Bulletin 415 August, 1938

THE FORTY-SECOND REPORT ON

FOOD PRODUCTS

AND THE THIRTIETH REPORT ON

DRUG PRODUCTS

1937

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Agricultural Experiment Station
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E. M. BAILEY, Chemist in Charge

Connecticut
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CONTENTS AND SUMMARY

Material	Page	Sampled by or submitted to: The Station	Sampled by or submitted to: The Dairy and Food Commissioner	Total	Adulterated, below standard or questionable
FOODS					
Beverages:					
Carbonated	683	....	68	68	6
Orangeade, etc	683	10	50	60	2
Other juice products	687	20	2	22	2
"Mixes"	687	....	1	1	....
Color	688	....	3	3	....
Bread	688	8	0	8	....
Coffee	689	....	7	7	....
Fats and Oils:					
Olive oil	689	16	20	36	14
Butter	690	....	8	8	1
Mayonnaise and Salad Dressing	691	....	23	23	....
Meat Products, etc.:					
Hamburg steak	695	....	10	10	1
Meat preservative	695	....	2	2	0
Frankfurt sausage	695	11	31	42	15
Bologna	696	....	12	12	8
Milk and Milk Products:					
Vitamin D milk	696	3	78	81	7
Plain milk	697	650	5	655	2
Skim milk	697	2	....	2	....
Cream	697	14	1	15	0
Spray Residue	697	71	113	184	9
Tomato Products:					
Tomato juice, canned	698	18	....	18	....
Tomato puree	699	....	2	2	....
Vinegar	699	3	22	25	5
Wine, white	699	....	14	14	....
Miscellaneous	702	78	1	79	....
Total for foods		904	473	1,377	72
DRUGS, Etc.					
Blaud's pills	703	....	23	23	....
Digiglusin, liquid	703	....	1	1	....
Fowler's solution	705	....	84	84	1
Hydriodic acid, syrup of	708	....	50	50	10
Ferrous, iodide, syrup of	710	....	78	78	2
Iodine, mild tincture of	712	....	2	2	....
Magnesium citrate, solution of	713	....	20	20	5
Phenol, liquefied, etc	713	....	3	3	....
Pyridium products	713	....	2	2	....
Witch hazel, extract of	713	....	1	1	1
Miscellaneous, etc	713	11	2	13	....
Total for drugs		11	266	277	19

Material	Page	Sampled by or submitted to: The Station	Sampled by or submitted to: The Dairy and Food Commissioner	Total	Adulterated, below standard or questionable
MISCELLANEOUS					
Examined for poisons	717	70	....	70	....
Fuels, coal	718	25	....	25	....
Collaborative	718	164	....	164	....
Total for miscellaneous		259	....	259	....
Total for all samples		1,174	739	1,913	91
Babcock glassware, etc	718	3,122	....	3,122	8

The Forty-second Report on Food Products and the Thirtieth Report on Drugs

E. M. BAILEY, Chemist in Charge

THIS REPORT summarizes examinations made of foods, drugs and related materials during the calendar year 1937. It includes samples submitted by the Dairy and Food Commissioner as well as those taken by the Station agent and those submitted by health departments and others interested.

Since 1935, food control work done by the department has included biological tests of vitamin D milk as offered for sale in this State.

The department has collaborated with the Dairy and Food Commissioner and the Director of this Station in revising rules and regulations for carrying out the provisions of the State Food and Drug Statutes.

The helpful coöperation of the department staff in all matters relating to the conduct of our work is gratefully acknowledged. To them credit is due for all of the chemical and biological examinations reported here, and for much help in answering the many inquiries that come to the department in correspondence and otherwise.

HISTORY OF INSPECTIONS

A general food law was enacted in this State by the General Assembly of 1895. It was approved in June and became effective on August 1 of that year. It remained in effect until it was revised in 1907 to conform to the then newly enacted Federal act approved by Congress in June, 1906. This act has now been superseded by the Federal Food, Drug and Cosmetic Act recently approved (June, 1938) and the various State laws patterned after the old Federal law will no doubt be revised to conform to the new act in its essential particulars.

The first report on food products in Connecticut was submitted by Professor S. W. Johnson, then Station Director, on July 5, 1896. The report covered fourteen different items of foods and 848 samples were examined. Dr. Johnson's summary of the results of inspection is of interest and is here quoted:

	Examined	Pure	Doubtful	Adulterated
Maple Syrup	61	48	5	8
Maple Sugar	7	7	....	....
Sugar	16	16	....	....
Syrup	4	4	....	....
Strained Honey	48	43	....	5
Comb Honey	12	12	....	....
Lard	118	75	....	43
Pepper	102	62	8	32
Mustard	69	15	....	54
Cheese	72	72	....	....
Coffee	124	53	....	69
Milk	105	82	11	12
Cream of Tartar	103	72	....	31
Cereal Foods	9	9	....	....
	848	570	24	254

Of maple syrup and maple sugar the report states that of most of the samples it is impossible to say whether or not they are genuine and unadulterated, but at least eight consist wholly or in part of glucose syrup.

Granulated sugar and powdered sugar was evidently suspected then, as it is sometimes now, of being adulterated because of real or imagined lack of sweetness, but the examinations did not confirm such suspicions, nor have inspections in later years done so.

Five samples of honey were adulterated with glucose syrup. Some of the other samples were apparently produced in part by the artificial feeding of bees with sucrose in some form. These were not classed as adulterated although it was pointed out that they were not strictly pure honey.

A large proportion of "lard" samples were mixtures containing beef stearin that would not have been classed as adulterated if they had been labelled as lard "compounds" or "substitutes" as provided at that time.

Pepper was another food item largely adulterated with a wide variety of foreign materials, such as cereal products, olive and rapeseed cake, shells of cocoanut, almond and other nuts, sawdust, pepper shells and terra alba.

Mustard contained wheat flour or other starchy material, gypsum or terra alba, and was often colored with turmeric and sometimes with Martius yellow, a poisonous dye.

Cheese was not found adulterated.

Coffee, particularly ground coffee, was found to contain cereal products and products of leguminous seeds. Imitation coffee beans, made from dough moulded into artificial beans and roasted to resemble coffee, were among the adulterants detected.

About 20 percent of the milk samples examined were adulterated or suspicious.

Many of the adulterations cited above, and others found in subsequent inspections in earlier years, are not encountered now. Such gross adulterations as imitation coffee, ground soapstone in baking powder, widespread sophistication of spices, and preservatives in milk, are rarely or never found at the present time. Most of the adulterants found in foods in the course of our inspections have been in the nature of economic frauds rather than health hazards. Moreover, under present statutes, which are essentially truthful labelling provisions, in many instances foods that otherwise would be classed as adulterated are passed without objection if the label is properly informative to the purchaser. For example, ketchup containing benzoate of soda is not adulterated, provided the presence and amount of that preservative is declared.

The proportion of food products found "adulterated, misbranded or doubtful" in any given inspection year will vary depending on the types or classes of products examined in that year, and also because some products may be sampled upon complaints, inquiries or suspicions. Olive oil, for example, if sampled comprehensively over the entire State from reliable dealers and distributors as well as from suspected sources, would show a more satisfactory degree of purity and genuineness than when sampled largely from itinerant vendors and from dealers who are not over-meticulous

in the choice of their supply. Moreover, improved methods of analysis have made it possible to detect adulterations that formerly escaped notice.

Thus it is that over the years the ratio between adulterated and misbranded samples and the total number examined in those years does not furnish an altogether adequate picture of the improvement in the substance and quality of the general supply of manufactured foods. Professor Johnson in his first report shows that over 30 percent of the total samples examined were classed as adulterated or doubtful; in the report of Mr. Street for 1908, the first year that our present law was in effect, 22 percent of the total food samples examined were adulterated or below standard. In the last four years, 1934-1937, adulterated, below standard or questionable samples constituted about 17 percent of the total official samples submitted by the Dairy and Food Commissioner; Station samples are omitted in the total because so many were milks from herds or individual cows and submitted by the producers to be examined for quality.

The first report on drugs was issued in 1908 when the present food and drug law became effective. Only four different items of drugs were examined, but over 60 percent of them were judged adulterated or below standard.

What already has been said about the ratios between "pure" and adulterated foods applies also in the case of drugs. Some drug preparations are more unstable than others, and hence if inspections include a large proportion of such products, the percentage of adulterated or sub-standard samples is likely to be high. An important factor in the improvement in the drug supply is the increased practice of druggists to dispense drugs compounded by pharmaceutical supply houses with suitable chemical control rather than mixtures of their own compounding.

In the four-year period 1934-37, about 1000 samples of a wide variety of U.S.P. and other drugs were examined and approximately 30 percent were sub-standard or otherwise objectionable. In the inspection for the past year, 1937, however, the percentage was gratifyingly low, about 7 percent.

FOODS

BEVERAGES

Carbonated Beverages

Sixty-eight official samples of beverages of the "soda-water" type were examined for the Dairy and Food Commissioner. Sugar content was above 5 percent, the minimum fixed by statute, in all cases. No saccharin was found in any sample; but in six cases benzoate of soda was present and not declared on the labels. Sugar was generally between 10 and 14 percent. There were only seven samples containing less than 10 percent of sugar, and only seven containing more than 14 percent.

Orangeade

Orangeade is a beverage characterized by a substantial amount of orange juice; regulations in this State require not less than 15 percent. In recent years this beverage is largely distributed by dairies, being prepared by them from syrup bases or concentrates by suitable dilution with water.

Fresh orange juice is an excellent source of vitamin C. Daniel and Rutherford (J. Agr. Res., **54**, 689-693, 1937), have found that the fresh juice contains this factor in amounts generally between 0.4 and 0.6 mg. per cubic centimeter. Orange juice prepared in our own laboratory on several occasions has shown from 0.47 to 0.51 mg. per cc. Two samples from California and Florida oranges, Nos. 4640 and 4641 respectively, were analyzed during the year and the analyses are given here, although such limited data furnish no basis for any final comparisons. Analyses were made on the filtered juice and the titration method of Bessey and King (J. Biol. Chem., **103**, 687-693, 1933), was employed:

	No. 4640	No. 4641
Acidity, as citric acid, gm./100 cc	0.83	0.95
Ash, gm./100 cc	0.432	0.385
Potassium oxide (K_2O) gm./100 cc	0.239	0.214
Phosphorus pentoxide (P_2O_5) gm./100 cc	0.034	0.029
Calcium oxide (CaO) gm./100 cc	0.013	0.011
Vitamin C (cevitamic acid) mg./cc	0.470	0.486
K_2O, percent in ash	55.3	55.6
P_2O_5, percent in ash	7.9	7.5
CaO, percent in ash	3.1	2.7

Canned orange juice, as distributed commercially, retains the vitamin potency of the fresh juice apparently without serious impairment as shown by our analyses of eight brands in which the vitamin C content ranged from 0.31 to 0.56 mg. per cc. (J. Am. Med. Assoc., **110**, 650, 1938). Juice concentrates may also be prepared with but little loss of vitamin (Conn. Agr. Exp. Sta. Bul. 401, 865, 1937). Orangeades prepared from such concentrates and distributed locally are likely to show diminished vitamin potency, in some cases very marked. Conditions favoring oxidation during the preparation and distribution of these products probably account for the loss.

A number of samples of orangeades and a few concentrates were examined by us in 1936 (Bul. 401 above cited); and a larger survey of orangeades was made this year. The results are given in Table 1.

Juice content has been approximated on the basis of total ash, using 0.41 gm. per 100 cc as the ash content of pure orange juice. Our information is that producers aim to make their dilutions of the concentrates so that the finished beverage will comply with our State regulation noted above. It is apparent from the tabulated results that the products examined contained proportions of juice of about that order. Of the 50 samples examined, only two contained substantially less than 15 percent of juice. There were 42 containing between 13 and 20 percent; and five containing over 20 percent.

The phosphoric acid content of the ash was determined as a matter of interest. Juice contents estimated on the basis of these values agree with those estimated on the basis of total ash in some cases, but often the estimates are too high or too low to seem reasonable.

A consideration of more importance, however, is the vitamin C content of these drinks, because orange drinks are associated with this nutritional factor in the minds of most consumers. A summary of the tabulated results shows that rarely are these drinks significant sources of vitamin C. Of the 49 samples listed, 29 had a vitamin C potency equivalent to less than 2 percent of fresh orange juice. Sixteen had an equivalent of over 2 but less than 6 percent. Three had potencies equivalent to from 11 to 17 percent of fresh juice. One (which showed 37 percent of juice) had a vitamin potency equivalent to 24 percent of juice. These estimates are based on the reasonable assumption that fresh orange juice contains 0.5 mg. vitamin C per cubic centimeter.

TABLE 1. ANALYSES OF ORANGEADE

No.	Distributor, and Brand Name of Concentrate	Ash	P_2O_5 in Ash	Vitamin C	Estimated juice content
		gm./100cc	%	mg./cc	%
	Bridgeport				
K—431	Green Spot. Foland's Dairy	0.062	8.5	0.024	15
K—427	Green Spot. Round Hill Dairy	0.055	7.4	0.010	13
	Clinton				
P—22	Green Spot. Burr Dairy	0.070	7.7	0.008	17
	Coventry				
K—477	Green Spot. G. A. Kingsbury	0.067	9.9	0.008	16
	Meriden				
K—515	Green Spot. R. Greenbacker & Son	0.060	14.0	0.004	15
	Milford				
K—507	Green Spot. Clover Dairy Products	0.072	9.6	0.005	18
K—433	Green Spot. Stowe Farm Dairy	0.151	11.0	0.118	37
	New Britain				
K—465	Green Spot. Bayer Milk Co	0.058	6.7	0.009	14
	New London				
P—23	Green Spot. New London & Mohegan Dairies, Inc.	0.082	11.0	0.005	20
	Norwalk				
K—501	Green Spot. Horrick's Dairy	0.072	7.1	0.004	18
K—503	Green Spot. R. E. Landon	0.070	9.9	0.004	17
	Putnam				
P—29	Green Spot. Richard's Dairy	0.071	9.4	0.005	17
	Wallingford				
K—511	Green Spot. Beaumont Farm	0.072	11.0	0.005	18
	Waterbury				
K—459	Green Spot. Underhill Dairy	0.061	5.7	0.010	15
	Webster				
P—30	Green Spot. Deary Bros. Dairy	0.069	7.4	0.005	17
	West Rocky Hill				
K—471	Green Spot. Jos. Anulewicz Dairy	0.058	10.0	0.005	14
	Bridgeport				
K—423	Bireley's. Beechmont Dairy	0.064	9.1	0.023	16
	Ellington				
K—483	Bireley's. Long Dairies	0.086	7.5	0.007	21
	Fairfield				
K—505	Bireley's. Wade's Dairy	0.064	9.6	0.008	15
	Hazardville				
K—485	Bireley's. Bridge Farm Dairy	0.073	9.4	0.013	18
	Jewett City				
P—28	Bireley's. Norman's Dairy	0.066	8.2	0.011	16
	Kensington				
K—517	Bireley's. Ferndale Dairy, Inc.	0.083	13.0	0.008	20
	Manchester				
K—475	Bireley's. Straughan's Dairy	0.069	9.6	0.007	17

TABLE 1. (continued)

No.	Distributor, and Brand Name of Concentrate	Ash	P_2O_5 in Ash	Vitamin C	Estimated juice content
	New Britain				
K—469	Bireley's. J. E. Seibert & Son...	0.064	9.1	0.014	16
	New Haven				
K—449	Bireley's. Brock-Hall.....	0.071	11.5	0.025	17
K—445	Bireley's. Sagal-Lou.....	0.084	5.9[1]	0.028	20
P—20	Bireley's. Sagal-Lou.....	0.081	9.0	0.019	20
	New London				
P—24	Bireley's. Radway's Dairy.....	0.078	13.0	0.009	19
	New Milford				
K—495	Bireley's. Medlicott Dairy.....	0.066	10.0	0.008	14
	Norwich				
P—26	Bireley's. Browning's Dairy....	0.079	11.0	0.011	19
	Stamford				
K—497	Bireley's. Maplehurst Dairy....	0.088	7.8	0.007	21
	Torrington				
K—493	Bireley's. Torrington Creamery.	0.063	16.0	0.007	15
	Winsted				
K—489	Bireley's. Leslie Beach.....	0.073	15.0	0.006	18
	Bridgeport				
K—429	Wonder. Randall Dairy.....	0.057	7.6	0.014	14
	New Haven				
K—447	Wonder. Story's Dairy.....	0.109	7.5	0.053	26
	West Haven				
K—509	Wonder. West Haven Creamery, Inc.....	0.075	8.2	0.004	18
	East Hartford				
K—473	Mission. V. A. Bergren Dairy...	0.077	8.9	0.007	19
	Greenwich				
K—499	Mission. Round Hill Farms....	0.084	7.0	0.005	20
	Willimantic				
K—479	Mission. Kramer's Dairy.....	0.068	8.2	0.005	17
	Bridgeport				
P—21	Dewhirst Dairy.....	0.077	9.0	0.078	19
K—425	Dewhirst Dairy.....	0.061	2.7[2]	0.019	15
P—18	Dewhirst Dairy.....	0.043	11.0	0.020	10
	Norwich				
P—27	Eze. C. E. Bushnell Dairy.....	0.042	6.3	0.006	10
	Stafford Springs				
K—481	Eze. E. A. Jacobsen.....	0.059	8.2	0.005	14
	Torrington				
K—491	Eze. Burrville Dairy.....	0.077	13.0	0.005	19
	Avon				
K—487	Holloway Bros.....	0.073	9.1	0.015	18
	Bridgeport				
K—419	Mitchell Dairy Co.....	0.061	9.1	0.016	15
	Meriden				
K—513	E. J. Kaemmer & Son.....	0.085	9.3	0.005	21
	New Britain				
K—457	United Milk Co.....	0.081	4.4	0.009	19
	New London				
P—25	Dari-O. Star Dairy Co.....	0.068	13.0	0.007	17

[1] Duplicate sample P—20 showed 9%
[2] Duplicate sample P—21 showed 9%

Other Juice Products

A sample, K-636, submitted as "lemon juice" was a dilute product containing about 12 percent of lemon juice, reinforced with citric acid and artificially colored. Its vitamin C content was 0.005 mg. per cc.

Samples of miscellaneous juice products were examined as follows:

No.		Ash gm./100 cc	Vitamin C mg./gm.	Vitamin C mg./cc.
6023	Sunfilled Brand concentrated orange juice...	....	2.51	....
6612	Garth Brand, Texas grapefuit juice, canned, sugar added.....	0.31	....	0.29
6734	Garth Brand, Texas grapefruit juice, canned, unsweetened.....	0.32	....	0.32
7257	Stephens lemon juice, canned.....	0.33	....	0.47
7176	"Ridgewood" apple concentrate.....	....	0.18	....

A sample of canned pineapple juice, S-100, contained, in terms of gm. per 100 cc.: total sugars 13.1, of which invert sugar and sucrose comprised equal parts; ash 0.460; citric acid 0.79. Vitamin C content was 0.070 mg. per cc.

A sample of juice, 4982, prepared in the laboratory from fresh pineapple, was examined. The filtered juice contained, in terms of gm. per 100 cc.: total sugars 7.66, invert sugar and sucrose in practically equal parts; ash 0.543; citric acid 1.18. The vitamin C content was 0.444 mg. per cc. From analyses of fresh and canned pineapple by Munson and Tolman, (J. Am. Chem. Soc. **25**, 272, 1903) and Kelly, (J. Ind. Eng. Chem., **3**, 403, 1911), the fruit from which our sample of juice was prepared must be classed as unripe. The sample of canned juice, S-100 above, falls within the limits for pure pineapple juice, but its vitamin C content indicates a considerable loss as compared with fresh juice.

In the report of the Council on Foods just cited, values for vitamin C in a number of samples of other canned fruit juices are given. The analyses are ours:

Canned grapefruit juice, 8 samples, ash range 0.31 to 0.50 percent; vitamin C range 0.29 to 0.42 mg. per cc.

Canned lemon juice, 3 samples, ash range 0.31 to 0.35 percent; vitamin C range 0.41 to 0.58 mg. per cc.

Canned pineapple juice, 3 samples, ash range 0.42 to 0.47 percent; vitamin C range 0.10 to 0.18 mg. per cc.

"Mixes"

Beverage bases commercially known as "mixes" and qualified by the name of a fruit, e.g., "lemon mix", are used as flavors for alcoholic beverages. These products are essentially of the same composition and character as the soda water type beverages but they may be without carbonation. They are subject to the same regulations as apply to soda water type beverages except that the word "mix" must be used instead of the words "soda" or "soda water".

A product of this type was examined, K-660. It contained 4.19 gms. of citric acid in 100 cc and 0.165 gm. of ash in 100 cc. Vitamin C content was 0.005 mg. per cc. There was only a trace of phosphoric acid in the

ash. Benzoic acid and coal tar dye were present but no saccharin was found. From the ash content about 63 percent of juice would be indicated, but the absence of any significant amount of phosphoric acid in the ash and the known addition of citric acid makes the presence of any lemon juice improbable. The lemon flavor is probably due to lemon extract.

Two other products, P-34 and P-35, of like name and similar composition, were examined.

A sample of lemon color, K-754, was a mixture of permitted colors, Orange I and Tartrazine.

BREAD

Six samples of bread were submitted by the Hartford City Board of Education, the samples being deliveries to several school cafeterias in Hartford over a period of about a month. All are presumed to be from the same baking formula.

Analyses are given in Table 2:

TABLE 2. ANALYSES OF BREAD (AIR-DRY BASIS)

No.	Moisture	Ash	Protein (N x 5 7)	Fat	Milk solids not fat
	%	%	%	%	%
5626	4.67	3.26	15.68	3.75	14.89
5648	5.35	3.18	15.45	3.50	13.90
5661	4.40	3.08	15.73	3.45	14.51
5728	4.17	3.22	15.62	3.61	14.19
5857	3.67	3.15	15.50	4.15	14.21
5966	5.57	3.18	15.11	3.23	15.72
Average	4.64	3.18	15.51	3.62	14.57

The average composition of the bread in the fresh condition was: Moisture 35.5, ash 2.15, protein 10.5, fat 2.5 and milk solids-not-fat 9.9.

Two samples of reduced carbohydrate bread were analyzed. One, 6905, was submitted by a physician in the interest of a diabetic patient and the other, 7212, was examined for a consumer.

According to our information 6905 was Criss Cross brand bread made from Farwell and Rhines' gluten flour. Sample 7212 was Darvill's Diet-Health-Bread, manufacturer not stated.

The analyses, together with average analyses of gluten bread and ordinary wheat bread for comparison, are given below. All are on approximately the same moisture basis, about 35 percent.

No.	6905	7212	Gluten bread	Wheat bread
	%	%	%	%
Protein	24.75	12.82	25.0	9.2
Carbohydrate, starch + water-soluble carbohydrate	28.00	43.90	28.9	52.6

Gluten bread is not free from carbohydrate, but it is conspicuously lower in that respect than ordinary wheat bread. Sample 6905 shows the average composition of gluten breads. As between 7212 and ordinary wheat bread there is not much to choose; a patient's carbohydrate tolerance would have to be practically as great for the special bread as for the ordinary kind.

COFFEE

Seven samples of coffee were examined for the Dairy and Food Commissioner. They were submitted in connection with bids by various concerns to supply coffee to the Public Welfare Department, Hartford.

Five were straight coffees so far as our examination could discover. No adulterants were detected. Two were mixtures of coffee with foreign starchy and other material. In one of them caffeine was determined and found to be low, 0.81 percent. Straight coffee contains about 1.2 percent of caffeine.

FATS AND OILS

Olive Oil

Thirty-six samples of olive oil were examined. Twenty of these were official samples taken for inspection purposes; 14 of them were adulterated or misbranded, or both, and 6 were passed because no adulteration was detected.

Samples found adulterated and/or misbranded are given in Table 3:

TABLE 3. ADULTERATED AND/OR MISBRANDED OLIVE OIL

No.	Dealer, and Brand if known	Remarks
K— 644	Joseph Magistrale, 749 St. Ann's Ave., Bronx, N. Y. Italian Product Virgin Olive Oil (selling from truck)	Article wholly, or in large part, sesame oil
K— 216	International Grocery, Inc., Bristol. Italian Produce Sublime Olive Oil	Contained cottonseed oil
K— 217	International Grocery, Inc., Bristol. Olio Puro d'Oliva	Contained cottonseed oil
K— 592	Luigi Damico, 158 Carlton Ave., Brooklyn, N. Y. Sample obtained from Luca De Meola, Sylvan Ave., New Haven	Practically all mineral oil artificially colored and flavored
K— 688	M. Mendel, Legion Ave., New Haven. Pure Olive Oil, Marconi Brand	Contained 54% peanut oil
K— 689	M. Mendel, Legion Ave., New Haven. Extra Fine Olive Oil, Italia Brand	Contained large proportion of cottonseed oil

TABLE 3. (Continued)

No.	Dealer, and brand if known	Remarks
K— 643	A. Cuamo, Hamilton St., New Haven. Pure Olive Oil, Cirillo Brand	Contained about 15% peanut oil; balance probably sunflower oil or soybean oil
K—1928	Vincent Chiarelli, 123 28th St., Brooklyn, N. Y. V. and A. Sanfillipo, 20 Bay St., Brooklyn, N. Y. Sublime Olive Oil. Italian Product. (Selling from truck in this State)	Sesame oil and artificial color present. Probably largely corn oil
K—2249	Joe Mut, New Britain, Olive Oil	Contained 27% peanut oil
K—2186 K—2187	Pescatore, 85 1/2 3rd Place, Brooklyn, N. Y., and A. Paglinca, 348 E. 15th St., N. Y. Berino Brand and Lucca Brand respectively. (Selling from truck in this State)	Contained cottonseed oil, and probably corn oil, artificially flavored and colored
K—2364	Schaumettein Haber, Bridgeport. Stromboli Brand	Largely cottonseed oil
K—2431	Gioiosa Brand (Dealer's name not in our record)	Largely cottonseed oil artificially colored and flavored
K—2366	Gus Mantia, 8024 14th Ave., Brooklyn, N. Y. Olio Finissimo (Selling from truck in this State)	Largely cottonseed oil artificially colored and flavored. Not labelled "olive oil" but deceptive because of style and design of label

Sixteen unofficial samples were examined for purchasers who submitted samples through the Commissioner's office or direct to this laboratory. Such samples are examined if time and facilities permit; but negative findings are not guaranties that the samples are pure.

Butter

Two samples of "whipped butter" S-396 and K-2444, and one of tub butter, K-2445, were examined. Tests indicated all to be genuine butter. Fat was not below the standard of 80 percent, and moisture was not excessive.

Four samples, K-750 to 753 inclusive, were examined for moisture and fat content. The samples were passed as of standard quality; and also passed on the item of cleanliness by the Greene test.

One sample however, K-418, was very rancid and examination of the residue from the melted and filtered fat showed rodent hairs and nondescript dirt, rating the butter as unclean and unfit for consumption.

Mayonnaise Dressing and Salad Dressing

Mayonnaise, or mayonnaise dressing, or mayonnaise salad dressing is officially defined as the semi-solid emulsion of edible vegetable oil, egg yolk, or whole egg, a vinegar, and/or lemon juice, with one or more of the following: salt, other seasoning commonly used in its preparation, sugar and/or dextrose. The finished product contains not less than 50 percent of edible vegetable oil.

There is no official definition of a salad dressing, but such dressings are characterized by less food solids content than is found in mayonnaise, and by a vegetable oil content of less than 50 percent.

Fourteen samples of mayonnaise and nine of salad dressing were submitted by the Dairy and Food Commissioner and the analyses are given in Table 4, page 692.

The calculated composition, as the term indicates, is an approximation of the several essential ingredients of the products calculated from the analyses. The difference from 100 percent is due to error in estimating gross ingredients from analytical data involving small magnitudes, and more especially from the fact that vinegar of greater or less acidity than 4 percent may have been used. In the salad dressings this difference is negative, the more conspicuous cases indicating the use of vinegar of less than 4 percent acidity, or of added water, or both.

TABLE 4. MAYONNAISE AND SALAD DRESSING

No.	Brand	Analyses: Total solids	Total fat	Total nitrogen	Total P_2O_5	Total acidity as acetic acid	Calculated Composition: Vegetable oil	Total egg	Minor constituents (sugar, salt, spices)	Vinegar (4% acidity)	Difference from 100%
	Mayonnaise	%	%	%	%	%	%	%	%	%	%
K—2505	Archer Sales Co., Bridgeport *Archer's Waldorf*	85.52	82.91	0.22	0.112	0.36	80.33	8.62	1.05	9.00	+ 1.00
K— 946	Best Foods, Inc., New York *Hellmann's Blue Ribbon*	84.92	80.41	0.17	0.040	0.37	79.54	8.48	3.31	9.25	+ .68
K—1030	Cain, John E. Co., Cambridge, Mass. *Cain's Mastermix*	84.97	80.14	0.23	0.100	0.43	77.26	9.68	3.79	10.75	+ 1.48
K— 943	First National Stores, Inc., Boston *Fi-Na-St*	84.33	78.12	0.25	0.102	0.53	76.80	10.78	3.43	13.25	+ 4.26
K—1016	Gen. Wholesale Grocery Co., Hartf'd *Delsey's Brand*	84.62	77.35	0.21	0.094	0.34	75.20	8.73	5.78	8.50	— 2.79
K—1024	Growers Outlet, Inc.,Chicopee, Mass. *Growers Best*	86.19	81.42	0.20	0.078	0.38	79.66	9.35	3.28	9.50	+ 1.79
K—1032	Hartford Market Co., Hartford *Queen's Taste*	92.68	89.11	0.14	0.036	0.25	88.32	6.85	2.59	6.25	+ 4.01
K—1028	Ivanhoe Foods, Inc., Auburn, N. Y. *Ivanhoe*	82.11	74.09	0.31	0.123	0.56	71.30	13.51	5.81	14.00	+ 4.62
K—1018	Kraft-Phenix Cheese Corp., Chicago *Kraft*	84.52	80.42	0.21	0.091	0.42	78.35	8.85	2.59	10.50	+ .29
K— 945	Leggett, Francis H. & Co., New York *Premier*	76.61	70.75	0.42	0.192	0.95	66.36	17.31	2.87	23.75	+10.29
K—1027	Mohican Co., New York *Mohican*	77.13	69.78	0.42	0.192	1.00	65.39	17.31	4.36	25.00	+12.06
K—1031	Seidner, Otto, Inc., Westerly, R. I. *Seidner's*	78.34	70.68	0.39	0.170	0.95	69.99	16.40	1.69	23.75	+11.83
K—1014	Seeman Bros., New York *White Rose*	82.08	77.38	0.21	0.083	0.60	75.50	9.16	3.20	15.00	+ 2.86
K—1021	Swift & Co., Chicago *Swift's, Brookfield*	78.97	72.81	0.26	0.119	0.34	70.09	10.71	4.31	8.50	— 6.39
	Salad Dressings										
K—1017	Gen'l Wholesale Groc'y Co.,Hartford *Delsey's Brand Salad*	63.40	46.30	0.15	0.070	0.68	44.70	6.72	15.96	17.00	—15.62
K—1023	Gen'l Wholesale Groc'y Co., Hartford *Desire Brand Salad*	46.82	17.25	0.06	0.028	1.13	16.61	2.45	29.15	28.25	—23.54
K—1025	Growers Outlet, Inc., Chicopee,Mass. *Growers Best Salad*	53.14	36.71	0.17	0.065	1.07	35.24	7.50	15.22	26.75	—15.29

TABLE 4. (Continued)

No.	Brand	Analyses						Calculated Composition				
		Tot l solids	Tot l fat	Total nitrogen	Total O_5	Total acidity as acetic acid	Vegetable oil	Ash	Other constituents (sugar, salt, spices)	Vinegar (4% acidity)	Difference from 100%
	Salad Dressings	%	%	%	%	%	%	%	%	%	%
K—1029	Ivanhoe Foods, Inc., Auburn, N. Y. *Ivanhoe Premium Brand Salad*	52.75	35.25	0.07	0.032	0.97	34.52	2.88	17.00	24.25	—21.35
K— 947	Kraft-Phenix Cheese Corp., Chicago *Miracle Whip*	65.10	50.78	0.15	0.064	1.18	49.32	6.36	13.25	29.50	— 2.57
K— 944	Millbrook Products Co., Somerville, Mass. *Belmont*	62.29	48.70	0.22	0.078	0.97	46.95	9.94	12.02	24.25	— 6.84
K—1026	Mohican Co., New York *Mohican Salad*	52.81	34.35	0.14	0.058	0.94	33.03	6.00	17.46	23.50	—20.01
K—1015	Seeman Bros., Inc., New York *White Rose Salad*	41.20	20.78	0.08	0.031	0.62	20.08	3.52	19.95	15.50	—40.95
K—1022	Swift & Co., Chicago Swift's *Brookfield Salad*	59.10	40.21	0.14	0.060	0.83	38.32	5.92	18.41	20.75	—16.60

MEAT PRODUCTS, ETC.

Hamburg Steak

Ten samples of ground steak, hamburg, were examined. One, obtained at the City Cash Market in Norwich, contained sulphite, an illegal preservative. The other samples were passed.

Meat Preservative

Two samples of powders for pickling and curing meats were examined. Sample S-90 was "F.L.P." powder and the other, S-394, was "OK Pickle", both made by the Preservative Mfg. Co., Brooklyn, N. Y. Both were essentially mixtures of salt and Chile saltpeter, permissible preservatives for meats.

Frankfurt Sausage

Meat normally contains no significant amount of sugars, but sucrose and/or dextrose may be used in curing meat. These sugars may be used in the preparation of frankfurt meat, and since skim milk powder may be added under certain restrictions, lactose may also be present. The osazone test serves to identify lactose qualitatively, but the presence of dextrose interferes with its quantitative determination by the usual reduction methods.

A method for the determination of lactose in the presence of dextrose was given in our report last year (Conn. Exp. Sta., Bul. 401, p. 870). It is based upon the selective adsorptive action of live yeast upon fermentable sugars. Yeast adsorbs dextrose quantitatively, leaving lactose in solution. Sucrose, being non-reducing, does not interfere. The following summary shows recoveries of lactose made by the yeast method when known quantities of lactose and/or dextrose were added to frankfurt meat. The additions were made directly to the samples to be analyzed, so that the factor of possible uneven distribution of sugars in a meat mixture was eliminated.

1. Frankfurt meat analyzed by the yeast method showed no dextrose and no lactose.

1-a. To above meat (1) was added sufficient skim milk powder (3.5 percent) to be equivalent to 1.96 percent of lactose. The lactose recovered was 1.95 percent.

1-b. To meat (1) were added skim milk powder equivalent to 1.96 percent lactose, and dextrose, as such, equivalent to 0.5 percent. The lactose recovered was 1.89 percent.

2. Frankfurt meat analyzed by the yeast method showed 0.45 percent of dextrose and 3.11 percent of lactose. (Dextrose and lactose both clearly indicated by the osazone test).

2-a. To meat (2) was added sufficient dextrose, as such, to make 0.95 percent dextrose, with no addition of lactose. Lactose recovered was practically the same as in (2), 3.09 percent.

3. Frankfurt meat showed on analysis by the yeast method 0.97 percent dextrose and no lactose.

3-a. To meat (3) was added skim milk powder sufficient to make 1.96 percent lactose. Lactose recovered was 1.85 percent.

These results show that for magnitudes of dextrose and lactose likely to be found in meat products of this type, lactose may be determined with a very satisfactory degree of accuracy. In the course of these trials it was found that sugars disappear from frankfurt meat after removal from the casings, due probably to fermentative action brought about by micro-organisms. Thus a sample of frankfurt meat containing 1.24 percent of dextrose showed only 0.97 percent of that sugar after standing in a refrigerator for two days. Another sample containing 5 percent of dextrose and lactose showed no reducing sugar after standing in a refrigerator for two weeks.

The presence of lactose in frankfurts is presumptive evidence of the presence of skim milk powder and it affords a basis for inquiry into manufacturing methods in cases where skim milk powder is not declared.

Fifty percent is a fair average for the lactose content of skim milk powder, hence the percentage of skim milk powder in a given sample is reasonably well approximated at twice the lactose percentage found. As some powders may contain somewhat more lactose than 50 percent, a factor of 1.8 gives the sample the benefit of any doubt in this respect.

Thirty-one official samples of frankfurts were examined, sixteen of which were passed. In fifteen samples fillers were not declared or were present in excess of the 3.5 percent allowed by regulation. Soybean flour was found in three of the latter group.

In some grades of frankfurts, fillers, such as cereal, vegetable flour or skim milk powder, are used to enhance the absorptive power of the meat mix. The practice is not objectionable within reasonable limits. Regulations have fixed the limit of such additions at 3.5 percent.

Eleven unofficial samples were examined.

Bologna

The same methods are employed in the examination of bologna as of frankfurts.

Of eleven samples examined, three were passed and eight were misbranded because of failure to declare fillers or because of excessive additions of such material. The fillers used were the same as found in frankfurts except that soybean flour was more often used.

One sample was suspected of containing a foreign metallic substance (wire) but no evidence of such was found.

MILK AND MILK PRODUCTS

Vitamin D Milk

The status of vitamin D milk in the dietary is fully discussed in a report of the Council on Foods of the American Medical Association published in the journal of that association in the issue of January 16, 1937.

This commodity has an established place in the milk supply in this State, and, since September 1935, it has been subject to systematic inspection and control by the Dairy and Food Commissioner, biological tests being made in the Nutrition Division of this laboratory with funds appropriated for food control.

There are a variety of ways in which vitamin D potency may be imparted to milk, but the three used in this State are irradiation, addition of cod liver oil concentrate and yeast feeding. The usual unitage secured by irradiation is 135 per quart, but 400 units may be secured by this means.

Results of tests are reported to the Commissioner and all questionable samples are investigated and retests made to insure that corrective measures have been taken by producers.

A summary of the results of tests made since the beginning of the inspection in 1935 to the end of the year 1937 is as follows:

	By Irradiation	C.L.O. Concentrate	Yeast Feeding
1935			
Satisfactory	4	2	4
Passed	..	2	..
Below standard	1	1	..
1936			
Satisfactory	9	20	20
Passed	..	2	4
Below standard	..	..	7
1937			
Satisfactory	9	32	24
Passed	1	5	..
Below standard	..	5	2

In the last year, of 78 samples tested, 65 were satisfactory, 6 passed, and 7 were below standard.

The above tabulation is a summary of inspection experience and not a basis for judging the relative merits of the several types of fortification.

Three unofficial samples were tested.

Plain Milk

Five official samples of milk were tested. No evidence of watering or skimming was found but two samples were below standard and three were passed.

Six hundred and fifty samples were tested for dairymen who wished to check their own herd production or the quality of milk from individual cows.

Skim Milk

Two samples submitted by a producer were tested for fat content.

Cream

One official sample of cream, W-261, was tested for evidence of thickeners, with negative results.

Fourteen samples were examined for producers.

SPRAY RESIDUE

One hundred and thirteen samples of apples were submitted by the Dairy and Food Commissioner to be examined for spray residue. In judging samples, tolerances of 0.01 grain of arsenic (As_2O_3) and 0.018 grain of lead (Pb) per pound of fruit have been observed as in several years past.

One hundred and four samples were passed. Nine exceeded the limit for lead, but in eight of them the quantities found did not exceed 0.025 grain per pound. One sample contained 0.040 grain per pound.

One sample of celery was examined. The residue was one of Bordeaux mixture and not an arsenical.

A sample of grapes, examined for the Health Department of New Haven, contained a trace of copper and a little (0.5 p.p.m.) arsenic, the latter well within the tolerance.

Seven samples of apples were examined for growers.

Sixty-two samples of apples and discs of apple leaves were examined for lead or arsenic, or both, in connection with experimental work conducted by Dr. Garman of the Department of Entomology, with Mr. Shepard of this laboratory collaborating.

TOMATO PRODUCTS

Tomato Juice, Canned

Tomato juice is widely consumed because of its pleasing taste and because it is generally recognized as one of the so-called "protective foods", being a good source of the antiscorbutic factor, vitamin C.

TABLE 5. VITAMIN C CONTENT OF COMMERCIAL CANNED TOMATO JUICE

No.	Brand	Vitamin C
		Mgm./gm.
64059	Anne Page (A. & P.)	0.22
64055	Beechnut	0.14
6188	Beechnut	0.16
6189	Blue Bar	0.22
6190	Blue Label (Curtice)	0.17
64053	Campbell's	0.17
6195	Campbell's	0.16
64061	Carolina Yellow	0.32
6111	C H B	0.22
6112	College Inn	0.17
6113	College Inn (cocktail)	0.15
6191	Crosse-Blackwell	0.22
6192	Gibb's	0.29
6114	Gibson	0.23
1703	Health Mode	0.18
64056	Heinz	0.26
6115	Heinz	0.21
6193	Hurff	0.20
64050	Iona (A. & P.)	0.14
63198	Kemp's	0.18
6116	Kemp's	0.13
63197	Libby	0.20
6117	Libby's Fancy	0.18
64051	Ritter	0.18
6194	Ritter	0.17
64054	Sachem's Head	0.12
6118	Stokeley's Finest	0.16
6119	Van Camp's	0.22
6110	Vincennes	0.23
64052	Welch's	0.14

Eighteen samples were tested for vitamin C content, the samples being submitted by courtesy of the Council on Foods of the American Medical Association, and our results included in a report of the Council (J. Am. Med. Assoc., Feb. 26, 1938, p. 650-51).

Twelve samples were examined by us last year, (Conn. Exp. Sta. Bul. 401, p. 872, 1937), the samples being submitted by the Dairy and Food Commissioner.

Climatic and soil conditions influence vitamin content, as do also processing methods. The highest vitamin C content was found in juice from yellow tomatoes, but whether this is characteristic of the yellow variety we do not know.

A summary of the brands tested in the two years is given in Table 5.

Tomato Puree

Two official samples of tomato puree, K-2143 and K-2144, were examined for us by the New York Station. There were six cans in each lot. Only one can in each lot showed excessive mold count (over 50 percent positive fields).

VINEGAR

Twenty-two official samples of vinegar were examined. Seventeen were passed and five were below standard or otherwise illegal or objectionable.

Three samples were examined for a producer.

WHITE WINE

Fourteen samples of white wines were examined with reference to alcohol and sulphur dioxide contents. Samples were submitted by the Dairy and Food Commissioner.

Alcohol ranged from 11 to 20 percent by volume.

Sulphur dioxide (SO_2) was determined both volumetrically and gravimetrically. The sulphur dioxide content in the 14 samples can be summarized as follows:

Less than 10 p.p.m.	4
Over 10, less than 25 p.p.m.	3
Over 25, less than 100 p.p.m.	1
Over 100, less than 200 p.p.m.	2
Over 200, less than 300 p.p.m.	3
Over 400 p.p.m.	1

We have no information as to what should be regarded as a "normal" or permissible limit for sulphur dioxide in white wines, but since the above data show that half of the samples contain less than 25 p.p.m. of SO_2, it is not apparent why others need have from 10 to 20 times as much. Possibly some amount of the order of 30 or 40 p.p.m. would be reasonable. Under our regulations the presence of sulphur dioxide should be declared.

The results are given in Table 6, page 700.

TABLE 6. WHITE WINES

No.	Brand Name	Manufacturer or Distributor	Dealer	Alcohol % by Volume	Sulphur Dioxide parts per million
S—155	Great Western White Tokay	Pleasant Valley Wines Co., Rheims, N. Y.	**Branford** Branford Pharmacy	17.84	22.5
S—223	Bordeaux Blanc Supérieur	T. Jouvet & Cie., Bordeaux, France	**Clinton** Colonial Wine Cellar	11.64	209.9
S—212	Monarch Special Reserve American White Port	Monarch Wine Co., New York	**East Hampton** Chatham Pharmacy	19.26	205.0
S—218	Dewey's Columbia White American Light	H. T. Dewey & Sons Co., Egg Harbour, N. J.	**Essex** Hyde Drug Co	12.40	3.6
S—273	Garrett's Virginia Dare	Garrett & Co., Inc., Brooklyn, N. Y.	**Jewett City** Charles R. Carey	**14.04**	257.5
S—238	Gold Seal White Port	Urbana Wine Co., Urbana-Hammondsport, N. Y.	**Naugatuck** Naugatuck Drug Co.	17.86	3.0
S—132	California Sauterne	Kings Wines Inc., New York City	**New Haven** Max Bell	13.54	81.2
S—133	Olympic California White Port	Fruit Industries, Ltd., Brooklyn, N. Y.	Max Bell	18.96	18.4
S—219	F. I. Special California White Port	Fruit Industries, Ltd., San Francisco, Calif.	**Old Saybrook** James Pharmacy	19.34	25.0
S—240	Graves	F. Chauvenet, Margaux, France	**Seymour** Corner Drug Store	11.96	167.1
S—165	Private Stock California White Port	Gambarelli & Davitto, Jersey City, N. J.	**Stafford Springs** Central Package Store	19.54	2.2
S—147	Southern Cross Australian Sauternes	Skinner & Eddy Corp., New York	**Thompsonville** Great Atlantic & Pacific Tea Co.	11.12	445.9
S—190	New York State White Port	Taylor Wine Co., Hammondsport, N. Y.	**Torrington** Liggett's Drug Store	17.76	1.9
S—184	Gold Coast American White Burgundy	S. S. Pierce Co., Boston, Mass.	**Winsted** Laurel City Package Store	**12.58**	124.8

MISCELLANEOUS FOODS, ETC.

Seventy-nine samples of miscellaneous foods and other materials have been examined. These have been reported to the departments or individuals interested, and only a few are cited here for purposes of reference.

4291. *Dried, ground beets.* Submitted by the Genetics Department of this Station. Analysis:

Direct reducing sugars 1.82 percent calc. as invert sugar; sucrose 48.17 percent. Sugars were extracted with hot 80 percent alcohol in presence of calcium carbonate.

4209-4296 incl. *Peach branches* submitted by the Department of Botany of this Station. Determinations of ash, calcium and zinc were made. Results are for record or report by the above-named department.

5207-5212 incl. *Maple sap* submitted by Northeastern Forest Experiment Station, New Haven. Analysis:

Sucrose range 2.91 to 5.75 gms. per 100 cc; invert sugar range 0.08 to 0.90 gm. per 100 cc; total sugars 3.19 to 5.83 gms. per 100 cc.

7611. *Berries of Multiflora Japonica.* C. R. Burr and Co., Manchester. Analysis:

Moisture 13.42 percent, ash 3.88 percent, protein 7.93 percent, fiber 21.95 percent, nitrogen-free extract 47.17 percent, fat (ether extract), 5.65 percent.

4335. *Cattle Lick.* Killshire Farms, Wallingford. A reddish cake or brick.

Analysis indicated the cake to contain about 90 percent salt, with a little calcium carbonate, phosphate and sulphate, colored with native iron oxide.

6236-6241 incl.; 6007-09 incl. *Nicosan Cigars.* The M & M Cigar Manufacturers, Inc., Cleveland, Ohio.

Total nicotine ranged from 0.61 percent to 1.23 percent, and free nicotine from 0.39 percent to 0.63 percent.

S-78. *Cocoloid.* Submitted by the Dairy and Food Commissioner. A product said to be used as a thickener for cream. Analysis:

Moisture 12.25 percent, ash 21.59 percent, protein (N x 6.25) 1.13 percent, fiber 0.30 percent, N-free extract 64.60 percent, fat (ether extract) 0.13 percent, sucrose, 11.23 percent, invert sugar 4.98 percent, starch 4.11 percent, gums (by diff.) 44.28 percent, SiO_2 0.31 percent, Fe_2O_3 + Al_2O_3 none, CaO 0.73 percent, MgO 0.16 percent, Na_2O 11.05 percent, K_2O 0.11 percent, Cl 0.24 percent, SO_3 0.40 percent, P_2O_5 1.86 percent, B_2O_3 0.10 percent, Na_2CO_3 (from alkalinity to phenolphthalein) 3.01 percent, $NaHCO_3$ (from alkalinity to methyl orange) 9.00 percent.

The product appears to be essentially a mixture of a gum (probably Irish moss or a similar substance), a little starch and borax, some sugar and considerable sodium carbonate and bicarbonate.

4120. *Milk Mineral Salts*, submitted by the Dairy and Food Commissioner. Analysis was made as follows:

Moisture 0.50 percent, ash 7.96 percent, calcium oxide 3.00 percent, magnesium oxide 1.85 percent, chloride 1.50 percent, direct reducing sugar (calc. as dextrose) 91.45 percent, after inversion (calc. as dextrose) 92.17 percent.

The product appears to resemble calcium sucrate, but with the minerals combined or mixed with dextrose instead of sucrose.

9240. *Soy bean milk.* Sample submitted by a physician. Analysis:

Solids 9.06 percent, fat 3.22 percent, ash 0.51 percent, protein (N x 6.25) 2.38 percent, calcium oxide 0.025 percent.

DRUGS

BLAUD'S PILLS

Pills of ferrous carbonate (Blaud's pills) according to the U.S.P. specification contain in each pill not less than 0.06 gm. of ferrous carbonate, $FeCO_3$.

Twenty-three samples were examined for the Dairy and Food Commissioner and the results are summarized in Table 7.

None of the samples were substantially below standard, and as there is no upper limit officially fixed those showing large excesses are probably not in violation of the official standard. However, in the Table samples showing excess medicament greater than 10 percent are designated as too strong to distinguish them from samples that are closer to the U.S.P. specification.

LIQUID DIGIGLUSIN

One sample was submitted and examined for evidence of drugs other than digitalis, but no indication of other drugs was found.

TABLE 7. PILLS OF FERROUS CARBONATE

No.	Druggist	Manufacturer	Ferrous carbonate gm./pill	Remarks
	Bloomfield			
S— 229	Bloomfield Pharmacy	American Pharmaceutical Co., New York, N. Y.	0.061	O. K.
	Branford			
S— 154	The Spaulding Co	Parke, Davis & Co., Detroit, Mich	0.083	Too strong
	Bristol			
K—1105	George Blackall		0.147	Too strong
S— 170	The Boulevard Pharmacy	Eli Lilly & Co	0.066	O. K.
	Colchester			
S— 211	A. T. Van Cleve	Eli Lilly & Co	0.086	Too strong
	Danbury			
S— 303	Smith's Pharmacy	Amer. Pharmaceutical Co., New York, N. Y.	0.061	O. K.
S— 294	Wixler's Pharmacy	McKesson & Robbins, Bridgeport	0.059	Pass
	Hartford			
S— 289	Hillside Pharmacy	Eli Lilly & Co	0.066	O. K.
S— 284	Malley Drug Co.	Sharp & Dohme, Baltimore	0.054	Pass
	Manchester			
K—1102	Center Pharmacy	Parke, Davis Co., Detroit, Mich	0.077	Too strong
	Meriden			
S— 228	Lynch Drug Co., Inc.	Burroughs-Wellcome Co., N. Y.	0.070	Pass
	Middletown			
S— 322	J. P. Kinsella	Eli Lilly Co	0.068	Pass
S— 324	Miscinti's Drug Store	Eli Lilly Co	0.066	O. K.
S— 325	Murphy's Drug Store	McKesson & Robbins, Bridgeport	0.073	Pass
	New Haven			
S— 376	Dixwell Pharmacy	Eli Lilly Co	0.066	O. K.
	New London			
S— 207	Callahan's Pharmacy	McKesson & Robbins, Bridgeport	0.069	Pass
S— 206	Taylor's Pharmacy	Brewer & Co., Worcester, Mass	0.091	Too strong
	Rockville			
S— 161	Arthur Drug Stores, Inc.	Parke, Davis & Co., Detroit, Mich	0.085	Too strong
	Southington			
S— 314	Chaffee Pharmacy	Parke, Davis & Co., Detroit, Mich	0.085	Too strong
	Stafford Springs			
S— 164	Delminoco's Drug Shoppe	Eli Lilly & Co	0.078	Too strong
	Thompsonville			
S— 149	Thompsonville Drug Co.	Eli Lilly & Co	0.066	O. K.
	Unionville			
S— 329	Paul F. Flynn	Eli Lilly & Co	0.069	Pass
	Windsor			
S— 143	Prouty Pharmacy	United Drug Co., Boston, Mass	0.071	Pass

FOWLER'S SOLUTION

The U.S.P. standard for this preparation is not less than 0.95 and not more than 1.05 gm. arsenic trioxide (As_2O_3) per 100 cc.

Of 84 official samples 64 were within the U.S.P. limits and satisfactory, 19 were within 10 percent of those limits and passed, and one was below standard, though barely over the 10 percent tolerance.

Many of the samples were colored and flavored in accordance with the directions of the U.S.P.X but this practice is not in accordance with the present official text, U.S.P.XI. We have not classed flavored and colored samples as below standard but have noted the fact in each case. The results are summarized in Table 8.

TABLE 8. ANALYSES OF FOWLER'S SOLUTION

D.C. Nos.	Dispenser	Manufacturer	As_2O_3 gms./ 100 cc.	Remarks
	Beacon Falls			
S— 248	Beacon Falls Pharmacy	McKesson & Whittlesey, New Haven	**0.95**	**O.K.**
	Bethel			
S— 304	The English Drug Co	Eli Lilly & Co	1.04	O.K.
	Bridgeport			
S— 344	Collins Pharmacy		0.97	O.K.[1]
	Bristol			
K—1104	Geo. Blackall		1.00	O.K.[1]
S— 173	Rickman's Drug Store	Sharp & Dohme, Phila.	1.00	O.K.[1]
S— 174	Leroy P. Tucker	Apothecaries Hall Co., Waterbury	0.95	O.K.[1]
	Canaan			
S— 364	Freeman Dempsey	Eli Lilly & Co	1.01	O.K.[1]
S— 363	Farnum's Drug Store	Eli Lilly & Co	1.01	O.K.
	Chester			
S— 216	Chester Pharmacy	C. S. Leete & Co., New Haven	0.87	Pass[1]
	Clinton			
S— 222	Mac's Drug Store	Sharp & Dohme, Phila.	1.04	O.K.
	Colchester			
S— 210	E. R. Holmes	Sisson Drug Co., Hartford	1.06	Pass[1]
	Collinsville			
S— 328	The Valley Pharmacy	Apothecaries Hall Co., Waterbury	0.94	Pass[1]
	Danielson			
S— 255	M. H. Bertheaume Pharmacy	Sharp & Dohme, Phila.	0.98	O. K.
S— 253	A. A. Bonneville	Eli Lilly & Co	1.05	O. K.
	Darien			
S— 339	Lombardi's Pharmacy	Eli Lilly & Co	1.06	Pass
	Deep River			
S— 217	La Place Pharmacy	McKesson & Whittlesey, New Haven	0.95	O. K.[1]
	Derby			
S— 243	Central Pharmacy	Apothecaries Hall Co., Waterbury	1.03	O. K.[1]
	East Haven			
S— 152	Holcomb Drug Co	McKesson & Robbins, Bridgeport	0.95	Pass[1]

TABLE 8. (Continued)

D.C. Nos.	Dispenser	Manufacturer	As_2O_3 gms./ 100 cc.	Remarks
S— 151	Metcalf's Drug Store	C. S. Leete & Co., New Haven	0.91	Pass[1]
	Fairfield			
S— 343	Clampett's Pharmacy.	Eli Lilly & Co	1.02	O. K.[1]
S— 342	Fairfield Pharmacy	Eli Lilly & Co	1.06	Pass
	Falls Village			
S— 367	Geo. E. Frink	McKesson & Robbins, New Haven	0.98	O. K.[1]
	Glenbrook			
S— 338	Glenbrook Pharmacy	Merck & Co., N. Y.	0.98	O. K.
	Hartford			
S— 139	Arsenal Pharmacy	Brewer & Co., Worcester, Mass.	1.00	O. K.[1]
S— 230	Euclid Pharmacy	Eli Lilly & Co	1.00	O. K.
S— 138	A. Laschever	Sisson Drug Co., Hartford	0.94	Pass[1]
S— 285	The Trinity Drug Co	Sisson Drug Co., Hartford	0.91	Pass
S— 232	Weaver Pharmacy	Crystal Chemical Co., N.Y.	1.01	O. K.[1]
	Jewett City			
S— 274	Redding's Drug Store	Eli Lilly & Co	1.01	O. K.[1]
	Litchfield			
S— 358	Sepple's Drug Store	Apothecaries Hall Co., Waterbury	0.97	O. K.[1]
	Madison			
S— 157	L. E. Jolly	Eli Lilly & Co	1.07	Pass[1]
S— 158	Monroe's Pharmacy	Own make	0.93	Pass[1]
	Meriden			
S— 308	Broderick & Curtin	McKesson & Robbins, New Haven	0.98	O. K.[1]
S— 311	Palace Pharmacy	Lilly & Co	1.00	O. K.[1]
S— 309	Whelan Drug Co	Parke, Davis & Co.	1.01	O. K.
	Middletown			
S— 320	Park View Pharmacy	McKesson & Robbins, New Haven	0.99	O. K.
S— 317	Whelan's Drug Store	Parke, Davis & Co	1.01	O. K.
S— 318	Woodward's Drug Store		0.95	O. K.
	Milford			
S— 370	John L. Hawes	McKesson & Whittlesey, New Haven	0.97	O. K.[1]
S— 371	Milford Pharmacy	Eli Lilly & Co	1.06	Pass
	Moosup			
S— 256	Lavallie & Brennan	United Drug Co., Boston	0.99	O. K.[1]
	New Haven			
K—1110	Beirne's Pharmacy		0.94	Pass[1]
S— 276	Bezner's Pharmacy	Eli Lilly & Co	1.01	O. K.[1]
S— 277	Freedman's Pharmacy		1.02	O. K.[1]
S— 281	Howe Pharmacy	Eli Lilly & Co	0.97	O. K.
	New London			
S— 202	The Nicholas & Harris Co.	Eli Lilly & Co	1.01	O. K.[1]
S— 203	Starr Bros.	United Drug Co., Boston	0.95	O. K.[1]
S— 201	State Drug Stores, Inc.	Eli Lilly & Co	1.03	O. K.
	New Milford			
S— 264	Park Pharmacy	Eli Lilly & Co	1.04	O. K.
S— 265	Harrison F. Bassett	John Wyeth & Bro., Philadelphia	1.00	O. K.[1]
	Niantic			
S— 209	Niantic Pharmacy	Apothecaries Hall Co., Waterbury	0.95	O. K.[1]

TABLE 8. (Continued)

D.C. Nos.	Dispenser	Manufacturer	As_2O_3 gms./ 100 cc.	Remarks
	Norfolk			
S— 362	Geo. T. Johnson Drug Co.	Eli Lilly & Co	1.03	O. K.[1]
	Norwalk			
S— 340	Harold A. Mead	Schieffelin & Co., N. Y.	1.02	O. K.
	Pawcatuck			
S— 198	Higgin's Pharmacy	Geo. L. Claflin Co., Providence	0.91	Pass[1]
	Plainville			
S— 177	Geo. R. Byington	Eli Lilly & Co	1.02	O. K.
	Putnam			
S— 252	Edward H. Burt	Eli Lilly & Co	1.01	O. K.[1]
S— 251	Wm. B. Carroll	United Drug Co., Boston	0.99	O. K.[1]
S— 249	G. A. Lemaitre	Geo. L. Claflin Co., Providence	1.03	O. K.[1]
	Ridgefield			
S— 302	The H. P. Bissell Co	Schieffelin & Co., N. Y.	1.02	O. K.
	Salisbury			
S— 365	Salisbury Pharmacy	Sharp & Dohme, Philadelphia	0.95	O. K.[1]
	Sharon			
S— 366	Clarence H. Eggleston	Gibson Snow Co., Albany, N. Y.	0.96	O. K.[1]
	Simsbury			
S— 369	Hoffert's Pharmacy	Sisson Drug Co., Hartford	1.06	Pass[1]
	Southport			
S— 341	Old Drug Store	Own make	0.96	O. K.[1]
	Stafford Springs			
S— 163	John A. Williams	Eli Lilly & Co	0.99	O. K.[1]
	Stamford			
S— 337	T. M. H. Jones Drug Store	Eli Lilly & Co	1.03	O. K.
	Stratford			
S— 346	Brodie Drug Co., Inc.	C. S. Leete & Co., New Haven	0.98	O. K.[1]
S— 345	Stratford Pharmacy		1.05	O. K.
	Taftville			
S— 275	Benoit's Pharmacy	Lee & Osgood, Norwich	0.84	Below standard[1]
	Terryville			
S— 353	Center Drug Store	Eli Lilly & Co	1.00	O. K.[1]
	Thompsonville			
S— 150	O'Brien's Pleasant Street Pharmacy	Mass. Wholesale Drug. Co., Springfield, Mass.	1.07	Pass
S— 148	Steel's Corner Grocery	United Drug Co., Boston.	0.99	O. K.[1]
	Torrington			
S— 191	Opperman's Drug Store	John Wyeth & Bro., Philadelphia	1.03	O. K.
S— 193	Webb & Seigel	McKesson & Whittlesey, New Haven	0.99	O. K.[1]
	Wallingford			
S— 226	F. W. Marx Pharmacy	Merck & Co., N. Y.	1.03	O. K.
	Washington			
S— 261	R. J. Benham	Own make	0.95	O. K.
	Washington Depot			
S— 262	The Rexall Store	R. J. Benham, Washingtno	0.98	O. K.[1]
S— 263	Washington Pharmacy	C. S. Leete & Co., New Haven	1.03	O. K.[1]

TABLE 8. (Continued)

D.C. Nos.	Dispenser	Manufacturer	As_2O_3 gms./ 100 cc.	Remarks
	West Haven			
S— 372	West Shore Pharmacy	.....	1.00	O. K.[1]
	Wethersfield			
S— 214	Wethersfield Pharmacy	Sisson Drug Co., Hartford	1.15	Pass[1]
	Willimantic			
S— 267	Windham Pharmacy	Own make	0.89	Pass[1]
	Windsor			
S— 144	The Central Drug Co.	Sisson Drug Co., Hartford	1.08	Pass[1]
	Windsor Locks			
S— 145	Kay Drug Co.	Eli Lilly & Co.	1.05	O. K.
	Winsted			
S— 185	Bannon's Drug Store	The Upjohn Co., Kalamazoo, Mich	1.01	O. K.
S— 186	Frank S. Bunnell	Sisson Drug Co., Hartford	1.05	O. K.[1]

[1] Pass as to As_2O_3 content, but colored and flavored with lavender.

SYRUP OF HYDRIODIC ACID

According to the U. S. Pharmacopoeia, syrup of hydriodic acid should contain not less than 1.3 nor more than 1.5 gms. of hydriodic acid per 100 cc.

Fifty official samples were examined and the analyses are given in Table 9.

Samples within the prescribed limits are regarded as satisfactory and those within 10 percent above or below are passed.

Thirty of the samples (60 percent) conformed strictly to the U.S.P. limits, and 10 of them (20 percent) were passed. Thus 80 percent were satisfactory or passable. The remainder were either too strong or too weak.

TABLE 9. ANALYSES OF SYRUP OF HYDRIODIC ACID

D.C. Nos.	Dispenser	Manufacturer	H I gms./ 100 cc.	Remarks
	Ansonia			
S— 247	The Bristol Drug Co.	Own make[1]	1.27	Pass
S— 241	Lear Bros. Drug Store	Own make[2]	1.48	O. K.
	Danbury			
S— 296	Lawson's Drug Store	Own make[1]	1.82	Too strong
	Derby			
S— 242	McCarthy's Pharmacy	Own make[2]	1.21	Pass
	Baltic			
S— 272	Baltic Pharmacy	United Drug Co., Boston	1.39	O. K.
	Branford			
S— 153	Brewers Drug Store	Own make	1.24	Pass
	Bristol			
K—1106	Geo. Blackall	.....	1.05	Below std.

TABLE 9. (Continued)

D.C. Nos.	Dispenser	Manufacturer	H I gms./ 100 cc.	Remarks
	Cromwell			
S— 215	Hitchcock's Pharmacy	Own make	1.18	Pass
	East Hampton			
S— 213	Burton Drug Co.	United Drug Co., Boston	1.42	O. K.
	East Hartford			
S— 351	Hartford Drug Co.	Upjohn Co.	1.31	O. K.
	Forestville			
S— 169	Kent's Pharmacy	Eli Lilly & Co.	1.39	O. K.
S— 176	Proctor's Pharmacy	Own make	1.17	Pass
	Guilford			
S— 156	Douden's Pharmacy	Own make	1.49	O. K.
	Hartford			
S— 231	Blue Hills Pharmacy	Own make[1]	1.32	O. K.
S— 233	Deerfield Pharmacy	S. E. Massengill Co., Bristol, Tenn	1.35	O. K.
S— 290	Jos. M. Dougherty, Inc.	Own make[1]	1.67	Too strong
S— 288	Freeman's Drug Co.	Eli Lilly & Co.	1.07	Below std.
S— 234	Kaufman's Pharmacy	Own make[2]	1.75	Too strong
S— 141	Merkin's Pharmacy	R. W. Gardner, Orange, N. J.	1.48[3]	O. K.
S— 140	Windsor Ave. Pharmacy	Own make	1.10	Below std.
	Manchester			
K—1100	Edward J. Murphy	.....	1.25	Pass
	Meriden			
S— 306	Adam's Pharmacy	Eli Lilly & Co.	1.36	O. K.
S— 312	H. T. Graeber	Own make[1]	1.21	Pass
S— 305	H. F. Pigeon	Eli Lilly & Co.	1.41	O. K.
	Middletown			
S— 321	Cassidy's Pharmacy	Own make[1]	1.43	O. K.
S— 316	Cronin's Drug Store	Own make[2]	1.37	O. K.
S— 315	Liggett's Drug Store	United Drug Co., Boston	1.36	O. K.
S— 319	Pelton's Pharmacy	Own make[1]	1.39	O. K.
	Moodus			
S— 326	Moodus Drug Store	United Drug Co., Boston	1.40	O. K.
	Moosup			
S— 257	Moosup Pharmacy	Own make[1]	1.14	Below std.
	Naugatuck			
S— 235	Olson's Drug Store	United Drug Co., Boston	1.36	O. K.
	New Britain			
S— 336	F. J. Tinte	Own make[2]	0.77	Below std.
	New Hartford			
S— 180	Marble Pharmacy	Eli Lilly & Co.	1.37	O. K.
	New Haven			
K—1111	Beirne's Pharmacy	.....	1.17	Pass
S— 283	Flaxer's Pharmacy	Own make[2]	1.34	O. K.
S— 375	Milici's Pharmacy	Sharp & Dohme	1.29	Pass
	New London			
S— 205	James Drug Store	Own make	1.43	O. K.
S— 208	Montauk Pharmacy	Own make[1]	1.30	O. K.
S— 204	Whelan Drug Co.	Own make	1.44	O. K.
	North Haven			
S— 224	North Haven Pharmacy	Own make[1]	1.39	O. K.
	Putnam			
S— 250	Joseph A. P. Gagne	Own make[1]	1.23	Pass

TABLE 9. (Continued)

No.	Druggist	Manufacturer	H I gms./ 100 cc.	Remarks
	Rockville			
S— 162	Lee Pharmacy	Sharp & Dohme, Philadelphia	1.33	O. K.
S— 159	Vincent Pharmacy	Own make[1]	0.94	Below std.
	Suffield			
S— 146	Suffield Pharmacy	Eli Lilly & Co.	1.42	O. K.
	Thomaston			
S— 354	Latimer's Drug Store	Eli Lilly & Co.	1.35	O. K.
	Torrington			
S— 361	Park Pharmacy	Eli Lilly & Co.	1.37	O. K.
	Wallingford			
S— 227	Modern Drug Store	Own make[1]	1.12	Below std.
	Westbrook			
S— 220	Westbrook Pharmacy	United Drug Co., Boston	1.43	O. K.
	Willimantic			
S— 266	Nathan Hale Drug Store	Own make[1]	1.45	O. K.
	Woodbury			
S— 259	Woodbury Drug Co.	Eli Lilly & Co.	1.35	O. K.

[1] From Lilly's Concentrate.
[2] From Wyeth's Concentrate.
Marked "Not U.S.P."

SYRUP OF FERROUS IODIDE

Syrup of Ferrous Iodide according to the U. S. Pharmacopœia should contain not less than 6.5 nor more than 7.5 gms. of ferrous iodide in each 100 cc.

Of 78 official samples examined 31 were strictly within the official limits, and 45 were within 10 percent above or below those limits. All but two samples were either satisfactory or passable.

The results are given in Table 10.

TABLE 10. ANALYSES OF SYRUP OF FERROUS IODIDE

D.C. No.	Dispenser	Manufacturer	FeI_2 gms./ 100 cc.	Remarks
	Bantam			
S— 356	Bantam Pharmacy	Own make[1]	6.68	O. K.
	Bristol			
K—1107	Geo. Blackall		6.56	O. K.
S— 171	Central Drug Co., Inc.	Merck & Co., Inc., N. Y.	6.25	Pass
S— 175	The Holley Pharmacy, Inc.	United Drug Co., Boston	6.41	Pass
S— 172	Whelan Drug Co.	Own make	6.67	O. K.
	Broad Brook			
S— 168	Pigeon's Pharmacy	Eli Lilly & Co.	6.12	Pass
	Cheshire			
S— 378	Warner's Drug Shop	Own make[1]	6.46	Pass
	Collinsville			
S— 327	McNamara's Pharmacy	Eli Lilly & Co.	6.38	Pass

TABLE 10. (Continued)

D.C. No.	Dispenser	Manufacturer	FeI_2 gms./ 100 cc.	Remarks
	Danbury			
S— 300	Burnes Drug Store	Schieffelin & Co.	6.73	O. K.
S— 293	Fairfield Pharmacy	Eli Lilly & Co.	6.49	Pass
S— 299	Kinner's Drug Store	Own make[1]	6.25	Pass
S— 298	H. E. Northrop Pharmacy	Eli Lilly & Co.	6.85	O. K.
S— 297	Pershing's Pharmacy	Own make[1]	6.24	Pass
S— 295	The Steven's Drug Store	Own make[2]	6.35	Pass
S— 292	Ziegler's Drug Store	Own make[1]	6.76	O. K.
	East Hartford			
S— 350	Noble Drug Store	Eli Lilly & Co.	6.55	O. K.
S— 348	People's Drug Store	Eli Lilly & Co.	6.62	O. K.
S— 347	Elm Pharmacy	Eli Lilly & Co.	6.12	Pass
S— 349	Powell Drug Co.	United Drug Co., Boston	6.63	O. K.
	Elmwood			
S— 291	Elmwood Drug Co.	Eli Lilly & Co.	6.61	O. K.
	Farmington			
S— 331	Colonial Pharmacy	Eli Lilly & Co.	6.65	O. K.
	Groton			
S— 200	C. S. Woodhull Davis.	Own make[1]	6.63	O. K.
S— 199	State Drug Store	Own make[1]	6.32	Pass
	Hamden			
S— 137	The Concord Pharmacy	Own make	5.46	Below std.
S— 136	The Hamden Pharmacy	Own make	6.59	O. K.
	Hazardville			
S— 167	Hazardville Pharmacy	Own make	5.75	Below std.
	Hartford			
S— 286	The College Pharmacy	Eli Lilly & Co.	6.79	O. K.
	Litchfield			
S— 357	Corner Drug Store	Merck & Co., N. Y.	6.20	Pass
S— 359	Marley Pharmacy	Own make[1]	6.41	Pass
	Meriden			
S— 313	French's Pharmacy	Eli Lilly & Co.	6.71	O. K.
S— 307	Graeber's Pharmacy, Inc.	Sisson Drug Co., Hartford	6.65	O. K.
S— 310	Liggett's Drug Store	United Drug Co., Boston	6.74	O. K.
	Middletown			
S— 323	Milardo's Pharmacy	Mallinckrodt Chem. Works	6.35	Pass
	Mystic			
S— 195	Knox Drug Store	Own make[1]	6.31	Pass
S— 196	Mystic Pharmacy	Merck & Co., Rahway, N.J.	6.42	Pass
	Naugatuck			
S— 236	Albert R. Adams	Own make[1]	6.03	Pass
S— 237	Buckley's Drug Store	Own make[1]	6.40	Pass
	New Britain			
S— 334	City Drug Store	Own make[2]	6.48	Pass
S— 333	Nesto's Pharmacy	Own make[1]	6.97	O. K.
S— 335	Stanley Pharmacy	Own make[2]	6.68	O. K.
	New Haven			
S— 332	Axelrod's Pharmacy	Own make[1]	6.44	Pass
K—1112	Beirne's Pharmacy		6.23	Pass
S— 278	D'Andrea's Pharmacy	Own make[1]	6.56	O. K.
S— 282	Foley Drug Co.	Own make[2]	6.81	O. K.
S— 279	Hotchkiss Pharmacy	Eli Lilly & Co.	7.15	O. K.
S— 280	J. Albert Johnson	Own make[1]	6.34	Pass
S— 373	Mayer's Drug Shop	Eli Lilly & Co.	6.60	O. K.
S— 135	Christine C. Visel	Eli Lilly & Co.	6.69	O. K.

TABLE 10. (Continued)

D. C. No.	Dispenser	Manufacturer	FeI_2 gms./ 100cc.	Remarks
	Plainville			
S— 179	Plainville Pharmacy	Eli Lilly & Co	6.48	Pass
S— 178	Thrall's Drug Store, Inc.	Mallinckrodt Chem. Works	6.28	Pass
	Plantsville			
S— 379	F. J. Hallahan	Eli Lilly & Co	6.34	Pass
	Ridgefield			
S— 361	Geo. A. Mignerey	Own make[1]	6.04	Pass
	Rockville			
S— 160	Metcalf's Drug Store	Own make[1]	6.52	O. K.
	Seymour			
S— 239	Geo. Smith & Son	Own make[1]	6.42	Pass
	Shelton			
S— 245	Burden Pharmacy	Own make	6.46	Pass
S— 244	Mahoney's Cor. DrugStore	Mallinckrodt Chem. Works	6.47	Pass
	Simsbury			
S— 368	Lincoln Drug Store	Own make[1]	6.45	Pass
	Southington			
S— 377	Oxley's Drug Store	Own make[1]	6.23	Pass
	Stonington			
S— 197	Frances J. Connors	Merck & Co., N. Y.	6.33	Pass
	Terryville			
S— 352	Pelchar's Pharmacy	Own make[1]	6.38	Pass
	Thomaston			
S— 355	Lemmon Pharmacy	Eli Lilly & Co	6.66	O. K.
	Torrington			
S— 192	Arthur Drug Stores, Inc.	Mallinckrodt Chem. Works	6.24	Pass
S— 360	Doyle's Drug Store	Own make[1]	6.45	Pass
S— 189	Liggett's Drug Store	United Drug Co., Boston	6.49	Pass
S— 188	North End Drug Store	Mallinckrodt Chem. Works	6.33	Pass
S— 187	Smith's Pharmacy	Eli Lilly Co	6.65	O. K.
S— 194	Torrington Pharmacy	Own make[1]	6.49	Pass
	Unionville			
S— 330	Gramp's Pharmacy	Mallinckrodt Chem. Works	6.28	Pass
	Wallingford			
S— 225	Moran's Pharmacy	Eli Lilly & Co	6.56	O. K.
	West Haven			
S— 374	Silver's Drug Shop	Wyeth's	6.43	Pass
	Willimantic			
S— 270	Bay State Drug Co	Own make[1]	5.95	Pass
S— 269	Curran & Flynn	Own make[1]	6.48	Pass
S— 271	J. J. Hickey Drug Co	Own make[1]	6.28	Pass
S— 268	Wilson Drug Co., Inc.	Own make[1]	6.14	Pass
	Winsted			
S— 182	The City Pharmacy	Eli Lilly & Co	6.50	O. K.
S— 183	Opera House Pharmacy	Own make[1]	6.21	Pass
S— 181	Sceery & Ivery	Eli Lilly & Co	6.69	O. K.
	Woodbury			
S— 260	Corner Drug Store	Eli Lilly & Co	6.59	O. K.

[1] From ampule (Lilly & Co.)
[2] From ampule (Parke, Davis & Co.)
[3] From Wyeth's concentrate.

MILD TINCTURE OF IODINE

Two samples of Mild Tincture of Iodine were examined. This preparation should contain 1.8 to 2.2 gms. of iodine and 2.1 to 2.5 gms. of sodium iodide in each 100 cc. Both samples were satisfactory. They were obtained at George Blackall's Pharmacy, Bristol, and at Beirne's Pharmacy, New Haven.

SOLUTION OF MAGNESIUM CITRATE

The U. S. Pharmacopœia requires that this preparation contain in each 100 cc not less than 1.6 gm. and not more than 1.9 gm. of magnesium oxide, and not less than 9.11 gm. of total citric acid. It should be free from sulphate.

Of the 20 official samples examined, 14 are passed as reasonably near the U.S.P. standard; five are distinctly below standard. Results are given in Table 11.

One sample, S-258, was labelled "Effervescing Magnesia Solution". It was a special formula and labelled as containing in each fluid ounce 17 grains citric acid, 6.5 grains magnesium carbonate, 0.20 grain benzoic acid and 8 grains of magnesium sulphate. Its composition was in substantial agreement with the above declaration. Our analysis showed 17.2 grains of citric acid, 6.45 grains of magnesium carbonate and 9.45 grains of magnesium sulphate ($Mg\,SO_4 \cdot 7\,H_2O$).

LIQUEFIED PHENOL, ETC.

Liquefied phenol should contain not less than 88 percent phenol. Two official samples examined contained 87.81 and 84.4 percent and were passed. They were obtained from the Wilson Drug Co., Wilson, and from LaPlace's Pharmacy, Deep River, respectively.

One sample from the latter store, labelled 5 percent phenol, was found to be satisfactory. It contained 5.18 percent phenol.

PYRIDIUM PRODUCTS

A sample of pyridium tablets, Merck & Co., 0.1 gram, from Byrnes Drug Store, Watertown, was examined and found satisfactory. Pyridium found was 0.104 gram per tablet.

A sample of 1 percent pyridium jelly, Merck & Co., from Sisson Drug Co., Hartford, was also satisfactory. Pyridium found, 1 percent.

EXTRACT OF WITCH HAZEL

One sample of extract of Witch Hazel was examined and found to contain diethylphthalate, indicating that the alcohol used was derived from specially denatured alcohol. The sample was obtained at the Palace Pharmacy, Meriden, and was manufactured by the Reo Chemical Co.

The manufacturer explained that their alcohol supply was purchased from another firm, and that purchases from that source had been discontinued.

MISCELLANEOUS DRUGS, ETC.

4271. *AA* 31. A washing powder submitted by A. J. Reynolds, New Haven. Analysis was made as follows:

> Sodium hydroxide (caustic) 63.65 percent, sodium carbonate 25.56 percent, sodium chloride trace, water (by difference), 11.79 percent. No silicate, borax, phosphate or soap was found.

TABLE 11. SOLUTION OF MAGNESIUM CITRATE

No.	Druggist	Manufacturer	Magnesium oxide	Total citric acid	Sulphate	Remarks
			gm./ 100 cc	gm./ 100 cc		
	Bristol					
K—1103	George Blackhall	Sterling Magnesia Co., Inc., New York	1.65	8.51	None	Pass
	Clinton					
S—221	Neal's Pharmacy	Regal Drug Co., New Haven	1.73	9.18	None	Pass
	Danielson					
S—254	Woodward Drug Store	National Magnesia Co., Inc., New York	1.58	8.91	None	Pass
	Derby					
S—246	East Side Pharmacy	Blank Bros., Bridgeport	1.50	8.13	None	Below standard in total citric acid
	Hartford					
S—127	Bliss Pharmacy, Inc	Own make	1.11	6.31	None	Below standard in magnesium oxide and total citric acid
S—125	Burr Pharmacy	McKesson & Robbins, Bridgeport	1.69	9.01	None	Pass
S—126	Burr Pharmacy	Sterling Magnesia Co., Inc., New York	1.65	8.79	None	Pass
S—129	Campfield Pharmacy	Rosson Co., Hartford	1.64	9.01	Trace	Pass
S—128	Franklin Pharmacy,	Own make	1.48	8.72	None	Pass
S—287	Goodwin Park Drug Co.	United States Pharmacal Co., Newark, N. J.	1.67	9.04	Faint trace	Pass
S—124	Grendler's Drug Store	United States Pharmacal Co	1.66	9.01	Trace	Pass
S—123	Ideal Drug Co	Klawson Magnesia Co., Newark, N. J.	1.62	9.05	Trace	Pass

TABLE 11. (Continued)

No.	Druggist	Manufacturer	Magnesium oxide	Total citric acid	Sulphate	Remarks
	Manchester					
K—1101	Edward J. Murphy	United States Pharmacal Co., Newark, N. J.	1.68	8.92	Faint trace	Pass
	New Haven					
K—1109	Beirne's Pharmacy	Not stated	1.70	9.08	None	Pass
S—134	Dixwell Pharmacy	Own make	1.29	8.90	None	Below standard in magnesium oxide
S—131	Harry A. Lamb	Philadelphia Magnesia Co., Pa	1.60	9.53	Trace	Pass
S—130	Morris' Pharmacy	Regal Drug Co., New Haven	1.67	9.23	None	Pass
	Plainfield					
S—258	Mercier Pharmacy	Brewer & Co., Worcester, Mass	0.91	3.77	0.68[1]	Pass (see text)
	Stafford Springs					
S—166	McCormick Drug Co.	Own make	1.33	7.99	None	Below standard in magnesium oxide and total citric acid
	Wilson					
S—142	Wilson Drug Co.	Own make	0.74	6.23	None	Below standard in magnesium oxide and total citric acid

4272. *Wash-Eez.* Axton Cross, Inc. Submitted by Board of Health, Bridgeport. Analysis showed essentially trisodium phosphate with possibly a little free sodium hydroxide. No evidence of carbonate, silicate, borate, hypochlorite or soap was found.

7008. *Beaver Cleanser*; 7009, *Chemical Cleanser*, and 7010, *Magnus*, all submitted by the Highland Dairy, Hartford. The essential composition of these products was found to be as follows:

7008, trisodium phosphate, sodium silicate and sodium carbonate.
7009, trisodium phosphate, sodium silicate, sodium carbonate and soap.
7010, trisodium phosphate, sodium silicate and soap.

5677. *Serutan*, submitted by a purchaser, appeared to consist of, or contain, psyllium and starchy material. No mineral laxatives or other common cathartic drugs were found.

7644. *Curtasal*, and 7629, *Nu-Vege-Sal* submitted by a consumer who also inquired about the composition of "Eka Salt".

Examination of Curtasal indicated it to consist of, or contain, sodium and magnesium gluconates with a little free magnesium oxide.

In "Reports of the Council on Pharmacy and Chemistry of the American Medical Association" for 1934, p. 46, there is a discussion of Eka Salt. This salt consists chiefly of sodium malate, with small amounts of sodium citrate, ammonium citrate and manganese bromide. The influence of Eka Salt as compared with ordinary salt (sodium chloride) upon blood pressure does not appear to have been worked out clearly enough to warrant any definite conclusions as to advantages of the former in conditions of disease.

The sample of "Nu-Vege-Sal" appeared on microscopic examination to consist largely of common salt and a little vegetable material. Samples of this product examined by us in 1934 (Conn. Exp. Station Bul. 373, p. 522) showed it to contain 77 to 96 percent of common salt and 3 to 20 percent of vegetable material.

While the merits of such "salts" as "Eka Salt" and "Curtasal" may be debatable, those products are different from common salt in that they are salts of organic rather than mineral acids. "Nu-Vege-Sal", however, is merely diluted common salt, the diluent being vegetable material.

6121. *Sunburn Preventor.* Harrison Refining Co., Inc., New York. Sample submitted by a purchaser.

A perfumed ointment faintly acid to litmus. Examination indicated the preparation to be a perfumed emulsion of a fat containing salicylic acid and a probable trace of an alkaloid. Other medicaments, if present, were not detected. Solids 46.96 percent, ash 0.06 percent, water and volatile 52.98 percent.

7184. *Armand Lip Stick* (red tube); 7185 *Armand Lip Stick* (white tube). Submitted by a purchaser. The stick in the red tube was said to have caused skin irritation.

Each sample contained a fatty base and a red dye the identity of which was not determined. No arsenic or lead was found in either stick. In one (7184) 1.46 percent of barium was present, and in the other (7185), 2.75 percent was found. The form of the barium was not determined but there was some indication that it was a part of the dye. Traces of iron and possible traces of aluminum were indicated. As to the significance of barium as a possible cause of skin irritation we could give no opinion. Patch tests on the skin of three individuals in the laboratory showed no reaction. Like most of such complaints, the cause is probably due to an allergy.

6269. *DuBarry Milk of Cucumber.* Submitted by a physician.

This was a white emulsion alkaline to litmus and acid to phenolphthalein. It contained 38.93 percent of solids and no ash. Tests indicated the preparation to be a perfumed suspension of paraffin emulsified with triethanolamine stearate. No heavy metals or other inorganic material was found.

Seventeen other miscellaneous materials, including alcohol, mineral oil, and linseed oil, were examined, but need no special comment.

K-664. *Venecine German Mineral Water.* Distributed by J. J. Kraus, West Haven. Conn. Analysis, parts per million:

SiO_2 3, Fe and SiO_2 Al 8.4, Ca 512.0, Mg. 4.4,
Na and K 9.4, SO_4 1,234.0, Cl 15.0, HCO_3 44.0, PO_4 none.

Calculated composition:

Sodium chloride 24, magnesium sulphate 22, calcium sulphate 1,725, calcium bicarbonate 16, silica 2, iron and aluminum oxides 12, total minerals calculated 1,801; found 1,828.

The sample is essentially a saturated solution of calcium sulphate with salt, magnesium sulphate and other minerals in small or trace amounts.

K-301. *Rum Carioca.* (Cuban type rum.) Submitted by the Dairy and Food Commissioner. Complaint was made of an off odor and taste. Analysis:

Alcohol by volume 42.68 percent by vol., esters per 100 liters 8.98 gms., acidity (as acetic acid) per 100 literss 5.4 gms.

The analysis indicates a very new rum. The odor of it was very disagreeable, which according to Leach (Food Inspection and Analysis) is characteristic of new rum.

MISCELLANEOUS

MATERIALS EXAMINED FOR POISONS, ETC.

Seventy samples of materials suspected of containing poisons or other deleterious substances were examined. Many of these specimens were viscera of domestic animals where analysis might suggest or explain the cause of illness or death. Requests for such examinations come from the Commissioner on Domestic Animals, the Fish and Game Commission, local Health Departments, the Department of Animal Diseases of the Storrs Station, and from veterinarians and farmers of the State.

In 15 cases poisonous substances were found in amounts sufficient to cause fatal results, or significant enough to suggest probable causes of illness or death. The poisons found were strychnine 4, yellow phosphorus 2, lead 2, arsenic 1, copper and arsenic 1, bichloride of mercury 1, nitrates 2, phenol 1, and poisonous plant principles (hellebore) 1.

In the latter case there was some indication of plant principles such as are contained in wild hellebore, but the tests were not satisfactory enough

to be regarded as positive. Inspection of the field where the animal was pastured revealed growths of wild hellebore, some of which had apparently been browsed upon, which observation tended to support the laboratory findings.

FUELS

Twenty-five samples of fuels, chiefly coal submitted by the New Haven County Commissioners, were examined.

COLLABORATIVE WORK

One hundred and twenty-three samples of tobacco and other crops have been examined, chiefly for nitrogen and ash elements, for the Soils Department and the Tobacco Substation.

Forty-one samples of suspected narcotic materials have been analyzed for the State Board of Health in connection with enforcement by that department of the statutes relating to narcotics.

BABCOCK GLASSWARE

Two thousand, nine hundred and thirteen pieces of Babcock glassware, including test bottles for milk and cream and milk pipettes; 211 thermometers for checking pasteurization temperatures, and 6 lactometers, have been certified if found correct. This makes a total of 3,130 pieces.

	Passed	Inaccurate	Total
Babcock glassware	2,906	7	2,913
Thermometers	210	1	211
Lactometers	6	..	6
	3,122	8	3,130

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