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MARCH, 1925

**Connecticut Agricultural Experiment Station**  
New Haven, Connecticut

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BEING

THE TWENTY-NINTH REPORT ON

**FOOD PRODUCTS**

AND THE SEVENTEENTH REPORT ON

**DRUG PRODUCTS**

FOR

1924

**Connecticut Agricultural Experiment Station**  
New Haven, Connecticut

The Twenty-ninth Report on  
Food Products  
and the Seventeenth Report on  
Drug Products  
For  
1924.

By  
E. M. BAILEY

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March, 1925

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|--|------|------------------------------|-----------------------------|-------------|-------|---|
|  |      | Station Agent                | Dairy and Food Commissioner | Individuals |       |   |
| FOODS.   |      |                              |                             |             |       |   |
| Carbonated Beverages.....                      | 425  | ...                          | 172                         | ...         | 172   | 3   |
| Cereal Products.....                           | 426  | 3                            | 1                           | ...         | 4     | 1   |
| Cacao Products; Cocoa, etc.....                | 426  | 37                           | 1                           | 3           | 41    | ...   |
| Diabetic, Special and Miscellaneous Foods..... | 429  | 44                           | ...                         | 38          | 82    | ...   |
| Eggs.....                                      | 438  | ...                          | 12                          | ...         | 12    | 8   |
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| Butter.....                                    | 438  | ...                          | 30                          | 1           | 31    | 14  |
| Olive Oil.....                                 | 439  | ...                          | 4                           | 2           | 6     | 2   |
| Flavoring Extract, Vanilla.....                | 439  | 27                           | 1                           | ...         | 28    | 3   |
| Flour, Graham, etc.....                        | 442  | 7                            | 5                           | 3           | 15    | 1   |
| Gelatin.....                                   | 446  | ...                          | ...                         | 2           | 2     | ...   |
| Ice Cream.....                                 | 446  | ...                          | 269                         | 3           | 272   | 3   |
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| Frankfurts.....                                | 448  | ...                          | 34                          | ...         | 34    | ...   |
| Casings.....                                   | 448  | ...                          | 2                           | ...         | 2     | 15  |
| Pork Sausage.....                              | 449  | ...                          | 15                          | ...         | 15    | ...   |
| Milk and Milk Products:                        |      |                              |                             |             |       |   |
| Market Milk.....                               | 449  | ...                          | 730                         | 168         | 898   | 241 <sup>1</sup>                                  |
| Evaporated Milk, etc.....                      | 450  | 1                            | 6                           | 2           | 9     | ...   |
| Chocolate Milk.....                            | 452  | ...                          | ...                         | 1           | 1     | ...   |
| Cream.....                                     | 452  | ...                          | 4                           | ...         | 4     | ...   |
| Buttermilk.....                                | 452  | 5                            | ...                         | ...         | 5     | ...   |
| Human Milk.....                                | 453  | ...                          | ...                         | 19          | 19    | ...   |
| Spices:  |      |                              |                             |             |       |   |
| Ground Nutmeg.....                             | 454  | 8                            | ...                         | ...         | 8     | ...   |
| Sage.....                                      | 454  | 9                            | ...                         | ...         | 9     | ...   |
| Syrups:  |      |                              |                             |             |       |   |
| Maple Syrup.....                               | 455  | ...                          | 6                           | 1           | 7     | 1   |
| Molasses.....                                  | 456  | ...                          | 20                          | ...         | 20    | 5   |
| Honey.....                                     | 456  | ...                          | 1                           | ...         | 1     | ...   |
| Tea.....                                       | 456  | 12                           | ...                         | ...         | 12    | ...   |
| Vinegar.....                                   | 460  | ...                          | 39                          | 26          | 65    | 4   |
| Miscellaneous; Examined for Poisons etc.....   | 460  | ...                          | 8                           | 34          | 42    | ...   |
| <i>Total</i> .....                             | ...  | 153                          | 1422                        | 303         | 1878  | 323   |

<sup>1</sup> Official samples; includes 192 below standard only.

CONTENTS AND SUMMARY—*Concluded.*

| Materials                         | Page | Sampled by, or at request of |                             |             | Total | Adulterated, below standard, or otherwise illegal. |
|-----------------------------------|------|------------------------------|-----------------------------|-------------|-------|--|
|                                   |      | Station Agent                | Dairy and Food Commissioner | Individuals |       |  |
| <b>DRUGS.</b>                     |      |                              |                             |             |       |  |
| Tablets, Pills, etc.....          | 462  | 1                            | 91                          | ...         | 92    | 6  |
| Prescriptions.....                | 482  | ...                          | 8                           | ...         | 8     | 2  |
| U. S. P. and N. F. Drugs.....     | 483  | 1                            | 24                          | ...         | 25    | 4  |
| Toilet Preparations.....          | 485  | ...                          | 17                          | 1           | 18    | 2  |
| Proprietary Remedies, etc.....    | 486  | 10                           | ...                         | ...         | 10    | 3  |
| Miscellaneous.....                | 490  | ...                          | ...                         | 14          | 14    | ...  |
| <i>Total</i> .....                | ...  | 12                           | 140                         | 15          | 167   | 17   |
| <i>Total, Foods and Drugs</i> ... | ...  | 165                          | 1562                        | 318         | 2045  | 340  |
| Babcock Glassware, etc.....       | 492  | ...                          | ...                         | ...         | 3748  | 69   |

## The Twenty-ninth Report on Food Products and the Seventeenth on Drug Products

E. M. BAILEY

An amendment to the food and drug law of this State made about ten years ago brings medicaments dispensed by physicians within the scope of drug control. Such medicaments are very largely in powder, tablet, or pill form and the chief feature of drug inspection during the past year has been a study of the variations in medicaments in pills and tablets as dispensed by physicians. A number of prescriptions and proprietary remedies have also been examined. A shortage in the supply of vanilla beans and the prevailing high prices of the raw material suggested a study of commercial vanilla extracts, and complete analyses of the principal brands found on sale have been made. Cocoa, graham flour, spices, so-called diabetic foods, and miscellaneous natural foods are other food items of interest.

The total number of samples is somewhat less than the average for a number of years past, due to the smaller number of milk samples submitted by the Dairy and Food Commissioner, but the amount of work involved has been greater on account of the difficult and time-consuming analyses of medicinal preparations and the detailed analyses of certain food products. Considerable time has been spent in studies of methods of analysis, chiefly in collaboration with the Association of Official Agricultural Chemists; and cooperation with the Council on Pharmacy and Chemistry of the American Medical Association has been continued.

Credit for the analytical work herein reported is due entirely to Messrs. Andrew, Shepard, Fisher, Nolan and Mathis. Miss Bacon has assisted materially in preparing this and other reports for publication.

### I. FOODS.

#### CARBONATED BEVERAGES.

The use of saccharin as a sweetening agent in soft drinks is illegal in this State. One hundred and seventy-two samples were submitted by the Dairy and Food Commissioner and only three were found to contain saccharin. This is about 1.7 per cent. of the total number as compared with 40 per cent. in 1920 and 20 per cent. in 1921. Saccharin was found in about 16 per cent. of samples examined in 1923 but the adulterated samples represented the products of only five manufacturers.

The three samples containing saccharin were as follows:

| No.   | Brand.          | City or Town. | Manufacturer.                    |
|-------|-----------------|---------------|----------------------------------|
| 28162 | Cream Soda      | Bridgeport    | Central New York Bottling Works. |
| 28402 | Strawberry Soda | Danielson     | Danielson Bottling Works.        |
| 27870 | Cream Soda      | New Haven     | Hamilton Bottling Works.         |

CEREAL PRODUCTS.

**434 Edgemont Crackers.** The Greer and Green Co., Dayton, Ohio.

**437 Triscuit.** The Shredded Wheat Co., Niagara Falls, N. Y.

**438 Muffits.** Muffits Corporation, Batavia, N. Y.

Analysis of these products are as follows:

| No.                       | 434   | 437   | 438   |
|---------------------------|-------|-------|-------|
|                           | %     | %     | %     |
| Moisture.....             | 5.86  | 8.91  | 9.55  |
| Ash.....                  | 2.88  | 1.68  | 1.70  |
| Protein (N. x 6.25).....  | 10.00 | 11.47 | 11.97 |
| Fiber.....                | 0.58  | 2.23  | 2.47  |
| Nitrogen-free extract:    |       |       |       |
| Starch.....               | 59.20 | 56.69 | 52.45 |
| Soluble carbohydrate..... | 3.23  | 4.73  | 7.58  |
| Undetermined.....         | 7.24  | 12.36 | 12.59 |
| Fat.....                  | 11.01 | 1.93  | 1.69  |

A sample of whole grain wheat, **27900** was submitted by the Dairy and Food Commissioner and an analysis already made and published<sup>1</sup> was reported.

COCOA, ETC.

Cocoa is chocolate from which a portion of the fat has been removed, and, on a moisture and fat-free basis, should contain not more than 8 per cent. of ash, not more than 0.4 per cent. of ash insoluble in acid and not more than 7 per cent. of crude fiber. The term "breakfast cocoa" designates cocoa containing not less than 22 per cent. of fat. Cocos are sometimes treated by a special process of alkalinizing which darkens the color, develops a characteristic flavor and produces a product which remains in suspension longer when prepared for drinking. These are the so-called Dutch or Dutch process cocos; they are sometimes, but erroneously, called "soluble" cocos.

Of the plain cocos, i. e., non-alkalized and unsweetened, given in Table I, all are substantially within the limits of the standard when calculated to moisture and fat-free basis; no fiber content is greater than 7 per cent. and no insoluble ash exceeds 0.4 per cent., excepting **20413** which slightly exceeds that limit. One total ash exceeds 8 per cent. by an insignificant amount, 0.03 per cent.

Three of the four cocos designated as "breakfast cocoa" contained over 22 per cent. of fat.

Alkali treated or Dutch process cocos are labeled to show that the mineral constituents are increased by from 1 to 3 per cent. The ash in such products is likely to exceed 8 per cent. and did exceed that figure in all cases, except **21706**, as shown in the tabulation. The range in ash content on the moisture- and-fat-free basis for the products examined is 7.63 to 12.25 per cent.

In addition to the samples listed in the table, two others were examined which require no particular comment.

<sup>1</sup> Conn. Exp. Sta., Bull. 210, p. 204 (1918).

TABLE I. ANALYSES OF COCOA, ETC.

| Sta. No. | Manufacturer and Brand  | Water | Ash  | Ash insol. in acid | Nitrogen | Crude fiber | Fat   |
|----------|---|-------|------|--------------------|----------|-------------|-------|
|          |   | %     | %    | %                  | %        | %           | %     |
| 20424    | Walter Baker & Co., Ltd., Dorchester, Mass., Baker's Breakfast. | 5.35  | 5.07 | 0.09               | 3.59     | 3.82        | 26.33 |
| 21698    | Conn. Butter Co., Hartford, Reliable Breakfast.                 | 5.37  | 5.10 | 0.02               | 3.80     | 4.40        | 23.75 |
| 21687    | The Massachusetts Chocolate Co., Boston, Wan-Eia Breakfast.     | 7.13  | 4.85 | 0.19               | 3.62     | 4.78        | 22.82 |
| 21648    | Northern Pacific Grocery Co., Bridgeport, Perfection Breakfast. | 5.94  | 5.68 | 0.16               | 3.61     | 4.93        | 20.61 |
| 21704    | Boston Butter House, Waterbury, Boston Butter House.            | 5.09  | 4.92 | 0.03               | 3.70     | 4.50        | 22.58 |
| 21642    | Brewster Son's Co., Newark, N. J., L. B. C.                     | 5.48  | 5.70 | 0.20               | 3.62     | 3.32        | 20.78 |
| 21683    | Direct Importing Co., Boston, Benefil.                          | 4.76  | 4.94 | 0.15               | 3.80     | 4.55        | 22.93 |
| 20419    | Grand Union Tea Co., Brooklyn, N. Y., Grand Union.              | 5.02  | 5.52 | 0.14               | 3.79     | 4.50        | 21.22 |
| 21656    | The Great A. & P. Tea Co., N. Y., A. & P.                       | 5.03  | 5.49 | 0.11               | 3.71     | 4.83        | 21.81 |
| 20416    | The Great A. & P. Tea Co., N. Y., Red Front.                    | 5.68  | 5.23 | 0.08               | 3.72     | 4.78        | 21.33 |
| 20416    | Hershey Chocolate Co., Hershey, Pa., Hershey's.                 | 5.80  | 4.90 | 0.02               | 3.70     | 4.11        | 23.88 |
| 21644    | Howland Dry Goods Co., Bridgeport, Crown.                       | 4.78  | 5.10 | 0.01               | 3.84     | 4.72        | 27.75 |
| 21646    | Huyler's, N. Y., Huyler's.                                      | 5.73  | 3.25 | 0.16               | 3.74     | 4.34        | 24.18 |
| 20418    | International Sugar Corp., Cuba, Pure Cocoa.                    | 5.80  | 3.32 | 0.13               | 3.67     | 4.58        | 22.18 |
| 21625    | A. E. Lamb, New Haven, Lamb's Quality.                          | 4.95  | 5.25 | 0.04               | 3.80     | 4.58        | 23.47 |
| 20413    | F. L. McClellan, East Hartford, My Own.                         | 7.87  | 5.70 | 0.36               | 3.37     | 5.05        | 20.07 |
| 21682    | The Mohican Co., N. Y., Mohican.                                | 6.08  | 5.08 | 0.21               | 3.55     | 4.55        | 22.57 |
| 21673    | Page & Shaw, N. Y., Natural Cocoa.                              | 5.48  | 5.30 | 0.10               | 3.66     | 4.60        | 24.61 |
| 21675    | Park & Tilford, N. Y., Park & Tilford.                          | 4.98  | 5.65 | 0.07               | 3.91     | 5.01        | 19.09 |
| 21617    | John A. Pilgard Co., Hartford, Sterling.                        | 5.13  | 5.10 | 0.01               | 3.94     | 4.47        | 22.54 |
| 21652    | Royal Cocoa Co., Jersey City, N. J., Economy.                   | 6.98  | 5.72 | 0.19               | 3.55     | 4.77        | 23.07 |
| 21655    | Runkel's N. Y., Runkel's.                                       | 6.55  | 4.94 | 0.07               | 3.59     | 4.67        | 22.50 |
| 21627    | The Stollwerck Chocolate Co., Stamford, Gold Brand Milk Cocoa.  | 6.56  | 5.60 | 0.15               | 3.78     | 2.81        | 22.46 |
| 21709    | James Van Dyke Co., N. Y., Ambassador.                          | 6.51  | 4.75 | 0.10               | 3.56     | 4.65        | 21.75 |

TABLE I. ANALYSES OF COCOA, ETC.—Concluded.

| Sta. No. | Manufacturer and Brand   | Water |      | Ash   |      | Ash insol. in acid |       | Nitrogen |      | Crude fiber |       | Fat  |       |
|----------|--|-------|------|-------|------|--------------------|-------|----------|------|-------------|-------|------|-------|
|          |  | %     | %    | %     | %    | %                  | %     | %        | %    | %           | %     | %    | %     |
| 21688    | Stephen F. Whitman & Son, Inc., Philadelphia, Instantaneous Sweet Chocolate                | 1.83  | 1.57 | 0.08  | 1.12 | 0.08               | 1.41  | 21.99    | 1.12 | 1.41        | 21.99 | 1.12 | 1.41  |
| 21686    | The Williams & Carleton Co., Hartford, William's Cocoa                                     | 7.39  | 4.79 | 0.08  | 3.48 | 0.08               | 4.51  | 20.40    | 3.48 | 4.51        | 20.40 | 3.48 | 4.51  |
| 21622    | Stephen L. Bartlett Co., Boston, Hansome <sup>1</sup> , Sweetened Skim Milk Cocoa          | 3.67  | 3.70 | 0.00  | 2.09 | 0.00               | 0.84  | 6.90     | 2.09 | 0.84        | 6.90  | 2.09 | 0.84  |
| 21712    | Stephen L. Bartlett Co., Boston, Hollandia <sup>1</sup> Cocoa and Chocolate Sweetened      | 3.04  | 3.19 | 0.02  | 1.68 | 0.02               | 1.96  | 8.02     | 1.68 | 1.96        | 8.02  | 1.68 | 1.96  |
| 20417    | Beacon Chocolate Co., Boston, Ace High <sup>1</sup>  | 6.64  | 6.38 | 0.12  | 3.59 | 0.12               | 4.73  | 20.88    | 3.59 | 4.73        | 20.88 | 3.59 | 4.73  |
| 21670    | Bensdorp's Amsterdam Holland, Royal Dutch <sup>1</sup>                                     | 5.86  | 6.83 | 0.08  | 3.35 | 0.08               | 4.26  | 29.04    | 3.35 | 4.26        | 29.04 | 3.35 | 4.26  |
| 21711    | Droste's Cocoa Works, Haarlem, Holland, Droste's <sup>1</sup>                              | 6.11  | 7.81 | 0.04  | 3.30 | 0.04               | 3.78  | 23.65    | 3.30 | 3.78        | 23.65 | 3.30 | 3.78  |
| 21680    | Thomas J. Lipton, Inc., Lipton's Instant Cocoa <sup>1</sup>                                | 5.29  | 5.76 | 0.12  | 3.60 | 0.12               | 4.68  | 23.79    | 3.60 | 4.68        | 23.79 | 3.60 | 4.68  |
| 21659    | Royal Cocoa Co., New York, Royal <sup>1</sup>  | 6.63  | 6.47 | 0.09  | 3.57 | 0.09               | 4.81  | 22.65    | 3.57 | 4.81        | 22.65 | 3.57 | 4.81  |
| 21690    | C. J. Van Houton, Holland, Van Houten's Cocoa <sup>1</sup>                                 | 6.52  | 8.25 | 0.06  | 3.42 | 0.06               | 4.60  | 26.16    | 3.42 | 4.60        | 26.16 | 3.42 | 4.60  |
| 21630    | H. O. Wilbur & Sons, Inc., Philadelphia, Wilbur-Dutch <sup>1</sup>                         | 7.67  | 5.92 | 0.05  | 3.79 | 0.05               | 4.02  | 20.51    | 3.79 | 4.02        | 20.51 | 3.79 | 4.02  |
| 21706    | H. O. Wilbur & Sons, Inc., Philadelphia, Wilbur-Dutch <sup>1</sup>                         | 8.53  | 5.58 | 0.09  | 3.51 | 0.09               | 3.95  | 18.35    | 3.51 | 3.95        | 18.35 | 3.51 | 3.95  |
| 436      | <b>Cocoa Shells.</b><br>Walter Baker & Co., Ltd., Dorchester, Mass <sup>2</sup>            | 9.43  | 7.76 | 2.57  | 2.81 | 2.57               | 14.83 | 3.04     | 2.81 | 14.83       | 3.04  | 2.81 | 14.83 |
| 22896    | <b>Sampled by Individuals.</b><br>Saville Chocolate Products Co., Pittsburgh, Pa., Cho-Lay | 1.26  | 1.35 | ..... | 0.87 | .....              | 0.54  | 5.97     | 0.87 | 0.54        | 5.97  | 0.87 | 0.54  |
| 22233    | Maltop Company, Buffalo, N. Y., Chocolate Toddy  | 3.32  | 2.86 | ..... | 2.00 | .....              | 0.76  | 5.73     | 2.00 | 0.76        | 5.73  | 2.00 | 0.76  |

<sup>1</sup> Dutch process.<sup>2</sup> Starch 2.59, soluble carbohydrate 2.57

## DIABETIC, SPECIAL AND MISCELLANEOUS FOODS.

In Table II are given analyses of diabetic, special and miscellaneous foods, eighty-two in number, which have been submitted by physicians, dietitians, patients, or others interested.

The conventional analysis of food shows the composition of the material in terms of several constituent groups, viz., moisture, ash, protein, fat and carbohydrate. Thus, ash represents the mineral elements, protein the nitrogenous materials, fat the true fats or oils and other substances removed by ether, and carbohydrate the starch, sugar and other nitrogen-free substances.

Protein is estimated from total nitrogen, generally by multiplying the nitrogen found by 6.25 on the assumption that protein contains 16 per cent. of nitrogen. But all proteins do not contain this exact amount and, in some cases, other factors are more accurate, e. g. 6.38 for casein protein and 5.7 for gluten. The kind of protein is not established nor is account taken of the fact that all of the nitrogen may not be in protein combination. Fats and oils are extracted by ether, and mineral oil, which is indigestible and which is used to a considerable extent in the manufacture of low-calorie products, will also be included in the ether extract. Crude fiber belongs to the carbohydrate group but it is not reckoned as an available nutrient in human digestion. The remainder of the carbohydrate group is not determined directly but calculated by subtracting from 100 per cent. the sum of all the other groups which have been determined.

As to how much of this carbohydrate group is available in digestion, that portion which is composed of starch, sugars and dextrin is digestible and can be determined by approved methods. In the table of analyses this portion is represented by the items "starch" and "soluble carbohydrate as dextrose". The remaining portion consists of hemicelluloses, gums, mucilages, etc., the availability of which must be regarded as negligible or doubtful.

There is an increasing use of materials of low nutritive value for the preparation of foods intended for low calorie diets. Cellu flour and cellulose flour from corn cobs are materials of this type which have been cited in previous reports of this Station<sup>1</sup>. Ecmo flour, Lister's Low Calorie Flour, and Nutrivoid Flour are new materials of this class which have been examined this year. These products contain but little nitrogen and fat and inconsiderable amounts of available carbohydrate. Cellu flour and the cellulose preparation from corn-cob showed about 60 per cent. of crude fiber while the analyses of the products examined this year show that the fiber content is low and that by far the greater part of the carbohydrate belongs to the undetermined nitrogen-free extract.

The French products distributed by the Hygienic Food Co.,

<sup>1</sup> Conn. Exp. Station. Bull. 227, p. 230; Bull. 255, pp. 172, 174.

excepting one preparation, **917** show from 40 to 80 per cent. of available carbohydrate.

Nut Flakes, **125**, is a product made from the same material of which Ecmo flour is made.

The starch content of Gluten Flakes **22216**, **22278**, and **643** has been reduced to about 5 per cent. or less. Hoyt's Special Gluten Flakes and Protein Cereal contain 75 to 80 per cent. of protein with available carbohydrate of from 3 to 6 per cent.

Lister's Starch-free Bran, **22787**, shows more starch than this product generally contains and the second sample, **200**, supports the contention of the manufacturers on this point. Although the amount of starch present is of little practical significance, the manufacturers have voluntarily revised the label of the product to conform more closely to the facts as shown by analysis.

Diabetic Cereal **543**, Krinkles **21580**, and Malted Bran **22397**, are all satisfactorily low in carbohydrate.

Chocolate confections **919** and **920** contain about 30 per cent. of starch and sugar and should be eaten sparingly by the diabetic.

The canned fruits and vegetables examined are products prepared without sugar. Analyses represent the edible solids and liquor combined.

The miscellaneous products, excepting sardines packed in mineral oil, **675**, are normal foods examined as a matter of general dietetic interest.

The single analysis of green olives represents a composite of ten commercial samples and the analysis of ripe olives represents a composite of eight samples. The individual samples, particularly ripe olives, were examined for indications of spoilage, but none were detected.

TABLE II. DIABETIC, SPECIAL AND MISCELLANEOUS FOODS.

| No.          | Manufacturer and Brand  | Moisture<br>% | Ash<br>% | Nitrogen<br>% | Protein       |              | Fiber<br>% | Nitrogen-free Extract |                           |                              | Pat. Ether<br>Extract<br>% |
|--------------|---|---------------|----------|---------------|---------------|--------------|------------|-----------------------|---------------------------|------------------------------|----------------------------|
|              |   |               |          |               | N x 6.25<br>% | N x 5.7<br>% |            | Starch<br>%           | Sugar as<br>Dextrose<br>% | Other N-free<br>Extract<br>% |                            |
| <b>21581</b> | <b>Flours, Meals, etc.</b><br>Curdolac Food Co., Waukesha, Wis.           | 4.98          | 7.78     | 6.58          | 41.13         | ....         | 6.53       | 0.84                  | 3.76                      | 22.54                        | 12.44                      |
| <b>22619</b> | Jirek Diabetic Food Co., Morris Plains, N. J.<br>Soycasein Flour.....     | 9.16          | 5.81     | 12.13         | 75.81         | ....         | 0.30       | none                  | 1.36                      | 4.58                         | 2.98                       |
| <b>179</b>   | Vitae Health Food Co., Seattle, Wash.<br>Soya Manna.....                  | 8.88          | 4.35     | 6.58          | 41.13         | ....         | 1.50       | none                  | 10.68                     | 14.45                        | 19.01                      |
| <b>124</b>   | Efficiency Products Co., Somerville, N. J.<br>Ecmo (Cellulose) Flour..... | 9.05          | 1.00     | 0.66          | 4.13          | ....         | 4.75       | none                  | 3.44                      | 77.00                        | 0.63                       |
| <b>22788</b> | Lister Bros., Inc., New York City.<br>Lister's Low Calorie Flour.....     | 7.55          | 6.10     | 0.63          | 3.94          | ....         | 5.24       | none                  | 1.76                      | 74.84                        | 0.57                       |
| <b>22779</b> | Nutrivoid Diabetic Flour Co., Brooklyn, N. Y.<br>Nutrivoid Flour.....     | 8.23          | 1.17     | 0.69          | 4.31          | ....         | 7.18       | none                  | 6.08                      | 72.11                        | 0.92                       |
| <b>22486</b> | The Battle Creek Food Co., Battle Creek, Mich.<br>Cooked Bran.....        | 4.15          | 7.46     | 2.45          | 15.31         | ....         | 9.19       | none                  | 59.20                     |                              | 4.69                       |

TABLE II. DIABETIC, SPECIAL AND MISCELLANEOUS FOODS—Continued.

| No.  | Manufacturer and Brand                   | Moisture<br>% | Ash<br>% | Nitrogen<br>% | Protein       |              | Fiber<br>% | Nitrogen-free Extract |                           |                              | Pat. Ether<br>% |
|--|--|---------------|----------|---------------|---------------|--------------|------------|-----------------------|---------------------------|------------------------------|-----------------|
|  |  |               |          |               | N x 6.25<br>% | N x 5.7<br>% |            | Starch<br>%           | Sugar as<br>Dextrose<br>% | Other N-free<br>Extract<br>% |                 |
| <b>Bakery Products, etc.</b>                       |  |               |          |               |               |              |            |                       |                           |                              |                 |
| <i>H &amp; R Diabetic Foods, Bronx, N. Y.</i>      |  |               |          |               |               |              |            |                       |                           |                              |                 |
| 22947  | Bread of Low Food Value.....             | 24.80         | 3.43     | 1.51          | 9.45          | .....        | 9.37       | 0.99                  | 0.75                      | 27.92                        | 23.29           |
| 22946  | Bran Biscuit.....                        | 11.47         | 4.04     | 1.06          | 6.62          | .....        | 6.26       | 1.24                  | 0.92                      | 56.95                        | 12.50           |
| 905  | Bran Biscuits, Spiced and Sweetened..... | 4.80          | 3.81     | 1.22          | 7.63          | .....        | 7.60       | 1.52                  | 0.68                      | 55.57                        | 18.39           |
| 904  | Cellu Lemon Cookies.....                 | 4.33          | 2.63     | 1.25          | 7.81          | .....        | 8.65       | 1.94                  | 2.04                      | 45.12                        | 27.48           |
| <i>Laboratoire E. Storage, Marseilles, France.</i> |  |               |          |               |               |              |            |                       |                           |                              |                 |
| <i>(Hygienic Food Co., New York, Distributors)</i> |  |               |          |               |               |              |            |                       |                           |                              |                 |
| 916  | Madeleines Lucullus.....                 | 5.20          | 1.13     | 1.40          | 8.75          | .....        | 0.38       | 31.58                 | 15.32                     | 14.21                        | 23.43           |
| 917  | Vichy Gaufrettes.....                    | 3.35          | 2.37     | 2.36          | 14.75         | .....        | 2.33       | 7.54                  | 5.84                      | 12.89                        | 50.93           |
| 918  | Gaufrettes Vanillees.....                | 7.63          | 0.80     | 1.40          | 8.75          | .....        | 0.30       | 81.30                 | .....                     | .....                        | 1.22            |
| 920  | Nougatines de Vichy.....                 | 2.15          | 2.23     | 1.60          | 10.00         | .....        | 1.20       | 3.60                  | 37.40                     | 15.07                        | 28.35           |
| <i>Therapeutic Foods Co. Inc., New York City.</i>  |  |               |          |               |               |              |            |                       |                           |                              |                 |
| 118  | Aleurone Bread.....                      | 9.89          | 3.16     | 10.88         | .....         | 62.02        | 0.27       | 13.42                 | 2.03                      | 7.54                         | 1.67            |
| 119  | Bread of Gluten.....                     | 9.03          | 3.80     | 12.56         | .....         | 71.59        | 0.07       | 5.89                  | 0.40                      | 7.73                         | 1.49            |
| 120  | Special Diabetic Bread.....              | 9.44          | 2.86     | 11.06         | .....         | 63.04        | 0.14       | 14.05                 | 0.96                      | 8.43                         | 1.08            |
| 123  | Brusson Jeune Gluten Bread.....          | 10.01         | 0.72     | 6.89          | .....         | 39.27        | 0.14       | 9.00                  | 3.83                      | 36.04                        | 0.99            |

TABLE II. DIABETIC, SPECIAL AND MISCELLANEOUS FOODS—Continued.

| No.   | Manufacturer and Brand            | Moisture<br>% | Ash<br>% | Nitrogen<br>% | Protein       |              | Fiber<br>% | Nitrogen-free Extract |                           |                              | Pat. Ether<br>% |
|---|-----------------------------------|---------------|----------|---------------|---------------|--------------|------------|-----------------------|---------------------------|------------------------------|-----------------|
|   |                                   |               |          |               | N x 6.25<br>% | N x 5.7<br>% |            | Starch<br>%           | Sugar as<br>Dextrose<br>% | Other N-free<br>Extract<br>% |                 |
| <b>Breakfast Foods, etc.</b>                      |                                   |               |          |               |               |              |            |                       |                           |                              |                 |
| <i>Efficiency Products Co., Somerville, N. J.</i> |                                   |               |          |               |               |              |            |                       |                           |                              |                 |
| 125   | Nut Flakes.....                   | 9.56          | 1.04     | 0.70          | 4.38          | .....        | 5.61       | none                  | 2.78                      | 75.59                        | 1.04            |
| <i>The Pure Gluten Food Co., New York City.</i>   |                                   |               |          |               |               |              |            |                       |                           |                              |                 |
| 22216   | Gluten Flakes.....                | 5.94          | 3.78     | 7.52          | .....         | 42.86        | 5.93       | 2.87                  | 9.96                      | 22.05                        | 5.18            |
| 22778   | Gluten Flakes.....                | 7.45          | 4.14     | 7.77          | .....         | 44.29        | 4.73       | 4.73                  | 11.84                     | 24.18                        | 2.23            |
| 643   | Gluten Flakes.....                | 5.95          | 0.98     | 13.93         | .....         | 40.70        | 0.38       | 2.05                  | 0.80                      | 8.89                         | 1.55            |
| 931   | Hoyt's Protein Cereal.....        | 8.64          | 1.01     | 13.00         | .....         | 79.40        | 0.31       | 5.24                  | 0.67                      | 8.09                         | 1.94            |
| 126   | Hoyt's Special Gluten Flakes..... | .....         | .....    | .....         | .....         | 74.10        | .....      | .....                 | .....                     | .....                        | .....           |
| <i>Gerda H. Wagner, Brooklyn, N. Y.</i>           |                                   |               |          |               |               |              |            |                       |                           |                              |                 |
| 543   | Diabetic Cereal.....              | 7.45          | 4.47     | 1.61          | 10.06         | .....        | 13.28      | .....                 | 1.35                      | 58.82                        | 4.57            |
| <i>Lister Bros. Inc., New York City.</i>          |                                   |               |          |               |               |              |            |                       |                           |                              |                 |
| 200   | Lister's Starch-free Bran.....    | 8.16          | 4.30     | 2.62          | 16.38         | .....        | 21.14      | 0.87                  | 0.76                      | 44.37                        | 4.02            |
| 22787   | Lister's Starch-free Bran.....    | 5.65          | 5.72     | 2.80          | 17.50         | .....        | 18.88      | 2.87                  | 2.86                      | 40.97                        | 5.55            |
| <i>Curdolac Food Co., Waukesha, Wis.</i>          |                                   |               |          |               |               |              |            |                       |                           |                              |                 |
| 21580   | Krinkles.....                     | 8.52          | 4.40     | 1.73          | 10.81         | .....        | 11.53      | 0.87                  | 3.90                      | 45.53                        | 14.44           |



TABLE II. DIABETIC, SPECIAL AND MISCELLANEOUS FOODS—Continued.

| No.  | Manufacturer and Brand  | Moisture<br>% | Ash<br>% | Nitrogen<br>% | Protein       |              | Fiber<br>% | Nitrogen-free Extract |                           |                              |                            |
|--|---|---------------|----------|---------------|---------------|--------------|------------|-----------------------|---------------------------|------------------------------|----------------------------|
|  |   |               |          |               | N x 6.25<br>% | N x 5.7<br>% |            | Starch<br>%           | Sugar as<br>Dextrose<br>% | Other N-free<br>Extract<br>% | Pal. Ether<br>Extract<br>% |
| <b>Breakfast Foods, etc.—Continued.</b>            |   |               |          |               |               |              |            |                       |                           |                              |                            |
| 22397  | The Spa, Waukesha, Wis.<br>Malted Bran.....                               | 3.24          | 2.94     | 1.56          | 9.75          | .....        | 17.91      | 1.13                  | 0.88                      | 58.60                        | 5.55                       |
| 903  | H & R Diabetic Foods, Bronx, N. Y.<br>Cellu Cocoa Nibs.....               | 3.80          | 2.79     | 1.32          | 8.25          | .....        | 8.00       | 2.11                  | 2.12                      | 42.83                        | 30.10                      |
| <b>Confections, etc.</b>                           |   |               |          |               |               |              |            |                       |                           |                              |                            |
| <i>Frits, Vienna</i>                               |   |               |          |               |               |              |            |                       |                           |                              |                            |
| 22337  | Plain Chocolate Bars and Cakes.....                                       | 3.22          | 2.90     | 2.41          | 15.06         | .....        | 1.77       | 4.61                  | 2.36                      | 15.28                        | 54.80                      |
| 22338  | Nut Chocolate.....  | 3.39          | 2.96     | 3.07          | 19.19         | .....        | 2.17       | 3.26                  | 1.64                      | 12.99                        | 54.40                      |
| 22239  | Ferment-Scho-Kolate.....  | 1.08          | 1.21     | 1.00          | 6.25          | .....        | 0.83       | 2.98                  | 23.76                     | 15.11                        | 48.78                      |
| 22240  | Saccharin-Schokolade.....   | 3.46          | 3.42     | 2.77          | 17.31         | .....        | 2.45       | 5.74                  | 6.96                      | 17.98                        | 42.68                      |
| 22241  | Dr. Fromm's Conglutin Schokolade.....                                     | 3.87          | 7.11     | 2.91          | 18.19         | .....        | 0.93       | 3.83                  | 15.58                     | 13.81                        | 36.68                      |
| 22227  | Cakes with Chocolate Icing.....   | 4.92          | 2.25     | 3.99          | 24.94         | .....        | 1.55       | 4.28                  | 21.30                     | 9.49                         | 31.27                      |
| 22242  | Peppermint Menthol Bonbons.....   | 10.04         | 1.76     | 0.32          | .....         | .....        | .....      | trace                 | 1.52                      | ( <sup>1</sup> )             | .....                      |
| <i>Laboratoire E. Storage, Marseilles, France.</i> |   |               |          |               |               |              |            |                       |                           |                              |                            |
| 919  | (Hygienic Food Co., New York, Distributors)<br>Pastilles de Chocolat..... | 4.50          | 4.75     | 3.36          | 21.00         | .....        | 1.20       | 3.54                  | 27.16                     | 11.95                        | 25.90                      |
| 921  | Croquettes de Chocolat Sucre.....   | 4.88          | 4.90     | 3.53          | 22.06         | .....        | 1.28       | 6.44                  | 23.44                     | 10.55                        | 26.45                      |

<sup>1</sup> Gums present.

TABLE II. DIABETIC, SPECIAL AND MISCELLANEOUS FOODS—Continued.

| No.   | Manufacturer and Brand                           | Moisture<br>%      | Ash<br>% | Nitrogen<br>% | Protein       |                    | Fiber<br>% | Nitrogen-free Extract |                           |                              |                            |
|---|--|--------------------|----------|---------------|---------------|--------------------|------------|-----------------------|---------------------------|------------------------------|----------------------------|
|   |  |                    |          |               | N x 6.25<br>% | N x 5.7<br>%       |            | Starch<br>%           | Sugar as<br>Dextrose<br>% | Other N-free<br>Extract<br>% | Pal. Ether<br>Extract<br>% |
| 22629                                       | The Genesee Pure Food Co., N. Y.<br>D-Zerta..... | 25.40 <sup>1</sup> | 1.68     | 13.12         | .....         | 72.82 <sup>2</sup> | .....      | 0.00                  | 0.00 <sup>3</sup>         | .....                        | 0.10                       |
| <b>Fruits and Vegetables. (Canned).</b>     |  |                    |          |               |               |                    |            |                       |                           |                              |                            |
| <i>John Sexton &amp; Co., Chicago, Ill.</i> |  |                    |          |               |               |                    |            |                       |                           |                              |                            |
| 22427                                       | Edelweiss Apricots.....                          | 90.50              | 0.46     | .....         | 0.39          | .....              | 0.35       | 0.00                  | 4.38                      | 3.81                         | 0.11                       |
| 22428                                       | Pride of the West Apricots.....                  | 90.58              | 0.48     | .....         | 0.37          | .....              | 0.34       | 0.00                  | 4.81                      | 3.32                         | 0.10                       |
| 653   | Alp Rose Blackberries.....                       | 85.33              | 0.33     | .....         | 0.96          | .....              | 2.29       | 0.00                  | 5.59                      | 4.84                         | 0.66                       |
| 651   | Alp Rose Blueberries.....                        | 85.89              | 0.25     | .....         | 0.44          | .....              | 0.95       | 0.00                  | 7.60                      | 4.53                         | 0.34                       |
| 22431                                       | Edelweiss Cherries.....                          | 89.71              | 0.32     | .....         | 0.64          | .....              | 0.14       | 0.00                  | 4.24                      | 4.86                         | 0.09                       |
| 22432                                       | Pride of the West Cherries.....                  | 88.76              | 0.32     | .....         | 0.57          | .....              | 0.12       | 0.00                  | 4.88                      | 5.24                         | 0.11                       |
| 658   | Alp Rose Royal Anne Cherries.....                | 86.18              | 0.36     | .....         | 0.63          | .....              | 0.15       | 0.00                  | 7.58                      | 5.05                         | 0.05                       |
| 650   | Alp Rose Grapefruit.....                         | 90.49              | 0.43     | .....         | 0.69          | .....              | 0.17       | 0.00                  | 4.87                      | 3.30                         | 0.05                       |
| 654   | Alp Rose Logan Berries.....                      | 85.43              | 0.34     | .....         | 1.04          | .....              | 1.82       | 0.00                  | 5.60                      | 5.09                         | 0.68                       |
| 22423                                       | Edelweiss Peaches.....                           | 91.73              | 0.31     | .....         | 0.37          | .....              | 0.26       | 0.00                  | 4.04                      | 3.24                         | 0.05                       |
| 22424                                       | Pride of the West Peaches.....                   | 91.72              | 0.31     | .....         | 0.38          | .....              | 0.24       | 0.00                  | 4.76                      | 2.55                         | 0.04                       |
| 656   | Alp Rose Bartlett Pears.....                     | 89.17              | 0.21     | .....         | 0.26          | .....              | 0.61       | 0.00                  | 4.31                      | 5.34                         | 0.10                       |
| 22425                                       | Edelweiss Pears.....                             | 90.35              | 0.23     | .....         | 0.24          | .....              | 0.56       | 0.00                  | 3.70                      | 4.82                         | 0.10                       |
| 22426                                       | Pride of the West Pears.....                     | 90.52              | 0.20     | .....         | 0.24          | .....              | 0.63       | 0.00                  | 3.60                      | 4.72                         | 0.09                       |
| 655   | Alp Rose Pineapple, Hawaiian Sliced.....         | 85.81              | 0.35     | .....         | 0.36          | .....              | 0.27       | 0.00                  | 8.49                      | 4.61                         | 0.11                       |

<sup>1</sup> Includes undetermined organic acids.<sup>2</sup> Calculated as gelatin, factor 5.55.<sup>3</sup> Saccharin present.

TABLE II. DIABETIC, SPECIAL AND MISCELLANEOUS FOODS—Continued.

| No.  | Manufacturer and Brand          | Moisture<br>% | Ash<br>% | Nitrogen<br>% | Protein       |              | Fiber<br>% | Nitrogen-free Extract |                            |                              | Pat. Ether<br>Extract<br>% |
|--|---------------------------------|---------------|----------|---------------|---------------|--------------|------------|-----------------------|----------------------------|------------------------------|----------------------------|
|  |                                 |               |          |               | N x 6.25<br>% | N x 5.7<br>% |            | Starch<br>%           | Sugar, as<br>Dextrose<br>% | Other N-free<br>Extract<br>% |                            |
| <b>Fruits and Vegetables. (Canned)—Cont'd.</b> |                                 |               |          |               |               |              |            |                       |                            |                              |                            |
| <i>John Sexton &amp; Co., Chicago, Ill.</i>    |                                 |               |          |               |               |              |            |                       |                            |                              |                            |
| 22429  | Pride of the West Pineapple     | 86.17         | 0.30     | .....         | 0.38          | .....        | 0.28       | 0.00                  | 9.65                       | 3.17                         | 0.05                       |
| 657  | Alp Rose Japan Plums            | 93.33         | 0.27     | .....         | 0.29          | .....        | 0.29       | 0.00                  | 2.83                       | 2.93                         | 0.06                       |
| 659  | Alp Rose Prune Plums            | 88.63         | 0.33     | .....         | 0.33          | .....        | 0.21       | 0.00                  | 6.92                       | 3.50                         | 0.08                       |
| 22430  | Pride of the West Prune Plums   | 88.88         | 0.30     | .....         | 0.39          | .....        | 0.21       | 0.00                  | 4.83                       | 5.27                         | 0.12                       |
| 652  | Alp Rose Red Raspberries        | 89.02         | 0.31     | .....         | 0.67          | .....        | 1.69       | 0.00                  | 4.81                       | 3.00                         | 0.50                       |
| 648  | Alp Rose Peeled White Asparagus | 95.76         | 0.35     | .....         | 1.20          | .....        | 0.34       | 0.00                  | 1.49                       | 0.80                         | 0.06                       |
| 649  | Alp Rose White Asparagus Tips   | 94.81         | 0.43     | .....         | 1.65          | .....        | 0.42       | 0.00                  | 1.63                       | 0.97                         | 0.09                       |
| <i>The Poms Co., Sarasota, Fla.</i>            |                                 |               |          |               |               |              |            |                       |                            |                              |                            |
| 22433  | Poms (Canned Grapefruit)        | 90.54         | 0.36     | .....         | 0.49          | .....        | 0.17       | 0.00                  | 4.24                       | 4.09                         | 0.11                       |
| <b>Miscellaneous.</b>                          |                                 |               |          |               |               |              |            |                       |                            |                              |                            |
| <b>Bakery Products, etc.</b>                   |                                 |               |          |               |               |              |            |                       |                            |                              |                            |
| 22893  | Bread (Graham?)                 | 40.00         | 2.90     | 2.17          | 8.89          | .....        | 0.31       | 63.56                 | 7.42                       | 6.28                         | 1.19                       |
| 22801  | Rye Bread (Jewish)              | 4.57          | 3.84     | 1.99          | 13.56         | .....        | 1.00       | 57.77                 | 6.36                       | 12.73                        | 1.67                       |
| 22802  | Heavy Dark Rye (Jewish)         | 4.19          | 3.31     | 2.25          | 12.44         | .....        | 0.95       | 60.75                 | 7.20                       | 7.71                         | 1.61                       |
| 22803  | Medium Dark Rye (Jewish)        | 4.41          | 3.31     | 1.95          | 14.06         | .....        | 0.24       | 60.13                 | 7.56                       | 5.30                         | 4.24                       |
| 22800  | Vienna Rolls (Jewish)           | 8.67          | 1.67     | 2.05          | 12.19         | .....        | 0.23       | 58.11                 | 10.90                      | 5.39                         | 1.70                       |
| 22799  | Doughnuts (Jewish)              | 8.98          | 1.88     | 5.17          | 12.81         | .....        | 4.08       | 2.14                  | 7.72                       | 17.54                        | 16.18                      |
| 22894  | Lister's Soup Powder            | 5.25          | 14.78    | .....         | 32.31         | .....        | .....      | .....                 | .....                      | .....                        | .....                      |

TABLE II. DIABETIC, SPECIAL AND MISCELLANEOUS FOODS—Concluded.

| No.                           | Manufacturer and Brand                     | Moisture<br>% | Ash<br>%          | Nitrogen<br>% | Protein            |              | Fiber<br>% | Nitrogen-free Extract |                            |                              | Pat. Ether<br>Extract<br>% |
|-------------------------------|--|---------------|-------------------|---------------|--------------------|--------------|------------|-----------------------|----------------------------|------------------------------|----------------------------|
|                               |  |               |                   |               | N x 6.25<br>%      | N x 5.7<br>% |            | Starch<br>%           | Sugar, as<br>Dextrose<br>% | Other N-free<br>Extract<br>% |                            |
| <b>Miscellaneous.</b>         |  |               |                   |               |                    |              |            |                       |                            |                              |                            |
| <b>Dairy Products.</b>        |  |               |                   |               |                    |              |            |                       |                            |                              |                            |
| 22741                         | Jewish Cottage Cheese                      | 59.36         | 2.00              | 4.37          | 27.88 <sup>1</sup> | .....        | .....      | .....                 | 1.61                       | 9.15                         | .....                      |
| 22742                         | Jewish Sour Cream                          | 51.48         | 0.49              | 0.64          | 4.08 <sup>1</sup>  | .....        | .....      | .....                 | 1.46 <sup>2</sup>          | 0.88                         | 41.61                      |
| <b>Fish.</b>                  |  |               |                   |               |                    |              |            |                       |                            |                              |                            |
| 22743                         | Herring                                    | 56.84         | 7.12              | 2.99          | 18.71              | .....        | .....      | .....                 | .....                      | 17.33                        | .....                      |
| 22744                         | Salmon                                     | 64.21         | 10.88             | 3.44          | 21.51              | .....        | .....      | .....                 | .....                      | 3.21                         | .....                      |
| 675                           | Sardines (Canned in mineral oil)           | 58.50         | 5.40              | 3.65          | 22.80              | .....        | .....      | .....                 | .....                      | 13.30 <sup>3</sup>           | .....                      |
| 682                           | Turtle Meat, canned                        | 75.01         | 0.94              | 3.74          | 23.37              | .....        | .....      | 0.00                  | 0.00                       | 0.68                         | .....                      |
| <b>Fruits and Vegetables.</b> |  |               |                   |               |                    |              |            |                       |                            |                              |                            |
| 22895                         | Carob Beans                                | 4.13          | 2.67              | 1.00          | 6.25               | .....        | 5.66       | 0.00                  | 80.67                      | 0.62                         | .....                      |
| 401                           | Olives, green, edible portion <sup>4</sup> | 76.33         | 6.58 <sup>5</sup> | 0.21          | 1.29               | .....        | 1.13       | 0.00                  | 0.20                       | 2.33                         | 12.14                      |
| 455                           | Olives, ripe, edible portion <sup>6</sup>  | 75.04         | 2.72 <sup>7</sup> | 0.22          | 1.38               | .....        | 0.88       | 0.00                  | 0.25                       | 1.74                         | 17.99                      |
| 22225                         | Quince, fresh, ripe, edible portion        | 84.14         | 0.43              | 0.05          | 0.30               | .....        | 1.80       | 0.37                  | 4.20                       | 8.62                         | 0.14                       |
| 22226                         | Quince, fresh, green, edible portion       | 84.71         | 0.47              | 0.08          | 0.49               | .....        | 1.88       | 0.47                  | 4.32                       | 7.48                         | 0.18                       |

<sup>1</sup> Factor N x 6.38.  
<sup>2</sup> Lactose.  
<sup>3</sup> About 80% mineral oil.  
<sup>4</sup> Composite of 10 samples.  
<sup>5</sup> Salt (NaCl) 5.88.  
<sup>6</sup> Composite of 8 samples.  
<sup>7</sup> Salt (NaCl) 2.11

## EGGS.

Twelve samples of eggs were submitted by the Dairy and Food Commissioner for examination. All were sold as "fresh" eggs with various further qualifying terms. Four samples, (29454, 30239, 30241, 30242) were passed as fresh or reasonably fresh, and eight (29875, 27901, 27866, 27865, 30237, 30238, 30240, 30243), were classed as not fresh but edible.

The samples which were evidently fresh, or which were passed, had air spaces generally less than 1 inch in diameter, yolks not appreciably settled in the shell and ammoniacal nitrogen ranging from 0.8 to 1.2 mgms. per 100 grams of egg. Those which were classed as not fresh but edible, had air spaces larger than 1 inch, yolks settled in the shell, whites watery, and ammoniacal nitrogen varying from 1.9 to 3.7 mgms. per 100 grams of egg. Some of these having relatively low ammonia contents had probably been held at low temperatures.

## FATS AND OILS.

## BUTTER.

Thirty samples of butter were submitted by the Dairy and Food Commissioner and one by the City Department of Health of New Haven. Twenty-two samples were sweet butter, nine of which were adulterated with water, the amounts ranging from 17.2 to 33.6 per cent. Nine samples were salt butter, of which four were found to be renovated and one to contain 22.6 per cent. of water and only 74 per cent. of fat. The other samples were not found adulterated.

Most of the sweet butter found to contain excess water was sold to various dealers under the representation that it was packed for the Farmington Creamery, a concern which has not been in existence for a number of years.

The adulterated samples are listed below:

| No.   | Material     | Dealer            | Manufacturer           | Remarks             |
|-------|--------------|-------------------|------------------------|---------------------|
| 29955 | Sweet butter | <i>Bridgeport</i> | Oak Hill Dairy         | Own make            |
| 28406 | " "          | <i>Meriden</i>    | L. Zietz               | Farmington Creamery |
| 28407 | " "          |                   | Tomczuk Bros.          | " "                 |
| 28405 | " "          |                   | C. & S. Market         | " "                 |
| 28404 | " "          |                   | L. Kosienski           | " "                 |
| 28403 | " "          |                   | M. Kosopsky            | " "                 |
| 28400 | " "          |                   | A. Goldberg            | " "                 |
| 28627 | " "          | <i>NewHaven</i>   | A. Gold                | Own make            |
| 28620 | " "          |                   | E. Schoenberger & Sons | Farmington Creamery |
| 29956 | Salt butter  | <i>Bridgeport</i> | Oak Hill Dairy         | Own make?           |
| 27016 | " "          |                   | L. Mattis              | Renovated           |
| 27017 | " "          |                   | A. Krufssik            | "                   |
| 27018 | " "          |                   | E. Bergin              | "                   |
| 27019 | " "          | <i>Fairfield</i>  | L. Bergin              | "                   |

## OLIVE OIL.

Four samples of olive oil were examined for the Dairy and Food Commissioner. Two were passed and two were adulterated with cottonseed oil.

Adulterated samples were as follows:

| D.C. No. | Brand                  | Dealer                                       |
|----------|------------------------|--|
| 30229    | Pure Olive Oil, Lucca. | <i>Hartford.</i> International Importing Co. |
| 28588    | B. B. Brand, Lucca.    | <i>Waterbury.</i> Frank Pepe.                |

Two samples were submitted by purchaser or distributor. One, 678, Gilbert Brand bottled in France for John Gilbert & Son, New Haven, was genuine olive oil, but unusual in that it responded to the Villavecchia test for sesame oil. The test applied to the fatty acids however was negative.

## VANILLA EXTRACT.

Flavoring extracts for food purposes are solutions in ethyl alcohol of sapid and odorous vegetable principles.

Vanilla extract is the flavoring extract prepared from vanilla bean, with or without sugar or glycerin, and contains in one hundred cubic centimeters the soluble matters from not less than ten grams of the vanilla bean.<sup>1</sup>

No numerical limits of composition are included in the standard and these must be ascertained from analyses of authentic preparations derived from the several types of vanilla beans.

Twenty-seven samples of vanilla extracts or imitation vanilla extracts were collected by the Station agent, and one was submitted by the Dairy and Food Commissioner. Detailed analyses of these are given in Table III.

Most of the samples examined were labeled as pure or were presumed to be pure from the fact that no declaration to the contrary was made. A number were clearly stated to be imitations. The products presumed to be pure were found, in general, to conform to the limits of composition of pure extracts as established by analyses of authentic samples.<sup>2</sup> Three, Puritan 471, Royal Scarlet 476, and Champion 483, showed excessive ash and other abnormal values which indicate the use of alkali in the process of manufacture.<sup>3</sup> Morrow 486, although it contained a normal amount of vanillin and no coumarin, did not otherwise show the characteristics of a genuine vanilla extract. Nilla, 30404, was sold simply as a flavoring extract but the name suggests vanilla while the analysis does not. Its composition closely resembles that of other imitation vanilla. Virginia Dare, 470, is barely 150% strength assuming the minimum vanillin content of authentic vanilla extract.

<sup>1</sup> Circ. 136.

<sup>2</sup> See Winton, Albright and Berry, Jour. Ind. Eng. Chem., 7, 518, 1915.

<sup>3</sup> Dean and Schlotterbeck, Ibid. 8, 703, 1916.

TABLE III. ANALYSES OF

| No.                | Brand and Manufacturer  | Precipitation with lead acetate |               |               |
|--------------------|---|---------------------------------|---------------|---------------|
|                    |   | Amt. of ppt.                    | Color of ppt. | Color of ftr. |
| 474                | The Great A. & P. Tea Co., Jersey City, N. J., <i>Red Front</i> .....                           | Large                           | Buff          | Straw         |
| 488                | Austin Nichols & Co., N. Y., <i>Sunbeam</i> ...   | Large                           | Buff          | Straw         |
| 497                | Baker Extract Co., Springfield, Mass., <i>Baker's Pure Extract of Vanilla</i> .....             | Large                           | Buff          | Straw         |
| 471                | Boyce Extract Co., N. Y., <i>Puritan</i> .....  | Large                           | Buff          | Straw         |
| 487                | The Bridgeport Public Market, Bridgeport, <i>Monogram</i> .....                                 | Large                           | Buff          | Straw         |
| 479                | Joseph Burnett Co., Boston, Mass., <i>Burnett's</i> .....                                       | Large                           | Buff          | Straw         |
| 490                | James Butler, Inc., N. Y., <i>Essie</i> .....   | Large                           | Buff          | Straw         |
| 464                | The Cloverdale Co., Boston, Mass., <i>Benefit</i>   | Large                           | Buff          | Straw         |
| 498                | J. W. Colton Co., Springfield, Mass., <i>Colton's Vanilla</i> .....                             | Large                           | Buff          | Straw         |
| 483                | Davey Bros., Inc., Bridgeport, <i>Champion</i>  | Large                           | Buff          | Straw         |
| 492                | Andrew Davey, Inc., N. Y., <i>Atlas</i> .....   | Large                           | Buff          | Straw         |
| 470                | Garrett & Co., Brooklyn, N. Y., <i>Virginia Dare, 150% strength</i> .....                       | Large                           | Buff          | Straw         |
| 485                | Howland's, Bridgeport, <i>Howco</i> .....   | Large                           | Buff          | Straw         |
| 491                | McCormick & Co., Baltimore, Md., <i>Bee</i> ...   | Large                           | Buff          | Straw         |
| 472                | The Mohican Co., N. Y., <i>Mohican</i> .....  | Large                           | Buff          | Straw         |
| 486                | Morrow & Company, <i>Morrow's</i> .....   | Small                           | Brown         | Straw         |
| 478                | The C. E. Sauer Co., Richmond, Va., <i>Sauer's Pure Concentrated</i> .....                      | Large                           | Buff          | Straw         |
| 480                | Schlotterbeck & Foss Co., Portland, Me., <i>Foss Pure Extract</i> .....                         | Large                           | Buff          | Straw         |
| 484                | Seeman Bros., Inc., N. Y., <i>White Rose</i> ...  | Large                           | Buff          | Straw         |
| 499                | James Van Dyke Co., N. Y., <i>Ambassador</i>  | Large                           | Buff          | Straw         |
| 476                | R. C. Williams & Co., N. Y., <i>Royal Scarlet</i>   | Large                           | Buff          | Straw         |
| 481                | The Williams & Carleton Co., Hartford, <i>Williams Pure Extract</i> .....                       | Large                           | Buff          | Straw         |
| 468                | The Diamond Seal Product Co., Inc., N. Y., <i>Concord, Vanillin, Coumarin and Vanilla</i> ..... | Small                           | Dk. Brown     | Dk. Brown     |
| 30404 <sup>1</sup> | Flagg & Co., Hartford, <i>"Nilla" Flavoring Extract</i> .....                                   | Medium                          | Dk. Brown     | Brown         |
| 496                | Grand Union Tea Co., Brooklyn, N. Y., <i>Vanilla and Tonka</i> .....                            | Medium                          | Dark          | Straw         |
| 466                | The Stuart Brand, Hartford, <i>Imitation Flavor of Vanilla</i> .....                            | Small                           | Dk. Brown     | Brown         |
| 494                | The Stuart Brand, Hartford, <i>Imitation Flavor of Vanilla</i> .....                            | Small                           | Dk. Brown     | Brown         |
| 493                | Virginia Dare Extract Co., Brooklyn, N. Y., <i>Little Brown Jug, Imitation Vanilla</i>          | Small                           | Dk. Brown     | Brown         |

<sup>1</sup>Dairy Commissioner's Sample.

VANILLA EXTRACT, ETC.

| Vanillin gm. per 100 cc | Coumarin gm. per 100 cc | Normal lead No. | Total solids, gms. per 100 cc. | Ash gms. per 100 cc |            |              | Alkalinity of ash, cc N/10 acid per 100 cc |            |              | Acidity, cc N/10 alkali per 100 cc |                 |                     | No.                |
|-------------------------|-------------------------|-----------------|--------------------------------|---------------------|------------|--------------|--|------------|--------------|------------------------------------|-----------------|---------------------|--------------------|
|                         |                         |                 |                                | Total               | Water-sol. | Water-insol. | Total                                      | Water-sol. | Water-insol. | Of total extract                   | Due to vanillin | Other than vanillin |                    |
| 0.16                    | None                    | 0.68            | 14.96                          | 0.35                | 0.28       | 0.07         | 41.0                                       | 25.0       | 16.0         | 38.0                               | 10.4            | 27.6                | 474                |
| 0.16                    | None                    | 0.54            | 18.88                          | 0.31                | 0.25       | 0.05         | 39.0                                       | 29.0       | 10.0         | 34.0                               | 10.3            | 23.7                | 488                |
| 0.20                    | None                    | 0.71            | 15.43                          | 0.36                | 0.27       | 0.09         | 43.0                                       | 28.0       | 15.0         | 40.0                               | 13.0            | 27.0                | 497                |
| 0.15                    | None                    | 0.53            | 8.92                           | 0.69                | 0.53       | 0.15         | 71.0                                       | 36.0       | 35.0         | 32.0                               | 9.7             | 22.3                | 471                |
| 0.18                    | None                    | 0.70            | 16.84                          | 0.35                | 0.24       | 0.11         | 45.0                                       | 26.0       | 19.0         | 41.5                               | 11.6            | 29.9                | 487                |
| 0.21                    | None                    | 0.53            | 9.63                           | 0.31                | 0.23       | 0.08         | 42.7                                       | 24.7       | 18.0         | 42.0                               | 14.0            | 28.0                | 479                |
| 0.16                    | None                    | 0.58            | 20.26                          | 0.32                | 0.21       | 0.11         | 32.5                                       | 20.5       | 12.0         | 31.5                               | 10.3            | 21.2                | 490                |
| 0.16                    | None                    | 0.58            | 12.67                          | 0.25                | 0.18       | 0.07         | 36.0                                       | 21.0       | 15.0         | 31.5                               | 10.7            | 20.8                | 464                |
| 0.18                    | None                    | 0.75            | 15.43                          | 0.37                | 0.28       | 0.10         | 47.0                                       | 29.0       | 18.0         | 42.5                               | 12.2            | 30.3                | 498                |
| 0.12                    | None                    | 0.47            | 8.63                           | 0.67                | 0.53       | 0.14         | 74.0                                       | 41.5       | 32.5         | 29.0                               | 8.2             | 20.8                | 483                |
| 0.15                    | None                    | 0.51            | 20.44                          | 0.30                | 0.23       | 0.07         | 36.5                                       | 23.0       | 13.5         | 30.0                               | 9.6             | 20.4                | 492                |
| 0.16                    | None                    | 0.48            | 15.83                          | 0.29                | 0.23       | 0.05         | 33.5                                       | 23.5       | 10.0         | 36.0                               | 10.4            | 25.6                | 470                |
| 0.19                    | None                    | 0.71            | 8.32                           | 0.36                | 0.28       | 0.08         | 42.0                                       | 26.5       | 15.5         | 38.0                               | 11.5            | 26.5                | 485                |
| 0.19                    | None                    | 0.69            | 8.48                           | 0.40                | 0.32       | 0.09         | 47.5                                       | 32.0       | 15.5         | 37.0                               | 12.4            | 24.6                | 491                |
| 0.19                    | None                    | 0.60            | 15.66                          | 0.30                | 0.24       | 0.06         | 40.5                                       | 27.5       | 13.0         | 40.0                               | 12.5            | 27.5                | 472                |
| 0.20                    | None                    | 0.19            | 15.63                          | 0.08                | 0.05       | 0.03         | 13.5                                       | 9.0        | 4.5          | 26.0                               | 13.1            | 12.9                | 486                |
| 0.24                    | None                    | 0.60            | 20.55                          | 0.30                | 0.22       | 0.08         | 40.5                                       | 27.5       | 13.0         | 41.5                               | 15.5            | 26.0                | 478                |
| 0.13                    | None                    | 0.47            | 13.78                          | 0.25                | 0.17       | 0.09         | 28.7                                       | 17.0       | 11.7         | 33.0                               | 8.5             | 24.5                | 480                |
| 0.12                    | None                    | 0.60            | 20.64                          | 0.41                | 0.29       | 0.12         | 42.0                                       | 27.5       | 14.5         | 40.0                               | 8.1             | 31.9                | 484                |
| 0.11                    | None                    | 0.70            | 15.71                          | 0.41                | 0.33       | 0.08         | 47.5                                       | 31.5       | 16.0         | 27.5                               | 5.4             | 22.1                | 499                |
| 0.14                    | None                    | 0.51            | 8.94                           | 0.67                | 0.51       | 0.16         | 67.5                                       | 34.0       | 33.5         | 32.0                               | 9.4             | 22.6                | 476                |
| 0.11                    | None                    | 0.54            | 13.75                          | 0.36                | 0.29       | 0.07         | 20.0                                       | 9.5        | 10.5         | 30.0                               | 7.0             | 23.0                | 481                |
| 0.20                    | 0.06                    | 0.06            | 17.64                          | 0.03                | 0.01       | 0.01         | 3.0  | 1.0        | 2.0          | .....                              | 13.1            | .....               | 468                |
| 0.50                    | 0.05                    | 0.09            | 19.74                          | 0.02                | 0.00       | 0.02         | 4.0  | 1.5        | 2.5          | 46.0                               | 32.6            | 13.4                | 30404 <sup>1</sup> |
| 0.17                    | 0.04                    | 0.43            | 14.13                          | 0.27                | 0.19       | 0.08         | 30.5                                       | 17.5       | 13.0         | 25.0                               | 11.2            | 13.8                | 496                |
| 0.37                    | 0.08                    | 0.06            | 10.52                          | 0.04                | 0.03       | 0.01         | 1.0  | 0.5        | 0.5          | 28.0                               | 24.5            | 3.5                 | 466                |
| 0.43                    | 0.08                    | 0.04            | 10.61                          | 0.04                | 0.01       | 0.03         | 2.5  | 0.5        | 2.0          | 37.0                               | 28.5            | 8.5                 | 494                |
| 0.12                    | 0.10                    | 0.06            | 1.31                           | 0.04                | 0.02       | 0.02         | 2.0  | 1.0        | 1.0          | 13.0                               | 8.2             | 4.8                 | 493                |

## FLOUR, ETC.

Twelve samples of "Graham" and "entire wheat" flours have been examined.

There seems to be no uniform opinion in the trade, or at least among retailers, as to the distinction between these two types of flour. Dr. Sylvester Graham, in his crusade against alcoholism, advocated rearrangement of diet as a remedy for this form of intemperance, and emphasized particularly abstinence from meat and the use of bread made from unbolted wheat meal. This unbolted wheat meal became known as "Graham" flour and such flour, evidently, should have the same composition as the wheat from which it is ground. The coarseness of the product, however, was thought by some students of nutrition at that time, to be an objection since it tended to cause the material to pass through the digestive tract before the nutrients had been sufficiently utilized. Attempts were made, therefore, to remove the coarse, outer (ovary) layers of the wheat berry and to grind the remainder without bolting, thus removing only the indigestible parts of the grain and retaining the entire nutritive value of the wheat. This flour was called "whole wheat flour" or "entire wheat flour."

The attempts to decorticate wheat for making entire wheat flour were, apparently, not very satisfactory, and the introduction of the roller process for milling flour probably discouraged further attempts to perfect methods. Probably many of the Graham and entire wheat flours of trade are recombinations of various fractions obtained in the process of commercial milling.

In Table IV are given analyses of flours sold as "Graham" and as "entire" or "whole" wheat. For comparison, analyses of wheat, of wheat bran and of red dog flour as quoted from Henry and Morrison<sup>1</sup> (protein being expressed on the basis of the factor 5.7), are given; and also analyses of recognized commercial grades of flour, viz., first patent, straight, and first clear as cited from a bulletin<sup>2</sup> of this laboratory.

On the basis of the protein-ash ratios some interesting comparisons can be made. It appears that the ratio is 6 for the whole wheat grain, although according to some analyses<sup>3</sup> it may slightly exceed 10; for bran it is about 2.5; and for the various grades of commercial flours it may be considered to range from 15 to 30, the values less than 20 being for low grade flours, and 20 or above, clear flours or better grades.

With this rough classification in mind, and remembering also that true Graham flour should have the same composition as the wheat from which it is made, and that in true entire wheat flour some of the bran is removed, it appears that, in general, the com-

<sup>1</sup> Feeds and Feeding, 17th edition.

<sup>2</sup> Conn. Exp. Sta. Bull. 255 (1923).

<sup>3</sup> Leech, Food Inspection and Analysis, p. 322.

mercial Graham flours do not exceed 10.0 and are nearer 6.0; and that there are no consistent differences between Graham and whole or entire wheat flours in this respect. Sample 22754 shows a ratio which indicates a low grade or clear flour rather than entire wheat flour; and the ratios in samples 22196 and 28776 indicate mixtures containing abnormal amounts of bran. It may be noted that the low grade flour known as red dog has a protein-ash ratio of nearly the same magnitude as the whole wheat grain; however, in the latter both protein and ash are conspicuously lower.

Three samples of semolina used in making macaroni were submitted by a purchaser and were examined for nitrogen. They contained from 12 to 12.7 per cent. of protein (on the basis of N x 5.7).

TABLE IV. ANALYSES OF "GRAHAM" FLOUR, ETC.

| No.                                       | Description of Sample   | Moisture<br>% | Ash<br>% | Nitrogen<br>% | Protein (Nx5.7)<br>% | Fiber<br>% | Nitrogen-free<br>extract<br>% | Fat<br>% | p/A  |
|---|---|---------------|----------|---------------|----------------------|------------|-------------------------------|----------|------|
| <b>Graham Flour.</b>                      |   |               |          |               |                      |            |                               |          |      |
| D.C.28776                                 | F. A. Healey, Bridgeport. In bulk.....  | 11.09         | 2.40     | 2.42          | 13.79                | 2.36       | 67.22                         | 3.14     | 5.7  |
| D.C.28774                                 | The Laramer Co., Willimantic. Choice Graham<br>flour from entire wheat.....       | 11.14         | 1.98     | 2.30          | 13.11                | 2.48       | 68.45                         | 2.84     | 6.6  |
| D.C.28791                                 | W. A. Maine, Norwich. In bulk.....  | 11.26         | 1.44     | 2.50          | 14.25                | 1.03       | 69.30                         | 2.72     | 9.9  |
| D.C.28794                                 | J. A. Spinnetta, New Britain.....   | 12.20         | 1.85     | 2.10          | 11.97                | 2.41       | 69.03                         | 2.54     | 6.5  |
| 22194                                     | Atlantic and Pacific Tea Co., New Haven,<br><i>Grandmother's</i> .....            | 9.53          | 2.09     | 2.43          | 13.85                | 1.68       | 70.59                         | 2.26     | 6.6  |
| 22195                                     | Grand Union Tea Co., New Haven, <i>Wheats-<br/>worth</i> .....                    | 10.23         | 1.73     | 2.02          | 11.51                | 1.80       | 72.85                         | 1.88     | 6.7  |
| 22764                                     | Hartford Market Co., Hartford, <i>Pillsbury's</i> .....                           | 10.02         | 1.87     | 2.27          | 12.94                | 2.28       | 70.34                         | 2.55     | 6.9  |
| 22196                                     | Quality Grocery, New Haven, <i>Schumacher,<br/>X X X</i> .....                    | 9.23          | 2.69     | 1.71          | 9.75                 | 2.66       | 72.22                         | 3.45     | 3.6  |
| <b>Whole Wheat or Entire Wheat Flour.</b> |   |               |          |               |                      |            |                               |          |      |
| D.C.28793                                 | J. A. Spinnetta, New Britain. Mill streams whole<br>wheat stone ground flour..... | 12.49         | 1.72     | 2.05          | 11.69                | 2.14       | 69.46                         | 2.50     | 6.8  |
| 22756                                     | E. E. Hall & Son, New Haven, <i>Parina</i> .....                                  | 9.95          | 1.45     | 2.30          | 13.11                | 1.31       | 72.38                         | 1.80     | 9.0  |
| 22755                                     | Frank S. Platt Co., New Haven.....  | 10.10         | 1.69     | 1.88          | 10.72                | 1.76       | 73.62                         | 2.11     | 6.3  |
| 22754                                     | Quality Grocery, New Haven, <i>Franklin</i> .....                                 | 10.30         | 0.81     | 2.10          | 11.97                | 0.28       | 74.86                         | 1.78     | 14.8 |

TABLE IV. ANALYSES OF "GRAHAM" FLOUR, ETC.—Concluded.

| No.   | Description of Sample                 | Moisture<br>% | Ash<br>% | Nitrogen<br>% | Protein (Nx5.7)<br>% | Fiber<br>% | Nitrogen-free<br>Extract<br>% | Fat<br>% | p/A  |
|---|---------------------------------------|---------------|----------|---------------|----------------------|------------|-------------------------------|----------|------|
| <b>Wheat Grain and Wheat Mill Products.</b> |                                       |               |          |               |                      |            |                               |          |      |
|   | Wheat Grain <sup>1</sup> .....        | 10.20         | 1.90     | 1.98          | 11.29                | 2.20       | .....                         | 2.10     | 6.0  |
|   | Wheat Bran <sup>2</sup> .....         | 10.10         | 6.30     | 2.56          | 14.59                | 9.50       | .....                         | 4.40     | 2.3  |
|   | First Patent Flour <sup>3</sup> ..... | 9.70          | 0.38     | 2.00          | 11.40                | .....      | .....                         | .....    | 30.0 |
|   | Straight Flour <sup>3</sup> .....     | 10.00         | 0.48     | 2.10          | 11.74                | .....      | .....                         | .....    | 24.5 |
|   | First Clear Flour <sup>3</sup> .....  | 9.77          | 0.64     | 2.30          | 13.11                | .....      | .....                         | .....    | 20.5 |
|   | Red dog flour <sup>4</sup> .....      | 11.10         | 2.50     | 2.69          | 15.33                | 2.20       | .....                         | 4.10     | 6.1  |

<sup>1</sup> Based on 858 analyses.<sup>2</sup> Based on 7742 analyses.<sup>3</sup> Conn. Exp. Sta. Bull. 255. (1923.)<sup>4</sup> Based on 259 analyses.

## GELATIN.

A number of commercial gelatin products have been reported in previous bulletins.<sup>1</sup> Two samples, both submitted by a purchaser, have been examined during the past year.

**644.** Manufactured or distributed by James W. Dunn, Greenwich, N. Y.

**645.** Manufactured by the Atlantic Gelatin Co., Boston. Partial analyses are as follows:

|                                  | 644    | 645   |
|----------------------------------|--------|-------|
| Ash.....                         | 1.53%  | 1.22% |
| Nitrogen.....                    | 15.18  | 15.28 |
| Gelatin (N x 5.55).....          | 84.29  | 84.80 |
| Fat.....                         | 0.16   | 0.09  |
| Keratin.....                     | 0.06   | 0.03  |
| Arsenic (parts per million)..... | none   | 0.5   |
| Odor (hot water solution).....   | faint. | faint |

State Regulation 52 relates to gelatin as follows:

Gelatin (edible gelatin) is the purified, dried, inodorous product of the hydrolysis, by treatment with boiling water, of certain tissues as skin, ligaments and bones, from sound animals, and contains not more than two per cent of ash and not less than 15 per cent. of nitrogen. It should not contain excessive amounts of metallic impurities. A hot water solution of gelatin should be clear and without offensive odor.

Pending further investigation, amounts of more than 1.4 parts of arsenic, 30 parts of copper and 100 parts of zinc in one million parts of gelatin will be regarded as excessive.

The samples examined were both passed as satisfactory.

## ICE CREAM.

Two hundred and sixty-nine official samples were submitted by the Dairy and Food Commissioner and three were submitted by manufacturers. Only five were found to contain less than 8 per cent of fat; one of these was sold under a sign or label which declared not less than 4 per cent. and was, therefore, within the provisions of the law, while another was but slightly under 8 per cent. and was passed. Three were deficient by substantial amounts as shown in the following summary:

## ICE CREAM BELOW STANDARD.

|       |          |              |                               |      |
|-------|----------|--------------|-------------------------------|------|
| 29311 | Vanilla. | Derby        | DeVarvieri and Musanti.....   | 7.1% |
| 29301 | Vanilla. | New Britain. | Chas. Piccoli.....            | 6.0  |
| 29184 | Vanilla. | New Haven.   | Huntington Confectionery Co.. | 6.9  |

The samples were secured from fifty-nine cities and towns in the State and may be classified on the basis of fat content as follows:

<sup>1</sup> Conn. Exp. Sta. Bull. 219, p, 221; 227, p 235; 255 p. 189.

|                         | No. of samples. | Per cent. of total. | Per cent. for the 5-year period 1919-1923. |
|-------------------------|-----------------|---------------------|--|
| 8.0- 9.9 per cent..     | 47              | 17.4                | 26.1                                       |
| 10.0-11.9 per cent..    | 67              | 24.8                | 23.2                                       |
| 12.0 and above.....     | 150             | 55.9                | 41.1                                       |
| 7.9 per cent. and below | 5               | 1.9                 | 9.6  |
| Total.....              | 269             | 100.0               | 100.0                                      |

The summary shows that our 8 per cent. requirement is being very strictly complied with; that from 60 to 80 per cent. of samples examined contained 10 per cent. or more of fat; and that in over one-half, the fat content was 12 per cent. or over; and that, as compared with the preceeding five years, there is a considerable decrease in samples containing less than 10 per cent. of fat and an increase in those containing 12 per cent. or more.

## MEAT PRODUCTS.

All the meat products examined were submitted by the Dairy and Food Commissioner to be tested for preservatives, excess or undeclared starchy material or undeclared color.

TABLE V. HAMBURG STEAK CONTAINING SULPHITES.

| D. C. No. | Sampled at            | Sulphur dioxide (SO <sub>2</sub> ), mgms. per kilo. |
|-----------|-----------------------|---|
| 28217     | <i>Bridgeport,</i>    | Boston Public Market..... 382.0                     |
| 28220     |                       | Helbig's Market ..... 801.0                         |
| 28221     |                       | Chicago Market..... 113.0                           |
| 28233     |                       | W. Auch. .... 329.0                                 |
| 28224     |                       | Washington Public Market.. 1016.0                   |
| 28611     | <i>Bristol,</i>       | Valentines' Market..... 269.0                       |
| 28612     |                       | The National Meat Market.. 2323.0                   |
| 28613     |                       | Public Market..... 2212.0                           |
| 28614     | <i>East Hartford,</i> | Aronson's Market..... 708.0                         |
| 28437     | <i>Naugatuck,</i>     | Adolph Reiter..... 142.0                            |
| 28438     |                       | The People's Market..... 373.0                      |
| 28426     | <i>New Haven,</i>     | The Congress Public Market. 1993.0                  |
| 28234     | <i>Norwalk,</i>       | Fowler's Market..... 171.0                          |
| 28237     | <i>Norwich,</i>       | Wysod's Market..... 346.0                           |
| 28240     |                       | Grunville Public Market.... 1794.0                  |
| 28601     |                       | Self-Service Market..... 505.0                      |
| 28609     | <i>Plainville,</i>    | V. G. Manello..... 640.0                            |
| 28228     | <i>Stamford,</i>      | Saltzman's Market..... 4364.0                       |
| 28227     |                       | Capitol Market..... 274.0                           |
| 28430     | <i>Wallingford,</i>   | Samuel Lev..... 2312.0                              |
| 28423     | <i>Waterbury,</i>     | Fulton Market..... 979.0                            |
| 28441     | <i>Willimantic,</i>   | William Laramie..... 636.0                          |

## HAMBURG STEAK.

Sixty-two samples were examined and twenty-two were found to contain sulphites, the use of which is illegal under the general provisions of the food law and in violation of a specific State regulation.<sup>1</sup>

<sup>1</sup> Regulation 51.

Samples in which sulphites were found are given in Table V.

FRANKFURTS.

Thirty-four samples were submitted, fifteen of which contained undeclared, or excess of, starch or undeclared color. A summary of these samples is given in Table VI.

Two samples of casings were examined for color but none was found.

TABLE VI. FRANKFURTS CONTAINING EXCESS OF STARCH, OR ARTIFICIAL COLOR, OR BOTH.

| D. C. No.           | Dealer                           | Manufacturer                         | Remarks                          |
|---------------------|----------------------------------|--------------------------------------|----------------------------------|
| <i>Bethel.</i>      |                                  |                                      |                                  |
| 28205               | Bethel Provision Co.....         | Own make.....                        | Excess starch.                   |
| 28206               | Bethel Provision Co.....         | Own make.....                        | Excess starch.                   |
| <i>Bridgeport.</i>  |                                  |                                      |                                  |
| 29204               | Thos. McNamara & Sons, Inc. .... | Own make.....                        | Excess starch.                   |
| <i>Hartford.</i>    |                                  |                                      |                                  |
| 28062               | Independent Packing Co. ....     | .....                                | Color undeclared.                |
| 28071               | Eastern Provision Co. ....       | Independent Packing Co. ....         | Starch and color undeclared.     |
| 28072               | Grote & Weigel. ....             | .....                                | Color undeclared.                |
| 28073               | Hartford Center Factory          | .....                                | Color undeclared.                |
| <i>New Britain.</i> |                                  |                                      |                                  |
| 28435               | Adam Ostrowski. ....             | Own make.....                        | Starch undeclared                |
| <i>New Haven</i>    |                                  |                                      |                                  |
| 29205               | Columbia Market. ....            | T. J. McNamara & Sons, Bridgeport    | Excess starch.                   |
| <i>Norwich.</i>     |                                  |                                      |                                  |
| 28238               | Norwich Provision Co. ....       | Own make.....                        | Excess starch.                   |
| <i>Stamford.</i>    |                                  |                                      |                                  |
| 28409               | Klein & Gmahle. ....             | Own make.....                        | Excess starch.                   |
| <i>Waterbury.</i>   |                                  |                                      |                                  |
| 28212               | Kramer Bros. ....                | Sachenhauser,                        | Excess starch.                   |
| 28422               | Fulton Market. ....              | Own make.....                        | Color undeclared.                |
| 28424               | John Hullstrunk. ....            | Own make.....                        | Excess starch; color undeclared. |
| <i>Willimantic.</i> |                                  |                                      |                                  |
| 28443               | Liberty Cash Market. ....        | Capitol Beef Co., Boston, Mass. .... | Starch undeclared.               |

PORK SAUSAGE.

According to a State regulation, pork sausage may contain cereal or other starchy material provided it is declared upon the label or signs displayed and provided the amount does not exceed 2 per cent.

Fifteen samples of pork sausage were examined and none found in violation of these provisions.

MILK AND MILK PRODUCTS.

MARKET MILK.

Four hundred and seventy-three official samples of milk have been examined for the Dairy and Food Commissioner. This number is much smaller than for some years past due to the increased amount of testing done by licensed operators attached to the Commissioner's office. The tests required of the Station are thereby reduced to such as are necessary for checking purposes.

Two hundred and fifty-seven unofficial samples have been analyzed for the Commissioner; and also one hundred and sixty-eight for producers or consumers. The total from all sources is eight hundred and ninety-eight.

The four hundred and seventy-three official samples may be classified on the basis of the analyses, as follows:

|   | No. of samples | Per cent. |
|---|----------------|-----------|
| Not found adulterated.....  | 232            | 49.0      |
| Adulterated by watering.....  | 26             | 5.5       |
| Adulterated by skimming.....  | 23             | 4.9       |
| Adulterated by reason of being sub-standard in solids and solids-not-fat..... | 71             | 15.0      |
| in solids and fat.....  | 9              | 1.9       |
| in solids, fat and solids-not-fat...  | 112            | 23.7      |
|   | 473            | 100.00    |

Roughly, 50 per cent. were not found adulterated, 10 per cent. were watered or skimmed, and 40 per cent. were sub-standard in two or more of the items fat, solids, and non-fat solids.

Adulterated samples, other than sub-standard, are summarized in Table VII.



TABLE VII. ADULTERATED MILK.

| No.                           | Dealer              | Solids                                   | Fat | No.                  | Dealer              | Solids | Fat |
|-------------------------------|---------------------|--|-----|----------------------|---------------------|--------|-----|
| <b>Containing Added Water</b> |                     | <b>Containing Added Water—Continued.</b> |     |                      |                     |        |     |
| <i>Cornwall Bridge.</i>       |                     | <i>Somers.</i>                           |     |                      |                     |        |     |
| 27344                         | Jacob Lorch.....    | 10.39                                    | 2.8 | 27849                | Max Levitt.....     | 9.48   | 2.9 |
| <i>Glastonbury.</i>           |                     | <i>Thompsonville.</i>                    |     |                      |                     |        |     |
| 28079                         | John Alekson.....   | 11.61                                    | 4.3 | 28100                | Max Levitt.....     | 9.30   | 3.0 |
| 28080                         | John Alekson.....   | 12.03                                    | 4.5 | 29398                | Thomas Bostick...   | 10.59  | 3.3 |
| <i>Litchfield.</i>            |                     | <i>Torrington.</i>                       |     |                      |                     |        |     |
| 27776                         | B. O. Blakeslee.... | 10.79                                    | 3.3 | 29399                | Thomas Bostick...   | 10.54  | 3.3 |
| <i>Newtown.</i>               |                     | <i>Watertown.</i>                        |     |                      |                     |        |     |
| 27817                         | Samuel Steinfelt... | 9.90                                     | 3.0 | 28992                | T. Semkman.....     | 11.42  | 4.1 |
| 27818                         | Samuel Steinfelt... | 9.71                                     | 2.8 | 28316                | Tom Dubesky.....    | 10.07  | 3.1 |
| 27819                         | Samuel Steinfelt... | 10.39                                    | 3.2 | 28317                | Tom Dubesky.....    | 10.22  | 3.1 |
| <i>Niantic.</i>               |                     | <i>West Cheshire.</i>                    |     |                      |                     |        |     |
| 27812                         | Harry Morton.....   | 10.60                                    | 3.5 | 28318                | Tom Dubesky.....    | 10.19  | 3.1 |
| 29281                         | J. H. Perkins.....  | 9.63                                     | 2.5 | 27773                | Howard E. Ives....  | 10.09  | 3.3 |
| 29284                         | Harry Morton.....   | 10.34                                    | 3.2 | 27775                | Howard E. Ives....  | 10.59  | 3.3 |
| 29285                         | Harry Morton.....   | 10.09                                    | 3.3 | <i>No. Branford.</i> |                     |        |     |
| 29850                         | E. L. Cole.....     | 10.56                                    | 3.2 | 27347                | Chester Turkowitz.. | 10.23  | 2.9 |
| <i>Rockfall.</i>              |                     | <i>West Cornwall.</i>                    |     |                      |                     |        |     |
| 27762                         | Joe Misiok.....     | 11.42                                    | 3.7 | 27800                | Wm. Livingston....  | 10.60  | 3.1 |
| 27763                         | Joe Misiok.....     | 11.69                                    | 4.0 |                      |                     |        |     |

EVAPORATED MILK AND SWEETENED EVAPORATED MILK.

Nine samples of evaporated milk and sweetened evaporated milk, six of which were submitted by the Dairy and Food Commissioner, have been examined and are summarized in Table VIII.

Evaporated milk should contain<sup>1</sup> not less than 7.8 per cent. of fat, 25.5 per cent. of solids and the sum of the percentages of fat and solids should be not less than 33.7.

Sweetened evaporated milk should contain<sup>2</sup> not less than 8 per cent. of fat and not less than 28 per cent. of milk solids. The sweetened products were examined for fat only.

<sup>1</sup> F. I. D. 189.

<sup>2</sup> Circ. 136.

TABLE VII. ADULTERATED MILK—Concluded.

| No.                 | Dealer                        | Solids | Fat | No.                            | Dealer                | Solids | Fat |
|---------------------|-------------------------------|--------|-----|--------------------------------|-----------------------|--------|-----|
| <b>Skimmed Milk</b> |                               |        |     | <b>Skimmed Milk—Continued.</b> |                       |        |     |
| <i>Danbury.</i>     |                               |        |     | <i>Norwich Town.</i>           |                       |        |     |
| 29777               | Wm. Mountain Lunch            | 10.71  | 2.0 | 29643                          | Isadore Michon....    | 11.15  | 2.5 |
| 29778               | Depot Lunch.....              | 11.24  | 2.8 | 29646                          | H. R. Gardner.....    | 9.78   | 1.8 |
| 29782               | Groveland Lunch...            | 10.49  | 2.2 | <i>Putnam.</i>                 |                       |        |     |
| <i>Hawleyville.</i> |                               |        |     | <i>Warehouse Point.</i>        |                       |        |     |
| 28744               | Alex Murin.....               | 10.73  | 2.3 | 27409                          | Daniel J. Weeks....   | 11.21  | 2.7 |
| <i>Madison.</i>     |                               |        |     | 27412                          | John E. Tachariadis.  | 10.76  | 2.3 |
| 28715               | New York Lunch...             | 10.57  | 2.1 | 27413                          | Miller & Duffy....    | 11.12  | 2.6 |
| <i>Mystic.</i>      |                               |        |     | 27427                          | Miller & Duffy....    | 10.63  | 2.0 |
| 28703               | Central Lunch.....            | 9.15   | 0.7 | 29260                          | S. Wolcott Bissell... | 12.06  | 3.0 |
| 28704               | C. R. Worth.....              | 10.10  | 1.5 | <i>Westerly, R. I.</i>         |                       |        |     |
| <i>New London.</i>  |                               |        |     | 28701                          | White House Lunch.    | 11.26  | 2.5 |
| 28132               | Crocker House Restaurant..... | 11.29  | 2.8 | <i>West Haven.</i>             |                       |        |     |
| 28133               | Far East Restaurant.          | 9.93   | 1.4 | 27790                          | G. D. Shaw.....       | 11.65  | 2.7 |
| <i>Norwich.</i>     |                               |        |     | <i>Willimantic.</i>            |                       |        |     |
| 27433               | James Hayes.....              | 10.30  | 2.0 | 27439                          | T. F. Shea.....       | 11.04  | 2.0 |
| 27840               | Fern's Restaurant...          | 11.51  | 2.6 | 27445                          | A. Krug.....          | 9.76   | 1.4 |
| 27846               | Preston Pub. Market.          | 11.20  | 2.6 |                                |                       |        |     |

TABLE VIII. ANALYSES OF EVAPORATED AND SWEETENED EVAPORATED MILK.

| No.              | Brand or Manufacturer                                    | Fat % | Solids % | Fat + Solids % |
|------------------|--|-------|----------|----------------|
| EVAPORATED MILK. |  |       |          |                |
| 646              | Libby, McNeil and Libby.....                             | 8.22  | 26.65    | 34.87          |
| 647              | "              | 8.25  | 26.61    | 34.86          |
| 319              | H. D. Lee Mercantile Co., Lee...<br>Waterbury, Conn..... | 7.82  | 26.29    | 34.11          |
| D. C. 28078      | Sheffield Condensed Milk Co.,<br>New York.....           | 7.94  | 25.87    | 33.81          |
| D. C. 28077      | Sheffield Condensed Milk Co.,<br>New York.....           | 7.91  | 25.85    | 33.76          |
| D. C. 28245      | The Borden Co., New York.....                            | 7.95  | 26.24    | 34.18          |
| D. C. 28246      | Rogers Milk Corp., New York<br><i>Freshpak.</i>          | 8.03  | 25.90    | 33.93          |

SWEETENED EVAPORATED MILK.

|             |   |      |       |       |
|-------------|---|------|-------|-------|
| D. C. 28075 | Sheffield Farm Milk Co., New York           | 8.23 | ..... | ..... |
| D. C. 28076 | " | 8.24 | ..... | ..... |

All of the evaporated milks met the requirements of the standard and the sweetened products conformed to the standard for fat.

## CREAM.

Four samples of cream and sour cream were examined for fat. They were sampled by the Dairy and Food Commissioner and found to contain from 21 to 38.5 per cent. of fat. Samples were Nos. **28401, 17009, 29314** and **29151**.

## CHOCOLATE-MILK.

One sample of this product was examined. It was sold by the Sagalou Farm, Branford.

## Analysis:

Solids 16.0 per cent.; ash 0.76 per cent.; fat 3.21 per cent.; protein (factor 6.25) 3.06 per cent.; casein (approx.), 1.78 per cent.; sugar (by difference), 7.19 per cent.

BUTTERMILK<sup>1</sup>

Fermented milks are of two kinds viz., (1) that in which the fermentation produces only lactic acid and (2) those in which both lactic acid and alcohol are formed. Lactic acid is produced by the action of lactic-acid-forming bacteria while alcohol is formed by the action of certain types of yeasts although bacteria may be, in part, responsible.

Buttermilk is an example of the first named type of fermentation, *i. e.*, that in which lactic acid is the chief, or only, product of fermentation. As originally made, it was the sour milk left in the churn after the removal of butter. Now, however, commercial buttermilk is largely made from sour skimmed milk by inoculation with a "starter" (lactic acid bacteria), incubating at the proper temperature and finally breaking up the loppered milk by agitating until a uniform liquid or emulsion is obtained. Whole milk (*i. e.* unskimmed milk), may also be thus treated.

The second type of fermentation includes products containing both lactic acid and alcohol in varying proportions. Broadly there are two classes in this group viz., (a) where the acid predominates and (b) where the alcohol is the most conspicuous product. These two classes are determined by the kinds of yeasts or bacteria present and also by the temperature of incubation.

Yoghurt may be cited as an example of that class in which lactic acid predominates over the alcohol; and Kumiss made from mare's milk, and Kephir, the corresponding product made from cow's milk, are examples of products in which alcohol predominates.

In order to see whether fermented milks, as now found in trade, conform to the characteristics just stated for the several types,

<sup>1</sup> References consulted:  
Heineman. Milk. 1921.  
Rogers. U. S. Dept. Agr., Bureau Animal Industry. Circ. 171, 1911; Bull. 319, 1916.

three samples were secured in New Haven and two in Hartford. All of these were of the buttermilk type and sold as such. No specially cultured milks of the Yoghurt or Kephir classes have been secured.

The five samples of buttermilk were examined as follows:

|                  | 21956  | 21981  | 21980  | 27246<br>(Churned) | 27247  |
|------------------|--------|--------|--------|--------------------|--------|
| Water.....       | 90.38% | 83.01% | 91.06% | 93.41%             | 90.48% |
| Ash.....         | 0.88   | 0.72   | 0.76   | 0.57               | 0.76   |
| Protein.....     | 3.58   | 3.20   | 3.22   | 2.40               | 3.47   |
| Fat.....         | 0.54   | 8.73   | 0.46   | 0.39               | 0.64   |
| Sugar (calc.)... | 4.62   | 4.34   | 4.50   | 3.23               | 4.65   |
| Alcohol.....     | trace? | trace? | trace? | trace?             | none?  |

All of these products except **21981** are made from skimmed milk.

As to alcohol our results obtained in the usual way, showed very inconsiderable amounts, the actual figures ranging from 0.03 to 0.10 per cent. Without further tests to positively identify alcohol, its presence may be questioned; however, one authority on this subject observes that while pure cultures of lactic acid bacteria produce only lactic acid, cultures in which other organisms may be present do produce small amounts of other related acids and sometimes *traces* of alcohol. At any rate, the statements made in the literature by authorities to the effect that the product generally known as buttermilk, contains no alcohol or not more than traces thereof, is substantiated by the analyses here given.

As to how much alcohol may occur in products of the second type of fermentation, Kumiss and Kephir may be cited. Recorded analyses show that Kumiss contains from 2.5 to 3.0 per cent. while Kephir contains from 0.6 to 0.75 per cent. No analyses of Yoghurt were found, but since it belongs to the class which is not conspicuous for alcohol it is reasonable to expect that it contains less of that constituent than Kumiss or Kephir.

## HUMAN MILK.

Nineteen samples of breast milk, submitted chiefly by associations of Visiting Nurses and by physicians, have been examined. As in the case of cows' milk, wide variations occur in the compositions of different portions of milk of this type as noted in a previous bulletin.<sup>1</sup> The uncertainty of conclusions based upon analyses of samples which do not fairly represent the entire secretion is pointed out to those submitting samples of this kind.

Analyses of the samples submitted are given in Table IX.

<sup>1</sup> Conn. Exp. Sta. Bull. 227, p 255.

TABLE IX. ANALYSES OF HUMAN MILK.

| No.   | Solids | Protein<br>(N. x 6.38) | Fat | Sugar | Ash   |
|-------|--------|------------------------|-----|-------|-------|
|       | %      | %                      | %   | %     | %     |
| 21978 | 11.84  | 1.30                   | 3.0 | 7.3   | 0.24  |
| 22245 | 11.84  | 1.36                   | 3.4 | 6.84  | 0.24  |
| 22252 | 12.37  | 1.05                   | 3.8 | 7.33  | 0.19  |
| 22253 | 11.63  | 1.45                   | 2.8 | 7.07  | 0.31  |
| 22254 | 10.57  | 1.30                   | 2.7 | 6.30  | 0.27  |
| 22346 | 15.53  | 1.58                   | 6.4 | 7.28  | 0.27  |
| 22434 | 10.97  | 1.00                   | 3.0 | 6.78  | 0.19  |
| 22516 | 11.28  | 1.00                   | 2.8 | 7.22  | 0.26  |
| 22701 | 17.60  | 1.25                   | 9.0 | 7.11  | 0.24  |
| 22853 | 16.76  | 1.13                   | 8.8 | 6.63  | 0.20  |
| 22994 | 12.10  | 1.28                   | 3.4 | 7.19  | 0.23  |
| 23179 | 13.14  | 1.23                   | 4.8 | 6.89  | 0.22  |
| 23180 | 11.56  | 1.19                   | 3.4 | 6.77  | 0.20  |
| 23181 | 13.52  | 1.87                   | 4.6 | 6.81  | 0.24  |
| 23220 | 12.08  | 1.37                   | 3.0 | 7.52  | 0.19  |
| 23369 | 12.47  | 1.40                   | 3.8 | 7.03  | 0.24  |
| 23385 | .....  | .....                  | 5.4 | ..... | ..... |
| 914   | 11.95  | 1.03                   | 3.4 | 7.41  | 0.11  |
| 274   | .....  | 1.35                   | 6.2 | ..... | ..... |

## SPICES.

## GROUND NUTMEG AND SAGE.

Nutmeg is the dried seed of *Myristica fragrans* Houtt., deprived of its testa, with or without a thin coating of lime (CaO). It contains not less than 25 per cent. of non-volatile ether extract, not more than 10 per cent. of crude fiber, not more than 5 per cent. of total ash, nor more than 0.5 per cent. of ash insoluble in hydrochloric acid.<sup>1</sup>

Sage is the dried leaf of *Salva officinalis* L. It contains not less than 1 per cent. of volatile ether extract, not more than 25 per cent of crude fiber, not more than 10 per cent. of total ash, nor more than 1 per cent. of ash insoluble in hydrochloric acid<sup>2</sup>.

Eight samples of ground nutmeg and nine samples of sage were collected by the Station agent.

In all cases the requirements of the standard were fully met. Analyses are given in Table X.

<sup>1</sup> Circ. 136.<sup>2</sup> Ibid.

TABLE X. ANALYSES OF NUTMEG AND SAGE.

| No.     | Brand or Manufacturer  | Ether<br>non-vol. | Extract<br>vol. | Crude<br>fiber | Total<br>ash | Ash insol.<br>in acid. |
|---------|--|-------------------|-----------------|----------------|--------------|------------------------|
|         |  | %                 | %               | %              | %            | %                      |
| NUTMEG. |  |                   |                 |                |              |                        |
| 410     | Austin, Nichols & Co. Inc.,<br>N. Y. <i>Sunbeam</i> .....          | 32.41             | .....           | 3.04           | 4.10         | 0.09                   |
| 428     | Bennett, Simpson & Co., N.Y.                                       | 30.89             | .....           | 3.53           | 2.41         | 0.03                   |
| 450     | James Butler Inc., N. Y.....                                       | 34.50             | .....           | 2.85           | 1.98         | 0.05                   |
| 405     | Great Atlantic & Pacific Tea<br>Co.....                            | 35.99             | .....           | 2.55           | 3.09         | 0.07                   |
| 453     | Chas. G. Lincoln & Co., Inc.<br>Hartford, <i>Capitol Mills</i> ... | 36.25             | .....           | 2.98           | 2.52         | 0.05                   |
| 423     | Grand Union Tea Co.,<br>Brooklyn.....                              | 32.96             | .....           | 3.15           | 3.37         | 0.05                   |
| 418     | E. R. Durkee, Elmhurst, L.I.                                       | 37.53             | .....           | 2.38           | 2.02         | 0.02                   |
| 447     | Frances H. Leggett & Co.,<br>N. Y. <i>Premier</i> .....            | 35.89             | .....           | 2.83           | 2.58         | 0.03                   |
| SAGE.   |  |                   |                 |                |              |                        |
| 427     | Bennett, Simpson & Co., N.Y.                                       | .....             | 1.87            | 14.88          | 6.87         | 0.52                   |
| 449     | James Butler, N. Y. <i>Peerless</i> .                              | .....             | 2.14            | 17.65          | 6.18         | 0.33                   |
| 416     | E. R. Durkee & Co., Elm-<br>hurst, L. I.....                       | .....             | 1.88            | 16.68          | 6.11         | 0.22                   |
| 402     | E. R. Durkee & Co., Elm-<br>hurst, L. I.....                       | .....             | 1.84            | 14.28          | 8.04         | 0.42                   |
| 429     | B. Fischer & Co. Inc., N. Y.                                       | .....             | 1.86            | 15.18          | 6.92         | 0.46                   |
| 422     | Grand Union Tea Co.,<br>Brooklyn.....                              | .....             | 1.73            | 14.83          | 7.75         | 0.72                   |
| 406     | Great Atlantic & Pacific Tea<br>Co.....                            | .....             | 2.23            | 18.80          | 6.28         | 0.32                   |
| 448     | Frances H. Leggett & Co.,<br><i>Premier</i> .....                  | .....             | 1.70            | 14.88          | 7.00         | 0.34                   |
| 421     | Williams & Carleton Co.,<br>Hartford.....                          | .....             | 1.93            | 16.63          | 6.40         | 0.55                   |

## SYRUPS.

## MAPLE SYRUP.

Six samples collected by inspectors of the Dairy and Food Commissioner's office were examined.

The product should contain not more than 35 per cent. of water and not more than 2.5 per cent. of ash<sup>1</sup>.

All samples conformed to the standard, except **28765**, which contained an excess of water but otherwise appeared to be a genuine maple product. This sample had fermented slightly when examined.

Analyses are given in Table XI.

<sup>1</sup> Circ. 136.

TABLE XI. ANALYSES OF MAPLE SYRUP.

| D. C. No. |   | Water | Ash  | Lead No. |
|-----------|---|-------|------|----------|
|           |   | %     | %    | %        |
| 28648     | Great Atlantic & Pacific Tea Co.....                          | 32.20 | 0.55 | 1.32     |
| 28641     | Rigney & Co., Brooklyn, <i>Colonial</i> ...                   | 34.05 | 0.52 | 1.22     |
| 28758     | Seaman Bros., N. Y., <i>White Rose</i> ....                   | 33.36 | 0.50 | 1.26     |
| 28775     | Welch Bros., Burlington, Vt., <i>Green Mountain Boy</i> ..... | 32.43 | 0.59 | 1.33     |
| 28755     | R. C. Williams & Co., N. Y., <i>Royal Scarlet</i> .....       | 32.76 | 0.59 | 1.29     |
| 28765     | No label.....   | 41.00 | 0.60 | 1.44     |

One sample 22945 submitted by a purchaser, was found to contain 33 per cent. of water and 0.66 per cent. of ash.

## MOLASSES.

Twenty samples representing eleven brands were examined, all except two brands being analyzed in duplicate.

In all cases the limit of moisture set by the standard, viz., 25 per cent., is exceeded but the excesses are generally not greater than 10 per cent. of the standard. In two cases the ash exceeds the limit of 5 per cent., indicating a second or third molasses type. Sulphur dioxide was declared in all but two brands. One of these, 28773, was declared to contain no sulphur dioxide and none was found; in 28645 and a duplicate, 30235, no declaration of sulphur dioxide was made and only doubtful traces were found.

Analyses are given in Table XII.

## HONEY.

An unofficial sample of strained honey, 28204, submitted by the Dairy and Food Commissioner, was found to contain 20.58 per cent. of moisture (dried in vacuum at 60-65°C), 0.10 per cent. of ash and 1.55 per cent. of sucrose, and to be within the limits of composition for pure honey.

TEA<sup>1</sup>.

Analyses of twelve samples of tea including well-known commercial brands and some typical grades are given in Table XIII. Description of the samples includes comments upon quality and cup characteristics as judged by expert tea tasters. Although quality and character of infusion cannot be interpreted in terms of exact chemical constituents this comparative data is, nevertheless, of considerable interest. These analyses also supplement work previously done<sup>2</sup> in this laboratory upon certain standard and market teas.

<sup>1</sup> Samples and data upon quality and cup characteristics were furnished through the courtesy of Mr. Ukers, editor of the Tea and Coffee Trade Journal, New York.

<sup>2</sup> Conn. Exp. Sta., Bull. 210, 1918.

TABLE XII. ANALYSES OF MOLASSES.

| D. C. No. | Brand  | Moisture | Ash  |
|-----------|--|----------|------|
|           |  | %        | %    |
| 28760     | <i>Amolco</i> . The American Molasses Co., New York                                  | 27.10    | 3.23 |
| 28762     | <i>Belle Rose</i> . New Orleans Coffee Co., Ltd., New Orleans, La.....               | 26.70    | 2.39 |
| 29934     | <i>Belle Rose</i> . New Orleans Coffee Co., Ltd., New Orleans, La.....               | 27.00    | 2.74 |
| 28784     | <i>Brer Rabbit</i> (Gold label). Penick & Ford, New Orleans, La.....                 | 26.00    | 4.05 |
| 29243     | <i>Brer Rabbit</i> (Gold label). Penick & Ford, New Orleans, La.....                 | 27.10    | 4.08 |
| 28785     | <i>Brer Rabbit</i> (Green label). Penick & Ford, New Orleans, La.....                | 26.00    | 4.96 |
| 29242     | <i>Brer Rabbit</i> (Green label). Penick & Ford, New Orleans, La.....                | 26.90    | 5.73 |
| 28790     | <i>Cherry Grove</i> . Alexander Molasses Co., Chicago, Ill.....                      | 25.20    | 7.24 |
| 29942     | <i>Cherry Grove</i> . Alexander Molasses Co., Chicago, Ill.....                      | 26.40    | 7.13 |
| 28644     | <i>Dunbar's Old Fashioned</i> . Dunbar Molasses & Syrup Co., New Orleans, La.....    | 27.90    | 4.83 |
| 29904     | <i>Dunbar's Old Fashioned</i> . Dunbar Molasses & Syrup Co., New Orleans, La.....    | 27.80    | 5.17 |
| 28645     | <i>Dunbar's Pure Sugar House</i> . Dunbar Molasses & Syrup Co., New Orleans, La..... | 27.30    | 2.89 |
| 30235     | <i>Dunbar's Pure Sugar House</i> . Dunbar Molasses & Syrup Co., New Orleans, La..... | 27.60    | 3.08 |
| 28759     | <i>Giltedge</i> . W. Wirt Wickes & Son, New York..                                   | 27.10    | 3.35 |
| 29241     | <i>Giltedge</i> . W. Wirt Wickes & Son, New York..                                   | 27.10    | 3.62 |
| 28773     | <i>Grandma's</i> . Boston Molasses Co., Boston, Mass.                                | 30.00    | 1.07 |
| 29943     | <i>Grandma's</i> . Boston Molasses Co., Boston, Mass.                                | 27.90    | 1.49 |
| 28751     | <i>Moro</i> . The Southern Molasses Co., New York                                    | 25.09    | 7.47 |
| 29952     | <i>Moro</i> . The Southern Molasses Co., New York                                    | 27.10    | 7.52 |
| 29244     | <i>Rosemere</i> . The American Molasses Co., New York.....                           | 26.00    | 3.92 |

TABLE XIII. ANALYSES OF TEA.

| No. | Brand of Tea and Cup Characteristics  | H <sub>2</sub> O<br>% | Total<br>Ash<br>% | Ash<br>insol.<br>in acid<br>% | Total<br>Nitrogen<br>% | Fiber<br>% | Ether<br>Extract<br>% | Hot<br>Water<br>Extract<br>% | Caffeine   |             | Tannin<br>% |
|-----|---|-----------------------|-------------------|-------------------------------|------------------------|------------|-----------------------|------------------------------|------------|-------------|-------------|
|     |   |                       |                   |                               |                        |            |                       |                              | Grav.<br>% | From N<br>% |             |
| 76  | <i>Typical Java.</i> Consists of Orange Pekoe and Pekoe leaf of good manufacture selected from a number of better known Java Tea Estates producing medium to fine qualities. Combines in leaf and liquor the grades of Java most favored in the United States and is thoroughly typical of the mass of good medium tea produced on that island. | 8.09                  | 5.53              | 0.01                          | 3.74                   | 9.72       | 1.19                  | 41.30                        | 2.96       | 2.86        | 7.88        |
| 77  | <i>Typical Black China.</i> Composite of North China teas of the better qualities used principally in the United States. Represents all characteristics of this class of black China tea. Lower grades of this type, as well as very choice teas used only in small quantities, have not been included in this composite sample.                | 8.18                  | 5.60              | 0.28                          | 3.56                   | 9.78       | 1.28                  | 38.60                        | 2.49       | 2.38        | 5.17        |
| 78  | <i>Typical Ceylon.</i> Composed of medium and high grown teas from Ceylon Estates, Pekoe and Orange Pekoe leaf, and represents a typical Ceylon tea as regards flavor, strength and color of liquor.  | 8.06                  | 5.27              | 0.13                          | 4.16                   | 9.05       | 1.71                  | 40.10                        | 3.23       | 3.09        | 9.28        |
| 79  | <i>Typical India.</i> Composite of Orange Pekoes and Pekoes produced in Darjeeling, Assam, Sylhet, Cachar and Dooars districts. Assam comprises about 40 per cent. of the mixture. Represents average North Indian production and exhibits qualities of strength, color and flavor of liquor characteristic of the growth of that section.      | 8.24                  | 5.83              | 0.19                          | 4.02                   | 10.08      | 1.51                  | 39.20                        | 3.44       | 3.33        | 7.97        |
| 45  | <i>Salada Orange Pekoe Blend.</i> Composed of Orange Pekoe leaf. Liquor flavory, light in color and bright. Cup character indicates chief component to be high grown Ceylon probably mixed with better class Javas.   | 7.48                  | 5.17              | 0.07                          | 4.10                   | 4.08       | 1.67                  | 40.50                        | 2.99       | 2.94        | 10.68       |

TABLE XIII. ANALYSES OF TEA—Concluded.

| No. | Brand of Tea and Cup Characteristics  | H <sub>2</sub> O<br>% | Total<br>Ash<br>% | Ash<br>insol.<br>in acid<br>% | Total<br>Nitrogen<br>% | Fiber<br>% | Ether<br>Extract<br>% | Hot<br>Water<br>Extract<br>% | Caffeine   |             | Tannin<br>% |
|-----|---|-----------------------|-------------------|-------------------------------|------------------------|------------|-----------------------|------------------------------|------------|-------------|-------------|
|     |   |                       |                   |                               |                        |            |                       |                              | Grav.<br>% | From N<br>% |             |
| 46  | <i>Lipton Yellow Label Orange Pekoe.</i> Described as "choicest blend of Ceylon and India tea of Orange Pekoe and other selected grades." A good medium tea with bright infusion and a liquor well balanced between Ceylon and India. | 7.50                  | 5.06              | 0.09                          | 4.15                   | 9.28       | 2.01                  | 36.90                        | 2.97       | 2.89        | 9.89        |
| 47  | <i>Chase and Sanborn Orange Pekoe Blend.</i> Consists principally of Orange Pekoe leaf of very good quality. Predominating characteristic is of a high grown Ceylon with a touch of Darjeeling flavor. Liquor light and flavory.      | 7.52                  | 4.97              | 0.03                          | 4.10                   | 9.40       | 2.31                  | 41.10                        | 2.83       | 2.77        | 8.93        |
| 48  | <i>Tedley's Orange Pekoe.</i> Blend of Orange Pekoe and Pekoe leaf. Good medium quality and apparently consists chiefly of Ceylon and Java teas.  | 8.05                  | 5.36              | 0.07                          | 3.95                   | 9.54       | 1.45                  | 40.70                        | 3.02       | 2.94        | 8.76        |
| 49  | <i>White Rose Ceylon.</i> Straight Ceylon composed of Pekoes, medium and low grades. Liquor color, of good strength with little flavor. A good household tea of medium quality.   | 8.19                  | 5.14              | 0.04                          | 4.17                   | 9.72       | 1.91                  | 39.60                        | 3.49       | 3.30        | 8.67        |
| 50  | <i>"Royal Garden," Orange Pekoe Ceylon-India.</i> The liquor indicates a blend of good medium quality, chiefly Ceylon and India with a trace of China flavor.   | 7.83                  | 5.33              | 0.24                          | 3.94                   | 9.97       | 2.70                  | 38.00                        | 2.89       | 2.81        | 7.44        |
| 51  | <i>"Thea-Nectar," Orange Pekoe.</i> Composed chiefly of Indian Orange Pekoe leaf. Liquor is of good strength and deep color. Flavor distinctly "Assam."   | 8.23                  | 5.68              | 0.10                          | 3.97                   | 10.32      | 1.36                  | 38.80                        | 3.47       | 3.31        | 7.71        |
| 74  | <i>"Tree Tea Formosa Oolong.</i> Straight Formosa of about "Superior" grade. A typical early summer medium fired Formosa of good quality.   | 8.66                  | 5.78              | 0.54                          | 3.66                   | 11.16      | 2.56                  | 40.50                        | 2.90       | 2.74        | 11.38       |

## VINEGAR.

Thirty-nine samples were examined for the Dairy and Food Commissioner of which four were adulterated.

Three of the four adulterated samples were made by Silver and Kushmann, Waterbury, and one by J. A. Silver Bottling Works also in Waterbury.

Twenty-six samples have been submitted by individuals, representing mostly the product of farm manufacture.

## MISCELLANEOUS FOODS, ETC.

The usual number of miscellaneous foods have been submitted by health officers, town officials or private individuals, either directly or through the office of the Dairy and Food Commissioner, to be examined for poisons or other injurious substances. The materials, forty-two in number, are listed as follows:

TABLE XIV. FOODS EXAMINED FOR POISONS, ETC.

| No.         | Name of Food        | Remarks  |
|-------------|---------------------|--|
| 961         | Baking Powder.....  | Available carbon dioxide 13.9 per cent. Required by standard 12 per cent.  |
| 681         | Cakes.....          | Copper, arsenic and lead found in quantity.  |
| 22231       | Cakes, bran.....    | No evidence of poison found.   |
| 22232       |                     |  |
| 22344       | Candy.....          | No alkaloidal or metallic poisons found.   |
| 22343       | Candy.....          | No alkaloidal or metallic poisons found.   |
| 22592       | Candy.....          | No evidence of poison found.   |
| 22447       | Candy.....          | No volatile, alkaloidal or metallic poisons detected.  |
| D. C. 29465 | Candy.....          | No narcotic drugs found.   |
| D. C. 29986 | Cider, sweet.....   | Labeled 1-10 per cent. benzoate of soda. No alcohol was found and no injurious substance was detected.             |
| 22698       | Cider.....          | Alcohol 3.3 per cent; no heavy metals found.   |
| 22218       | Cider.....          | Dark color due evidently to oxidation of iron and combination with tannin absorbed from the barrel.                |
| 289         | Cider.....          | Alcohol 7.8 per cent.; had been preserved with "anti-ferment"  |
| 962         | Coffee.....         | No chicory, cereal products or other adulterants found.  |
| 963         |                     |  |
| D. C. 29451 | Macaroni Sauce..... | No evidence of spoilage.   |
| D. C. 27909 | Malic acid.....     | Used in making soft drinks. Showed characteristics of racemic malic acid.  |
| 22511       | Milk.....           | Corrosive sublimate (mercuric chloride found.)   |
| 22512       |                     |  |
| 22191       |                     |  |
| D. C. 27249 | Milk, malted.....   | Nothing found to suggest probable cause of illness. Rats fed on sample six days developed no unfavorable symptoms. |

TABLE XIV—FOODS EXAMINED FOR POISONS, ETC.—Concluded.

| No.         | Name of Food                                     | Remarks   |
|-------------|--|---|
| 22517       | Mushrooms.....                                   | Not positively identified. Appeared to be of edible type. |
| 23083       | Pickles.....                                     | No alum or heavy metals found.                            |
| D. C. 29452 | Sardines.....                                    | Unfit for food.   |
| 28117       | Soda, cherry.....                                | No poisons detected.                                      |
| 22707       | Vinegar.....                                     | No poisons detected.                                      |
| 22628       | Water.....                                       | No poisons detected.                                      |
| 23022       | Water, sugar, salt.....                          | No evidence of mercury or arsenic found.                  |
| 22607       | Water, medicinal.....                            | Not substantially different from ordinary drinking water. |
| 21944       | Wine, wild cherry (made without removal of pits) | Contained 4.7 mgms. hydrocyanic acid per 100cc.           |
| 22825       | Wine, wild cherry (same as 21959, 5 mos. later)  | Contained 5.4 mgms. hydrocyanic acid per 100 cc.          |
| 21959       | Wine, wild cherry (made after removal of pits)   | Contained 1 mgm. hydrocyanic acid per 100 cc.             |

D. C. 27915 and 27908, crown caps, D. C. No. 27907, ginger ale were submitted to determine, if possible, the source of an oily taste in the ginger ale. Examination revealed no explanation of the off-taste about which complaint was made.

Arsenic was found in 5 cases of dog poisoning; and of two fowls examined, arsenic was found in one.

## II. DRUGS.

The work on drugs for the past year includes the usual examinations of drugs recognized in the Pharmacopoeia and National Formulary, and of proprietary and miscellaneous products. In addition, a study has been made of variations in the amounts of medicament in pills and tablets, samples having been obtained chiefly from the stocks of dispensing physicians. A few preparations obtained on prescriptions have also been examined.

A classification of the products examined is as follows:

|                                | No. of samples |
|--------------------------------|----------------|
| Tablets and pills.....         | 92             |
| Prescriptions.....             | 8              |
| U. S. P. and N. F. drugs.....  | 25             |
| Toilet preparations.....       | 18             |
| Proprietary remedies, etc..... | 10             |
| Miscellaneous.....             | 14             |
| Total.....                     | 167            |

Practically all of the samples in the three first named groups were submitted by the Dairy and Food Commissioner. Ninety-two samples of tablets and pills are reported here, but analyses of about forty more could not be completed for discussion in this report and will, therefore, be made a part of our work for the coming year. Such products present many analytical difficulties and the work consumes much time.

## TABLETS, PILLS, ETC.

The ninety-two samples in this group represent one hundred and four items of medicament which were declared in definite quantities and which have been checked by direct determinations. In some instances constituents have been determined which were not declared as to quantity; and in other cases medicaments declared were not determined because of inadequate methods for reliable analyses.

The samples collected consisted of from twenty-five to one hundred tablets depending upon the nature of the medicaments and the analyses required. Individual weights of a representative number of tablets were taken, after which they were ground to a uniform powder, and the medicaments determined in percentage amounts of the ground sample. Maximum, minimum and average amounts of medicament were then calculated in terms of grains per tablet.

## WEIGHT VARIATIONS.

Variations in weights of tablets and pills are due, in part, to the mechanical limitations of manufacturing processes. Much improvement has been made in this direction in recent years and compressed tablets, at least, can be made with a surprising degree of uniformity. In the case of pills coated with saccharated lime, or similar preparations, the weight of the coating may considerably exceed that of the medicament enclosed and, hence, if it were possible or practicable to examine the medicament apart from the coatings, less variation might be shown than appears when calculations are based on analyses of the ground pills as a whole.

The complete data on weight variations for the samples examined are given in Table XV.

The distribution of samples on the basis of total variations in weight is shown in the following summary:

| Variation from      | No. of samples | Per cent. of total number |
|---------------------|----------------|---------------------------|
| 0 to 4.99 per cent. | 15             | 16.3                      |
| 5 to 9.99 "         | 36             | 39.1                      |
| 10 to 14.99 "       | 22             | 24.0                      |
| 15 to 19.99 "       | 13             | 14.1                      |
| 20 to 29.99 "       | 4              | 4.3                       |
| Over 30 "           | 2              | 2.2                       |
| Total               | 92             | 100.0                     |

It is of interest to compare these results with similar data given in a previous report of this laboratory<sup>1</sup> which cites also the experience of Kebler. The results by Kebler were of about the same date as our earlier analyses; our recent results show a substantial improvement in this particular.

<sup>1</sup> Conn. Exp. Sta. Bull. 200, p. 188.

TABLE XV. VARIATIONS IN WEIGHT OF TABLETS.

| No.   | Drug and Manufacturer                          | Weight of tablet, mgms. |       |       | Total variation |                   |
|-------|--|-------------------------|-------|-------|-----------------|-------------------|
|       |  | Min.                    | Max.  | Avg.  | Mgms.           | Per cent. of avg. |
| 29960 | Acetanilid Comp. (Acetasal) (Daggett & Miller) | 316.0                   | 346.0 | 335.0 | 30.0            | 9.0               |
| 29212 | Acetanilid Comp. No. 1 (Direct Sales Co.)      | 358.0                   | 423.5 | 397.3 | 65.5            | 16.5              |
| 29238 | Acetanilid Tablets (Direct Sales)              | 343.0                   | 366.0 | 356.9 | 23.0            | 6.4               |
| 29209 | Acetanilid Sodium Comp. (Maltbie Chem. Co.)    | 382.0                   | 404.0 | 391.0 | 22.0            | 5.6               |
| 29962 | Acetanilid Tablets (Salcelol) (Stoddard Co.)   | 338.0                   | 364.0 | 353.0 | 26.0            | 7.4               |
| 29975 | Acetanilid Tablets (Tilden Co.)                | 409.5                   | 499.0 | 465.5 | 89.5            | 19.2              |
| 30208 | Acetphenetidin (Direct Sales Co.)              | 403.0                   | 432.0 | 416.0 | 29.0            | 7.0               |
| 29249 | Acetphenetidin Tablets (Tailby-Nason)          | 408.0                   | 446.5 | 430.0 | 38.5            | 9.0               |
| 30220 | Acetphenetidin Tablets (Mfr?)                  | 351.0                   | 395.0 | 384.0 | 44.0            | 11.5              |
| 29959 | Aspirin (Abbott Lab.)                          | 400.5                   | 425.0 | 411.5 | 24.5            | 6.0               |
| 29234 | Aspirin (A. D. S.)                             | 338.5                   | 414.0 | 386.4 | 75.5            | 19.5              |
| 29929 | Aspirin (A. D. S.)                             | 371.0                   | 432.0 | 399.7 | 61.0            | 15.3              |
| 29939 | Aspirin (Bayer Co.)                            | 378.5                   | 423.0 | 401.7 | 44.5            | 11.1              |
| 29930 | Aspirin (Brewer & Co.)                         | 401.0                   | 462.0 | 430.0 | 61.0            | 14.2              |
| 29240 | Aspirin (Buffington, Inc.)                     | 387.5                   | 406.0 | 398.0 | 18.5            | 4.6               |
| 29938 | Aspirin (De Pill Co.)                          | 375.0                   | 399.5 | 388.5 | 24.5            | 6.3               |
| 29237 | Aspirin (Direct Sales Co.)                     | 412.5                   | 431.0 | 420.7 | 18.5            | 4.4               |
| 30207 | Aspirin (Direct Sales Co.)                     | 396.5                   | 417.0 | 406.7 | 20.5            | 5.0               |
| 30217 | Aspirin (Drug Products Co.)                    | 387.0                   | 423.0 | 401.6 | 36.0            | 9.0               |
| 29935 | Aspirin (Fraser)                               | 345.0                   | 371.0 | 360.6 | 26.0            | 7.2               |
| 29906 | Aspirin (Mfr?)                                 | 358.0                   | 398.0 | 379.0 | 40.0            | 10.6              |
| 29941 | Aspirin (Harvey Co.)                           | 403.0                   | 421.0 | 409.0 | 18.0            | 4.4               |
| 29950 | Aspirin (Harvey Co.)                           | 378.0                   | 389.6 | 382.5 | 11.6            | 3.0               |
| 29940 | Aspirin (Lee & Osgood)                         | 380.5                   | 423.0 | 399.0 | 42.5            | 10.7              |
| 29933 | Aspirin (Lehn & Fink)                          | 381.5                   | 412.5 | 401.4 | 31.0            | 7.7               |
| 29944 | Aspirin (Mulford Co.)                          | 356.5                   | 381.0 | 371.1 | 24.5            | 6.6               |
| 29218 | Aspirin (National Drug Co.)                    | 396.0                   | 407.0 | 403.0 | 11.0            | 2.7               |
| 29239 | Aspirin (National Drug Co.)                    | 394.0                   | 449.0 | 416.8 | 55.0            | 13.2              |
| 29928 | Aspirin (Squibb)                               | 354.0                   | 378.5 | 362.8 | 24.5            | 6.8               |
| 29966 | Aspirin (Surgeons and Physicians Supply Co.)   | 403.5                   | 417.5 | 410.5 | 14.0            | 3.4               |
| 29210 | Aspirin (Tailby-Nason)                         | 353.0                   | 384.0 | 365.4 | 31.0            | 8.5               |
| 29926 | Aspirin (United Drug Co.)                      | 359.0                   | 405.0 | 380.0 | 46.0            | 12.1              |
| 30202 | Aspirin (The Upjohn Co.)                       | 460.0                   | 493.0 | 471.3 | 33.0            | 7.0               |
| 29945 | Aspirin (Wyeth)                                | 356.0                   | 390.0 | 380.0 | 34.0            | 8.9               |
| 29215 | Aspirin (Yates D. & C. Co.)                    | 383.5                   | 435.5 | 421.4 | 52.0            | 12.3              |
| 29901 | Aspirin (Yates D. & C. Co.)                    | 387.0                   | 466.0 | 431.1 | 79.0            | 18.3              |
| 29912 | Aspirin (Yates D. & C. Co.)                    | 443.0                   | 470.5 | 459.0 | 27.5            | 6.0               |
| 940   | Blaud's Iron Pills (United Drug Co.)           | 366.5                   | 429.5 | 397.0 | 63.0            | 15.9              |
| 30206 | Calcium, Iodized (Direct Sales Co.)            | 64.5                    | 80.1  | 74.5  | 15.6            | 20.9              |
| 29229 | Calcium Sulphide Pills (Upjohn Co.)            | 136.0                   | 152.0 | 143.0 | 16.0            | 11.2              |
| 29230 | Calcidin (Abbott Lab.)                         | 124.3                   | 139.9 | 130.9 | 15.6            | 11.9              |

TABLE XV. VARIATIONS IN WEIGHT OF TABLETS—Continued.

| No.   | Drug and Manufacturer                              | Weight of tablet, mgms. |        |       | Total variation |                   |
|-------|--|-------------------------|--------|-------|-----------------|-------------------|
|       |  | Min.                    | Max.   | Avg.  | Mgms.           | Per cent. of avg. |
| 29222 | Calomel (Yates D. & C. Co.)                        | 90.0                    | 96.0   | 92.3  | 6.0             | 6.5               |
| 30223 | Calomel (Mfr?)                                     | 114.0                   | 126.5  | 121.0 | 12.5            | 10.3              |
| 29991 | Corrosive Sublimate (Davis, Rose Co.)              | 978.0                   | 1009.0 | 991.1 | 31.0            | 3.1               |
| 30227 | Corrosive Sublimate (Davis, Rose Co.)              | 921.5                   | 1011.0 | 964.4 | 89.5            | 9.3               |
| 30228 | Corrosive Sublimate (Morgens-tern & Co.)           | 925.0                   | 1045.0 | 993.0 | 120.0           | 12.1              |
| 29219 | Coryza No. 2 (G. S. Stoddard & Co.)                | 157.2                   | 187.3  | 176.9 | 30.1            | 17.0              |
| 30209 | Hexamethylenamine (Direct Sales Co.)               | 317.0                   | 331.0  | 323.6 | 14.0            | 4.3               |
| 29226 | Hexamethylenetetramine (Buf-fington, Inc.)         | 312.5                   | 324.0  | 322.4 | 11.5            | 3.6               |
| 30212 | Hex-Iodine Lozenges (Daggett & Miller)             | 950.9                   | 980.3  | 965.5 | 29.4            | 3.0               |
| 29908 | Hydrastin - Strychnine Trit. (Smith Pharmacal Co.) | 75.3                    | 89.4   | 80.9  | 14.1            | 17.4              |
| 29228 | Migraine Tablets (Nat. Drug Co.)                   | 414.0                   | 469.5  | 435.5 | 55.5            | 12.7              |
| 29225 | Migraine Tablets (Tailby-Nason)                    | 220.0                   | 236.5  | 226.0 | 16.5            | 7.3               |
| 29932 | Morphine Sulphate (Hypoderm.) (John Weyth & Bros.) | 15.5                    | 18.0   | 16.6  | 2.5             | 15.1              |
| 29247 | Nitroglycerine Tablets (Nat. Drug Co.)             | 34.9                    | 40.0   | 37.5  | 5.1             | 13.6              |
| 29213 | Phenolphthalein Tablets (Direct Sales Co.)         | 148.0                   | 168.5  | 162.9 | 20.5            | 12.6              |
| 29915 | Quinine Sulphate (Harvey Co.)                      | 230.0                   | 270.5  | 253.5 | 40.5            | 16.0              |
| 29924 | Quinine Sulphate (Standard Laby.)                  | 245.5                   | 261.0  | 253.2 | 15.5            | 6.1               |
| 29246 | Quinine Sulphate (Nat. Drug Co.)                   | 288.0                   | 307.0  | 299.0 | 19.0            | 6.4               |
| 30203 | Quinine Sulphate (Yates D. & C. Co.)               | 319.0                   | 368.0  | 350.0 | 49.0            | 14.0              |
| 29910 | Sedative Pills No. 3 (G. F. Harvey Co.)            | 390.8                   | 499.3  | 432.0 | 108.5           | 25.1              |
| 29953 | Sodium Bromide (A. D. S.)                          | 370.0                   | 412.0  | 392.5 | 42.0            | 10.7              |
| 29978 | Sodium Bromide (Tailby-Nason)                      | 640.0                   | 658.0  | 650.0 | 18.0            | 2.8               |
| 29236 | Triple Bromides (Tailby-Nason)                     | 495.5                   | 516.5  | 506.2 | 21.0            | 4.1               |
| 29961 | Sodium Salicylate (Daggett & Miller)               | 507.0                   | 531.0  | 518.0 | 24.0            | 4.6               |
| 30214 | Sodium Salicylate (Daggett & Miller)               | 397.0                   | 419.0  | 406.7 | 22.0            | 5.4               |
| 29214 | Sodium Salicylate (Direct Sales Co.)               | 416.0                   | 448.5  | 436.0 | 32.5            | 7.5               |
| 29221 | Sodium Salicylate (Direct Sales Co.)               | 437.5                   | 470.0  | 454.2 | 32.5            | 7.2               |
| 29951 | Sodium Salicylate (Harvey Co.)                     | 320.0                   | 413.0  | 373.3 | 93.0            | 24.9              |

TABLE XV. VARIATIONS IN WEIGHT OF TABLETS—Concluded.

| No.    | Drug and Manufacturer                                     | Weight of tablet, mgms. |       |       | Total variation |                   |
|--------|---|-------------------------|-------|-------|-----------------|-------------------|
|        |   | Min.                    | Max.  | Avg.  | Mgms.           | Per cent. of avg. |
| 29208  | Sodium Salicylate (Rheumatic Tablets) (Maltbie Chem. Co.) | 798.0                   | 831.5 | 813.6 | 33.5            | 4.1               |
| 29931  | Sodium Salicylate (Haberle Drug Co.)                      | 388.0                   | 430.0 | 416.6 | 42.0            | 10.1              |
| 29923  | Sodium Salicylate (Standard Laby.)                        | 454.0                   | 519.5 | 485.8 | 65.5            | 13.5              |
| 29920  | Sodium Salicylate (Strasens-burg Co.)                     | 433.0                   | 464.5 | 452.7 | 31.5            | 7.0               |
| 29248  | Sodium Salicylate (Syracuse Pharmacal Co.)                | 381.0                   | 404.0 | 392.1 | 23.0            | 5.9               |
| 29248D | Duplicate of 29248 (Syracuse Pharmacal Co.)               | 380.0                   | 398.0 | 390.0 | 18.0            | 4.6               |
| 29235  | Sodium Salicylate Comp. (Tailby-Nason)                    | 398.5                   | 434.0 | 414.0 | 35.5            | 8.6               |
| 29903  | Sodium Salicylate (Tailby-Nason)                          | 385.0                   | 425.5 | 412.7 | 40.5            | 9.8               |
| 29967  | Sodium Salicylate (Tailby-Nason)                          | 366.0                   | 390.0 | 381.3 | 24.0            | 6.3               |
| 29946  | Sodium Salicylate (Yates D. & C. Co.)                     | 449.0                   | 485.5 | 463.1 | 36.5            | 7.9               |
| 30211  | Sodium Salicylate (Yates D. & C. Co.)                     | 434.5                   | 486.5 | 455.3 | 52.0            | 11.4              |
| 29914  | Strontium Salicylate (Daggett & Miller)                   | 500.0                   | 535.0 | 509.0 | 35.0            | 6.9               |
| 29905  | Strontium Salicylate (Tailby-Nason)                       | 425.0                   | 457.0 | 441.0 | 32.0            | 7.3               |
| 29969  | Strychnine Sulphate (A. D. S.)                            | 165.0                   | 188.0 | 178.1 | 23.0            | 12.9              |
| 29216  | Strychnine Sulphate (Daggett & Miller Co.)                | 103.0                   | 117.0 | 108.3 | 14.0            | 12.9              |
| 29216D | Duplicate of 29216 (Daggett & Miller Co.)                 | 103.5                   | 114.5 | 111.0 | 11.0            | 9.9               |
| 29900  | Strychnine Sulphate (Glen Pharmacal Co.)                  | 73.0                    | 85.5  | 78.7  | 12.5            | 15.9              |
| 30219  | Strychnine Sulphate (The Har-vey Co.)                     | 32.0                    | 38.0  | 34.6  | 6.0             | 17.3              |
| 29211  | Strychnine Sulphate (Nat. Drug Co.)                       | 73.0                    | 88.0  | 82.2  | 15.0            | 18.2              |
| 30210  | Strychnine Sulphate (Yates D. & C. Co.)                   | 40.0                    | 49.5  | 43.0  | 9.5             | 22.1              |
| 29916  | Thyroid (Desiccated) Tablets (Harvey Co.)                 | 396.5                   | 547.5 | 496.2 | 151.0           | 30.4              |
| 29989  | Thyroid (Desiccated) Tablets (Harvey Co.)                 | 366.0                   | 512.0 | 409.2 | 146.0           | 35.7              |
| 29911  | Valerian Compound (Tailby-Nason)                          | 428.3                   | 460.4 | 446.1 | 32.1            | 7.2               |

| Variation of           | Per cent. of samples examined by |                  |                  |
|------------------------|----------------------------------|------------------|------------------|
|                        | Kebler 1917                      | Connecticut 1917 | Connecticut 1924 |
| Less than 10 per cent. | 43                               | 44               | 55               |
| More than 10 " "       | 57                               | 56               | 45               |
| More than 15 " "       | 28                               | 26               | 21               |
| More than 20 " "       | 9                                | 10               | 7                |



## VARIATIONS IN MEDICAMENT.

In addition to variations in medicament caused by the limitations of weight control, other factors enter into consideration, such as the purity of the basic drugs used, the mixing of them, and finally the limits of reasonable error in analysis. The manufacturer must be presumed to have determined that the drugs he uses conform to the limits of purity prescribed by the U. S. Pharmacopoeia or National Formulary, or, in case of drugs not recognized therein, to a degree of purity established by reliable analyses, and to have based the claims for his finished product accordingly. Approved analytical methods<sup>1</sup> are available for many of the medicaments ordinarily encountered in products of this type; but conclusions must be drawn cautiously in case of methods, the limitations of which are not sufficiently established.

Table XVI gives maximum and average variations in medicament in terms of grains per tablet and in percentages referred, in both cases, to the quantities of drugs declared to be present. A study of the tabulation shows that the maximum variation from the dosage claimed has been a shortage in sixty-one items and an overage in forty items; in other words the — and + variations have been about 6:4. In more than one-half of the items determined, the variation in dosage between the lightest and heaviest tablets or pills was within 10 per cent. of the dosage declared; in over three-fourths of the items this range was less than 15 per cent.; and in nearly seven-eighths of the items the range did not exceed 20 per cent.

If the average variation from claimed dosage is considered, the comparison is, naturally, somewhat better. Thus we find that the average variation from the stated dose is less than 10 per cent. in about four-fifths (79.8 per cent.), of the items determined; in about two-thirds (65.4 per cent.) of the items the variation does not exceed 5 per cent.

These conclusions are best shown in tabular form as follows:

| Variations from         | Maximum variation |           | Average variation |           |
|-------------------------|-------------------|-----------|-------------------|-----------|
|                         | Items determined  | Per cent. | Items determined  | Per cent. |
| 0 to 4.99 per cent..... | 24                | 23.8      | 68                | 65.4      |
| 5 to 9.99 " " .....     | 31                | 30.7      | 15                | 14.4      |
| 10 to 14.99 " " .....   | 24                | 23.7      | 8                 | 7.7       |
| 15 to 19.99 " " .....   | 8                 | 7.9       | 5                 | 4.8       |
| 20 to 29.99 " " .....   | 11                | 10.9      | 6                 | 5.8       |
| 30 upward " " .....     | 3*                | 3.0       | 2*                | 1.9       |
| Totals.....             | 101               | 100.0     | 104               | 100.0     |

\*Includes one item (in 29960) which is obviously a mistake in labelling.

Again we may refer to a similar summary<sup>2</sup> revised to a basis

<sup>1</sup> Methods of the A. O. A. C. and of the U. S. Pharmacopoeia have been followed wherever possible.

<sup>2</sup> Conn. Exp. Sta. Bull. 200 (1917).

comparable with the above tabulation. The comparison as regards maximum variation from claim is as follows:

| Variations from         | 1917             |           | 1924             |           |
|-------------------------|------------------|-----------|------------------|-----------|
|                         | Items determined | Per cent. | Items determined | Per cent. |
| 0 to 4.99 per cent..... | 25               | 16.2      | 24               | 23.8      |
| 5 to 9.99 " " .....     | 45               | 29.2      | 31               | 30.7      |
| 10 to 14.99 " " .....   | 41               | 26.6      | 24               | 23.7      |
| 15 to 19.99 " " .....   | 21               | 13.6      | 8                | 7.9       |
| 20 to 29.99 " " .....   | 10               | 6.5       | 11               | 10.9      |
| 30 upward, " " .....    | 12               | 7.9       | 3                | 3.0       |
| Totals.....             | 154              | 100.0     | 101              | 100.0     |

Since an improvement has been shown in the matter of uniformity of weight of tablets as compared with our previous inspection, less variation in medicament would, therefore, be anticipated at this time. The above comparison shows that such is the case. About 55 per cent. of the determinations made were within 10 per cent. of the quantity of drug declared as compared with 45 per cent. showing a like range in 1917. Twenty-two per cent. of the individual items determined varied from the stated dose by 15 per cent. or more while the corresponding figures in our previous inspection is twenty-eight per cent. The improvement in uniformity of medicament parallels rather closely the increase in uniformity of tablet weights.

TABLE XVI. VARIATIONS IN MEDICAMENT IN TABLETS, ETC.

| No.   | Drug                | Claim, grains | Maximum variation, grains | per cent. | Average variation, grains | per cent. |
|-------|---------------------|---------------|---------------------------|-----------|---------------------------|-----------|
| 29960 | Acetanilid.....     | 2.6           | -0.4                      | -15.4     | -0.2                      | -7.7      |
| 29975 |                     | 5.0           | +0.6                      | +12.0     | +0.2                      | +4.0      |
| 29238 |                     | 5.0           | -0.4                      | -8.0      | -0.2                      | -4.0      |
| 29209 |                     | 2.5           | ±0.1                      | ±4.0      | ±0.0                      | ±0.0      |
| 29212 |                     | 2.0           | -0.3                      | -15.0     | -0.1                      | -5.0      |
| 29962 |                     | 2.5           | ±0.1                      | ±4.0      | ±0.0                      | ±0.0      |
| 29228 |                     | 2.5           | -0.4                      | -16.0     | -0.3                      | -12.0     |
| 29225 |                     | 2.0           | +0.1                      | +5.0      | ±0.0                      | ±0.0      |
| 29235 |                     | 2.5           | ±0.1                      | ±4.0      | ±0.0                      | ±0.0      |
| 29249 |                     | 2.5           | ±0.1                      | ±4.0      | ±0.0                      | ±0.0      |
| 30208 | Acetphenetidin..... | 5.0           | ±0.2                      | ±4.0      | ±0.0                      | ±0.0      |
| 30220 |                     | 5.0           | +0.6                      | +12.0     | +0.3                      | +6.0      |
| 29941 |                     | 5.0           | -0.6                      | -12.0     | -0.2                      | -4.0      |
| 29950 | Aspirin.....        | 5.0           | +0.3                      | +6.0      | +0.1                      | +2.0      |
| 29944 |                     | 5.0           | +0.2                      | +4.0      | +0.1                      | +2.0      |
| 29940 |                     | 5.0           | -0.3                      | -6.0      | -0.1                      | -2.0      |
| 29938 |                     | 5.0           | +0.3                      | +6.0      | ±0.0                      | ±0.0      |
| 29939 |                     | 5.0           | -0.3                      | -6.0      | -0.1                      | -2.0      |
| 29935 |                     | 5.0           | -0.3                      | -6.0      | ±0.0                      | ±0.0      |
| 29933 |                     | 5.0           | -0.7                      | -14.0     | -0.5                      | -10.0     |
| 29930 |                     | 5.0           | +0.3                      | +6.0      | +0.1                      | +2.0      |
| 29929 |                     | 5.0           | -0.4                      | -8.0      | ±0.0                      | ±0.0      |
| 29234 |                     | 5.0           | +0.7                      | +14.0     | +0.2                      | +4.0      |
| 29928 |                     | 5.0           | -0.7                      | -14.0     | -0.1                      | -2.0      |
| 29928 |                     | 5.0           | -0.3                      | -6.0      | -0.2                      | -4.0      |
| 29926 |                     | 5.0           | -0.6                      | -12.0     | -0.3                      | -6.0      |

TABLE XVI. VARIATIONS IN MEDICAMENT IN TABLETS, ETC.—Continued

| No.   | Drug                                       | Claim grains | Maximum grains | variation per cent. | Average grains | variation per cent. |
|-------|--|--------------|----------------|---------------------|----------------|---------------------|
| 29945 | Aspirin.....                               | 5.0          | -0.3           | -6.0                | ±0.0           | ±0.0                |
| 29959 |  | 5.0          | -0.4           | -8.0                | -0.3           | -6.0                |
| 29901 |  | 5.0          | +0.7           | +14.0               | +0.3           | +6.0                |
| 29912 |  | 5.0          | -0.2           | -4.0                | ±0.0           | ±0.0                |
| 29215 |  | 5.0          | -0.4           | -8.0                | ±0.0           | ±0.0                |
| 29906 |  | 5.0          | -0.5           | -10.0               | -0.3           | -6.0                |
| 29210 |  | 5.0          | +0.3           | +6.0                | +0.1           | +2.0                |
| 29218 |  | 5.0          | -0.2           | -4.0                | -0.1           | -2.0                |
| 29239 |  | 5.0          | +0.6           | +12.0               | +0.2           | +4.0                |
| 29237 |  | 5.0          | ±0.1           | ±2.0                | ±0.0           | ±0.0                |
| 29240 |  | 5.0          | -0.2           | -4.0                | -0.1           | -2.0                |
| 30207 |  | 5.0          | ±0.1           | ±2.0                | ±0.0           | ±0.0                |
| 30202 |  | 5.0          | -0.3           | -6.0                | -0.2           | -4.0                |
| 29966 |  | 5.0          | -0.2           | -4.0                | -0.1           | -2.0                |
| 30217 |  | 5.0          | +0.4           | +8.0                | +0.1           | +2.0                |
| 29911 | Barbital.....                              | 0.25         | .....          | .....               | -0.01          | -4.0                |
| 940   | Blaud's Pills<br>(Ferrous Sulphate)        | 1.0          | +0.2           | +20.0               | +0.1           | +10.0               |
| 29236 | Bromide, Ammonium                          | 2.5          | +0.1           | +4.0                | ±0.0           | ±0.0                |
| 29236 | Bromide, Potassium.                        | 2.5          | +0.3           | +12.0               | +0.2           | +8.0                |
| 29219 |  | 0.167        | .....          | .....               | -0.006         | -3.6                |
| 29978 | Bromide, Sodium....                        | 10.0         | -0.4           | -4.0                | -0.2           | -2.0                |
| 29953 |  | 5.0          | ±0.3           | ±6.0                | ±0.0           | ±0.0                |
| 29236 |  | 2.5          | -0.1           | -4.0                | ±0.0           | ±0.0                |
| 29209 | Caffeine.....                              | 0.5          | ±0.0           | ±0.0                | ±0.0           | ±0.0                |
| 29228 |  | 0.25         | -0.02          | -8.0                | -0.01          | -4.0                |
| 29225 |  | 0.25         | ±0.01          | ±4.0                | ±0.00          | ±0.0                |
| 29235 |  | 0.25         | -0.02          | -8.0                | -0.01          | -4.0                |
| 29960 | Caffeine citrate....                       | 0.13         | +0.12          | +92.3               | +0.11          | +84.6               |
| 29212 |  | 0.50         | ±0.00          | ±0.0                | ±0.00          | ±0.0                |
| 29230 | Calcidin.....                              | 0.15         | +0.05          | +33.3               | +0.03          | +20.0               |
| 29229 | Calcium sulphide...                        | 1.0          | -0.1           | -10.0               | ±0.0           | ±0.0                |
| 29222 | Calomel (Mercurous<br>chloride)....        | 0.10         | +0.02          | +20.0               | +0.01          | +10.0               |
| 30223 |  |              |                |                     |                |                     |
| 29991 |  | 0.25         | +0.02          | +8.0                | +0.01          | +4.0                |
| 29219 | Camphor.....                               | 0.25         | .....          | .....               | -0.05          | -20.0               |
| 29212 | Camphor<br>Monobromate                     | 0.5          | +0.1           | +20.0               | ±0.0           | ±0.0                |
| 29225 |  | 0.5          | ±0.0           | ±0.0                | ±0.0           | ±0.0                |
| 30228 | Corrosive Sublimate<br>(Mercuric chloride) | 7.3          | +0.7           | +9.6                | +0.3           | +4.1                |
| 30227 |  | 6.9          | +0.4           | +5.8                | ±0.0           | ±0.0                |
| 29919 |  | 6.9          | +0.8           | +12.0               | +0.6           | +8.8                |
| 29226 | Hexamethylenete-<br>tramine.....           | 5.0          | -0.2           | -4.0                | -0.1           | -2.0                |
| 30209 |  | 5.0          | -0.2           | -4.0                | -0.1           | -2.0                |
| 29228 | Morphine Sulphate..                        | 0.05         | ±0.00          | ±0.00               | ±0.00          | ±0.0                |
| 29932 |  | 0.125        | +0.015         | +12.00              | +0.005         | +4.0                |
| 29247 | Nitroglycerine.....                        | 0.01         | ±0.0           | ±0.0                | ±0.0           | ±0.0                |
| 29213 | Phenolphthalein....                        | 2.0          | +0.3           | +15.0               | +0.2           | +10.0               |
| 29915 | Quinine Sulphate...                        | 2.0          | +0.2           | +10.0               | +0.1           | +5.0                |
| 29924 |  | 2.0          | -0.2           | -10.0               | -0.1           | -5.0                |
| 29246 |  | 2.0          | -0.3           | -15.0               | -0.2           | -10.0               |
| 30203 |  | 2.0          | +0.3           | +15.0               | +0.2           | +10.0               |
| 29209 | Sodium Bicarbonate.                        | 2.5          | -0.4           | -16.0               | -0.4           | -16.0               |
| 29228 |  | 1.0          | +0.1           | +10.0               | ±0.0           | ±0.0                |

TABLE XVI. VARIATIONS IN MEDICAMENT IN TABLETS, ETC.—Concluded

| No.    | Drug                  | Claim grains | Maximum grains | variation per cent. | Average grains | variation per cent. |
|--------|-----------------------|--------------|----------------|---------------------|----------------|---------------------|
| 29208  | Sodium Bicarbonate.   | 2.5          | +0.1           | +4.0                | ±0.0           | ±0.0                |
| 29235  |                       | 1.0          | -0.1           | -10.0               | ±0.0           | ±0.0                |
| 29228  | Sodium Salicylate...  | 1.75         | -0.34          | -19.4               | -0.27          | -15.4               |
| 29967  |                       | 5.0          | -0.4           | -8.0                | -0.3           | -6.0                |
| 29903  |                       | 5.0          | -0.5           | -10.0               | -0.2           | -4.0                |
| 29214  |                       | 5.0          | -0.4           | -8.0                | -0.2           | -4.0                |
| 29221  |                       | 5.0          | +0.2           | +4.0                | +0.1           | +2.0                |
| 29920  |                       | 5.0          | -0.3           | -6.0                | -0.1           | -2.0                |
| 29923  |                       | 5.0          | -0.6           | -12.0               | -0.2           | -4.0                |
| 29931  |                       | 5.0          | +0.3           | +6.0                | +0.2           | +4.0                |
| 29946  |                       | 5.0          | -0.3           | -6.0                | -0.2           | -4.0                |
| 29951  |                       | 5.0          | -1.0           | -20.0               | -0.3           | -6.0                |
| 29961  |                       | 5.0          | ±0.1           | ±2.0                | ±0.0           | ±0.0                |
| 29235  |                       | 1.75         | +0.17          | +9.7                | +0.08          | +4.6                |
| 29208  |                       | 7.5          | -0.3           | -4.0                | -0.1           | -1.3                |
| 30214  |                       | 5.0          | -1.4           | -28.0               | -1.3           | -26.0               |
| 29248  |                       | 5.0          | -1.2           | -24.0               | -1.1           | -22.0               |
| 29248D |                       | 5.0          | -1.2           | -24.0               | -1.1           | -22.0               |
| 30211  |                       | 5.0          | +0.5           | +10.00              | +0.2           | +4.0                |
| 29914  | Strontium Salicylate. | 5.0          | -0.5           | -10.0               | -0.4           | -8.0                |
| 29905  |                       | 5.0          | ±0.2           | ±4.0                | ±0.0           | ±0.0                |
| 29211  | Strychnine Sulphate.  | 0.033        | +0.007         | +21.0               | +0.005         | +15.1               |
| 29969  |                       | 0.033        | +0.004         | +12.0               | +0.002         | +6.0                |
| 29900  |                       | 0.017        | +0.004         | +23.5               | +0.003         | +17.6               |
| 29216  |                       | 0.017        | +0.008         | +47.1               | +0.006         | +35.3               |
| 29216D |                       | 0.017        | +0.005         | +29.4               | +0.005         | +29.4               |
| 30210  |                       | 0.033        | +0.006         | +18.2               | +0.001         | +3.0                |
| 30219  |                       | 0.017        | -0.004         | -23.5               | -0.003         | -17.6               |

## COMMENTS ON ANALYSES.

Table XVII gives the analytical data obtained upon the tablets and pills examined, ninety-two in number. In general, the plan adopted for judging the products was to designate as "satisfactory" the tablets or pills in which the average quantity of medicament equaled the quantity claimed, and in which the variation in medicament, as calculated for the lightest and heaviest units, did not exceed 10 per cent. of the claimed dose. Tablets or pills in which the average quantity of medicament was found to be within 10 per cent. of the quantity claimed were "passed." In a few instances where the quantity of medicament was very small, or where it could not be determined with the exactness desired, the latter designation was used with somewhat more tolerance. This plan is not ideal, but it is based upon the belief that some distinction should be made between those products which show a conspicuous degree of uniformity and those which do not, and, furthermore, that the average dose should equal the declared dose, and that variations should be + and - in about equal magnitude. It is recognized that a tolerance which may be perfectly fair as applied to aspirin tablets, for example, may be very irrational when applied to hypodermic tablets. This is a subject

which needs further consideration. The kind and amount of drug involved and the effects likely to result from an overdose must be taken into account in determining the magnitude of reasonable tolerances.

Particular comment is due with respect to a number of analyses listed in Table XVII. **29960.** *Acetasal*. This product shows about twice the quantity of caffeine citrate indicated by the label; in other words, our results show about 2.5 per cent. caffeine instead of 2.5 per cent. caffeine citrate. This is evidently an error in labeling. In our previous inspection a product of similar name and made by the same manufacturer was declared to contain 2.5 per cent. caffeine.

**29228.** *Migraine Tablets No. 8*. The deficiency in sodium salicylate exceeded 10 per cent. but other ingredients were substantially correct and the tablets were passed.

**29209.** *Acetanilid Sodium Compound*. This was correct in the main ingredients and the deficiency in sodium bicarbonate was passed.

**29248** and **29248 D.** *Sodium Salicylate*. These samples were low in sodium salicylate but both were from the same stock. No other sample of this manufacturer was found among the physicians visited.

**29216** and **29216 D.** *Strychnine sulphate*. Both these samples contained excesses of medicament but both were from the same source. No other samples of strychnine sulphate of this make were found among the physicians visited.

To summarize, it may be said that of 92 samples, representing thirty-three manufacturers (2 samples were of unknown make), 29 were satisfactory and 57 were passed. Six varied from claim by considerable amounts. These were *Acetasal*, **29960** (with the comment noted), sodium salicylate, **30214**, strychnine sulphate, **29216** and **29216 D**, and sodium salicylate, **29248** and **29248 D**.

## PRESCRIPTIONS.

## ARSENOUS ACID.

**29965.** Sample of arsenous acid, bought on prescription, H. F. Ruby and Co., Hartford. Required not less than 0.975 per cent. of arsenous oxide,  $As_2O_3$ ; found 0.46 per cent. A second sample from the same source showed 0.41 per cent. Both samples were less than  $\frac{1}{2}$  strength.

**30233.** Sample obtained on prescription calling for solution of arsenous acid, Victor W. Schmelzer, Meriden. The preparation was found to be Fowler's solution, and not a solution of arsenous acid.

Both these preparations contain the same limits for arsenous oxide ( $As_2O_3$ ), viz., 0.975 to 1.025 per cent. and the sample obtained conformed substantially to these limits. It was not, however, the article called for.

## HYDROCHLORIC ACID.

**29206.** Sample of hydrochloric acid, dilute, bought on prescription, R. J. Keefe, Windsor Locks. Required not less than 9.5 per cent. hydrochloric acid; found 9.64 per cent.

Prescription satisfactory.

## PHOSPHORIC ACID.

**30232.** Sample of phosphoric acid, dilute, bought on prescription, Broderick and Curtin, Meriden. Required not less than 9.5 nor more than 10.5 per cent. of phosphoric acid; found 9.4 per cent.

Prescription passed.

## POTASSIUM IODIDE.

Three samples were purchased on a prescription calling for 3.5 drachms of potassium iodide and sufficient distilled water to make 1 fluid ounce. Such a solution should contain 45.5 grams of potassium iodide in 100 cc. of solution, assuming 99 per cent. purity for the potassium iodide used.

**29987.** Purchased of A. C. Roby, Unionville. Potassium iodide found, 46.37 grams per 100 cc.

Solution satisfactory.

**30224.** Purchased of J. W. Sears, New Haven. Potassium iodide found, 44.78 grams per 100 cc.

Solution passed.

**30231.** Purchased of F. E. Wilson, Rockville. Potassium iodide found, 46.71 grams per 100 cc.

Solution satisfactory.

**29974.** This solution had leaked in transit and was not examined.

TABLE XVII. ANALYSES OF

| D. C. No. | Drug and Manufacturer                                  | Stock of Doctor or Druggist                  |
|-----------|--|--|
| 29960     | Acetanilid Compound (Acetasal) (Daggett & Miller Co.)  | M. J. Dowd: Thompsonville                    |
|           | Acetanilid 50%   |  |
|           | Caffeine citrate 2.5%                                  |  |
|           | Sodium salicylate                                      |  |
|           | Sodium bicarbonate                                     |  |
| 29212     | Acetanilid Comp. No. 1 (Direct Sales Co.)              | F. J. Mann: Southington                      |
|           | Acetanilid   |  |
|           | Camphor monobromate                                    |  |
|           | Caffeine citrate                                       |  |
| 29238     | Acetanilid Tablets (Direct Sales Co.)                  | N. Hibbard: Danielson.                       |
|           | Acetanilid   |  |
| 29209     | Acetanilid Sodium Comp. (Maltbie Chem. Co.)            | H. F. King: Windsor.                         |
|           | Acetanilid   |  |
|           | Sodium bicarbonate                                     |  |
|           | Caffeine   |  |
|           | Tinct. Gelsemium                                       |  |
| 29962     | Acetanilid Tablets <sup>1</sup> (G. S. Stoddard & Co.) | M. J. Dowd: Thompsonville.                   |
|           | Acetanilid   |  |
| 29975     | Acetanilid Tablets (Tilden Co.)                        | J. A. Coogan: Windsor Locks.                 |
|           | Acetanilid   |  |
| 30208     | Acetphenetidid (Direct Sales Co.)                      | H. F. Moore: Bethel.                         |
| 29249     | Acetphenetidid Tablets (Tailby-Nason Co.)              | R. M. Griswold: Kensington.                  |
|           | Acetphenetidid   |  |
| 30220     | Acetphenetidid (Mfr?)                                  | L. C. Heidger: Stratford.                    |
| 29959     | Aspirin (Abbott Lab.)                                  | T. J. Luby: Hartford.                        |
|           | Aspirin  |  |
| 29234     | Aspirin (American Druggists' Syndicate)                | F. P. Clason: Hartford.                      |
|           | Aspirin  |  |
| 29929     | Aspirin (American Druggists' Syndicate)                | Woodward Drug Co: Middletown                 |
|           | Aspirin  |  |
| 29939     | Aspirin (Bayer Co.)                                    | Plaisted Drug Store: So. Norwalk.            |
|           | Aspirin  |  |
| 29930     | Aspirin (Brewer & Co.)                                 | L. Peisner's Park View Pharmacy: Middletown. |
|           | Aspirin  |  |
| 29240     | Aspirin (Buffington, Inc.)                             | K. T. Phillips: Putnam.                      |
|           | Aspirin  |  |
| 29938     | Aspirin (De Pill Co.)                                  | W. H. Jones' Drug Store: Stamford            |
|           | Aspirin  |  |
| 29237     | Aspirin (Direct Sales Co.)                             | N. Hibbard: Danielson.                       |
|           | Aspirin  |  |
| 30207     | Aspirin (Direct Sales Co.)                             | H. F. Moore: Bethel.                         |
|           | Aspirin  |  |
| 30217     | Aspirin (Drug Products Co.)                            | L. C. Heidger: Stratford.                    |
|           | Aspirin  |  |
| 29935     | Aspirin (Fraser)                                       | Leverly's Drug Store: Bridgeport.            |
|           | Aspirin  |  |

<sup>1</sup> Salicelol.

MEDICINAL TABLETS, ETC.

| Declared, grains per tablet | Medicament    |      |      | Remarks                        | D. C. No. |
|-----------------------------|---------------|------|------|--------------------------------|-----------|
|                             | Found, grains |      |      |                                |           |
|                             | Min.          | Max. | Avg. |                                |           |
| 2.6                         | 2.2           | 2.5  | 2.4  |                                | 29960     |
| 0.13                        | 0.24          | 0.25 | 0.24 |                                |           |
|                             | 0.50          | 0.5  | 0.5  | Excess caffeine citrate.       |           |
|                             | 0.7           | 0.8  | 0.7  |                                |           |
| 2.0                         | 1.7           | 2.0  | 1.9  |                                | 29212     |
| 0.5                         | 0.5           | 0.6  | 0.5  | Pass                           |           |
| 0.5                         | 0.5           | 0.5  | 0.5  | Pass                           | 29238     |
| 5.0                         | 4.6           | 4.9  | 4.8  | Pass                           | 29238     |
| 2.5                         | 2.4           | 2.6  | 2.5  |                                | 29209     |
| 2.5                         | 2.1           | 2.2  | 2.1  |                                |           |
| 0.5                         | 0.5           | 0.5  | 0.5  | Pass (Low in Sod. Bicarbonate) |           |
|                             |               |      |      |                                |           |
| 2.5                         | 2.4           | 2.6  | 2.5  | Satisfactory                   | 29962     |
| 5.0                         | 4.6           | 5.6  | 5.2  | Pass                           | 29975     |
| 5.0                         | 5.2           | 5.6  | 5.3  | Satisfactory                   | 30208     |
| 5.0                         | 4.8           | 5.2  | 5.0  | Satisfactory                   | 29249     |
| 5.0                         | 4.4           | 5.0  | 4.8  | Pass                           | 30220     |
| 5.0                         | 4.6           | 4.8  | 4.7  | Pass                           | 29959     |
| 5.0                         | 4.3           | 5.3  | 4.9  | Pass                           | 29234     |
| 5.0                         | 4.9           | 5.7  | 5.2  | Pass                           | 29929     |
| 5.0                         | 4.7           | 5.2  | 5.0  | Satisfactory                   | 29939     |
| 5.0                         | 4.6           | 5.3  | 5.0  | Pass                           | 29930     |
| 5.0                         | 4.8           | 5.0  | 4.9  | Pass                           | 29240     |
| 5.0                         | 4.7           | 5.0  | 4.9  | Pass                           | 29938     |
| 5.0                         | 4.9           | 5.1  | 5.0  | Satisfactory                   | 29237     |
| 5.0                         | 4.9           | 5.1  | 5.0  | Satisfactory                   | 30207     |
| 5.0                         | 5.0           | 5.4  | 5.1  | Satisfactory                   | 30217     |
| 5.0                         | 4.3           | 4.6  | 4.5  | Pass                           | 29935     |

TABLE XVII. ANALYSES OF

| D. C. No.        | Drug and Manufacturer                          | Stock of Doctor or Druggist       |
|------------------|--|-----------------------------------|
| 29906            | Aspirin (Mfr?)                                 | E. L. Pratt: Winsted.             |
| 29941            | Aspirin (G. F. Harvey Co.)                     | N. P. Lewis: Norwich              |
| 29950            | Aspirin (G. F. Harvey Co.)                     | P. A. Park: Bristol.              |
| 29940            | Aspirin (Lee & Osgood Co.)                     | The Lee & Osgood Co: Norwich.     |
| 29933            | Aspirin (Lehn & Fink)                          | Misentis Drug Store: Middletown.  |
| 29944            | Aspirin (H. K. Mulford Co.)                    | Sisk's Drug Store: Norwich.       |
| 29218            | Aspirin (National Drug Co.)                    | T. F. Rockwell: Rockville.        |
| 29239            | Aspirin (National Drug Co.)                    | K. T. Phillips: Putnam.           |
| 29928            | Aspirin (Squibb)                               | The Gladding Drug Co: Hartford.   |
| 29966            | Aspirin (Surgeons' and Physicians' Supply Co.) | E. O. Elmer: Hartford.            |
| 29210            | Aspirin (Tailby-Nason Co.)                     | A. P. Pratt: Windsor.             |
| 29926            | Aspirin (United Drug Co.)                      | Liggett Drug Co: Hartford.        |
| 30202            | Aspirin (The Upjohn Co.)                       | Geo. D. Wight: Bethel.            |
| 29945            | Aspirin (John Wyeth & Bros)                    | Branford Pharmacy: Branford.      |
| 29215            | Aspirin (Yates Drug & Chemical Co.)            | J. E. Brainard: Wallingford.      |
| 29901            | Aspirin (Yates Drug & Chemical Co.)            | A. J. Goodwin: Kensington.        |
| 29912            | Aspirin (Yates Drug & Chemical Co.)            | G. W. Eddy: Collinsville.         |
| 940 <sup>1</sup> | Blaud's Iron Pills (United Drug Co.)           |                                   |
| 30206            | Ferrous Carbonate                              |                                   |
| 29229            | Calcium, Iodized (Direct Sales Co.)            | J. L. Pons: Bridgeport.           |
| 29230            | Total iodine                                   |                                   |
| 29229            | Avail. iodine                                  |                                   |
| 29229            | Calcium Sulphide Pills (Upjohn Co.)            | J. H. Desmarais: Bristol.         |
| 29230            | Calcium Sulphide                               |                                   |
| 29222            | Calcidin (Abbott Laby.)                        | E. R. Storrs: Hartford.           |
| 30223            | Avail. iodine                                  |                                   |
| 29991            | Calomel (Yates Drug & Chemical Co.)            | E. H. Metcalf: Rockville          |
| 29919            | Calomel (Smith Pharmacal Co.)                  | W. E. Hills: Naugatuck            |
|                  | Mercurous chloride                             |                                   |
|                  | Corrosive Sublimate (Davis, Rose & Co.)        | The Valley Pharmacy: Collinsville |
|                  | Mercuric chloride                              |                                   |

<sup>1</sup> Station Sample.

MEDICINAL TABLETS, ETC.

| Declared, grains per tablet | Medicament    |       |       | Remarks                    | D. C.No.         |
|-----------------------------|---------------|-------|-------|----------------------------|------------------|
|                             | Found, grains |       |       |                            |                  |
|                             | Min.          | Max.  | Avg.  |                            |                  |
| 5.0                         | 4.5           | 5.0   | 4.7   | Pass                       | 29906            |
| 5.0                         | 5.0           | 5.3   | 5.1   | Satisfactory               | 29941            |
| 5.0                         | 5.0           | 5.2   | 5.1   | Satisfactory               | 29950            |
| 5.0                         | 4.8           | 5.3   | 5.0   | Satisfactory               | 29940            |
| 5.0                         | 4.9           | 5.3   | 5.1   | Satisfactory               | 29933            |
| 5.0                         | 4.7           | 5.1   | 4.9   | Pass                       | 29944            |
| 5.0                         | 4.8           | 4.9   | 4.9   | Pass                       | 29218            |
| 5.0                         | 4.9           | 5.6   | 5.2   | Pass                       | 29239            |
| 5.0                         | 4.7           | 4.9   | 4.8   | Pass                       | 29928            |
| 5.0                         | 4.8           | 4.9   | 4.9   | Pass                       | 29966            |
| 5.0                         | 4.9           | 5.3   | 5.1   | Satisfactory               | 29210            |
| 5.0                         | 4.4           | 5.0   | 4.7   | Pass                       | 29926            |
| 5.0                         | 4.7           | 5.1   | 4.8   | Pass                       | 30202            |
| 5.0                         | 4.7           | 5.1   | 5.0   | Satisfactory               | 29945            |
| 5.0                         | 4.6           | 5.2   | 5.0   | Pass                       | 29215            |
| 5.0                         | 4.8           | 5.7   | 5.3   | Pass                       | 29901            |
| 5.0                         | 4.8           | 5.1   | 5.0   | Satisfactory               | 29912            |
| 1.0                         | 1.0           | 1.2   | 1.1   | Satisfactory               | 940 <sup>1</sup> |
| .....                       | .....         | ..... | 0.05  |                            | 30206            |
| .....                       | .....         | ..... | 0.003 | No standard for comparison |                  |
| 1.0                         | 0.9           | 1.0   | 1.0   | Satisfactory               | 29229            |
| 0.15 <sup>2</sup>           | 0.18          | 0.20  | 0.18  | Pass                       | 29230            |
| 0.10                        | 0.11          | 0.12  | 0.11  | Satisfactory               | 29222            |
| 0.25                        | 0.24          | 0.27  | 0.26  | Satisfactory               | 30223            |
| 6.9 <sup>3</sup>            | 7.4           | 7.7   | 7.5   | Satisfactory               | 29991            |
|                             |               |       |       |                            | 29919            |

<sup>2</sup> Claim, 1 grain calcidin, contains 15% avail. iodine.<sup>3</sup> Not less than 0.45 gm. not more than 0.55 gm. = 6.9—8.5 grains.

TABLE XVII. ANALYSES OF

| D. C. No. | Drug and Manufacturer                              | Stock of Doctor or Druggist       |
|-----------|--|-----------------------------------|
| 30227     | Corrosive Sublimate (Davis, Rose & Co.)            | The Congress Pharmacy: New Haven. |
| 30228     | Mercuric chloride.....                             |                                   |
| 30228     | Corrosive Sublimate (Morgenstern & Co.)            | M. Epstein: New Haven.            |
| 29219     | Mercuric chloride.....                             |                                   |
| 29219     | Coryza No. 2 (G. S. Stoddard & Co.)                | T. F. Rockwell: Rockville.        |
|           | Potass. bromide.....                               |                                   |
|           | Camphor.....                                       |                                   |
|           | Quinine, strychnine and atropine.....              |                                   |
|           | Salicylic acid.....                                |                                   |
|           | Acetanilid.....                                    |                                   |
|           | Acetphenetid. ....                                 |                                   |
| 30209     | Hexamethylenamine (Direct Sales Co.)               | H. F. Moore: Bethel.              |
| 29226     | Hexamethylenamine.....                             |                                   |
| 29226     | Hexamethylenamine (Buffington, Inc.)               | R. A. Richardson: Bristol.        |
| 30212     | Hexamethylenamine.....                             |                                   |
| 30212     | Hex-Iodine Lozenges (Daggett & Miller Co.)         | D. R. Howland: Stratford.         |
|           | Hexamethylenetetramine.....                        |                                   |
|           | Iodine.....  |                                   |
|           | Ash.....   |                                   |
|           | Sugar.....   |                                   |
|           | Menthol and undetermined.....                      |                                   |
| 29908     | Hydrastin-Strychnine Trit. (Smith Pharmacal Co.)   | E. R. Kelsey: Winsted.            |
|           | Hydrastine and strychnine, as total alkaloids..... |                                   |
| 29228     | Migraine Tablets No. 8 (Nat. Drug Co.)             | F. M. Hamblin: Bristol.           |
|           | Acetanilid.....                                    |                                   |
|           | Morphine sulphate.....                             |                                   |
|           | Sodium salicylate.....                             |                                   |
|           | Caffeine.....                                      |                                   |
|           | Sodium bicarbonate.....                            |                                   |
|           | Capsicum.....                                      |                                   |
| 29225     | Migraine Tablets (Tailby-Nason Co.)                | R. A. Richardson: Bristol.        |
|           | Acetanilid.....                                    |                                   |
|           | Caffeine.....                                      |                                   |
|           | Camphor monobromate.....                           |                                   |
| 29932     | Morphine Sulphate (Hypoderm.) (John Wyeth & Bros.) | J. E. Loveland: Middletown.       |
|           | Morphine sulphate.....                             |                                   |
| 29247     | Nitroglycerine Tablets (Nat. Drug Co.)             | T. C. Hodgson: Berlin.            |
|           | Nitroglycerine.....                                |                                   |
| 29213     | Phenolphthalein Tablets (Direct Sales Co.)         | F. J. Mann: Southington.          |
|           | Phenolphthalein.....                               |                                   |
| 29915     | Quinine Sulphate (G. F. Harvey Co.)                | R. B. Cox: Collinsville.          |
|           | Quinine sulphate.....                              |                                   |
| 29924     | Quinine Sulphate (Standard Laby.)                  | C. T. Baldwin: Derby.             |
|           | Quinine sulphate.....                              |                                   |

MEDICINAL TABLETS, ETC.

| Declared, grains per tablet | Medicament    |       |                    | Remarks                         | D.C. No. |
|-----------------------------|---------------|-------|--------------------|---------------------------------|----------|
|                             | Found, grains |       |                    |                                 |          |
|                             | Min.          | Max.  | Avg.               |                                 |          |
| 6.9 <sup>1</sup>            | 6.6           | 7.3   | 6.9                | Satisfactory                    | 30227    |
| 7.3                         | 7.0           | 8.0   | 7.6                | Pass                            | 30228    |
| 0.167                       | .....         | ..... | 0.161              |                                 | 29219    |
| 0.25                        | .....         | ..... | 0.20               |                                 |          |
| 0.111 <sup>2</sup>          | .....         | ..... | 0.097 <sup>3</sup> |                                 |          |
| .....                       | .....         | ..... | 0.03               |                                 |          |
| .....                       | .....         | ..... | 0.10               |                                 |          |
| .....                       | .....         | ..... | 0.0057             | Pass                            |          |
| 5.0                         | 4.8           | 5.0   | 4.9                | Pass                            | 30209    |
| 5.0                         | 4.8           | 4.9   | 4.9                | Pass                            | 29226    |
| .....                       | .....         | ..... | 10.52 <sup>4</sup> |                                 | 30212    |
| .....                       | .....         | ..... | 0.17 <sup>4</sup>  |                                 |          |
| .....                       | .....         | ..... | 2.41 <sup>4</sup>  |                                 |          |
| .....                       | .....         | ..... | 80.00 <sup>4</sup> |                                 |          |
| .....                       | .....         | ..... | 6.90 <sup>4</sup>  | Pass                            |          |
| 0.010 <sup>2</sup>          | .....         | ..... | 0.008 <sup>3</sup> | Pass                            | 29908    |
| 2.5                         | 2.1           | 2.4   | 2.2                |                                 | 29228    |
| 0.05                        | 0.05          | 0.05  | 0.05               |                                 |          |
| 1.75                        | 1.41          | 1.60  | 1.48               |                                 |          |
| 0.25                        | 0.23          | 0.26  | 0.24               |                                 |          |
| 1.0                         | 1.0           | 1.1   | 1.0                |                                 |          |
| 0.05                        | .....         | ..... | .....              | Pass (Low in sodium salicylate) |          |
| 2.0                         | 2.0           | 2.1   | 2.0                |                                 | 29225    |
| 0.25                        | 0.24          | 0.26  | 0.25               |                                 |          |
| 0.5                         | 0.5           | 0.5   | 0.5                | Satisfactory                    |          |
| 0.125                       | 0.120         | 0.140 | 0.130              | Pass                            | 29932    |
| 0.01                        | 0.01          | 0.01  | 0.01               | Satisfactory                    | 29247    |
| 2.0                         | 2.0           | 2.3   | 2.2                | Pass                            | 29213    |
| 2.0                         | 1.9           | 2.2   | 2.1                | Pass                            | 29915    |
| 2.0                         | 1.8           | 1.9   | 1.9                | Pass                            | 29924    |

<sup>1</sup> Not less than 0.45 gm. nor more than 0.55 gm. = 6.9-8.5 grains.<sup>2</sup> Calc. for mixed alkaloids.<sup>3</sup> Mixed alkaloids.<sup>4</sup> Percentages. Claimed to contain hexamethylenetetramine and iodine.

TABLE XVII. ANALYSES OF

| D. C. No. | Drug and Manufacturer  | Stock of Doctor or Druggist |
|-----------|--|-----------------------------|
| 29246     | Quinine Sulphate (National Drug Co.)...  | T. C. Hodgson: Berlin.      |
| 30203     | Quinine sulphate.<br>Quinine Sulphate (Yates Drug & Chemical Co.).....   | J. D. Eggleston: Meriden.   |
| 29910     | Sedative Pills No. 3 (G. F. Harvey Co.)...<br>Camphor, asafoetida and valerian.....  | R. V. Sanderson: Winsted.   |
| 29953     | Sodium Bromide (Am. Drug. Syndicate)..   | Devita Pharmacy: New Haven. |
| 29978     | Sodium Bromide (Tailby-Nason Co.)....  | H. Boyd: So. Manchester.    |
| 29236     | Triple Bromides (Tailby-Nason Co.)....<br>Potassium bromide.....<br>Sodium bromide.....<br>Ammonium bromide.....                                   | G. T. Lamarche: Putnam..... |
| 29961     | Sodium Salicylate (Daggett & Miller Co.)<br>Sodium salicylate.....   | M. J. Dowd: Thompsonville.  |
| 30214     | Sodium Salicylate (Daggett & Miller Co.)<br>Sodium salicylate.....   | D. R. Howland: Stratford.   |
| 29214     | Sodium Salicylate (Direct Sales Co.)....<br>Sodium salicylate.....   | F. J. Mann: Southington.    |
| 29221     | Sodium Salicylate (Direct Sales Co.)....<br>Sodium salicylate.....   | E. H. Metcalf: Rockville.   |
| 29951     | Sodium Salicylate (G. F. Harvey Co.)....<br>Sodium salicylate.....   | P. A. Park: Bristol.        |
| 29208     | Sodium Salicylate (Rheumatic Tablets)<br>(Maltbie Chem. Co.).....<br>Sodium salicylate.....<br>Sodium bicarbonate.....<br>Wine colchicum seed..... | H. F. King: Windsor.        |
| 29931     | Sodium Salicylate (Haberle Drug Co.)....<br>Sodium salicylate.....   | H. L. Burr: Middletown      |
| 29923     | Sodium Salicylate (Standard Laby.)....<br>Sodium salicylate.....   | C. T. Baldwin: Derby.       |
| 29920     | Sodium Salicylate (R. J. Strassenburg Co.)<br>Sodium salicylate.....   | E. P. Dunne: Unionville.    |
| 29248     | Sodium Salicylate (Syracuse Pharmacal Co.).....<br>Sodium salicylate.....  | R. M. Griswold: Kensington. |
| 29248 D   | Duplicate of 29248 (Syracuse Pharmacal Co.).....<br>Sodium salicylate.....   | R. M. Griswold: Kensington. |
| 29235     | Sodium Salicylate Comp. (Tailby-Nason Co.).....<br>Acetanilid.....<br>Caffeine.....<br>Sodium salicylate.....<br>Sodium bicarbonate.....           | G. T. Lamarche: Putnam.     |

MEDICINAL TABLETS, ETC.

| Declared,<br>grains per<br>tablet | Medicament    |       |       | Remarks  | D. C. No. |
|-----------------------------------|---------------|-------|-------|--|-----------|
|                                   | Found, grains |       |       |  |           |
|                                   | Min.          | Max.  | Avg.  |  |           |
| 2.0                               | 1.7           | 1.9   | 1.8   | Pass   | 29246     |
| 2.0                               | 2.0           | 2.3   | 2.2   | Pass   | 30203     |
| .....                             | .....         | ..... | ..... | Pass (Camphor and asafoetida present, amount not determined) | 29910     |
| 5.0                               | 4.7           | 5.3   | 5.0   | Pass   | 29953     |
| 10.0                              | 9.6           | 9.9   | 9.8   | Pass   | 29978     |
| 2.5                               | 2.6           | 2.8   | 2.7   |  | 29236     |
| 2.5                               | 2.4           | 2.5   | 2.5   |  |           |
| 2.5                               | 2.5           | 2.6   | 2.5   | Pass   |           |
| 5.0                               | 4.9           | 5.1   | 5.0   | Satisfactory   | 29961     |
| 5.0                               | 3.6           | 3.8   | 3.7   | Low  | 30214     |
| 5.0                               | 4.6           | 4.9   | 4.8   | Pass   | 29214     |
| 5.0                               | 4.9           | 5.2   | 5.1   | Satisfactory   | 29221     |
| 5.0                               | 4.0           | 5.2   | 4.7   | Pass   | 29951     |
| 7.5                               | 7.2           | 7.5   | 7.4   |  | 29208     |
| 2.5                               | 2.5           | 2.6   | 2.5   |  |           |
| .....                             | .....         | ..... | ..... | Pass   |           |
| 5.0                               | 4.8           | 5.3   | 5.2   | Satisfactory   | 29931     |
| 5.0                               | 4.4           | 5.1   | 4.8   | Pass   | 29923     |
| 5.0                               | 4.7           | 5.0   | 4.9   | Pass   | 29920     |
| 5.0                               | 3.8           | 4.0   | 3.9   | Low  | 29248     |
| 5.0                               | 3.8           | 4.0   | 3.9   | Low  | 29248D    |
| 2.5                               | 2.4           | 2.6   | 2.5   |  | 29235     |
| 0.25                              | 0.23          | 0.25  | 0.24  |  |           |
| 1.75                              | 1.76          | 1.92  | 1.83  |  |           |
| 1.0                               | 0.9           | 1.0   | 1.0   | Satisfactory   |           |

TABLE XVII. ANALYSES OF

| D. C. No. | Drug and Manufacturer                              | Stock of Doctor or Druggist  |
|-----------|--|------------------------------|
| 29903     | Sodium Salicylate (Tailby-Nason Co.)...            | E. G. Reade: Watertown.      |
| 29967     | Sodium Salicylate (Tailby-Nason Co.)...            | E. O. Elmer: Hartford.       |
| 29946     | Sodium Salicylate (Yates Drug & Chemical Co.)...   | A. S. McQueen: Branford.     |
| 30211     | Sodium Salicylate (Yates Drug & Chemical Co.)...   | H. D. Lockwood: Meriden.     |
| 29914     | Strontium Salicylate (Daggett & Miller Co.)...     | R. B. Cox: Collinsville.     |
| 29905     | Strontium Salicylate (Tailby-Nason Co.)...         | E. L. Pratt: Winsted.        |
| 29969     | Strychnine Sulphate (A. D. S.)...                  | Ebbs Drug Co.: Waterbury.    |
| 29216     | Strychnine Sulphate (Daggett & Miller Co.)...      | I. E. Brainard: Wallingford. |
| 29216 D   | Duplicate of 29216 (Daggett & Miller Co.)...       | I. E. Brainard: Wallingford. |
| 29900     | Strychnine Sulphate (Glen Pharmacal Co.)...        | R. M. Griswold: Kensington.  |
| 30219     | Strychnine Sulphate (The G. F. Harvey Co.)...      | L. C. Heidger: Stratford.    |
| 29211     | Strychnine Sulphate (Nat. Drug Co.)...             | A. P. Pratt: Windsor.        |
| 30210     | Strychnine Sulphate (Yates Drug & Chemical Co.)... | H. DeF. Lockwood: Meriden.   |
| 29916     | Thyroid (Desiccated) Tablets (G. F. Harvey Co.)... | R. B. Cox: Collinsville.     |
| 29989     | Thyroid (Desiccated) Tablets (G. F. Harvey Co.)... | R. B. Cox: Collinsville.     |
| 29911     | Valerian Compound (Tailby-Nason Co.)...            | R. V. Sanderson: Winsted.    |
|           | Barbital.....                                      |                              |
|           | Valerian.....                                      |                              |
|           | Hyoscyamus.....                                    |                              |
|           | Asafoetida.....                                    |                              |

MEDICINAL TABLETS, ETC.

| Declared grains per tablet | Medicament    |        |        | Remarks   | D. C. No. |
|----------------------------|---------------|--------|--------|---|-----------|
|                            | Found, grains |        |        |   |           |
|                            | Min.          | Max.   | Avg.   |   |           |
| 5.0                        | 4.5           | 5.0    | 4.8    | Pass  | 29903     |
| 5.0                        | 4.6           | 4.8    | 4.7    | Pass  | 29967     |
| 5.0                        | 4.7           | 5.1    | 4.8    | Pass  | 29946     |
| 5.0                        | 4.9           | 5.5    | 5.2    | Pass  | 30211     |
| 5.0                        | 4.5           | 4.8    | 4.6    | Pass  | 29914     |
| 5.0                        | 4.8           | 5.2    | 5.0    | Satisfactory  | 29905     |
| 0.033                      | 0.032         | 0.037  | 0.035  | Pass  | 29969     |
| 0.017                      | 0.022         | 0.025  | 0.023  | Excess strychnine sulphate  | 29216     |
| 0.017                      | 0.020         | 0.022  | 0.022  | Excess strychnine sulphate  | 29216D    |
| 0.017                      | 0.018         | 0.021  | 0.020  | Pass  | 29900     |
| 0.017                      | 0.013         | 0.015  | 0.014  | Pass  | 30219     |
| 0.033                      | 0.033         | 0.040  | 0.038  | Pass  | 29211     |
| 0.033                      | 0.031         | 0.039  | 0.034  | Pass  | 30210     |
| 0.0034 <sup>1</sup>        | 0.0037        | 0.0050 | 0.0046 | Satisfactory  | 29916     |
| 0.0034 <sup>1</sup>        | 0.0032        | 0.0046 | 0.0037 | Satisfactory  | 29989     |
| 0.25                       | .....         | .....  | 0.24   |   | 29911     |
| .....                      | .....         | .....  | .....  |   |           |
| .....                      | .....         | .....  | .....  |   |           |
| .....                      | .....         | .....  | .....  | Pass (asafoetida present; valerian and hyoscyamus not identified) |           |

<sup>1</sup> Ten grains fresh thyroid = 2 grains dry. Dry thyroid contains not less than 0.17 nor more than 0.23 per cent. iodine in thyroid combinations = 0.0034 to 0.0046 grain.



## DRUGS NOT PURCHASED ON PRESCRIPTION.

## BORIC ACID.

Boric acid of the purity prescribed by the U. S. Pharmacopoeia contains, in the dried powder, not less than 99.5 per cent. of boric acid,  $H_3BO_3$ .

**29224.** Sample purchased at Wilson Pharmacy, Willimantic, (Brewer and Co. product). It contained 99.04 per cent. of boric acid.

Sample passed.

**29223.** Sample purchased of C. DeVillers, Willimantic. (20 Mule Team brand). It contained 99.0 per cent. of boric acid. Sample passed.

## CALCIUM HYDROXIDE SOLUTION

Lime water should contain not less than 0.14 per cent. of calcium hydroxide  $Ca(OH)_2$ .

Samples examined are listed in the following summary.

## ANALYSES OF LIME WATER.

| D. C. No. | Druggist                               | Calcium hydroxide<br>$Ca(OH)_2$ found<br>% |
|-----------|--|--|
| 29918     | Collinsville<br>Valley Pharmacy.....   | 0.17                                       |
| 30226     | New Haven<br>State Pharmacy.....       | 0.17                                       |
| 30225     | J. P. Gillespie & Co.....              | 0.16                                       |
| 30234     | Wallingford<br>Moran's Drug Store..... | 0.17                                       |
| 30236     | Waterbury<br>Apothecaries Hall Co..... | 0.02                                       |
| 29947     | Winsted<br>The Case Drug Store.....    | 0.17                                       |

Sample **30236** deficient in lime.

## CALOMEL.

One sample purchased by the Station agent, **953**, Merck's product, was found to contain 99.8 per cent. of mercurous chloride. The U. S. Pharmacopoeia requires not less than 99.6 per cent.

Sample satisfactory.

## MONOBROMATED CAMPHOR.

No assay for this product is given in the U. S. Pharmacopoeia although certain specifications for it are defined.

**29981.** Sample purchased of John J. Cronin, Middletown, Merck's. Assayed by the tentative method<sup>1</sup> it was found to closely approximate 100 per cent. monobromated camphor.

Sample satisfactory.

<sup>1</sup>J. A. O. A. C.

## SOLUTION OF CITRATE OF MAGNESIA.

**27877.** This preparation was made and distributed by A. K. Shupis, Stamford. It contained 1.07 gms. of magnesium oxide ( $MgO$ ) per 100 cc., whereas the U. S. Pharmacopoeia requires not less than 1.5 gms. per 100 cc.

Sample below standard.

## COLLODION.

This preparation unless otherwise specified, should be of the contractile type and contain not less than 5.1 per cent. of pyroxylin.

**29988.** Sample purchased of J. G. McNamara, Collinsville. It contained 5.75 per cent. of pyroxylin and otherwise conformed to the specifications for collodion except for a faint acidity and the probable presence of amyl acetate, the odor of which was apparent on evaporation.

Sample passed.

## SYRUP OF FERROUS IODIDE

This preparation should contain not less than 4.75 nor more than 5.25 per cent. of ferrous iodide,  $FeI_2$ .

**29949.** Sample purchased at Claxton's Drug Store, Torrington. It contained 5.25 per cent. of ferrous iodide.

Sample satisfactory.

## TINCTURE OF IODINE.

This preparation should contain not less than 6.5 nor more than 7.5 grams of iodine, and not less than 4.5 nor more than 5.5 grams of potassium iodide per 100 cc.

**29921.** Sample purchased at the Thompsonville Drug Co., Thompsonville. It contained 6.55 grams of iodine and 4.56 grams of potassium iodide per 100 cc.

Sample satisfactory.

**29207.** Sample purchased at the Bridge Pharmacy, Windsor Locks. It contained 6.95 grams of iodine and 5.07 grams of potassium iodide in 100 cc.

Sample satisfactory.

**30230.** Sample purchased at the Powell Drug Co., East Hartford. It contained 6.70 grams of iodine and 4.63 grams of potassium iodide, per 100 cc.

Sample satisfactory.

## ESSENCE OF PEPPERMINT.

This preparation should contain 10 per cent. by volume of oil of peppermint.

The samples examined are summarized as follows:

| No.    |                   | Druggist                | Peppermint oil,<br>per cent. |
|--------|-------------------|-------------------------|------------------------------|
| 30248  | <i>Putnam</i>     | J. A. P. Gagne.....     | 4.0                          |
| 30247  |                   | G. N. Lemaitre.....     | 11.3                         |
| 30400  | <i>Torrington</i> | South End Pharmacy....  | 9.5                          |
| 30401  |                   | Park Pharmacy.....      | 13.9                         |
| 30402  |                   | Claxton's Pharmacy..... | 10.9                         |
| 29948  | <i>Winsted</i>    | City Pharmacy.....      | 7.7                          |
| 29948D |                   | City Pharmacy.....      | 10.7                         |
| 30249  |                   | Albert Decsi.....       | 12.4                         |

Two samples **30248** and **29948** were deficient in peppermint oil. A second sample of one of these, **29948D**, was of required strength.

#### SWEET OIL.

**29922.** Sweet Oil, Pleasant St. Pharmacy, Thompsonville. No oil other than olive oil should be dispensed as sweet oil. This sample responded to the tests for genuine olive oil.

Sample passed.

#### TOILET PREPARATIONS.

These products have been examined chiefly in accordance with Section 2679 of the General Statutes which prohibits the use of wood alcohol in the compounding of any toilet lotion.

Eleven samples of hair tonic, three of bay rum and two of witch hazel were examined but no wood alcohol was detected.

Two samples of hair tonic, **29972** and **22973**, sold by E. J. Mangini of Waterbury have no declaration of the percentage of alcohol present. They contained 45 and 57 per cent. respectively.

Wild Root Hair Tonic, **29963**, Wildroot Co., Inc., sold by A. Seidman, Hartford, contained 23 milligrams of arsenic per 100 cc.

Another preparation containing arsenic was brought to our attention by a purchaser. This was an original bottle labelled KDX Dandruff Exterminator, **22704**, Koken Companies, St. Louis. The preparation was found to be a dilute, alkaline, alcoholic solution containing 93 milligrams of arsenic (As) per 100 cc. of solution, with a salicylate and glycerin. Other medicaments, if present, not identified.

Medical and other literature contain conflicting data upon the effects of arsenic. Its external application may develop pustules, vesicles and erysipelatoid inflammation of the skin<sup>1</sup>; but it is further noted that many forms of skin disease, such as chronic eczema, are treated with arsenic with beneficial results<sup>2</sup>. Absorption takes place to some extent through the intact skin so that poisoning may result from the external use of arsenical cosmetics;<sup>3</sup>

<sup>1</sup> Cushny. *Pharmacology and Therapeutics*, p. 595.

<sup>2</sup> *Ibid.*, p. 602.

<sup>3</sup> Sollmann. *Manual of Pharmacology*, p. 737.

but improved nutrition of the skin and hair is said to be effected by external and internal treatment with arsenic.<sup>1</sup> Another authority<sup>2</sup> cites instances of poisoning, particularly the death of a child following the application of an arsenical ointment for scalp eruption. "Arsenic pock"<sup>3</sup> is a term used to designate arsenical ulcers of the hands in the case of color workers and others engaged in handling arsenical materials.

There appears to be no question that arsenic constitutes a potential source of injury and that its indiscriminate use in toilet lotions and hair tonics is attended with danger.

**27244.** *Boncilla Clasmic Pack.* Crown Chemical Co., Indianapolis, Ind. Sample submitted by a purchaser through the office of the Dairy and Food Commissioner.

Loss on drying at 100° C. (chiefly moisture), 48.30 per cent., organic and volatile 4.09 per cent., ash 47.61 per cent. Silica, iron, aluminum and manganese considerable, calcium magnesium and sodium small amount, carbonate and sulphate small amount, phosphate trace, organic extractives negligible amount, no vesicating principles found, glycerine present, arsenic not detected.

The preparation consists essentially of perfumed clay (iron-aluminum silicate), glycerine and water with a little calcium carbonate. The composition is quite typical of so-called beauty clays.

**27245.** *Cold Cream.* Brand not known. Submitted by a purchaser who used it in conjunction with beauty clay, **27244**, and suffered irritation of the skin.

The cream was almost completely soluble in ether and besides the fatty base and perfume nothing was found. No vesicating principles or arsenic were detected.

#### PROPRIETARY REMEDIES, ETC.

**22530 A.** *Sun and Moon Sacred Anointing Oil.* Prepared by A. W. Lowrie, Inc., Hartford. Recommended for external or internal use. Sample submitted by the Commissioner of Public Health through the office of the Dairy and Food Commissioner. The preparation consisted of yellow, limped oil with a small layer of brown solution containing some sediment. The odor of methyl salicylate was apparent and the reaction was slightly acid to litmus.

Partial analysis:

Moisture and volatile at 100°C., 10.48 per cent.; residue at 100°C (largely oil), 89.52 per cent.; ash trace; alcohol by weight 1.91 per cent.; salicylate present; alkaloids none found; refraction of oil at 25° C 62.2° (butyro-refractometer scale); iodine No. of oil 64; Halphen test on oil negative. Oil almost completely saponifiable.

<sup>1</sup> Sollmann. *Manual of Pharmacology*, p. 742.

<sup>2</sup> Peterson, Haines and Webster. *Legal Medicine and Toxicology*, p. 218.

<sup>3</sup> Kober and Hayhurst. *Industrial Health*.

The examination shows that the medicine consists substantially of a fixed oil, methyl salicylate and a small amount of vegetable extractive material in dilute alcohol.

**22530 B.** *Sun and Moon Sacred Ointment.* This is another sacred remedy of the same manufacturer.

Partial analysis:

Moisture and volatile at 100°C 8.27 per cent.; residue at 100° C (fatty base) 91.73 per cent.; ash trace; salicylate present; alkaloids not found; menthol none found. Fat largely unsaponifiable; fluorescent in ether solution.

The ointment consists of a fatty base (probably petrolatum), a little saponifiable fat or oil with methyl salicylate as the chief or only active ingredient.

The remedy is proclaimed by the manufacturer as "A food for the body to destroy disease" and is further claimed to contain "vibrations of life from the radio-activity of electricity magnetism, electrons and atoms." This meaningless jumble of scientific terms serves to introduce the element of mystery upon which the "patent medicine" man generally depends for the appeal of his wares. In this instance the mystery is fortified with alleged sacredness.

**29450.** *Nature's Vital Food.* Manufactured by A. S. Maine, Westerly, R. I. Sample submitted by Dr. Osborne, Health Commissioner, through the office of the Dairy and Food Commissioner.

The label on the bottle says, in part, that this remedy is a special preparation of 32 kinds of roots, herbs, barks and gums; that it is a *blood purifier* the use of which *makes possible the cure* of thousands of the most virulent cases of cancer, etc. This implies that the remedy effects such cures. On reading the literature which goes with the package however, it appears that this medicine is used as a tonic to fit the patient for the Main's special cancer treatment which consists, apparently, of drawing out the cancer by means of plasters. On the reverse side of the label appears the claim that the remedy is a preventive of cancers, tumors, syphilis, and a number of other diseases. On the carton it says, in part: "An internal medicine for all ailments of the human body—removing the cause of your disease, thereby rendering a permanent cure.

The preparation is a dark brown liquid with some sediment, acid to litmus, and having a disagreeable odor.

Analysis was made as follows:

Water and volatile at 100°C 98.82 per cent.; solids 1.18 per cent.; ash 0.27 per cent.; iron, calcium, magnesium sodium, potassium, sulphate and phosphate present; chloride trace; zinc trace (?); anthraquinone derivatives present; bitter and pungent principles present; asafoetida, rhubarb, gentian and capsicum indicated; aloes not found; benzoic acid present, (0.04%); salicylic and citric acids not found; hypophosphites, antipyrin, acetphenetiden, acetanilid, pyramidon, iodine and alcohol not found; alkaloids none or trace.

The examination shows that the preparation is an aqueous solution of vegetable extractives consisting wholly, or in part, of vegetable cathartics with bitter and pungent principles; and containing a small amount of benzoic acid and some vegetable tissue.

The mineral constituents are insignificant, as shown by the small amount of ash, and are only such as are generally present in the ash of vegetable matter.

The labeling of this product is an example of misbranding at its worst.

**21850.** *Volta.* Prepared and distributed by the Volta Company of America, Inc., Philadelphia, Pa. Sample purchased by the Station agent at Wood's Drug Store, New Haven.

Analysis:

Free sulphur 86.74 per cent.; aluminum oxide 3.20 per cent.; iron oxide 0.74 per cent.; phosphate trace; carbonate, borate, chloride and soluble sulphate none found; alkaloids none found; starch none; methyl salicylate present.

The analyses indicates that the preparation is essentially a mixture of sulphur, iron and aluminum oxides, with methyl salicylate and possibly some other aromatic substance.

The product is not labeled as a cure or a remedy, but states that it is adapted to the treatment of rheumatism, sciatica, etc.

**21851.** *Erbjus.* Prepared by the Erbjus Remedy Co., Bridgeport, Conn. Sample purchased by the Station agent at Wood's Drug Store, New Haven. A tonic "made with herb juice and glycerine. Non-alcoholic, for stomach, kidney, liver, rheumatism and bowels."

Analysis showed the following composition:

Water (in vacuo at 60° C), 84.80 per cent.; ash 0.53 per cent.; glycerine 10.74 per cent.; sugar, as dextrose, 1.75 per cent.; salicylic acid 0.43 per cent.; undetermined 1.75 per cent. Qualitative tests showed the presence of salicylic acid, anthraquinone derivatives, glycerine, sugar and citrates(?) No other medicaments were detected. Alkaloids and aloes not found. Manganese was present in the ash but other ash constituents were not investigated.

The preparation appears from the analysis to be a solution of vegetable cathartics and bitters in glycerine and water. No curative claims for the article are made.

**21847.** *Dr. Edward's Olive Tablets.* The Olive Tablet Co., Columbus, Ohio. A substitute for calomel. Sample purchased by the Station agent at York Pharmacy, New Haven.

These are olive-green, sugar coated pills averaging in weight a little less than 3 grains each.

Examination and partial analysis:

Qualitative tests showed the presence of aloes; ginger, sugar, calcium (large amount), and iron. Starch, alkaloids, jalap and mercury not

detected. Quantitative determinations showed moisture and volatile at 100°C. 5.86 per cent.; ash (chiefly calcium carbonate), 13.93 per cent.; petroleum ether extract non-volatile at 100° C. 1.15 per cent.

The tablets contain aloes and ginger as the essential medicaments.<sup>1</sup>

**30216.** *Dakol.* The Dakol Co., New Haven. Samples by the Dairy and Food Commissioner. This is a nasal cream.

Examination:

Qualitative tests showed the base to consist largely of saponifiable fat with menthol and creosote or guaiacol indicated. (The odor of creosote was apparent in one of the fractions but tests for it were negative).

**23367.** *Ovelmo Blood Tonic and Restorative,* Ovelmo Co., Fort Wayne, Ind. Sample submitted by a purchaser. Red tablets, average weight 0.681 gram. Not labelled as a cure.

Analysis:

Moisture 4.00 per cent.; ash 37.43 per cent.; insol. ash, talc. etc., 2.90 per cent.; iron and aluminum oxides 8.25 per cent.; calcium oxide 9.62 per cent.; magnesium oxide 1.10 per cent.; sodium oxide 4.27 per cent.; potassium oxide 0.35 per cent.; sulphur trioxide 6.39 per cent.; phosphorus pentoxide 0.10; chlorine 0.15 per cent.; carbon dioxide present, not determined; nitrogen 0.38 per cent.; sugar 35.59 per cent.; starch 6.80 per cent.; cellulose (fiber) 3.71 per cent.; ether extract 1.83 per cent.; emodin-like substance present; alkaloids none found.

The tablets consist substantially of ferrous sulphate, bicarbonate of soda, carbonates of lime and magnesia, sugar, starch, a small amount of emodin-like substances (vegetable cathartics), and other vegetable extractives. No alkaloids were found.

**23368.** *Ovelmo Digestive Tablets.* Ovelmo Co., Fort Wayne, Ind. Sample submitted by a purchaser. Black tablets, average weight 0.347 grams. Not labelled as a cure.

Analysis:

Moisture 6.75 per cent.; ash 38.35 per cent.; insol. ash 2.30 per cent.; iron and aluminum oxides 2.25 per cent.; calcium oxide 9.25 per cent.; magnesium oxide 9.64 per cent.; sodium oxide 6.23 per cent.; potassium oxide 0.45 per cent.; phosphorus pentoxide 0.40 per cent.; chlorine 0.40 per cent.; carbon dioxide present, amount not determined; sulphur trioxide none; nitrogen 0.35 per cent.; sugars 25.02 per cent.; starch 10.80 per cent.; cellulose (fiber) 5.19 per cent.; ether extract 1.48 per cent.; emodin-like substances indicated; charcoal present; alkaloids none found; diastase and pepsin not tested for.

These tablets consist of, or contain, bicarbonate of soda, carbonates of lime and magnesia, starch, sugar and charcoal. Emodin-like substances are indicated, and digestive ferments may be present.

<sup>1</sup> See also Conn. Exp. Sta. Report for 1914, p 310.

Both these Ovelmo products were purchased on the mail order plan and were being used by the purchaser to cure eczema. In the literature of the American Medical Association we find reference to an "Ovelmo Company" of Fort Wayne which did a mail order business in preparations for the cure of skin diseases until Federal interference finally disrupted the organization. Whether the old concern has been revived under new management, or whether the similarity of name, methods and purposes of the present company is merely a coincidence we cannot say. At any rate, we advised the purchaser of these remedies to consult his physician or a specialist in skin diseases.

**D. C. 30221.** *Mineral Water.* Luippold Mineral Water Co., Inc., Bridgeport, Conn. This is a carbonated water and analysis was made after carbon dioxide had been largely removed. Results are expressed as milligrams per liter.

Analysis:

Total solids at 100°C. 8970; after ignition 6870; silica 14.5; iron and aluminum oxides (largely ferrous iron), 30; potassium oxide 60; sodium oxide 2176.9; magnesium oxide 586.4; calcium oxide 1010; strontium oxide trace?; manganese oxide 15; chloride (Cl), 4345; sulphate (SO<sub>4</sub>), 446; phosphate (P<sub>2</sub>O<sub>5</sub>), none; carbon dioxide present.

The water contains chiefly chlorides of sodium, magnesium and calcium with smaller amounts of other mineral salts. It is a natural mineral water, carbonated.

Collateral advertising stressed curative features of the product and was objectionable as were certain claims made on the label itself. A representative of the company, in conference with the Dairy and Food Commissioner, advised that the advertisement cited was the only one of its kind that had appeared and that it would not be repeated; and that the label had already been revised.

#### MISCELLANEOUS DRUGS.

Miscellaneous drugs and chemicals for identification or other examination have been submitted, chiefly by health or other public officials, and are summarized in Table XVIII.

TABLE XVIII. MISCELLANEOUS DRUGS ETC.

| No.                | Name of drug, etc.                  | Remarks.   |
|--------------------|-------------------------------------|--|
| D. C. 29464        | Alcohol                             | No wood alcohol found. Trace of diethylphthalate present.  |
| 28223 }<br>22824 } | Ampules of silver nitrate.          | Tested for acidity. Faint acidity was demonstrated but no evidence that it was sufficient in kind or amount to cause injury when applied to the eyes, was obtained.  |
| 639                | Boric acid                          | Found to be 98.6 per cent. pure.   |
| 506                | Hank's Chemical (fire extinguisher) | About 99 per cent. bicarbonate of soda colored with iron salt.   |
| D. C. 29425        | Medicine. (Prescription).           | Prescription called for ammonium and potassium bromides, aromatic spirits of ammonia, camphor and water. Total bromides calculated 9.4 gms. per 100 cc, found 8.7 gms. Ammonia and camphor present. Medicaments substantially as called for.   |
| 22374              | Medicine                            | A syrupy solution containing iron and vegetable cathartics. No other medicaments detected.   |
| D. C. 29419        | Medicine                            | Found: Alcohol 7.8 per cent., sodium bromide 12.28 per cent., glycerine 22.46 per cent. phenolphthaline present, pepsin indicated, iron, potassium and phosphates traces, alkaloids and arsenic none found. Medicine consists of a sedative, laxative, pepsin, alcohol, glycerine and water. |
| D. C. 28618        | Preserving Powder F.L.P.            | Consists substantially of salt and chili saltpeter. (Nitrate of soda.)   |
| D. C. 28074        | B. Salt                             | Consists essentially of salt and nitrate of soda or saltpeter and red pepper.  |
| D. C. 28779        | Preservative                        | Contains 93.27 per cent. of sodium sulphite. No borax.   |
| 22347              | Sodium hydroxide solution           | Found to be 1.126 stronger than tenth normal.  |
| 22591              | Stain for poultry feathers          | Appeared to be commercial turpentine, or turpentine and a light oil.   |
| 143                | Unknown substance                   | Identified as plaster of Paris (calcium sulphate).   |

## BABCOCK GLASSWARE, ETC.

The following is a summary of Babcock glassware checked during the year. Lactometers and thermometers were compared with certified instruments for the Dairy and Food Commissioner.

|                        | Total | Broken in transit | Accurate | Inaccurate |
|------------------------|-------|-------------------|----------|------------|
| Cream.....             | 585   | 3                 | 537      | 45         |
| Milk test bottles..... | 2707  | 29                | 2652     | 21         |
| Pipettes.....          | 556   | 20                | 533      | 3          |
| Acid measures.....     | 1     | 0                 | 1        | 0          |
| Lactometers.....       | 17    | 0                 | 17       | 0          |
| Thermometers.....      | 8     | 0                 | 8        | 0          |
| Totals.....            | 3869  | 52                | 3748     | 69         |