX, when issued, will be as exacting; the standard that I have followed in the examination of these oils is that of the British Pharmacopoeia.

An oil containing an appreciable amount of unsaturated hydrocarbons when taken internally will result in chemical action in the digestive tract, generating gases and having a similar action to that of castor or croton oils, which is not