
The 56th Report on

FOOD PRODUCTS

And the 44th Report on

DRUG PRODUCTS, 1951

Bulletin 574

August, 1953



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THE CONNECTICUT AGRICULTURAL EXPERIMENT
STATION, NEW HAVEN, CONNECTICUT

CONTENTS AND SUMMARY

Material	Page	From		Total	Adulterated, mis-branded or otherwise questionable
		Food and Drug Commission	Other sources		
<i>Foods</i>					
Baked products:					
Bread	6	3	...	3	...
Cake and cookies	6	4	...	4	1
Crackers	8	9	4	13	6
Ice-cream-cone cups	8	1	...	1	1
Macaroni, spaghetti and egg noodles	8	5	...	5	5
Beverages, carbonated, etc.	10	27	4	31	7
Chocolate and cocoa	12	2	...	2	1
Coffee	12	6	...	6	4
Confectionery	15	7	...	7	6
Contaminated or decomposed foods	15	122	29	151	76
Dairy products:					
Butter	18	21	1	22	13
Cheese	18	16	2	18	9
Cream	19	...	2	2	...
Dried buttermilk	19	...	4	4	...
Ice cream	19	...	2	2	...
Unfortified milk	19	...	86	86	...
Vitamin D milk	19	...	185	185	33
Deceptively packed foods	24	51	...	51	39
Eggs	25	2	...	2	2
Extracts and flavors	25	2	...	2	2
Fish and shellfish	26	10	2	12	...
Fruit, canned and frozen	27	6	...	6	...
Fruit juices	27	9	26	35	3
Jams, jellies and preserves	31	12	5	17	6
Meat and meat products	31	88	6	94	29
Oils and fats, vegetable:					
Blended oils	33	23	...	23	15
Oleomargarine	33	7	3	10	1
Olive oil	36	16	2	18	9
Peanut oil	36	5	...	5	5
Other oils	36	1	1	2	1
Pickles	37	5	...	5	4
Preservatives	37	5	1	6	1
Salad dressings and mayonnaise	38	8	...	8	6
Spices and condiments:					
Horseradish	39	5	...	5	1
Imitation pepper	40	3	...	3	3
Pepper	40	46	...	46	10
Other spices	41	1	...	1	...
Spray residues	41	19	7	26	4
Syrups	42	5	...	5	1

CONTENTS AND SUMMARY (Concluded)

Material	Page	From		Total	Adulterated, mis-branded or otherwise questionable
		Food and Drug Commission	Other sources		
Vegetable products:					
Canned tomatoes	42	18	...	18	7
Tomato paste	42	5	1	6	4
Other vegetable products	43	1	8	9	4
Vinegars	46	19	1	20	11
Water	47	...	28	28	11
Miscellaneous	47	32	41	73	40
Totals		627	451	1,078	381
Drugs					
Ammoniated mercury ophthalmic ointment	56	2	...	2	...
Argyrol solution	56	5	...	5	...
Ascorbic acid tablets	58	6	...	6	1
Benzedrine sulfate tablets	58	2	1	3	...
Boric acid solution	58	4	...	4	1
Citrate of magnesia	60	3	...	3	...
Diethylstilbestrol tablets	60	3	...	3	...
Digitoxin tablets	60	3	...	3	...
Diluted hydrochloric acid	60	3	...	3	1
Mild mercurial ointment	61	3	...	3	...
Potassium arsenite solution	61	3	...	3	1
Potassium iodide solution	61	4	...	4	2
Quinacrine hydrochloride tablets	62	2	...	2	...
Seconal sodium capsules	62	3	...	3	1
Thiamine hydrochloride tablets	62	5	...	5	...
Miscellaneous drugs	62	33	46	79	33
Totals		84	47	131	40
Cosmetics	69	14	...	14	3
Collaborative	71	...	587	587	...
Total for all		725	1,085	1,810	424
Babcock glassware, etc.	71	...	5,168	5,168	16

**The Fifty-Sixth Report on
FOOD PRODUCTS
and the Forty-Fourth Report on
DRUG PRODUCTS
1951**

H. J. Fisher

This report summarizes examination of foods, drugs, cosmetics and miscellaneous materials submitted by the Food and Drug Commissioner and the Commissioner of Farms and Markets during the calendar year 1951, as well as like materials analyzed for health departments and others. The numbers of samples of all kinds analyzed for Federal, State and Station departments and not reported in other bulletins are also listed.

Twelve hundred and twenty-three samples of foods, drugs, cosmetics and miscellaneous materials were examined during the year. Dairy products led the list in the number of samples analyzed with 319 samples, of which 185 were vitamin D milks; foods suspected of insect or rodent infestation or contamination with foreign materials followed with 151 samples; meat and meat products (mostly hamburg) were third with 94 samples; oils and fats were fourth (58 samples) and spices and condiments fifth (55 samples).

There were no changes in personnel during 1951.

The writer wishes to express his gratitude to all the members of the staff for their loyal and efficient work. All were responsible for some of the analyses listed in this bulletin, but especial mention should be made of Mr. Merwin's work in analyzing most of the drug and cosmetic samples (helped in some cases by the infrared analyses of Mr. Mathis), Mr. Wickroski's many accurate and sometimes difficult analyses of foods, and the responsibility of Dr. Hubbell and her staff for the vitamin D assays. Miss Shepard handled all the cases of suspected insect or rodent infestation and made our microscopic examinations; Mr. Keirstead analyzed a number of the canned fruits, syrups and vinegars; and Miss Kocaba tested the carbonated beverages, canned tomatoes and some drugs.

Messrs. Clark and Plank of the Food and Drug Commission and Goslee of the Department of Farms and Markets and their inspectors should not be overlooked, not only because they located and obtained

the samples that we analyzed but because it was frequently they who first suspected the adulteration of certain types of foods that we were later able to confirm in the laboratory.

FOODS

Baked Products

Twenty-two samples of baked products, including three of bread, two of cake, two of cookies, nine of crackers, one of egg noodles, one of ice-cream-cone cups, and two each of macaroni and spaghetti, were submitted by the Commissioner. Four samples of crackers were examined for the State Supervisor of Purchases. Of the total 26 samples, 13 were passed and 13 were misbranded.

Bread

K.F.-919 and 920, Hollywood Bread, baked by the Reymond Baking Co., Waterbury, Conn., were labelled "No fats of any kind added. Made with whole wheat flour, flaked wheat flour, whole rye flour, non-diastatic malt, yeast, salt, honey, caramel, yeast food, sesame seed, with addition of stone ground oatmeal, gluten flour, soya flour and barley flour . . . plus a small quantity of dehydrated (water free) vegetables, including celery, lettuce, pumpkin, cabbage, carrots, spinach, parsley and sea kelp. Hollywood bread formula contains by weight carbohydrates 48.52% fats 0.42% proteins 11.45% mineral res. 2.28% approx. 44 calories per 17 gram slice." Average analysis (dry basis) of the two samples was as follows:

	Entire bread per cent	Bread exclusive of sesame seeds, per cent
Fat	2.09	0.51
Protein	14.88	15.25

Additional analyses of this bread are given in our 1950 Report.¹

S.O.-152, Minin Bread, baked by Minin Bread Co., Inc., Stamford, Conn., was labelled "100% of the wheat germ—we flake each wheat kernel on our premises—no flour used—rich in natural vitamins E, B₁, B₂, G—Contents: Non-milled wheat kernel, fresh yeast, salt." This sample was examined because of a complaint that there was sand in the wheat from which the bread was made, but the low acid-insoluble ash in the following analysis showed no sand to be present: Moisture, 42.90; total ash, 1.78; acid-insoluble ash, 0.02; and protein, 7.52, per cent.

Cake and Cookies

All four of the following samples were examined because of claims for the presence of butter; these claims were passed in three cases:

A.F.-766. Butter Cookies. Carr-Consolidated Biscuit Co., Chicago, Ill. Labelled: "Ingredients: Cake flour, sugar, shortening, butter, eggs, corn starch, milk solids, salt, lecithin, leavening, artificial flavor and certified color." Analysis was as follows: Moisture, 4.84, and fat, 17.27,

¹Conn. Agr. Expt. Sta., Bul. 558, 13 (1952).

per cent; constants of fat: Butyro refraction, 40°C., 45.8; Reichert-Meissl value, 7.21; Polenske value, 1.00. The Reichert-Meissl value indicated that the cookies contained about 5.3 per cent of butter.

A.F.-798. Butter Ring. General Baking Co., New York, N. Y. Labelled: "Ingredients: Sugar, flour, shortening, eggs (egg whites if white batter), water, defatted milk solids, invert sugar, and/or corn syrup, salt, leavening, cocoa (if marble or devil food), algin (if iced), pure and artificial flavoring, sodium propionate." Analysis showed 3.51 per cent of moisture and 9.74 per cent of fat, whose constants were as follows: Butyro refraction, 40°C., 39.4; Reichert-Meissl value, 4.28; Polenske value, 1.00. This analysis indicated the presence of about 1.8 per cent of butter in the "ring".

K.C.-864. Spaulding Real Butter Cake. Spaulding Bakeries. The label bore the following long ingredient list:

"Sugar, flour, water, egg whites or whole eggs or both, butter, non-fat milk solids, leavening, emulsifier, salt, vanilla or other pure or artificial flavors if used, cocoa or chocolate or both used in Devils Food cakes.

"When iced, icings contain sugar, butter and/or other shortening, invert sugar, dextrose, chocolate or cocoa or both if chocolate iced, gelatin, starch, egg albumen, and/or vegetable gums. Fruits and nuts, with natural or artificial flavor and color added, when used."

The side of the package was labelled in large display type "Real Butter Cake—Butter The Only Shortening Used!", and bore a picture of a dish containing a large slab of butter.

Analysis was as follows:

	Frosting	Body of cake
Total fat, per cent	10.17	8.51
Constants of fat:		
Butyro refraction, 40°C.	49.8	47.2
Reichert-Meissl value	2.37	19.09
Polenske value	0.57	2.27
Estimated per cent butter	1.0	6.9

The analysis indicated that, although most of the fat in the cake proper was butter fat, most if not all of the fat in the frosting came from non-dairy sources. The claim "Butter the only shortening used!" was therefore false; further, the picture of a large pat of butter was misleading because it suggested more butter than could have been present in this 8-ounce cake.

A.F.-774. Zion Cookies. Zion Bakers, Zion Industries, Zion, Ill. This sample was labelled "America's finest butter flavored cookies", and bore the following ingredient statement: "Wheat flour, sugar, shortening, dextrose, butter, powdered milk, eggs, salt, flavor and leavening." Analysis showed 5.00 per cent of moisture and 16.78 per cent of fat, whose constants were as follows: Butyro refraction, 40°C., 46.4; Reichert-Meissl value, 3.54; Polenske value, 0.66. This indicated that the cookies contained about 2.5 per cent of butter.

Crackers

The two following samples were submitted by the Commissioner for testing for the presence of arrowroot:

K.C.-288, Cut Out Crackers. Midwest Biscuit Co., Burlington, Iowa. Labeled: "Rich in arrowroot. These delicious cookies made with the following high quality ingredients: Soft winter wheat flour, pure powdered sugar, finest quality hydrogenated vegetable shortening, non-fat milk solids, dextrose, imported arrowroot flour, salt, leavening and artificial flavor." Microscopic examination showed that very little arrowroot was present and that therefore the claim that these crackers were "rich in arrowroot" was false.

K.F.-718, Torchy Animal Crackers with Arrowroot. Dairy State Foods, Inc., Milwaukee, Wis. Labeled "Ingredients: Flour, sugar, shortening, cocoa, arrowroot flour, salt, leavening and artificial flavor." Microscopic examination showed little or no arrowroot starch, so these crackers were misbranded.

Besides the four cracker samples received directly from the Supervisor of Purchases, six other samples were submitted by him through the Food and Drug Commissioner; all were tested for compliance with the following State purchasing specifications:

	Soda crackers	Graham crackers
Moisture not more than	6.50%	6%
Ash not more than	3.25%	3%
Fat not less than	5%	6.50%
Protein not less than	9.50%	7.00%
No. of crackers per pound, ave.	112	55

(There are no specifications for saltines.) Results are shown in Table I.

One sample, *K.F.-756, Snacks Cheezies*, manufactured by Confections, Inc., Chicago, Ill., was submitted by the Commissioner because the name "Cheezies" was misleading since the ingredients listed on the label did not include cheese, but only "processed corn meal, vegetable oil, cheese flavor, salt and certified color". Sample should have been labelled "artificially flavored".

Ice-Cream-Cone Cups

K.C.-194, Butter Cups Ice Cream Cone Cups, made by Eastern Baking Co., Chelsea, Mass., was labelled "Made with sugar, milk and honey" and bore the following ingredient list: "Cake flour, sugar, tapioca flour, powdered skim milk, pure honey, hydrogenated shortening, salt, leavening, artificial coloring omitted wherever prohibited." Analysis showed: Moisture, 5.95, and fat, 0.53, per cent; butyro refraction of fat, 54.4 at 40°C. Butter was not present, and therefore the name "Butter Cups," since it suggested a butter product, was misleading.

Macaroni, Spaghetti and Egg Noodles

Of the five samples submitted by the Commissioner, all were misbranded:

TABLE I. CRACKERS TESTED FOR COMPLIANCE WITH STATE PURCHASING SPECIFICATIONS

No.	Manufacturer and brand	Moisture, per cent	Ash, per cent	Fat, per cent	Protein, per cent	No. of crackers per pound	Remarks
6825	H. W. Clark Biscuit Co., North Adams, Mass. <i>Atlantic Saltine Crackers</i>	5.41	2.95	11.69	8.94	196	
6824	H. W. Clark Biscuit Co., North Adams, Mass. <i>Atlantic Soda Crackers</i> .....	...	2.12	12.38	9.63	107	Substantially passes specifications.
K.F.-804	H. W. Clark Biscuit Co., North Adams, Mass. <i>Dane-T-Bits Atlantic Graham Crackers</i>	3.78	1.90	14.37	5.73	62	Does not pass specification for protein.
K.F.-802	H. W. Clark Biscuit Co., North Adams, Mass. <i>Dane-T-Bits Saltine Crackers</i>	5.92	3.06	12.77	8.16	118	
K.F.-801	Megowen-Educator Food Co., Lowell, Mass. <i>Educator Bulk Saltines</i>	5.90	2.66	13.40	8.07	140	
K.F.-800	Megowen-Educator Food Co., Lowell, Mass. <i>Graham Crackers</i>	4.50	2.05	9.84	7.27	59	Passes specifications.
6827	Megowen-Educator Food Co., Lowell, Mass. <i>Saltines</i> .....	...	2.79	11.64	9.50	246	
6826	Megowen-Educator Food Co., Lowell, Mass. <i>Star Soda Crackers (Salted)</i>	4.93	2.62	12.06	8.94	334	Does not pass specification for protein and number of crackers per pound.
K.F.-803	National Biscuit Co., New York, N.Y. <i>Nabisco Graham Crackers</i>	6.00	2.62	11.69	6.25	61	Does not pass specification for protein.
K.F.-799	National Biscuit Co., New York, N.Y. <i>Premium Saltine Crackers</i>	6.21	3.44	10.99	9.01	140	

K.F.-904, Buitoni 35% Protein Dietetic Macaroni, manufactured by Buitoni Products, Inc., New York, N. Y., contained 5.61 per cent of total nitrogen. This corresponded to only 31.98 per cent of protein instead of the 35 per cent declared, when the proper factor for wheat protein (5.70) was used.

K.C.-244 and K.F.-903, Buitoni 20% Protein Spaghetti, manufactured by Buitoni Products, Inc., New York, N. Y., contained on the average 3.19 per cent of nitrogen, corresponding to 18.18 per cent of protein instead of 20 per cent as declared; average fill of container was 69 per cent.

K.C.-245, Prince Egg Noodles, made by Prince Macaroni Mfg. Co., Lowell, Mass., was misbranded because its claim for enrichment with vitamins made it a special dietary food within the meaning of the law, but its label did not "bear a statement of the proportion of the minimum daily requirement for such vitamins supplied by such food when consumed in a specific quantity during a period of one day" as Federal regulations¹ require.

K.C.-246, Prince Special Macaroni, also made by Prince Macaroni Mfg. Co., Lowell, Mass., was misbranded for the same reason as was *K.C.-245*.

Beverages, Carbonated, Etc.

Twenty-one samples of carbonated beverages, three grape drinks, two lemonades and one orangeade were examined for the Commissioner; 25 samples were passed and two were misbranded.

All of the carbonated beverages contained more than the legal minimum of 5 per cent sugar; the lowest percentage found was 9.05 and the highest 14.27; the average was 12.12. Benzoate of soda was found in one sample, but was declared on the cap.

R.G.-64, Coffee Time, a Sparkling Coffee Beverage, from Bursack Bros., Manchester, Conn., was labelled "Contains: Freshly roasted coffee bean extract, other natural flavors, pure cane sugar, triple filtered water carbonated and caramel color"; analysis showed 0.092 per cent ash and 0.035 per cent caffeine, which are 2.2 and 2.9 per cent respectively of the average values for coffee.²

The six noncarbonated samples were the following:

R.G.-48, Fresha's Grape Drink, Vitamin C Enriched. Fresh-A Juice Co., Lawrence, Mass. Labelled "Made from choice Concord grapes, picked at height of season, making a delicious flavored grape juice. Ingredients: Water, Concord grape juice, pure cane sugar, genuine grape extract, edible acid, 110 mg. vitamin C, to insure freshness 1-10 of 1% benzoate of soda. THIS PRODUCT DOES NOT CONTAIN ANY ARTIFICIAL COLOR OR FLAVOR." Analysis showed: Ash, 0.150 gm./100cc; potassium oxide, 68.4 mgm./100cc; and ascorbic acid (vitamin C), 26 mgm./quart. This analysis indicated the "Fresha's

¹Federal Register, 6, 5925 (1941).

²Conn. Agr. Expt. Sta. Bul. 276, 338 (1926).

"Grape Drink" may have contained as much as 53 per cent of grape juice, but the sample was misbranded because it contained only one-fourth of the declared quantity of vitamin C and because its label did not state what relation this quantity bore to the minimum daily requirement of vitamin C.

K.C.-300. Grape Gentsation. Wilrick, Inc., New York, N. Y. Labelled "Contains water, pure grape juice, sugar, and citric acid". Analysis showed: Total solids, 12.38, sugars, 11.24, ash, 0.069, total acidity as tartaric acid, 0.43, and actual tartaric acid, 0.24, gm./100cc; phosphorus pentoxide, 3.8, and potassium oxide, 33, mgm./100cc. This analysis indicated a probable grape juice content of 27 per cent, so sample was passed.

K.F.-719. The Original Hi-C Vitamin Enriched Lemonade. Juice Industries Division of Clinton Foods, Inc., Dunedin, Fla. Labelled "Contains: Water, conc. lemon juice, sugar, dextrose, Vit. C. Hi-C lemonade is enriched with added Vit. C. One eight ounce glass of Hi-C Lemonade contains 30 mg. of Vit. C.—the adult daily minimum requirement. The 46 oz. can contains at least 180 mg. of Vit. C. Six times the adult minimum requirement." Analysis was as follows: Ash, 0.057 gm./100cc; potassium oxide, 6.7, and ascorbic acid (vitamin C), 13.1 mgm./100 cc. This indicated a lemon juice content of 22 per cent, and 178 milligrams of vitamin C in the 46-ounce can; sample was passed.

K.C.-206. Temptin Brand Orange Drink. Food Industries, Inc., Biddeford, Maine. Labelled "Contains filtered water, cane sugar, concentrated Valencia orange juice, orange oils, citric acid, and less than 1/10 of 1% benzoate of soda. Vitamin C added." Analysis was as follows: Ash, 0.092 gm./100cc; potassium oxide, 43, and ascorbic acid (vitamin C), 8.0, mgm./100cc. Probable orange juice content was 19 per cent, but the vitamin C found was only 17 per cent of that of fresh orange juice, so not much added vitamin C was present; the sample was misbranded because of its failure to declare what proportion of the minimum daily requirement of vitamin C the beverage contained.

K.F.-688. Vitamin Hi C Enriched Grapeade. Juice Industries, Inc., Dunedin, Fla. Labelled "One 8 oz. glass of Hi C Grapeade contains 30 mg. of Vit. C, the adult daily minimum requirement. The 46 oz. can contains at least 180 mg. Vit. C—six times the adult daily minimum requirement.—Contents—Water, conc. grape juice, dextrose, citric acid, Vit. C., natural flavor, U.S. certified color." Analysis showed: Total solids, 13.30, sugars, 12.72, ash, 0.065, total acidity as tartaric acid, 0.32, and actual tartaric acid, 0.091, gm./100cc; phosphorus pentoxide, 4.6, and ascorbic acid (vitamin C), 7.4, mgm./100cc. This analysis indicated a grape juice content of 18 per cent and a total vitamin C content of 101 milligrams in the 46-oz. can; sample was passed.

E.S.-597. Whistle Brand Lemonade. American Bottling Co., New Haven, Conn. Labelled "Containing lemon juice, sugar and carbonated water. A delicious drink containing genuine fruit flavors, sugar, fruit acids, U. S. certified food color, and carbonated water." Analysis showed: Ash, 0.019 gm./100cc; potassium oxide, 1.5 mgm./100cc; ascorbic acid

(vitamin C), none. The probable lemon juice content was only 7 per cent, but sample was passed.

Four samples of alcoholic drinks were analyzed for New Haven and Bridgeport police in connection with sales out of legal hours.

Chocolate and Cocoa

One sample each of baking chocolate and cocoa was submitted by the Commissioner for the State Supervisor of Purchases:

J.W.-242. Baking Chocolate. Federal standards for "chocolate liquor, chocolate, baking chocolate" require that it contain between 50 and 58 per cent of fat, that added alkalies be equivalent to not more than 3 per cent of potassium carbonate, and that the shell content be no more than 1.75 per cent. Analysis of *J.W.-242* was as follows: Moisture, 2.38, total ash, 2.12, water soluble ash, 0.86, acid-insoluble ash, 0.03, fiber, 1.54, and fat, 48.60, per cent; alkalinity of water-soluble ash equivalent to 0.72 cc. of *N/10* acid per gram of sample. The alkalinity of the ash was equivalent to only 0.49 per cent of potassium carbonate, and (since cacao nibs may have as much as 3.20 per cent of fiber) the fiber content indicated no shell, but the fat content was too low, so sample was misbranded.

A.F.-929. Cocoa. Federal standards require that "cocoa, 'medium fat cocoa'" contain less than 22 but not less than 10 per cent of fat; if the cocoa is declared to be alkali-processed there is the additional requirement that the total quantity of alkalies used be not greater in neutralizing value than 3 parts by weight of anhydrous potassium carbonate. Analysis of *A.F.-929* was as follows: Moisture, 3.00, total ash, 5.18, water-soluble ash, 2.72, acid-insoluble ash, 0.01, fiber, 3.82, and fat, 14.10, per cent; alkalinity of soluble ash equivalent to 1.32 cc. of *N/10* acid per gram of sample. This sample was not labelled "alkali-processed", but the alkalinity of the soluble ash (being equivalent to 0.91 per cent of potassium carbonate) was within the limit of the standard, as was the fat content, so sample was passed.

Coffee

Five samples of so-called "instant coffees" were analyzed for the Commissioner with results as shown in Table 2.

The average composition of roasted coffee found by Lythgoe¹ was as follows:

	Per cent
Moisture	2.16
Ash	4.03
Protein	12.00
Fiber	13.03
Reducing sugars	0.75
Starch	2.30
Other carbohydrates by difference	50.78
Fat	13.75
Caffeine	1.20

¹Leach and Winton, "Food Inspection and Analysis," 4th Ed., p. 394 (Wiley, 1920).

TABLE 2. "INSTANT COFFEES"

No.	Manufacturer and brand	Moisture, per cent	Ash, per cent	Protein, per cent	Fiber, per cent	Dextrose, per cent	Maltose, per cent	Dextrins, galactan, pentosans and tannins, per cent	Fat, per cent	Caffeine, per cent	Labelled
K.F.-716	The Borden Co., New York, N. Y. Borden's 100% Pure Coffee	4.20	11.61	14.38	0.00	1.76	4.09	60.56	0.06	3.34	"100% pure percolated coffee, concentrated in powder form."
K.F.-720	General Foods Corp., New York, N. Y. Instant Maxwell House Coffee	3.75	10.81	13.63	0.00	2.49	4.79	61.02	0.05	3.46	"100% pure coffee."
K.F.-714	The Nestlé Company, Inc., New York, N. Y. Nescafé. . .	3.45	5.42	7.44	0.00	0.62	30.31	50.81	0.08	1.87	"With added dextrins, maltose & dextrose."
K.F.-717	Standard Brands, Inc., New York, N. Y. Instant Chase & Sanborn Coffee.	2.44	5.54	6.13	0.00	0.56	24.39	59.34	0.05	1.55	"With dextrins, maltose and dextrose added."
K.F.-715	G. Washington Div., American Home Foods, Inc., Morris Plains, N. J. G. Washington's Instant Coffee.	2.20	6.13	7.06	0.00	1.07	38.43	43.54	0.05	1.52	"With added dextrins, maltose, dextrose."

Present-day evidence indicates that there is no true starch in coffee, and that Lythgoe's "starch" was probably other complex carbohydrates. Nevertheless his figures for other components are sufficiently reliable to show that none of the samples in Table 2 (particularly because of the low fat and zero fiber contents) is straight coffee; all are coffee extracts, although only "Nescafé" is honestly so labelled.

These "instant coffees" fall into two groups, of which one ("Chase & Sanborn", "Nescafé" and "G. Washington's") declares added dextrin, maltose and dextrose, while the other ("Borden's" and "Maxwell House") is labelled "100% Pure Coffee". It was largely to determine whether the latter group contained undeclared added dextrin and maltose that the Commissioner submitted these samples. Determination of the presence of added dextrin is unfortunately not a simple matter, partly because the term "dextrin" itself does not apply to a well-characterized compound but represents a rather indefinite complex carbohydrate or group of carbohydrates formed by incomplete degradation of starch. As a practical matter, it was necessary to determine dextrose and maltose directly and calculate the dextrin (together with any chlorogenic and caffeic acids, pentosans, hemicelluloses and galactan) by difference from the remaining non-sugar fraction of the nitrogen-free extract.

If Lythgoe's figures for straight coffee are recalculated to a moisture-, fiber-, and fat-free basis, and are compared with the analyses of *K.F.-716* and *K.F.-720* similarly recalculated, the following results are obtained.

	Roasted coffee per cent	"Borden's" per cent	"Maxwell House" per cent
Ash	5.67	12.13	11.24
Protein	16.89	15.02	14.17
Reducing sugars	1.06	6.11	7.57
Other carbohydrates by difference	74.69	63.25	63.42
Caffeine	1.69	3.49	3.60

This comparison shows that "Borden's" and "Maxwell House" contain little if any added dextrin; it suggests that each of these brands might contain a small proportion of added dextrose or maltose. At first glance it also appears to show the presence of added mineral matter in both "Borden's" and "Maxwell House". However, extended comparative mineral analyses of "Sanka" and "Instant Sanka" coffees in 1950¹ showed the same difference in total ash but complete correspondence in the relative proportions of elements in the two ashes. Thus, it is probable that the high ash values of "Borden's" and "Maxwell House" are due not to added mineral matter but to incomplete extraction of the "other carbohydrates" from the original coffee, which would have the effect, by lowering the proportion of carbohydrate, of raising the proportion of ash.

E.S.-609, Italian Roast Coffee, from Aurora's Grocery, New Haven, was examined microscopically for adulterants and none was found.

¹Conn. Agr. Expt. Sta., Bul. 558, 19(1952).

Confectionery

Seven official samples of confectionery were examined, mostly because of labelling defects; one was passed and six were misbranded:

W.M.-232, Assorted Confetti, packed by Long Island Baking Co., Maspeth, L.I., N. Y., was submitted because the name "Confetti" seemed inapplicable to the contents of the package, namely, the candy-coated almonds usually known as "Jordan Almonds". Webster's New International Dictionary confirmed the appropriateness of the name, however, because it defined "confetti" as "Bonbons; sweetmeats; confections; also, plaster or paper imitations of, or substitutes for, bonbons, often used by carnival revellers, at weddings, etc." Apparently the fragments of colored paper that we now usually call "confetti" are only symbolic imitations of the real thing. The sample was passed.

K.C.-283, Brock-Magnolia Marshmallows, made by Brock Candy Co., Chattanooga, Tenn., was misbranded because of failure to declare artificial color.

K.C.-341, Christmas Tree with Assorted Confections, packed by Chocolate Crafters, Baltimore, Md., consisted of a large carton containing a metal-foil-covered corrugated paper flowerpot, inside of which was a wooden box holding an artificial Christmas tree, to whose branches were attached small colored glass balls. The lower half of the flowerpot was packed with shredded paper; on top of this paper, concealing both the paper and the wooden box, was a layer of paper-wrapped candies, some of which were unlabelled. Because the packing arrangement gave the false impression that the flowerpot was filled with candy, sample was misbranded.

K.C.-235, five small lollipops wrapped together in one colorless cellophane wrapping, sold by H. L. Green, Bridgeport, was misbranded because it bore no labelling at all.

S.O.-122, Premier Preserved Cut Mixed, packed by Francis H. Leggett & Co., New York, N. Y., labelled "Citron, orange peel, lemon peel, pineapple, cherries artificially colored prepared with sugar and corn syrup—Net Wt. 8 oz.", was short weight 4.9 ounces.

K.C.-236, ten colored lollipops wrapped together in one colorless wrapping, sold by H. L. Green, Bridgeport, was misbranded because it bore no declaration of added color nor in fact any labelling whatever.

K.C.-234, two large heart-shaped red lollipops, made by Harvey L. Gladstone, Hummelstown, Pa., was misbranded because its label was so concealed inside the wrapper as to be invisible to purchasers.

Contaminated or Decomposed Foods

One hundred and twenty-two samples of foods were submitted by the Commissioner because of suspected insect or rodent infestation or contamination with foreign materials, or because of complaints that they had made people ill. Fifty-six samples were passed and 66 were found to be adulterated. Of the contaminated samples, 13 were pickles (mostly

pickled peppers); eight were soft drinks; seven were flour; four each were bread, breakfast cereals and meat; three each were cake mixes and coffee; two each were evaporated milk, fish, sugars and walnuts; and one each was apricot jam, beer, butter, candied fruit, cheese, ice cream fruit topping, lima beans, material from a can of pears, pepper, raisins, soup and split peas. All of the cereal and cake mix samples, five of the flours, one of the sugars (dextrose) and the split peas were salvage merchandise from a fire; they were water-damaged and moldy. The two other flours, four of the pickled pepper samples, and one sample each of bread and root beer, were insect-infested. Three of the meat and one of the fish samples were decomposed. Most of the other samples were moldy, except for the non-insect-infested pickles, which were condemned because they were soft or contained sand.

The adulterated pickles were the following:

K.F.-915. Hi Glo Brand Cheese Peppers. Frank Pepe, Inc., Waterbury, Conn. Fragments of a spider, sand and dirt present; two soft peppers.

K.F.-928. Mrs. Anna Myers Cherry Peppers. Anna Myers Pure Foods, Inc., Garfield, N. J. Sand and dirt, three soft peppers and one decayed spot present.

K.F.-921 and 922. Mrs. Anna Myers Red Sweet Peppers. Anna Myers Pure Foods, Inc., Garfield, N. J. Sand and dirt present; half of peppers soft; some decayed spots; dead spider in one sample.

K.F.-923, 924 and 925. Mrs. Anna Myers Sweet Peppers. Anna Myers Pure Foods, Inc., Garfield, N. J. Most peppers soft; sand and dirt present.

K.F.-926 and 927. Mrs. Anna Myers Sweet Pimento Style Peppers. Anna Myers Pure Foods, Inc., Garfield, N. J. Decayed spots and dirt present; fragment of an insect in one sample.

K.F.-882, 883 and 884. Society Brand Cherry Peppers. Society Pickle Products Corp., Brooklyn, N. Y. Sand and dirt and soft peppers present; pepper maggot larva in one sample.

K.F.-827. Society Brand Kosher Style Pickles. Society Pickle Products Corp., Brooklyn, N. Y. Sand and dirt present.

Unusual cases of contamination were the following:

W.M.-435, bulk lima beans, from Rosner's Market, New Haven, contained a match, pieces of nut shells, several pieces of onion skin, a piece of fig, a fragment of paper, some hair, part of a green pea, a leaf fragment, a little sand, a fragment of straw-like material and several pieces of unidentified fibrous material. The inspector had noticed the market proprietor shovelling beans from the street back into a broken bag.

R.G.-58 and 60, Coca Cola, bottled by Coca Cola Bottling Co., of Hartford, East Hartford, Conn., were found to contain in one case a torn-up match book, and in the other a small quantity of orange skin and pulp.

K.N.-342 and 343, Evangeline Evaporated Milk, from First National Stores, Middletown, Conn., contained in one sample two loose pieces

of a lead-tin solder, and in the other a finger of solder projecting into the can that could easily have become broken off.

J.W.-261, Lincoln Home Sundae Topping Fruit, manufactured by Lincoln Foods, Inc., Lawrence, Mass., contained two pieces of glass.

K.N.-371, Old Fashioned Home Pride White Bread, baked by Borck & Stevens Bakery, Bridgeport, Conn., contained a few human hairs (probably from a bobbed head), but these were on the outside of the slices and not baked into the bread.

W.M.-426, "Orange Drink," proved to be an aqueous liquid containing calcium and ammonium sulphides in solution, and lead, copper, zinc, cadmium and tin sulphides in suspension. This sample was submitted by a physician, and its origin was not known; its composition suggested that it had been brought home from a college qualitative analysis laboratory. There was no evidence that any fruit at all was present.

K.F.-713 and A.L.-26, Pepsi Cola, bottled by Pepsi Cola Bottling Co., Bristol, Conn., contained red and green modeling clay.

K.F.-771, 772 and 773, Polbro XXX Quality Coffee, packed by Polin Bros., Inc., New York, N. Y., contained several small stones and pieces of stems in two samples, a piece of glass in one, and from 0.5 to 0.7 ounce of broken coffee bean hulls in all three.

K.F.-900, Shelled Walnuts, from Park Bakery, Waterbury, contained a human hair, some insect webbing, a dead Indian meal moth and a lepidopterus pupa.

J.W.-277, slice of bread, contained a brown spot that analysis showed to be ferrous ammonium sulphate.

J.S.-122, soup, and J.S.-119, sugar, were contaminated with traces of barbiturate.

K.F.-823, Veal Loaf, contained fragments of cigarette tobacco.

Twenty-nine unofficial samples were received from local health departments and private citizens with complaints either that they had made someone sick or that a foreign body was present. No contamination was found in 19 of these samples; the other 10 were the following:

7580, Bagel. Mouse feces and hairs had been baked into the "bagel".

7356, Cheese. This cheese was adulterated with "cheese skippers" (*Diophila casei*).

8334, Chocolate Boston Cream Pie. Frisbie Pie Co., Bridgeport, Conn. Contained mouse feces and hairs.

4879, Coca-Cola. Coca-Cola Bottling Co. of New Haven, Inc., New Haven, Conn. Two large lumps of soap (probably "Ivory Soap") were present in the bottom of the bottle, and more soap was dissolved in the "Coca-Cola"; the pH was 8.0.

7223, Cream Soda. At the bottom of the bottle were several pieces of paper.

8476. *Dalactum Evaporated Low Fat Milk and Dextri-Maltose Formula for Infants*. Mead Johnson & Co., Evansville, Ind. This can contained a loose piece of lead-tin solder weighing 0.2 gram; analysis of the milk showed that no significant quantity of lead had been absorbed, but the presence of a loose piece of solder in a baby food could nevertheless be hazardous.

7189. *Italian Pastry*. This pastry contained several human hairs.

7651. *Pal Ade*. Pal Bottling Co., Waterbury, Conn. The copper content—5 parts per million—was rather high.

7341. *Paprika*. This paprika was infested with drugstore beetles (*Sitodrepa panicea*).

8167. *Pressed Ham*. This ham was putrid and contained a somewhat high proportion of tin (25 p.p.m.).

Dairy Products

Butter

Twenty-one official and one unofficial samples sold for butter were examined; analyses are given in Table 3. Nine samples were passed and 13 were adulterated or misbranded.

Cheese

Sixteen official samples of cheese and two unofficial samples of "cheese curd" were analyzed; nine were passed and nine were misbranded:

6960 and 6984. *Cheese Curd*. Gambardella & Son Dairy Products, New Haven, Conn. Fat, 9.23 and 7.13 per cent respectively.

W.M.-331. *Che-Zing*. Phenix Pabst-Ett Co., Chicago, Ill. Labelled "A pasteurized blend of cheddar cheese solids, skim-milk solids, salt, sodium phosphate, lactic acid, certified artificial coloring". This was a bright-orange-colored dry powder that was not analyzed.

J.G.-17. *Clearfield Brand Pasteurized Process Cheese*. Clearfield Brand Cheese, Curevensville, Pa. Not analyzed because of the smallness of the sample.

K.F.-741. *Emsco Imported Grated Romano Cheese*. Emsco Food Products, Inc., Boston, Mass. Lactose, 2.43 per cent; no starch. Passed.

K.F.-850, 851 and 854. *4 CCCC Brand Grated Romano Cheese*. Brooklyn Cheese Packing Co. Brooklyn, N. Y. Average moisture contents, 28.26 per cent; no lactose or starch. K.F.-850, labelled to contain 6 oz., was 0.23 oz. short weight; K.F.-851 and 854, labelled to contain 16 oz., averaged 0.22 oz. short weight.

A.L.-40, 41, 42, 43, 44 and 45. *4 CCCC Brand Parmesan Style Grated Blend of Imported and Domestic Cheese*. Brooklyn Cheese Packing Co., Brooklyn, N. Y. Net weight declared, 4 oz. Average net weight found, 3.75 oz. Misbranded.

K.F.-737 and 738. *Hi Glo Italian Style Grated Cheese*. Frank Pepe, Inc., Waterbury, Conn. No lactose or starch present; passed.

K.F.-902. *Italian Peccorino Romano Brundo Brand Cheese*. Imperial Importing Co., Waterbury, Conn. Moisture, 23.14, and fat, 30.80, per cent; passed.

E.C.-462. *RI—Cheddar Creamy Cheese Food*. Armour & Co., Chicago, Ill. Labelled: "A dairy product composed of American cheese, whey solids, non-fat dry milk solids, sodium citrate, sodium phosphate, salt, carboxy methyl cellulose, vegetable coloring, maximum moisture 49%, minimum butterfat 25% on a moisture free basis. The whey solids add to the product milk sugar with minerals lost in making of American cheese." This sample was submitted because it was suspected of containing pieces of glass; analysis showed that the "glass" was harmless crystals of lactose (milk sugar).

Cream

5919, cream analyzed for a housewife, contained 48.5 per cent of butter fat; 8472, analyzed for Dorsey Dairy, Wallingford, contained 48.0 per cent of butter fat.

Dried Buttermilk

Three samples of roller process sweet buttermilk powder analyzed for Cashin's Dairy Products, Inc., Waterbury, Conn., averaged 6.36 per cent moisture and 3.58 per cent fat; one sample of spray process sweet buttermilk powder from the same dairy contained 5.48 per cent of moisture and 1.77 per cent of fat.

Ice Cream

7390 and 7391, *Sealtest Ice Cream*, manufactured by General Ice Cream Corp., New Haven, Conn., were analyzed as follows: Total solids, 39.62 and 37.50 per cent; fat, 11.95 and 11.43 per cent.

Unfortified Milk

Butter fat was determined for farmers in 81 samples of milk; five other samples were analyzed spectrographically for lead for the State Department of Health.

Vitamin D Milk

Vitamin D milk is standardized to contain 400 U.S.P. units of vitamin D per quart. Since 1935 this laboratory has checked the vitamin D content of all brands of vitamin D on the market by feeding tests on rats. Samples were submitted by the Dairy and Food Commission until July 1, 1947; since then they have been supplied by the Department of Farms and Markets.

In 1951, 184 samples were examined; results of the assays are shown in Table 4. Thirty-three samples were definitely below the unitage claimed; this is more than three times the number of samples found deficient in 1950. The percentage of samples fully or substantially meeting guaranties was 82; the corresponding figure for 1950 was 94.

In the 17-year period, 1935-1951 inclusive, 1,851 samples were tested; 85 per cent contained the unitage claimed for them or were sufficiently close to guaranties to be passed.

TABLE 3. BUTTER

No.	Manufacturer or dealer and brand	Net wt., oz.	Fat, per cent	Butyro- refrac- tion, 40°C.	Reich- ert-Meissl value	Polenske value	Remarks
K.C.-309	Bovers & Rosenbloom, Inc., New York, N. Y. <i>High Score Creamery Butter</i>	.....	.....	52.0	0.75	0.57	Not butter but oleomargarine.
K.C.-310	Bovers & Rosenbloom, Inc., New York, N. Y. <i>High Score Creamery Butter</i>	.....	.....	51.8	0.75	0.45	Not butter but oleomargarine.
K.C.-311	Bovers & Rosenbloom, Inc., New York, N. Y. <i>High Score Creamery Butter</i>	15.88	.....	51.7	0.50	0.34	Not butter but oleomargarine.
K.C.-312	Bovers & Rosenbloom, Inc., New York, N. Y. <i>High Score Creamery Butter</i>	15.53	.....	51.7	0.37	0.45	Oleomargarine; short weight 0.47 oz.
K.C.-314	Bovers & Rosenbloom, Inc., New York, N. Y. <i>High Score Creamery Butter</i>	15.60	.....	51.5	0.44	0.34	Oleomargarine; short weight 0.40 oz.
K.C.-317	Bovers & Rosenbloom, Inc., New York, N. Y. <i>High Score Creamery Butter</i>	15.43	.....	52.0	0.37	0.33	Oleomargarine; short weight 0.57 oz.
K.C.-318	Breakstone Bros., Inc., New York, N. Y. <i>Sweet Breakstone's Butter</i>	.....	82.39	43.7	32.52	2.22	Passed.
K.C.-316	Clam Box, Westport, Conn.	.....	84.50	42.5	30.22	2.78	Passed.
K.F.-944	Cudahy Packing Co., Omaha, Neb.	.....	.....	.....	.....	.....	.....
K.C.-319	Cudahy's <i>Sunlight Butter</i>	15.38	86.14	43.4	30.40	2.27	Short weight 0.62 oz.
	First National Stores, Inc., Somerville, Mass. <i>Brookside Creamery Butter</i>	.....	81.60	44.7	27.84	1.78	Passed.
8598	Healey's, Bridgeport, Conn. <i>Tub Butter</i>	.....	80.86	42.3	29.58	2.92	Passed.
J.W.-279	Mott's Super Market, Hartford, Conn. <i>Tub Butter</i>	.....	81.23	44.6	31.72	2.48	Passed.

E.C.-493	Frank Pilley & Sons, Sioux City, Iowa. <i>Pilley's Butter</i>	16.14	79.63	43.2	26.14	1.94	Below standard in fat.
E.C.-500	Frank Pilley & Sons, Sioux City, Iowa. <i>Pilley's Butter</i>	16.00	80.86	44.5	30.89	2.16	Passed.
K.C.-313	Pond Hill Farms, Chester, Conn. <i>Pond Hill Farms Brand Fancy Creamery Butter</i>	15.57	80.97	44.8	27.44	1.70	Short weight 0.43 oz.
S.O.-156	Pond Hill Farms, Chester, Conn. <i>Pond Hill Farms Brand Grade AA Creamery Butter</i>	14.98	80.56	44.8	26.44	1.70	Short weight 1.02 oz.
S.O.-157	Pond Hill Farms, Chester, Conn. <i>Pond Hill Farms Grade AA 93 Score Pure Creamery Butter</i>	14.93	82.64	44.8	27.19	1.70	Short weight 1.07 oz.
S.O.-158	Pond Hill Farms, Chester, Conn. <i>Pond Hill Farms Brand Pure Creamery Butter</i>	15.18	81.44	43.2	28.19	2.30	Short weight 0.92 oz.
K.F.-896	Swift & Co., Chicago, Ill. <i>Glennwood Creamery Butter</i>	15.87	83.45	41.5	31.68	3.11	Passed.
K.F.-897	Swift & Co., Chicago, Ill. <i>Pride O'Farm Creamery Butter</i>	15.35	83.25	43.8	26.42	2.45	Short weight 0.65 oz.
J.W.-280	Mrs. Louis Violette, Hartford, Conn. <i>Tub Butter</i>	.....	80.55	44.5	32.55	2.27	Passed.
K.C.-315	Wiertel & Gordon, Inc., Bridgeport, Conn. <i>Red Seal Brand Creamery Butter</i>	3.86	82.54	44.2	28.50	2.00	Passed.

TABLE 4. SUMMARY OF ASSAYS OF VITAMIN D MILK

City or town	Dairy	No. of samples tested	Satisfactory	Passed	Below unitage claimed
Berlin	Ferndale Dairy	1	1	...	...
	Johnson's Dairy	1	1	...	...
	Ventres Dairy	2	2	...	...
Bloomfield	Peter V. Boysen & Son	2	1	...	1
	H. E. Holcomb	2	2	...	...
	Miller's Dairy	1	1	...	...
Bridgeport	Chris Neilsen & Sons	2	2	...	...
	Beechmont Dairy	2	1	...	1
	Borden's	2	2	...	...
	Clover Farms, Inc.	3	2	...	1
	Dewhurst Dairy	2	...	2	...
	Marsh Dairy	2	...	2	...
Bristol	Supreme Dairy	2	1	...	1
	E. M. Elton	1	...	1	...
Clinton	Roberge Dairy, Inc.	1	1	...	...
	Burr Dairy	2	2	...	...
Cromwell	McAllister Dairy	1	1	...	...
Danbury	Marcus Dairy	1	1	...	...
	Rider Dairy	1	1	...	...
East Haddam	Sprecher Dairy	1	1	...	...
East Hampton	Woodland View Dairy	1	1	...	...
East Hartford	Bernieri's Dairy Farms	1	1	...	...
East Lyme	Drabik Farms	2	1	...	1
East Norwalk	Devine's Dairy	1	1	...	...
Ellington	Cordtsen Dairy	2	1	1	...
Fairfield	Wade's Dairy	1	1	...	...
Forestville	Peplau's Dairy	3	1	...	2
Greenwich	Round Hill Farms	1	1	...	...
Hamden	Brock-Hall Dairy	2	2	...	...
	Bayer's Milk	2	2	...	...
Hartford	Bryant & Chapman	2	1	1	...
	Clover Dale Dairy	3	1	1	1
	Farmers' Co-Operative, Inc.	2	...	2	...
	H. P. Hood & Sons	1	...	1	...
	Lincoln Dairy Co.	2	2	...	...
	Norman's Dairy	1	1	...	...
	Toll Gate Farms	1	1	...	...
Jewett City	Dart's Dairy	3	2	...	1
	West Side Dairy	1	...	...	1
Litchfield	A. R. Wilkie	1	1	...	...
Manchester	R. B. Gardiner	1	...	...	1
	Countryside Dairy	2	2	...	...
Mansfield	Charles Greenbacker & Sons, Inc.	2	1	...	1
	E. J. Kaemmer & Son	2	2	...	...
	W. F. Knapp	2	2	...	...
	Lawrence Bros.	2	2	...	...
	Tranquility Farm	2	1	...	1
	S. Coleman	2	2	...	...
	Brock's Lakeview Dairy	1	1	...	...
Middlebury	Daniels Farm Dairy	2	2	...	...
	Hillside Dairy	3	...	1	2
Middlefield	Sunshine Dairy	2	1	...	1
Middletown	Clover Dairy	1	1	...	...
	McDermott Dairy	1	1	...	...
Milford	Riverside Dairy	1	...	...	1
Milldale	Mountain View Farm	1	1	...	...
Nepaug					

TABLE 4. SUMMARY OF ASSAYS OF VITAMIN D MILK—(Concluded)

City or town	Dairy	No. of samples tested	Satisfactory	Passed	Below unitage claimed
New Britain	Guida-Seibert Dairy Co.	2	2	...	...
	Heslin Dairy Co.	2	1	1	...
	J. J. Shapiro & Sons	3	1	1	1
New Canaan	A. J. Spring & Sons	1	1	...	...
	Miller Farm Dairy	2	2	...	...
	General Ice Cream Corp.	1	1	...	...
New Haven	H. P. Hood & Sons	1	1	...	...
	Eckert's Dairy	2	1	...	1
Newington	Eddy Dairy	1	1	...	...
	J. William Holt	2	1	...	1
	Meadow Brook Dairy	1	1	...	...
	Spring Brook Farm Dairy	3	1	1	1
	Michael's Dairy	2	2	...	...
	New London & Mohegan Dairies	1	1	...	...
Nichols	Radway's Dairy	1	1	...	...
	Parker's Dairy	1	1	...	...
North Haven	Knudsen Bros.	1	...	1	...
Norwalk	Clover Farm Dairy	2	1	1	...
Norwichtown	Beebe's Dairy	2	1	1	...
Plainville	Peterson's Dairy	2	1	1	...
Preston	Broad Brook Dairy	1	1	...	...
	Preston Dairy	1	1	...	...
Putnam	Fisher Bros.	2	2	...	...
	Charles B. Gilbert	1	1	...	...
Rocky Hill	Sunny Crest Farm	1	1	...	...
	Wood Ford Farm	1	1	...	...
Simsbury	Southbridge Farmers' Co-op.	1	1	...	...
	Herrick's Dairy	2	1	...	1
South Norwalk	Pleasant Valley Dairy	1	...	1	...
South Windsor	Sheffield Farms	1	...	1	...
Springdale	Rockland Farm	1	...	1	...
Stafford Springs	Maple View Farm Dairy	1	...	...	1
Storrs	E. E. Freimuth	2	...	...	2
Terryville	Fred T. Wood Dairy	1	1	...	...
Thomaston	Enfield Dairy	2	2	...	...
Thompsonville	H. S. Reid	2	1	...	1
	Skipton Dairy Co., Inc.	2	1	...	1
Torrington	Smyth Farm Dairy	2	1	...	1
	Clover Dairy	2	1	...	1
Wallingford	Co-Operative Dairy Co.	2	2	...	...
	Greenwood's Dairy	2	2	...	...
Waterbury	Torrington Creamery	2	...	1	1
	Beaumont Farm	2	2	...	...
Watertown	J. H. Daly Co.	2	1	1	...
	Fairview Dairy	1	1	...	...
Webster, Mass.	Brookside Dairies, Inc.	2	2	...	...
	Cashin's Dairy, Inc.	1	1	...	...
Westfield	R. F. Worden & Sons	1	...	1	...
West Hartford	Wookey's Dairy	1	...	...	1
West Haven	Deary Bros.	2	2	...	...
West Rocky Hill	Brookfield Dairy	1	...	1	...
Wethersfield	A. C. Petersen Farms	1	1	...	...
Wilton	Clark Dairy	1	...	1	...
Winsted	Mingo's Dairy	1	1	...	...
Woodbridge	Kelly's Dairy Farm	2	...	...	2
	Orem's Dairy	1	1	...	...
Woodstock	Avery's Dairy	2	2	...	...
	J. O. Johnson & Son	2	1	1	...
Woodville	Willow Brook Dairy	2	...	2	...
	Rosehurst Dairy	1	1	...	...
Total		184	121	30	33

Besides the official samples listed in Table 4, one unofficial sample of "Knudson Bros. Dairy Inc. Chocolate Milk", 6303, was purchased at the Sweetie Shop, New Haven, and assayed for vitamin D in order to establish whether the added chocolate interfered with the official method for vitamin D; a normal assay was obtained. This experiment was conducted because Mr. H. C. Goslee of the Department of Farms and Markets wished to be sure that the vitamin D assay would work on chocolate milks before he permitted chocolate milks to be fortified.

Deceptively Packed Foods

Any food whose "container is so made, formed or filled as to be misleading" is misbranded under the Food, Drug and Cosmetic Act. What this means in plain language is that it is illegal to pack foods in opaque containers that are larger than necessary, and so sell the purchaser waste space instead of food. Fifty-one samples were submitted by the Commissioner because of suspected slack fill; 12 were passed and 39 were misbranded. The deceptively packed samples were the following:

A.L.-53, 54, 55, 56, 57, 58 and 59. Dunhills Assorted Candies. Cocilana, Inc., Brooklyn, N. Y. Average fill of container 60 per cent.

K.F.-976. Dunhills Lemon Shapes. Cocilana, Inc., Brooklyn, N. Y. Fill of container 63 per cent.

K.F.-974. Dunhills Sour Balls. Cocilana, Inc., Brooklyn, N. Y. Fill of container 68 per cent.

K.F.-963 and 964. Dunhills Xmas Goodies. Cocilana, Inc., Brooklyn, N. Y. Average fill of container 57 per cent.

W.M.-403. Federal Butterscotch Flavored Dessert. Federal Tea Co., Springfield, Mass. Fill of container 35 per cent.

W.M.-405. Federal Chocolate Flavored Dessert. Federal Tea Co., Springfield, Mass. Fill of container 40 per cent.

K.C.-304 and W.M.-404. Federal Coconut Flavored Dessert. Federal Tea Co., Springfield, Mass. Average fill of container 48 per cent.

K.C.-305 and W.M.-402. Federal Lemon Flavored Dessert. Federal Tea Co., Springfield, Mass. Average fill of container 34 per cent.

K.C.-299 and 303 and W.M.-406. Federal Quick Tapioca Dessert Mix. Federal Tea Co., Springfield, Mass. Average fill of container 32 per cent.

K.F.-724, 725, 732, 733, 740, 747 and 748. Kanana Banana Flakes. Average fill of container 62 per cent.

K.N.-291. Leader-Airline Surprise and Candy Chews. Leader Novelty Candy Co., Inc., Brooklyn, N. Y. Fill of container 50 per cent.

K.C.-306. Leader Candy Chew and Ring. Leader Novelty Candy Co., Inc., Brooklyn, N. Y. Fill of container 57 per cent.

K.C.-338 and S.O.-154. Leader Happee Surprise! and Candy Chews. Leader Novelty Candy Co., Inc., Brooklyn, N. Y. Average fill of container 50 per cent.

W.M.-431. Magic Scratch It—Match It! Topps Chewing Gum, Inc., Brooklyn, N. Y. Fill of container less than 50 per cent; short weight 0.06 oz.

K.C.-307. Mrs. Murray's Novelty Merchandise Package. Casey-Hofeller Corp., Chicago, Ill. Fill of container 10 per cent.

K.C.-286. Robin Hood Candy and Toy. All Star Candy Co., Brooklyn, N. Y. Fill of container 50 per cent.

K.C.-273. 20% Protein Macaroni Bavette. Buitoni Products, Inc., New York, N. Y. Fill of container 65 per cent.

K.C.-272. 20% Protein Thin Spaghetti. Buitoni Products, Inc., New York, N. Y. Fill of container 52 per cent.

K.C.-274. 20% Protein Vermicelli. Buitoni Products, Inc., New York, N. Y. Fill of container 68 per cent.

W.M.-380. Tilbest Angel Food Cake Mix. Tilbest Foods, Milwaukee, Wis. Fill of container 63 per cent.

W.M.-427. Zoo-Mac Brand Pure Egg Animal Noodles. Francis H. Leggett Co., New York, N. Y. Fill of container 58 per cent.

Eggs

K.F.-757 and 758, Fresh Cracked Eggs, from New York Bakery, Waterbury, Conn., had the following composition as compared with normal values for whole eggs:¹

	<i>K.F.-757,</i> <i>per cent</i>	<i>K.F.-758,</i> <i>per cent</i>	<i>Average for</i> <i>whole eggs,</i> <i>per cent</i>
Water	78.00	73.21	73.7
Ash	0.80	0.97	1.0
Lipoids	4.67	6.76	13.44
Lipoid phosphoric acid (P ₂ O ₅)	0.13	0.18	0.39

The low lipoid and lipoid phosphoric acid contents of these eggs indicated that they were not whole eggs but eggs from which the yolks had been largely removed.

Extracts and Flavors

The following two samples of fruit flavors submitted by the Commissioner were both misbranded:

F.H.-4623. Lemon Concentrate. Golden Crest Farms, New Haven, Conn. Labelled "Natural and terpeneless oils of lemon, vegetable gum, glycerine, water, 1/10 of 1% benzoate of soda". Misbranded because the product was not a beverage concentrate but a lemon flavor.

¹Leach and Winton, *Food Inspection and Analysis*, 4th Ed. (1920), p. 268; Mitchell, *J. Assoc. Official Agr. Chem.*, 16, 302 (1933).

F.H.-4622. Orange Concentrate. Golden Crest Farms, New Haven, Conn. Labelled "Natural oils of orange, propylene glycol, vegetable gum, water and color". Misbranded because not a concentrate as labelled, but an orange flavor; also misbranded because the "color" was not specifically declared as "artificial color".

Fish and Shellfish

Ten official and two unofficial samples were examined; all were passed:

K.F.-945. Blue Band White Meat Tuna. Blue Band Foods, Los Angeles, Calif. Net weight: Declared, 7 oz.; found, 6.81 oz.

W.M.-217. Blue Water Brand Sardines Packed in Olive Oil. Grocers' Wholesale, New Haven, Conn. Analysis of the packing oil was as follows: Butyro refraction, 25°C., 62.9; iodine no., 84; squalene, 486 mgm./100 gm.; ether-insoluble bromides, 2.46 per cent; cottonseed, peanut and mineral oils, none. These constants were consistent with the oil being pure olive oil as claimed.

A.F.-927 and K.F.-745 and 746. Bumble Bee Brand Fancy White Meat Tuna. Columbia River Packers Association, Inc., Astoria, Oregon. These samples were submitted to Glenn G. Slocum, Chief of the Division of Microbiology of the U. S. Food and Drug Administration, Washington, D. C., who confirmed that they were fancy solid pack white meat tuna (albacore) as labelled.

S.O.-159. Diane Clam Sauce. Alphonse J. Laffauzio, White Plains, N. Y. Labelled "Prepared from fresh clams, tomato purée, vegetable oil, salt, spice, sugar, Italian cheese, parsley, garlic".

5905. Krasdale Bonita. Krasdale Foods, Inc., New York, N. Y. This sample was submitted by the New Haven Health Department because of a customer complaint that it contained particles of glass. Examination showed that the "glass" was struvite (magnesium ammonium phosphate) crystals; these crystals are found not infrequently in canned fish (usually shellfish); their formation is a natural phenomenon and they are harmless.

K.F.-744. Marine Bowl Brand White Meat Tuna Packed in Soybean Oil, Salt Added. Seaside Fisheries Co., Long Beach, Calif. Dr. Slocum of the U. S. Food and Drug Administration examined this sample and confirmed that it was solid pack albacore (white meat tuna) as labelled; it was not, however, fancy grade, because it contained excessive shredded material.

K.N.-372. Marine Bowl Crabmeat. American Trading Co., San Francisco, Calif. This sample was submitted because of a complaint that it contained hair; no hair was found, but some of the pieces of crabmeat cartilage were very fine, and doubtless it was these that were mistaken for hairs.

8226. Premier Bonito Fish. Francis H. Leggett & Co., New York, N. Y. This sample was submitted by the Bridgeport Health Department because of a customer complaint that it contained glass; neither glass nor struvite crystals were found.

S.O.-124. Southern Seas Brand Imported Tuna Flakes. Industrial Pesquera S. A., Callao, Peru. Net weight: Declared, 6 oz; found, 6.24 oz.

S.O.-125. Southern Star Brand Imported Fancy Solid Pack Bonito. Industrial Pesquera S. A., Callao, Peru. Net weight: Declared, 7 oz.; found, 7.34 oz.

Fruit, Canned and Frozen

Four samples of canned fruit, one of maraschino cherries in glass, and one of frozen strawberries were submitted by the Commissioner; all were passed:

K.C.-205. Astoria Brand Maraschino Cherries in Heavy Cane Sugar Syrup. Fruit Products Corp., New York, N. Y. Labelled "No sulphur dioxide-free from preservative-contains artificial flavor and certified color". No sulphite or benzoate found; passed.

W.M.-235. Bestwest Selected Fancy Blackberries in Extra Heavy Syrup. Washington Canners Co-Operative, Vancouver, Wash. Total solids content of syrup, 27.64 per cent. Passed.

W.M.-236. Bestwest Select Fancy Red Raspberries in Extra Heavy Syrup. Washington Canners Co-Operative, Vancouver, Wash. Total solids content of syrup, 35.35 per cent. Passed.

W.M.-336. Buffalo Fresh Frozen Sliced Strawberries in Sugar. Buffalo Frosted Food, Inc., Fredonia, N. Y. Net weight: Declared, 1 lb.; found, 16.00 oz. Drained solids, 44.94 per cent. Passed.

W.M.-234. Hunt's Peaches Halves Yellow Cling in Heavy Syrup. Hunt Foods, Inc., Fullerton, Calif. This sample was submitted because of a complaint that it contained "vinegar and spices", but neither was found; the flavor was normal. Total solids content of the syrup was 20.60 per cent. Passed.

W.M.-233. Richmond Peaches Yellow Cling Variety in Light Syrup. First National Stores, Somerville, Mass. No vinegar or spices found; flavor satisfactory; total solids content of syrup, 14.95 per cent. Passed.

Fruit Juices

Nine official and 26 unofficial samples of fruit juices were examined. These included 24 samples of apple juice, eight of grape juice and three of orange juice. Thirty-two samples were passed and three were adulterated or misbranded.

Analyses of the apple juices are shown in Table 5; these were all experimental samples analyzed for Dr. Philip Garman of our Entomology Department. Analyses of the grape juices are given in Table 6. The three orange juice samples were the following:

K.F.-702. Anagold Brand Pure Sweetened California Orange Juice. Winckler & Smith Citrus Products Co., Anaheim, Calif. Analysis showed: Ash, 0.39 gm./100cc.; potassium oxide, 210, and ascorbic acid, 43, mgm./100cc. Since all of these values were 90 per cent or better of the normal for fresh orange juice, sample was passed.

TABLE 5. APPLE JUICE

No.	pH	Ash, gm./ 100cc.	Total acidity as malic acid, gm./ 100cc.	Ascorbic acid, mgm./ 100cc.	Invert sugar, gm./ 100cc.	Sucrose, gm./ 100cc.	Potas- sium, p.p.m.	Calcium, p.p.m.	Mag- nesium, p.p.m.	Phos- phorus, p.p.m.	Iron, p.p.m.	Copper, p.p.m.	Zinc, p.p.m.	Boron, p.p.m.
5127	3.50	0.18	0.43	0.38	8.36	2.16	.....	.....	.....	.....	.....	.....	.....	.....
5128	3.55	0.18	0.38	0.38	8.22	1.97	.....	.....	.....	.....	.....	.....	.....	.....
5129	3.68	0.26	0.39	1.13	8.25	2.13	.....	.....	.....	.....	.....	.....	.....	.....
5130	3.50	0.19	0.39	0.20	8.25	2.90	.....	.....	.....	.....	.....	.....	.....	.....
5131	3.65	0.26	0.42	1.26	7.99	1.81	.....	.....	.....	.....	.....	.....	.....	.....
5132	3.45	0.18	0.39	0.25	8.40	2.72	.....	.....	.....	.....	.....	.....	.....	.....
5133	3.55	0.21	0.39	0.20	8.54	2.57	.....	.....	.....	.....	.....	.....	.....	.....
5134	3.40	0.20	0.49	0.20	8.18	2.74	.....	.....	.....	.....	.....	.....	.....	.....
5205	3.60	0.18	0.38	0.37	8.36	1.94	.....	.....	.....	.....	.....	.....	.....	.....
5206	3.62	0.22	0.43	0.37	8.94	1.97	.....	.....	.....	.....	.....	.....	.....	.....
7394	3.30	0.21	0.53	.....	7.80	2.41	790	39	38	96	14	0.6	2.0	1.5
7395	3.30	0.21	0.52	.....	7.89	2.55	900	30	43	96	10	1.0	2.0	1.6
7396	3.25	0.22	0.57	.....	8.39	2.46	1,050	86	45	92	9	0.9	2.0	1.6
7397	3.35	0.23	0.52	.....	7.68	2.63	880	25	40	92	10	0.8	1.6	1.6
7398	3.30	0.22	0.52	.....	8.48	2.31	940	46	42	88	10	0.8	2.0	1.6
7399	3.35	0.24	0.58	.....	8.00	2.43	970	40	41	104	10	0.8	2.0	3.2
7400	3.30	0.24	0.58	.....	8.16	2.57	1,000	45	44	108	13	1.0	2.8	2.2
7401	3.30	0.24	0.57	.....	8.49	2.38	1,060	43	43	104	14	1.2	2.4	2.1
8369	3.48	0.20	0.38	.....	8.03	2.46	950	38	38	84	13	1.0	2.9	2.1
8370	3.45	0.18	0.37	.....	6.89	2.77	860	32	37	68	8	0.8	1.8	1.2
8371	3.48	0.20	0.38	.....	7.33	2.42	980	25	38	76	10	1.0	1.7	2.0
8372	3.50	0.19	0.35	.....	7.14	2.34	910	28	38	76	7	1.3	3.6	1.2
8373	3.55	0.16	0.27	.....	7.40	2.11	790	28	37	76	7	1.2	1.8	0.8
8374	3.30	0.16	0.42	.....	7.02	2.46	730	36	36	72	7	1.4	1.4	1.2
Average	3.31	0.21	0.44	0.47	7.86	2.37	915	35	40	88	10	1.0	2.1	1.7

TABLE 6. GRAPE JUICE

No.	Manufacturer and brand	Total solids, gm./100cc.	Total sugars, gm./100cc.	Ash, gm./100cc.	P ₂ O ₅ , mgm./ 100cc.	K ₂ O, mgm./ 100cc.	Total acidity as tartaric acid, gm./100cc.	Actual tartaric acid, gm./100cc.	Grape juice, per cent	Remarks
W.M.-283	Dundee Grape Juice Co., Dun- dee, N. Y. <i>Dundee Brand</i> <i>Pure Catawba</i>	17.66	14.88	0.21	26.	.....	1.47	0.71	97	Passed.
W.M.-410	Gaer Bros., Hartford, Conn. <i>Suncrest (Sweetened)</i>	17.34	14.60	0.27	31.	120.	0.80	0.42	87	Passed.
W.M.-250	Miner, Read & Tullock, New Haven, Conn. <i>Sunrise</i>	18.73	16.68	0.26	33.	.....	0.86	0.55	75	Adulterated with water.
W.M.-385	Widmer's Wine Cellar, Inc., Maples, N. Y. <i>Sunrise</i>	19.32	16.78	0.25	23.	120.	1.23	0.74	94	Passed.
W.M.-386	Widmer's Wine Cellar, Inc., Maples, N. Y. <i>Sunrise</i>	19.33	16.60	0.25	23.	120.	1.24	0.74	94	Passed.
W.M.-387	Widmer's Wine Cellar, Inc., Maples, N. Y. <i>Sunrise</i>	18.99	16.22	0.25	23.	130.	1.23	0.73	94	Passed.
W.M.-388	Widmer's Wine Cellar, Inc., Maples, N. Y. <i>Sunrise</i>	18.83	16.30	0.25	21.	120.	1.25	0.73	94	Passed.
W.M.-389	Secman Bros., Inc., New York, N. Y. <i>White Rose Pure Con- cord</i>	19.24	16.68	0.20	21.	100.	1.15	0.62	83	Passed.

TABLE 7. JAMS, JELLIES AND PRESERVES

No.	Manufacturer or distributor and brand	Solids by refraction, per cent	Total sugars, per cent	Ash, per cent	P ₂ O ₅ , mgm./100gm.	K ₂ O, mgm./100gm.	Total acidity, per cent	Remarks
R.G.-12	Fruitcrest Corp., Brooklyn, N. Y. <i>Fruitcrest Pure Concord Grape Jam</i> .	70.8	72.90	0.23	24	120	0.75	Passed.
R.G.-13	Fruitcrest Corp., Brooklyn, N. Y. <i>Fruitcrest Pure De Luxe Strawberry Preserves</i> .	70.9	71.74	0.20	45	92	0.61	Passed.
J.W.-238	Manufacturer unknown. <i>Grab Apple Jelly</i> .	63.4	82.08	0.20	35	69	0.54	Substandard.
J.W.-250	Manufacturer unknown. <i>Orange Marmalade</i> .	71.0	68.61	0.15	50	28	0.33	Passed.
J.W.-254	Manufacturer unknown. <i>Peach Jelly</i> .	70.3	69.92	0.17	95	56	0.34	Substandard.
J.W.-240	Manufacturer unknown. <i>Pure Strawberry Jam</i> .	62.5	73.32	0.26	48	91	0.76	Passed. Coal tar dye present not declared; name should be "apple jelly, mint flavoring and artificial coloring added".
K.N.-332	National Retailer-Owned Grocers Inc., Chicago, Ill. <i>Shur-fine Pure Apple Mint Jelly</i>.	....	....	....	....	....	....
R.G.-72	Poles Products & Preserving Co., Hartford, Conn. <i>Poles Brand Pure Home Style Pineapple Preserves</i> .	62.6	56.60	0.24	13	89	1.02	Deficient in solids; adulterated.
R.G.-73	Poles Products & Preserving Co., Hartford, Conn. <i>Poles Brand Pure Home Style Strawberry Preserves</i> .	64.6	62.72	0.23	32	87	0.59	Deficient in solids; adulterated.
E.S.-580	Preserves, Inc., Long Island City, N. Y. <i>Acme Brand Pure Grape Preserves</i> .	71.7	74.32	0.19	27	91	0.78	Passed.
K.N.-338	J. M. Smucker Co., Orville, Ohio. <i>Dutch Girl Pure Homemaid Apple Butter</i>.	....	....	....	....	....	....	Misbranded because "Homemaid" is misleading. Spherical white masses of dextrose crystals interspersed throughout the preserves; passed.
K.C.-265	Stratford Farms Corp., Philadelphia, Pa. <i>Stratford Farms Brand Pure Cherry Preserves</i>.	....	....	....	....	....	....

6575. *Old South Concentrated Florida Orange Juice*. Pasco Packing Co., Dade City, Fla. Labelled: "For each part of concentrate add seven parts of water, stir and aerate until thoroughly blended." Analysis showed: Ash, 2.43; potassium oxide, 1.40; and ascorbic acid, 0.307, gm./100cc.; Brix gravity, 64.8. This analysis indicated that the juice was concentrated to one-sixth of its original volume, and that addition of five volumes of water (instead of seven, as the label stated) would produce the equivalent of straight orange juice. Misbranded because of the implication in the label directions that it was concentrated seven instead of five times.

6574. *Royal Palm 65° Brix Pure Concentrated Florida Orange Juice*. Taylor Groves & Fruit Products, Winter Haven, Fla. Labelled "To each part of this pure Florida concentrated orange juice add seven additional parts of water, stir and aerate until thoroughly mixed." Analysis showed: Ash, 2.47; potassium oxide, 1.39; and ascorbic acid, 0.254, gm./100cc.; Brix gravity, 65.2. This sample met its Brix gravity claim but was misbranded because it was a 1:5 instead of a 1:7 concentrate.

Jams, Jellies and Preserves

Twelve samples of jams, jellies and preserves were examined for the Commissioner; six were passed and six were adulterated or misbranded. Results are given in Table 7.

Five samples of apple sauce, 8264 to 8268 inclusive, prepared by Dr. Philip Garman of our Entomology Department in connection with studies of the effects of spray treatment of apple trees on the composition of their apples, were also analyzed. The average sugar content was: Invert sugar, 7.83, and sucrose, 1.59, per cent.

Meat and Meat Products

Seventy-eight samples of hamburg, three of frankforts and one each of beef fat, "chicken-burger", chicken loaf, a lamb chop, lard, meat loaf and pork sausage were examined for the Commissioner. Of the total 88 samples, 59 were passed and 29 were adulterated or misbranded.

The hamburg samples were all tested for the presence of sulphite. Fifty-one samples contained no sulphite and were passed; one of these, K.F.-844, which had been submitted for the Waterbury Health Department because of a complaint that it caused illness, was also tested for horsemeat and none found. The 27 samples that were adulterated with sulphite are listed in Table 8.

The other 10 official meat and meat product samples were the following:

K.C.-237. *Beef Fat*. Rall Packing Co., Bridgeport, Conn. Butyro refraction, 40°C., 44.8; melting-point of stearin crystals, 58.7°C. No pork fat detected; passed.

TABLE 8. HAMBURG ADULTERATED WITH SULPHITE

City or town	No.	Market or restaurant
Bridgeport	K.C.-335	Burnsford Super Market
	K.C.-334	Coney Island Lunch
	K.C.-331	Madison Diner
	K.C.-332	Madison Diner
	K.C.-328	White's Diner
Danbury	K.C. 249	Central Market
	K.C.-268	Central Market
	K.C.-252	Hilltop House
Hartford	A.F.-923	Pre-Court Meat Saver
	A.F.-924	Pre-Court Meat Saver
	R.G.-38	Pre-Court Meat Saver
	R.G.-39	Pre-Court Meat Saver
	A.F.-925	Mrs. Charles Shaw
Middletown	R.G.-18	Grand Delicatessen
	W.M.-305	Purity Restaurant
Milford	W.M.-306	Village Diner
	W.M.-312	City Market
New Haven	W.M.-303	The Cookery
	W.M.-299	Palace Grill, Inc.
	W.M.-359	Sam's Kosher Meat Market
	W.M.-360	Sam's Kosher Meat Market
	E.C.-453	Troystman Bros.
New London	E.C.-454	Troystman Bros.
	S.O.-172	Stamford Dress Beef Co.
Stamford	S.O.-173	Stamford Dress Beef Co.
	K.F.-775	Ray's Diner
Waterbury	K.F.-777	Ray's Diner

A.F.-932. Frankforts. (Tested for State Supervisor of Purchases.) Analysis showed: Moisture, 16.83, protein, 20.88, lactose, 7.95, and dextrose, 0.01, per cent. This analysis corresponded to 15.44 per cent of dry skim milk, which was far in excess of the permitted 3.5 per cent; adulterated.

J.W.-255. Frankforts. (Tested for State Supervisor of Purchases.) Analysis showed: Moisture, 49.12, protein, 12.88, and dextrose, 0.46, per cent; no added dry skim milk, soybean meal, starch or water. Passed.

S.O.-130. Hygrade's All Beef Natural Casing Frankfurters. Hygrade Food Products Corp., Detroit, Mich. Labelled: "Ingredients: Beef, water, salt, spices, sugar, sodium nitrite and sodium nitrate." Test for sulphite negative; passed.

W.M.-352. It's The McCoy Chickenburgers. Resort Holdings, Inc., Stamford, Conn. Labelled: "Ingredients: Chicken, turkey and spices." Examination showed that almost no true meat of either chicken or turkey was present, being replaced by fat and gristle; adulterated.

J.W.-263. Lamb Chop. Mrs. Martin Gully, Westbrook, Conn. This sample was suspected of being artificially colored, but no artificial color was found.

K.C.-238. Lard. Rall Packing Co., Bridgeport, Conn. Butyro refraction, 40°C., 50.5; melting-point of stearin crystals, 63.9°C. No beef fat detected; passed.

K.N.-408. Meat Loaf. Mrs. Dennis Carter, Plainville, Conn. No sulphite detected; passed.

K.C.-292. Pork Sausage. Plaza Beef & Provision Co., Bridgeport, Conn. No sulphite detected; passed.

K.F.-824. Roessler's Chicken Loaf. First National Stores, Inc., Somerville, Mass. Examination showed a small proportion of chicken meat to be present together with the fat, so sample was passed.

The following six unofficial samples were examined for the Department of Farms and Markets, the State Supervisor of Purchases, the New Haven Health Department, a watch company and private citizens:

7173. Bologna. (Tested for State Supervisor of Purchases.) Water, 55.35, protein, 11.56, dextrose, 0.63, and added water, 10, per cent; no soybean meal or starch. Passed.

8492. Chopped Meat. Mrs. O. V. Ober, Hamden, Conn. Fat, 33.0 per cent; no horsemeat detected. Passed.

7172. Frankforters. (Tested for State Supervisor of Purchases.) Water, 55.75, and protein, 12.31, per cent; no dextrose, soybean meal or starch. Passed.

5350. Hamburg. (Tested for New Haven Health Dept.) No sulphite detected; passed.

8021. Horse Mane Oil. Waterbury Manufacturing Division, Benrus Watch Co., Inc., Waterbury, Conn. This oil, which the watch manufacturer was importing under the above name from Switzerland (where it was supposed to be used for dressing horses' manes), was submitted for identification. Analysis was as follows: Moisture, 0.26, and fat, 99.74, per cent. Constants of fat: Butyro refraction, 40°C., 53.0; iodine no., 82.91; saponification no., 201; ether-insoluble bromides¹, 53 mgm./gm.; tests for cottonseed and sesame oils negative. These constants identified the oil beyond question as being refined horse fat.

6945. Meat. Little Bear Market, Ansonia, Conn. Not horsemeat; passed.

Oils and Fats, Vegetable

Blended Oils

Twenty-three official samples of salad and cooking oils sold as blends of olive with other oils were examined; eight were passed and 15 were adulterated or misbranded. Analyses are given in Table 9.

Oleomargarine

Seven samples of oleomargarine were examined for the Commissioner, and three samples were submitted by the State Supervisor of Purchases; nine were passed and one was adulterated.

W.M.-239. Blue Bonnet Vegetable Oleomargarine. Standard Brands, Inc., Indianapolis, Ind. Fat, 83.56 per cent; passed.

¹Crowell, G. K., *J. Assoc. Official Agr. Chem.*, 27, 448 (1944).

TABLE 9. ADULTERATED AND MISBRANDED BLENDED VEGETABLE OILS

No.	Manufacturer or distributor and brand	Declared composition	Net contents, fl. oz.		Butyro refraction, 25°C	Squalene, mgm./100gm.	Remarks
			Declared	Found			
S.O.-155	Casticarini Packing Co., Brooklyn, N. Y. <i>Belmont</i> ...	75% peanut, 25% olive oil	128	123.4	63.5	101	Short volume 4.6 fl. oz. mostly corn or soy oil with little or no olive oil; artificial flavor present not declared.
K.F.-818	Palumbo Oil Co., Newark, N. J. <i>Palumbo</i>	80% peanut, 20% olive oil	128	123.4	69.6	35	Substantially all soy oil, artificially flavored.
J.W.-259	Palumbo Oil Co., Newark, N. J. <i>Palumbo</i>	80% peanut, 20% olive oil	128	127.5	69.8	12	Short volume 2.5 fl. oz.; name of other oil (peanut) not declared.
K.F.-817	C. Pappas Co., Inc., Boston, Mass. <i>Margherita</i>	10% olive oil	128	125.5	69.6	65	Short volume 2.0 fl. oz.; name of other oil (cottonseed) not declared.
K.N.-344	C. Pappas Co., Inc., Boston, Mass. <i>Olivet</i>	5% olive oil, color added	128	126.0	68.9	23	Probably not more than 8 per cent olive oil.
K.F.-828	R. & S. Olive Oil Co., Inc., Torrington, Conn. <i>Citta Nuova</i>	80% peanut, 20% olive oil	128	127.0	63.9	51	Probably not more than 9 per cent olive oil.
K.F.-840	R. & S. Olive Oil Co., Inc., Torrington, Conn. <i>Citta Nuova</i>	80% peanut, 20% olive oil	128	127.5	63.9	55	Probably not more than 9 per cent olive oil.
K.F.-841	R. & S. Olive Oil Co., Inc., Torrington, Conn. <i>Citta Nuova</i>	80% peanut, 20% olive oil	128	127.2	63.9	55	Probably not more than 9 per cent olive oil.

Food Products

K.F.-764	Santuza Oil Co., Inc., Brooklyn, N. Y. <i>Carmela Mia</i> ..	90% peanut, 10% olive oil	128	127.1	64.2	27	No olive oil present; artificially colored.
K.F.-765	Santuza Oil Co., Inc., Brooklyn, N. Y. <i>Carmela Mia</i> ..	90% peanut, 10% olive oil	128	127.3	64.2	23	No olive oil present; artificially colored.
K.F.-790	Santuza Oil Co., Inc., Brooklyn, N. Y. <i>Carmela Mia</i> ..	90% peanut, 10% olive oil	128	128.2	63.9	11	No olive oil present; artificially colored.
K.F.-833	Santuza Oil Co., Inc., Brooklyn, N. Y. <i>Carmela Mia</i> ..	90% peanut, 10% olive oil	128	128.2	64.3	32	No more than 1 per cent if any of olive oil; artificially colored.
K.F.-835	Santuza Oil Co., Inc., Brooklyn, N. Y. <i>Carmela Mia</i> ..	90% peanut, 10% olive oil	128	124.4	64.0	29	Short volume 3.6 fl. oz.; no olive oil; artificially colored.
K.F.-837	Santuza Oil Co., Inc., Brooklyn, N. Y. <i>Carmela Mia</i> ..	90% peanut, 10% olive oil	128	127.0	63.9	30	No olive oil present; artificially colored.
W.M.-334	Santuza Oil Co., Inc., Brooklyn, N. Y. <i>Carmela Mia</i> ..	90% peanut, 10% olive oil	128	124.5	64.0	27	Short volume 3.5 fl. oz.; no olive oil; artificially colored.

W.M.-240. Delrich Vegetable Oleomargarine. Cudahy Packing Co., Kansas City, Kansas. Fat, 83.51 per cent; passed.

J.W.-267. Filberts Oleomargarine. J. H. Filbert, Inc., Baltimore, Md. The flavor was satisfactory but the Kreis test showed incipient rancidity.

W.M.-238. Nucoa. Best Foods, Inc., New York, N. Y. Fat, 82.28 per cent; passed.

W.M.-241 and K.N.-334. Nu Maid Vegetable Oleomargarine. Miami Margarine Co., Cincinnati, Ohio. Fat, 86.07 per cent; no benzoate; passed.

J.W.-252. Oleomargarine. (Tested for State Supervisor of Purchases.) Moisture, 13.21, fat, 83.50, and non-fat solids, 3.29, per cent; Reichert-Meissl value of fat, 0.28. Passed.

8579, 8580 and 8581. *Oleomargarines A, B and C.* State Supervisor of Purchases. These samples were tested as follows:

No.	Fat, per cent	Flavor
8579	84.16	Saltiest and best flavor
8580	80.85	Rather flat
8581	80.71	Rather flat

Olive Oil

Sixteen official and two unofficial samples of oil sold as pure olive oil were examined; nine were passed and nine were misbranded. Deficient samples were the following:

K.F.-901. Apollo Extra Fine Olive Oil. Moscahlades Bros., Inc., New York, N. Y. Short volume 7.2 fl. oz.

K.C.-280. Elephant Brand Imported Virgin Olive Oil. Embro Import Co., New York, N. Y. Short volume 5.3 fl. oz.

K.C.-276, 277, 279, 281, 282 and 285 and A.F.-958. Pure Imported Olive Oil, Giuletta Brand, Superior Quality. Antonio Corrao Corp., Brooklyn, N. Y. Average short volume, 4.9 fl. oz.

Peanut Oil

Five samples of peanut oil were submitted by the Commissioner; all were misbranded:

K.F.-762, 763, 834 and 836. Carmela Mia 100%, a Delicious Peanut Oil. Santuzza Oil Co., Inc., Brooklyn, N. Y. Average short volume, 3.4 fl. oz. (Squalene content of *K.F.-762*, 29 mgm./100gm.)

S.O.-151. Creole Brand Peanut Oil. Manufacturer unknown. Artificially colored.

Other Oils

One sample of corn oil was examined for the Commissioner and one sample of "replacement oil" was tested for a purchaser:

K.F.-826. Universal Brand Extra Fine Oil for Family Use 100% Pure Corn Oil. Antonio Corrao Corp., Brooklyn, N. Y. Short volume 5.7 fl. oz.

7792. *Replacement Oil.* S. M. Peck, Woodbridge, Conn. During the war the Federal Government required that all linseed oil sold for painting purposes be "stretched" by the addition of a certain proportion of petroleum distillate. Mr. Peck submitted this sample to see if it contained the proper percentage of linseed oil. Analysis showed 40 per cent of linseed oil and 60 per cent of the petroleum fraction known as "mineral spirits" or "painters' naphtha".

Pickles

Three samples of pickled peppers, one of "Kosher" style pickles, and one of sweet mixed pickles, were submitted by the Commissioner; four were misbranded and one was passed:

K.F.-968. Hi-Glo Brand Cheese Peppers. Frank Pepe, Inc., Waterbury, Conn. Sodium benzoate present, not declared.

K.F.-969. Hi-Glo Brand Cherry Peppers. Frank Pepe, Inc., Waterbury, Conn. Sodium benzoate present, not declared.

K.F.-970. Hi-Glo Brand Finger Peppers. Frank Pepe, Inc., Waterbury, Conn. Sodium benzoate present, not declared.

K.C.-333. Purity Brand Kosher Style Pickles. Purity Food Co., Inc., Bridgeport, Conn. Labelled: "Cont. selected pickles, distilled vinegar, spices, salt water, dill and garlic flavor." Misbranded because the net contents, which were actually a quart, were declared as one gallon.

J.W.-241. Sweet Mix Pickles. (Tested for State Supervisor of Purchases.) Flavor satisfactory; passed.

Preservatives

Five samples of preservatives were examined for the Commissioner and one sample was analyzed for the New Haven Health Department:

A.F.-915. Sodium Metabisulfite. White Way Potato Co., Hartford, Conn. Analysis showed 96 per cent of sodium metabisulfite ($\text{Na}_2\text{S}_2\text{O}_5$).

K.C.-329. Sulphite. Monoco's Market, Bridgeport, Conn. Used for adding to hamburger; test for sulphite positive.

5349. *Unknown Powder.* This was suspected by the New Haven Health Department of being a meat preservative, but analysis showed it to be monosodium glutamate, which is not a preservative but a flavoring agent.

K.C.-336. XXX Preservaline Washing Powder. Preservaline Mfg. Co., Brooklyn, N. Y. Labelled: "Recommended for use as an aid in removing odors from blocks, tubs, refrigerators, tanks, vats, tools, choppers, mixers and other butcher's machinery. Sodium sulphite not less than 84%. Inert ingredients not more than 16%." Analysis showed: Sodium sulphite (Na_2SO_3), 65.84 per cent.

There was little doubt but what this preparation was being sold for addition to meat as well as for the purposes declared on the label, but lacking proof thereof, the product could not be proceeded against under the Food, Drug and Cosmetic Act.

W.M.-300. Zanzibar Brand Special Preservative. B. Hiller & Co., Chicago, Ill. Labelled: "Contains bicarbonate of soda, salt, benzoate of soda, paprika." No sulphite present; passed.

R.G.-40. Zanzibar Special B. B. Hiller & Co., Chicago, Ill. No sulphite present; passed.

Salad Dressings and Mayonnaise

Four official samples of French dressing, two of mayonnaise and two of other salad dressings were examined; two were passed and six were adulterated or misbranded:

E.C.-466. Cellu-Soyamaise. Chicago Dietetic Supply House, Inc., Chicago, Ill. Labelled: "A special purpose salad dressing—soy bean oil, eggs, cider vinegar and salt. Fat (ether extract) 85%; protein (N× 6.25) 1.6%; available carbohydrate 0.8%; salt 0.1%; ash (minerals) 0.20%." Analysis showed: Moisture, 11.30, ash, 0.19, total fat, 86.32, protein, 1.94, total acidity as acetic acid, 0.19, phosphorus pentoxide, 0.10, and carbohydrate (by difference), 0.25, per cent; butyro refraction of fat, 25°C., 70.9; no cottonseed, peanut or mineral oil. Calculated composition from this analysis was: Egg yolk, 7.01, egg white, 7.39, soy oil, 84.08, sugar, salt and spices, 0.18, and vinegar (of 14% acidity), 1.34, per cent.

This product does not meet the requirements of the Federal standard for "salad dressing" because "a cooked or partly cooked starchy paste" is an essential ingredient of that standard; it does meet the Federal standards for "mayonnaise", and should have been labelled as a mayonnaise.

F.H.-3732. French Dressing. Joseph Salviola, Hartford, Conn. Calculated composition from the analysis was: Egg yolk, 11.30, egg white, 1.05, olive oil, 22.70, vinegar (of 4% acidity), 57.25, and sugar, salt and spices, 7.70, per cent. The Federal standard for French dressing requires a minimum of 35 per cent of vegetable oil, so this sample was substandard.

J.W.-243. French Dressing. Joseph Salviola, Hartford, Conn. Calculated composition from the analysis was: Egg yolk, 9.95, olive oil, 45.07, sugar, salt and spices, 0.34, and vinegar by difference, 44.64, per cent. Sample was passed.

J.W.-239. Mayonnaise. (Tested for State Supervisor of Purchases.) Calculated composition from the analysis was: Egg yolk, 14.10, corn or soy oil, 78.75, sugar, salt and spices, 4.19, and vinegar (of 4.05 per cent acidity), 2.96, per cent. Sample was passed.

W.M.-237. Primrose Mayonnaise. Perrelli Bros., New Haven, Conn. Calculated composition from the analysis was: Egg yolk, 11.68, corn or soy oil, 76.63, sugar, salt and spices, 1.27, and vinegar (of 4.70

per cent acidity), 10.42, per cent. Federal regulations for mayonnaise require that it contain not less than 65 per cent of vegetable oil and that any vinegar present have an acidity equivalent to not less than 2.5 per cent of acetic acid. Since this sample met both these requirements it was passed.

A.F.-794. Salt Free Svelt Low Calorie Salad Dressing for Use in Reducing Diets. Merit Food Co., Inc., Hackensack, N. J. Labelled: "Water, cider vinegar, vegetable shortening, corn starch, egg yolk, sodium carboxy methyl cellulose (a stabilizer), locust bean gum, mustard, spice oils. Approximate analysis carbohydrates 4.1% protein 0.8%—only 5 calories in a level teaspoonful." Calculated composition from the analysis was: Egg yolk, 9.50, peanut oil, 4.73, vinegar (of 4% acidity), 24.00, starch, spices and "stabilizer", 6.77, and added water, 55.00, per cent. Protein content was 1.19 instead of the 0.8 per cent declared on the label; calories per 100 grams calculated from the protein and fat were 74.6, which is equivalent to 3.7 calories per teaspoonful as against the declared 5.

Sample was misbranded because of its failure to declare the percentage of the non-nutritive ingredient sodium carboxymethylcellulose, as is required for special dietary foods; it also failed to meet the Federal standards for salad dressings in that it contained less than 30 per cent of vegetable oil and more than 0.75 per cent of emulsifying agent. It should have been labelled "Imitation Salad Dressing".

K.C.-208 and 266. Virginia Dare Non-Separating French Dressing (Wine Style). Virginia Dare Extract Co., Inc., Brooklyn, N. Y. Labelled: "Prepared from wine, vinegar, thyme, herbs, chives, seasonings, salt, vegetable gums, with a minimum of oil and sugar and U. S. certified color." Average analysis of the five bottles of *K.C.-266* and the one bottle of *K.C.-208* was: Total solids, 14.71, ash, 4.36, total fat, 0.51, and total acidity as acetic acid, 1.39, per cent. Calculated composition of *K.C.-208* was: Egg yolk, 1.97, vegetable oil, 0.24, vinegar (of 4% acidity), 66.75, sugar, salt, spices and gums, 13.85, and added water, 17.19, per cent. These samples failed to meet Federal standards for French dressing in that they contained much less than 35 per cent of vegetable oil and much more than 0.75 per cent of an emulsifying agent.

Other samples of this same product were analyzed in 1946¹ and 1948.²

Spices and Condiments

Horseradish

Five samples of prepared horseradish were examined for the Commissioner; four were passed and one was adulterated:

R.G.-17 and K.N.-333. Kraft Cream Style Horseradish. Kraft Foods Co., Chicago, Ill. Labelled: "Grated horseradish, vinegar, cream, salt, and flavoring." Average analysis was: Fat, 1.45 per cent; constants of

¹Conn. Agr. Expt. Sta. Bul. 510, 27 (1947).

²Conn. Agr. Expt. Sta. Bul. 538, 26 (1950).

fat: butyro refraction, 40°C., 44.8; Reichert-Meissl value, 25.8; Polenske value, 2.8. These constants were consistent with the claim for the presence of cream, so the samples were passed.

K.N.-310. Parfait Brand Horse Radish. H. E. Whitaker & Co., Philadelphia, Pa. Labelled "Prepared with vinegar, cream and salt". Microscopic examination indicated adulteration with turnip.

R.G.-45. Pure (picture of horse) Radish. Frank Dormin & Sons, Chicopee, Mass. Microscopic examination indicated this product to be mostly if not wholly horseradish, so it was passed.

R.G.-57. Pure (picture of horse) Radish. Valley Farms, Chicopee, Mass. Mostly if not wholly horseradish; passed.

Imitation Pepper

Three official samples sold as "imitation" or "compound" black pepper were examined as follows:

K.F.-742. Aljim Compound Black Pepper. Aljim Wholesale Grocery, Waterbury, Conn. Labelled: "Composed of cereal, salt, pure spice and pure spice oil." Microscopic examination showed this product to be mostly corn meal, mixed with small amounts of buckwheat hulls, pepper shells and salt. There is no such thing as "compound black pepper"; this mixture was imitation black pepper, and should have been so labelled.

K.C.-289 and 290. Chef Reymar Imitation Black Pepper No. 927. Basic Food Materials, Inc. Vermilion, Ohio. These samples were being sold in completely unlabelled cartons, and were consequently misbranded.

Pepper

Forty-four samples sold as black pepper and one sample each of "crushed red pepper" and white pepper were submitted by the Commissioner; 36 were passed and 10 were adulterated. Adulterated samples were the following:

R.G.-42. Black Pepper. Carl Larson, Enfield, Conn. Ground buckwheat hulls and salt with little if any pepper.

R.G.-44. Black Pepper. Manufacturer unknown. Ground buckwheat hulls and salt; little if any pepper.

J.G.-16. Black Pepper. Victory Restaurant, Middletown, Conn. Ground buckwheat hulls and salt; little if any pepper.

K.F.-798 and W.M.-208, 291 and 326. Lee Brand Pure Black Pepper. Moss Food Products Corp., New York, N.Y. Sand and glass present; one sample moldy.

S. O.-136. Pure Black Pepper. El Dorado Restaurant, Danbury, Conn. Mostly ground cottonseed hulls and salt, with only a little pepper.

W.M.-353. Pure Black Pepper. Johnny's Apizza, New Haven, Conn. Excess pepper shells present.

K.F.-830. Streit's For Passover Black Pepper. A. Streit, Inc., New York, N. Y. Pepper was lumpy and contained some sand and dirt.

Other Spices

5308, Marjoram, examined for the Bridgeport police who suspected it of being marijuana, proved on microscopic examination to be marjoram (*Origanum Majorana* L.) as claimed.

Spray Residues

Since 1931, apples grown in the orchards of this state have been sampled by agents of the Dairy and Food Commissioner, or his successor, the Food and Drug Commissioner, and examined in this laboratory for spray residue. During the 1951 season 18 samples were taken; two of these contained excessive spray residue.

The official tolerances for apples and pears are 0.050 grain of lead and 0.025 grain of arsenic (as the trioxide) per pound of fruit. The two samples of apples containing lead in excess of the tolerance, *K.N.-383 and 399*, were both from the orchards of Quagliaroli Bros., Glastonbury; one contained 0.058 and the other 0.052 grain of lead per pound; the arsenic trioxide contents were respectively 0.021 and 0.010 grain/lb.

W.S.-186, a sample of soil from a lawn that had been treated with 6 per cent chlordane dust, was not analyzed.

Seven unofficial samples were examined as follows:

7632, Apples, from our Entomology Department, contained 0.016 grain/lb. of arsenic trioxide (As_2O_3), which is below the official tolerance.

4747, Celery, submitted by a member of our Biochemistry Department, contained a blue deposit on its ends which was apparently a copper-zinc dithane dust; no arsenic was found.

7031, Peach Branches, from our Plant Pathology Department, contained only 1.0 part per million of arsenic trioxide (As_2O_3).

7236, Pear Branch, also from the Plant Pathology Department, contained 80.0 parts per million of arsenic trioxide (As_2O_3) even after washing with hydrochloric acid.

7393, Raspberries, from R. J. Woodruff, Orange, was tested for DDT and none found.

6182, Soil from Lawn of Raymond Balzer, Woodbridge, contained 2 parts per million of DDT; this was less than would have been expected from the fact that the soil had been treated with five bags of 10 per cent DDT dust the previous Spring.

7339, Three Peaches, submitted by the State Department of Health because of a complaint that the peaches had caused illness that was suspected of being due to DDT poisoning, showed only 6 parts per million of DDT, which is below the unofficial tolerance of 7 p.p.m.

Syrups

Five samples of syrups were submitted by the Commissioner; all except one were passed:

W.M.-242. High Star Pancake Syrup. Hodes Bros., New Haven, Conn. Labelled: "85% cane syrup and 15% maple syrup." Water, 31.60, and ash, 0.17, per cent; Winton lead no., 0.32. Because this much ash could have indicated 21 per cent of maple syrup, the sample was passed.

K.F.-843. Pure Vermont Maple Syrup. Raymond R. Cote, Concord, Vt. Analysis showed 0.80 per cent of ash and a Winton lead no. of 2.21, which were consistent with the sample being pure maple syrup as labelled; it was adulterated, however, because it was actively fermenting and had a sour odor.

J.G.-23. Sweet Life Pure Grape Flavored Syrup. Sweet Life Food Corp., Brooklyn, N.Y. Labelled: "Prepared with cane sugar, grape juice, concentrated grape flavor, citric acid, U.S. certified color, added 1/10 of 1% sod. benzoate." Water content was 35.13 per cent; passed.

A.F.-917. Virginia Dare Pure Orange Flavored Syrup. Virginia Dare Extract Co., Inc., Brooklyn, N.Y. Water, 37.51 per cent; passed.

A.F.-935. Virginia Dare True Fruit Strawberry Flavored Syrup. Virginia Dare Extract Co., Inc., Brooklyn, N.Y. Water, 37.47 per cent; flavor appeared to be natural. Passed.

Vegetable Products

Canned Tomatoes

Federal standards for canned tomatoes¹ contain the following requirements: (1) the drained weight must not be less than 50 per cent of the weight of water required to fill the container; (2) the redness must not be less than a standard Munsell chart color; (3) the peel in a pound of tomatoes must not cover an area of more than one square inch; (4) the blemishes per pound must not cover an area of more than one-fourth square inch; and (5) the container must be at least 90 per cent filled.

Eighteen samples of canned tomatoes submitted by the Commissioner were examined for compliance with these standards; 11 samples were passed and seven were substandard. Results are given in Table 10.

Tomato Paste

Federal standard 53.30(a) requires that tomato paste contain not less than 25.00 per cent of salt-free tomato solids. There is no standard for extra heavy tomato paste under the present Federal law, but our old regulations² did carry a definition of "Heavy Tomato Paste, 'Concentrato'" that required this product to contain at least 33 per cent of tomato solids.

¹S. R. A., F. D. C. 2, Rev. 1 (June 1951), 53.41-53.42.

²Rules and Regulations relating to the Food and Drug Law of Connecticut, Revision of July 1 1937, p. 84.

Three samples of "extra heavy" tomato paste, and one each of "heavy" tomato paste and plain tomato paste, were submitted by the Commissioner; one was passed and four were misbranded:

K.F.-905. Coruna Italian Style Tomato Paste. Lawton Canning Co., Inc., Lawton, N.Y. Total solids, 28.16, salt, 0.70, and salt-free solids, 27.46, per cent; passed.

W.M.-414, 416 and 420. Lina Brand Pure Tomato Paste (Extra Heavy). Gus Sclafani, Stamford, Conn. Average analysis: Total solids, 25.58; salt, 0.27; and salt-free solids, 25.31, per cent. Misbranded.

W.M.-418. Lina Brand Pure Tomato Paste (Heavy). Gus Sclafani, Stamford, Conn. Total solids, 28.67, salt, 0.32, and salt-free solids, 28.35, per cent. Misbranded.

8392. Contadina Tomato Paste, was analyzed for the dealer, Birdsall & Wilcox, New Haven, as follows: Total solids, 29.56, salt, 0.48, and salt-free solids, 29.08, per cent.

Other Vegetable Products

Eight miscellaneous unofficial vegetable products were examined for the State Supervisor of Purchases, the New Haven and New London Health Departments and private citizens; one official sample was also examined:

6953. Alpine Quick Frozen Cut Green Beans. H.C. Hemingway & Co., Auburn, N.Y. These beans were tough and stringy after cooking and were probably too mature when picked; they were not inedible but were not of good quality.

7230 and 7317. Cooked Squash. These samples were submitted by the New London and New Haven Health Departments respectively, both with complaints that customers had purchased fresh summer squash and found it to have a very bitter taste when cooked. We confirmed the bitterness in both samples. No doubt these were cases of the squashes containing a bitter glucoside, apparently developing as a sport from normal squashes, that have been appearing on the market at intervals since 1948.¹

4709. Frozen Tomatoes. James F. Cornaglia, Hamden, Conn. Ascorbic acid, 2.6 gm./100gm.

K.F.-852. Ganino Fried Peppers in Tomato Sauce. Rocco E. Ganino, Stamford, Conn. Labelled: "Ingredients peppers, tomatoes, salt, peanut and corn or olive oil." Misbranded because no tomato sauce was present and the oil declaration was not specific.

7124 and 7125. String Beans. Mrs. Craig R. Smith, New Canaan, Conn. These two samples were submitted by Mrs. Smith to see if fertilization with minor elements would increase the mineral content of vegetables. The string beans 7124 were grown on land treated only

¹Conn. Agr. Expt. Sta. Bul. 538, 40(1950); 549, 46(1951).

TABLE 10. CANNED TOMATOES

No.	Manufacturer and brand	Drained wt. as per cent of capacity of container	Peel	Blemishes	Color	Fill of container, per cent	Remarks
K.F.-906	Walter T. Andrews, Cambridge, Md. <i>Cardinal</i>	59	two small pieces	none	O.K.	98	Passed.
K.F.-907	Walter T. Andrews, Cambridge, Md. <i>Le Anda</i>	41	one small piece	none	O.K.	99	Deficient in drained solids; substandard.
K.F.-878	John Bozzuto & Sons, Inc., Waterbury, Conn. <i>Parkway</i> .	52	one small piece	one	O.K.	97	Tomatoes very ripe and squashed, but passed.
K.F.-879	John Bozzuto & Sons, Inc., Waterbury, Conn. <i>Parkway</i> .	52	none	none	O.K.	98	Tomatoes very ripe and squashed, but passed.
K.F.-880	John Bozzuto & Sons, Inc., Waterbury, Conn. <i>Parkway</i> .	48	two small pieces	two very small pieces	O.K.	97	Deficient in drained solids; substandard.
K.F.-881	John Bozzuto & Sons, Inc., Waterbury, Conn. <i>Parkway</i> .	58	none	none	O.K.	97	Tomatoes very ripe and squashed, but passed.
K.F.-874	D. E. Foote Co., Inc., Baltimore, Md. <i>Family</i>	50	8 small pieces and 2 larger ones	none	O.K.	97	Tomatoes very firm; passed.
K.F.-875	D. E. Foote Co., Inc., Baltimore, Md. <i>Family</i>	59	none	one small blemish per tomato	O.K.	98	Tomatoes in good condition; passed.
K.F.-876	D. E. Foote Co., Inc., Baltimore, Md. <i>Family</i>	54	one large piece 1½" square	none	O.K.	98	Tomatoes ripe and a little squashed; substandard.

K.F.-877	D. E. Foote Co., Inc., Baltimore, Md. <i>Family</i>	59	one large and three small pieces	none	O.K.	99	Tomatoes fairly solid; passed.
K.F.-870	D. E. Foote Co., Inc., Baltimore, Md. <i>Foote's Best</i>	45	none	none	O.K.	98	Tomatoes very firm; deficient in drained solids; substandard.
K.F.-908	D. E. Foote Co., Inc., Baltimore, Md. <i>Foote's Best</i>	56	none	none	O.K.	97	Passed.
K.F.-677	H. J. McGrath Co., Baltimore, Md. <i>Realm Vine Ripened</i> .	55	....	....	....	..	Total solids, 5.71, salt, 0.04, per cent; passed.
K.F.-678	H. J. McGrath Co., Baltimore, Md. <i>Realm Vine Ripened</i> .	53	....	....	....	..	Total solids, 5.83, salt, 0.04, per cent; passed.
K.F.-872	Robbins Bros., Andrews, Md. <i>Robbins</i>	49	none	one	rather green	98	Tomatoes fairly firm, probably too green; substandard.
K.F.-863	Thomas Roberts & Co., Inc., Philadelphia, Pa. <i>Pride of the Farm</i>	55	two pieces	none	O.K.	98	Tomatoes fairly solid; passed.
K.F.-871	Sweet Life Corp., Brooklyn, N. Y. <i>Jes-So</i>	49	none	none	O.K.	98	One tomato firm, others crushed; substandard.
K.F.-862	Wheatley Canning Co., Inc., Federalsburg, Md. <i>Wheatley's</i>	47	none	none	O.K.	97	Deficient in drained solids; substandard.

with a 5-10-5 fertilizer, while sample 7125 was grown on a plot that had received in addition 1.5 lb. of "powdered minor elements". Spectrographic analysis of the two samples was as follows:

	7124 Beans with ordinary fertilization, dry basis, per cent	7125 Beans with minor element fertilization, dry basis, per cent
Potassium	1.86	1.60
Calcium	0.80	0.59
Magnesium	0.30	0.31
Phosphorus	0.40	0.41
Manganese	0.007	0.005
Iron	0.172	0.285
Aluminum	0.016	0.015
Zinc	0.011	0.010
Sodium	0.054	0.048
Copper	0.0065	0.0075
Boron	0.0048	0.0068

Total solids contents of the two samples were: 7124, 15.20, and 7125, 13.60, per cent. The only possibly significant gains in minor elements shown by 7125 were in iron and boron; there was actually less calcium.

7202 and 7203. *Tomatoes.* Mrs. Craig R. Smith, New Canaan, Conn. These tomatoes were part of the same experiment outlined above; spectrographic analyses were as follows:

	7203 Tomatoes with ordinary fertilization, dry basis, per cent	7202 Tomatoes with minor element fertilization, dry basis, per cent
Potassium	3.82	4.40
Calcium	0.43	0.52
Magnesium	0.20	0.20
Phosphorus	0.45	0.45
Manganese	0.002	0.004
Iron	0.020	0.041
Aluminum	0.010	0.018
Zinc	0.004	0.007
Sodium	0.010	0.030
Copper	0.0023	0.0046
Boron	0.0025	0.0027

Total solids contents were: 7203, 6.06, and 7202, 5.55, per cent. These analyses show more difference between the two samples of tomatoes than was observed in the case of the string beans; the tomatoes from the minor-element-treated plot contained about twice as much manganese, iron, aluminum, zinc and copper and three times as much sodium as did those from the plot with ordinary fertilization.

Vinegars

Eighteen samples of wine vinegar, and one of wine-flavored distilled vinegar, were examined for the Commissioner; one sample of cider

vinegar was analyzed for the distributor. Nine samples were passed and 11 were adulterated or misbranded; analyses are given in Table 11.

Water

Twenty-seven samples of water were analyzed, mostly for private citizens; one sample of water solids was examined for the State Department of Health. Most of these samples were well waters whose pH and hardness were determined to see if they would be expected to corrode copper tubing. The following analyses may be of interest:

7330, 7331, 7332 and 7333. *Carbonated and Uncarbonated Waters from Soda Fountain.* Allied Equipment Co., New Haven, Conn. Copper content was 0.5 part per million, which is above the U.S. Public Health Service limit of 0.2 p.p.m. for drinking water.

5694. *Pond Water.* Bridgeport Health Department. This water was contaminated with red coal tar dye; total solids were 181 p.p.m.

5112. *Residue from Well Water.* State Department of Health. This sample, from a 425-foot well drilled through granite at Snowville, N. H., was submitted by the New Hampshire Health Department to check their unusual finding of 6.7 parts per million of fluorine; we found 3.17 per cent of fluorine in the solids that we received, which was equivalent to 6.0 p.p.m. in the original water. This is several times the normal fluorine content of New England waters.

7343. *Seltzer Water.* Allied Equipment Co., New Haven, Conn. The lead content (2 parts per million) was excessive.

5985. *Well Water.* W. Copping, New York, N. Y. This water, from a Danbury, Conn., well, was submitted because of its turbidity and metallic flavor. Analysis showed the turbidity (and no doubt the flavor) to be due to zinc hydroxide, probably taken up from the coating of new galvanized pipe; total zinc content of the water was 10 parts per million.

This Station does not make sanitary analyses of drinking water.

Miscellaneous

Thirty-two samples of miscellaneous foods and other materials were examined for the Commissioner; 19 were passed and 13 were adulterated or misbranded:

K.C.-269. *Brown Paper.* Central Market, Danbury, Conn. No sulphite; passed.

J.W.-245. *Cherry Pie Filling.* (Tested for State Supervisor of Purchases.) This was a genuine cherry filling containing whole pitted cherries of satisfactory flavor; it was passed.

TABLE 11. VINEGARS

No.	Manufacturer or distributor and brand	Total solids, gm./100cc.	Total ash, gm./100cc.	Total acidity as acetic acid, gm./100cc.	Tartaric acid, gm./100cc.	Color	Remarks
K.C.-327	Bellevue Olive Oil Co., New York, N. Y. <i>Bellevue Brand Pure Wine Vinegar.</i>	3.46	0.15	4.98	0.011	natural	Not a straight diluted wine vinegar as labelled; possibly made from grape pomace; adulterated.
K.F.-946	Bellevue Olive Oil Co., New York, N. Y. <i>Bellevue Brand Pure Wine Vinegar.</i>	3.56	0.16	4.94	0.013	natural	Adulterated; see above.
A.F.-918	Ellena Bros., Efinanda, Calif. <i>Regina Wine Vinegar.</i>	1.69	0.24	6.08	0.070	natural	Passed.
K.C.-233	Flagstaff Foods, Perth Amboy, N. J. <i>Flagstaff Pure Wine Vinegar.</i>	1.56	0.20	5.10	0.029	natural	Labelled "Reduced with water to full strength", which is an impossibility; misbranded.
W.M.-286	Fonda's Quality Market, New Haven, Conn. <i>Pure Wine Vinegar.</i>	2.01	0.41	2.10	0.043	natural	Probably incompletely fermented vinegar made from spoiled wine; violates G.S. 3896 because of low acidity.
W.M.-436	Giambanco Wine Vinegar Plant, Oakdale, Calif. <i>Pee Gee California Wine Vinegar.</i>	1.42	0.26	5.01	0.004	natural	Labelled "50 Grain"; adulterated with distilled vinegar.
W.M.-449	Giambanco Wine Vinegar Plant, Oakdale, Calif. <i>Pee Gee California Wine Vinegar.</i>	1.45	0.25	5.01	0.100	natural	Labelled "50 Grain"; misbranded because dilution to 5% acidity not stated in terms understandable by consumer.
W.M.-390	Grocers Wholesale Outlet, Inc., New Haven, Conn. <i>Salvatore Brand Pure Wine Vinegar.</i>	1.47	0.14	4.78	0.008	natural	Labelled "Diluted with water to 5% acidity"; probably made from grape pomace; adulterated and misbranded.

Food Products

W.M.-395	Grocers Wholesale Outlet, Inc., New Haven, Conn. <i>Salvatore Brand Pure Wine Vinegar.</i>	2.05	0.61	4.49	0.040	natural	Labelled as above; probably made from grape pomace; misbranded.
W.M.-396	Grocers Wholesale Outlet, Inc., New Haven, Conn. <i>Salvatore Brand Pure Wine Vinegar.</i>	2.18	0.63	4.55	0.007	natural	See above; misbranded.
W.M.-397	Grocers Wholesale Outlet, Inc., New Haven, Conn. <i>Salvatore Brand Pure Wine Vinegar.</i>	2.00	0.63	4.24	0.020	natural	See above; misbranded.
A.L.-72	Lekas Corp., New York, N. Y. <i>NLC Lekas Best Pure Red Wine Vinegar.</i>	1.23	0.12	5.12	0.024	natural	Adulterated with distilled vinegar and diluted with water.
5222	Mincer, Read & Tullock, Inc., New Haven, Conn. <i>Sunrise Cider Vinegar.</i>	.....	.....	4.15	.....	.....	Labelled "Reduced with water to 4% acid strength"; passed.
W.M.-394	Muro Importing Co., Inc., Brooklyn, N. Y. <i>Muro Brand Pure Wine Vinegar.</i>	2.33	0.16	5.24	0.038	.....	Probably contained added solid material, but passed.
A.F.-795	Pacific Vinegar Co., Inc., San Francisco, Calif. <i>Maynor's Wine Vinegar.</i>	1.77	0.20	5.30	0.121	natural	Passed.
A.L.-13	Palmieri Food Products, New Haven, Conn. <i>Palmieri Brand Pure California Wine Vinegar.</i>	2.57	0.56	4.73	0.113	natural	Passed.
A.L.-14	Palmieri Food Products, New Haven, Conn. <i>Palmieri Brand Pure California Wine Vinegar.</i>	1.96	0.44	4.66	0.144	natural	Passed.
K.N.-406	Paramount Vinegar Sales Co., New York, N. Y. <i>Paramount Red Wine Flavored Distilled Vinegar.</i>	.....	.....	5.20	.....	natural	Labelled "Contains: Distilled vinegar, red wine. Reduced by water to 5% acidity." Passed.
K.F.-859	Rouse Co., Inc., Somerville, Mass. <i>Winter Hill Pure Wine Vinegar.</i>	1.23	0.19	4.66	0.083	natural	Labelled "Reduced with water to 4% acid strength"; passed.
K.F.-947	Sweet Life Brands, Inc., Brooklyn, N. Y. <i>Sweet Life Pure Wine Vinegar.</i>	1.73	0.27	5.37	0.067	natural	Labelled "Reduced with water to 5% acetic strength"; passed.

A.F.-930 and J.W.-231. Corn Starch. (Tested for State Supervisor of Purchases.) *A.F.-930* was a normal cornstarch and was passed. Analysis of *J.W.-231* was as follows: Moisture, 8.58, ash, 0.08, protein, 0.38, fat, 0.07, fiber, 0.08, starch, 83.36, and other carbohydrates, 7.45, per cent. This sample did not behave like normal cornstarch; it showed few normal starch grains under the microscope and formed a stringy paste with water. It was probably partially dextrinized cornstarch.

E.C.-447. Dye. Atlantic Carton Corp., Norwich, Conn. This dye was used to color an adhesive employed in attaching cellophane windows to packages of macaroni products. Because there was a possibility of the adhesive's accidentally contaminating the food, the manufacturer wished to be sure there was nothing poisonous in the dye. The dye proved to be Rhodamine B, which is identical with D & C Red No. 19, a dye permitted for use in drugs and cosmetics but not permitted for use in foods. Spectrographic analysis showed 15 parts per million of lead and 4 p. p. m. of copper.

J.W.-244. Favorite Brand Gelatin Dessert. Favorite Foods, New York, N. Y. Labelled: "Composed of sugar, dextrose, gelatin, citric acid, artificial flavor, and added certified color." Moisture, 4.84, ash, 0.81, gelatin, 6.94, total acidity as citric acid, 1.40, sucrose, 44.56 and dextrose, 43.30, per cent; per cent sodium carbonate in ash, 51.32.

This sample was submitted at the request of the State Supervisor of Purchases to see if it met the following State purchasing specifications: (1) It must not contain over 12.5 per cent of gelatin; (2) the total sugar content must be at least 80 per cent, and the dextrose content must not exceed 25 per cent; (3) the total acidity must be 2 to 4 per cent; and (4) buffering salts must not be less than 0.6 nor more than 1.0 per cent of sodium citrate. Sample failed to meet the specifications in that it contained excess dextrose and was deficient in acidity.

J.W.-251. Fig Pie Filling. (Tested for State Supervisor of Purchases.) Soluble solids (by refraction), 74.7, sucrose, 11.13, invert sugar, 7.41, and glucose, 26.83, per cent; trace of starch.

State purchasing specifications for fig pie filling require that it "Shall be prepared from 33% light colored Adriatic fig paste of excellent quality and approximately 20% glucose, 33% sugar. The soluble solids in the finished product shall be not less than 72% as determined by the refractometer at 20°C." This sample was deficient in sucrose.

W.M.-249. Gold Crest Salted Nuts. P. T. Marshall Co., Hartford, Conn. Labelled: "Contents nuts, salt, peanut oil." Tested for artificial color and none found.

K.C.-321. Golden Betty's, The Sugar Toasted Popcorn. Bettman Nut Co., Inc. Labelled: "Ingredients sugar, dextrose, popcorn, creamery butter, salt and artificial flavor." Analysis showed 0.33 per cent of fat with a butyro refraction 48.2 at 40°C.; misbranded because this percentage is insufficient to justify a claim for the presence of butter.

K.N.-365. Hakoshort. Hachmeister, Inc., Pittsburgh, Pa. Labelled: "Contains diacetyl tartaric acid esters of mono and diglycerides made from fats, oils, fatty acids and triglycerides-butylhydroxyanisole, propyl gallate and citric acid added as anti-oxidant." Analysis showed 86.88 per cent of ether-soluble material with a butyro refraction at 40°C. of 58.5.

A statement in the Federal Register¹ concerning proposed standards for bakery products has this to say of the esters of diacetyltartaric acid:

"In addition to mono- and diglycerides of fat-forming fatty acids, corresponding compounds have recently been developed in which acetylated tartaric acid has been substituted for fat-forming fatty acids. Compounds of this kind have been used to some extent in bread dough. Their effect on the bread is very similar to that resulting from the use of similar quantities of mono- and diglycerides of fat-forming fatty acids. Prior to the use of mono- and diglycerides of acetylated tartaric acid there had been no known employment of acetylated tartaric acid in preparing a food ingredient. Limited studies have been made of the physiological effects following the ingestion of acetylated tartaric acid. It appears to have little, if any, food value. Proponents of the use of the mono- and diglycerides of acetylated tartaric acid assumed, but did not present evidence to prove, that the pharmacological properties of acetylated tartaric acid are the same as those of tartaric acid. The evidence showed that when mono- and diglycerides of acetylated tartaric acid were fed to animals in amounts somewhat exceeding those that would normally be present in bread there was no observable injury. Further experiments showed, however, that the acetylated tartaric acid was not broken down into acetic acid and tartaric acid in the bodies of the animals for a considerable time. Whether for this reason any adverse effect on humans might result was not definitely known. Although no injury was noted in the limited experiments carried out, the introduction into the human body of a substance such as acetylated tartaric acid, whose properties have not been thoroughly studied, cannot be justified by necessity for its use or by any advantages that the mono- and diglycerides of this acid may have over those of mono- and diglycerides of the fatty acids. The evidence does not justify a finding that the recognition of the mono- and diglycerides of acetylated tartaric acid as an optional ingredient of bread, rolls, and buns would promote honesty and fair dealing in the interest of consumers."

In spite of this statement, conversation with members of the U. S. Food and Drug Administration revealed that they contemplated taking no action against the use of these products before standards for bakery products were adopted; "Hakoshort" was therefore passed for the present.

J.W.-253. Lemon Pie Filling. (Tested for State Supervisor of Purchases.) Sucrose, 9.29, glucose, 0.47, invert sugar, 17.89, total acidity as citric acid, 0.23, lipoids, 1.29, and lipoid phosphoric acid (P_2O_5), 0.0052, per cent; starch present; flavor not very tart.

¹15, 5103 (August 6, 1950).

State purchasing specifications for lemon pie filling state that it "Shall be prepared from 40% sugar, 6% fresh cracked or frozen egg yolks, not over 7% filler, not over 1% glucose and not less than 2½% lemon juice. The soluble solids in the finished product shall be not less than 52% as determined by the refractometer at 20°C". Analysis of *J.W.-253* indicated 3.9 per cent of lemon juice but no more than 0.18 per cent of egg yolk; because of the deficiency in egg yolk and sucrose and the addition of starch it failed to meet the specifications.

K.C.-188. Lopez's Homogenized Cream of Coconut. Borinquen Foods Corp., San Juan, Puerto Rico. Labelled: "The original coconut marvel containing no chemical preservatives—Coconut meat juice, sugar, salt (contains no dairy cream).—Made from the thick cream-like juice pressed from the meat of full ripened fresh coconuts treated and combined under a Patented Process to maintain its original fresh and palatable flavor and its natural, well known nourishing properties." Analysis was as follows: Moisture, 18.53, ash, 0.44, protein, 0.91, fat, 14.20, fiber, 0.00, sucrose, 51.32, invert sugar, 2.80, other carbohydrates, 11.80, and salt, 0.15, per cent.

Comparison with authentic analyses of coconut milk¹ indicated that this product was essentially a 1:1 mixture of sugar and of coconut milk that had been concentrated 2.4:1, slightly salted; it was passed.

A.F.-784. Nutrilite Food Supplement. Nutrilite Products, Inc., Buena Park, Calif. This product consisted of a box containing both capsules and tablets that between them were intended to fortify the diet with 15 different vitamins, 10 minerals and rutin. The label declaration was too long to reproduce. Among the claims was one for 2,500 U. S. P. units of vitamin D in each of the capsules; a rat assay indicated the vitamin D content to be sufficiently close to this claim for the product to be passed.

K.N.-368. Nu-Wip Stabilizer. Manufacturer unknown. Labelled: "Contains: Refined carrageen, vegetable colloids and proteins, edible esters, dextrose and sodium bicarbonate." "Carrageen" is of course Irish moss, but the terms "vegetable colloids and proteins" and "edible esters" are too vague to meet the requirements of the law, and the sample was consequently misbranded.

A.F.-931. Prunes. (Tested for State Supervisor of Purchases.) Microscopic examination showed no contamination, and when cooked the prunes had a good flavor, so they were passed.

K.C.-287. Russel. Schine, Rosenbaum & Co., Bridgeport, Conn. "Russel" is a Yiddish name for a beet borscht soup containing vinegar. This sample bore no labelling except for the word "Russel" and a statement in Yiddish that read when translated "The horseradish and the borscht were made under my supervision and are Kosher for Passover. Signed: The Rabbi Heckstein." Misbranded because the label bore no manufacturer's name, statement of net contents nor list of ingredients.

¹Winton and Winton, *Structure and Composition of Foods*, vol. 1, p. 382.

J.S.-145, 146, 147 and 148. Similac. M & R Laboratories. Labelled "A food for infants during the all important first year". Ingredient statements on these four samples fell into two groups: *J.S.-147 and 148* declared "A powdered modified milk product especially prepared for infant feeding, made from tuberculin tested cows' milk (casein modified) from which part of the butter fat is removed and to which has been added lactose, coconut oil, olive oil, corn oil, calcium gluconate, potassium citrate, fish liver oil concentrate, ascorbic acid, thiamine, and a trace of cocoa butter and sodium citrate"; while *J.S.-145 and 146*, which were labelled "Revised label adopted July 1, 1947", declared cocoa butter as a definite ingredient and did not list calcium gluconate, potassium citrate, ascorbic acid, thiamine nor sodium citrate. Listed percentages of fat, carbohydrate, protein, ash, moisture, calcium and phosphorus were also different, as were the vitamin guarantees.

These samples were submitted because of a complaint that *J.S.-148* was old stock and decomposed. There was insufficient material in *J.S.-148* for analysis, but acidity and ascorbic acid were determined on *J.S.-147* (which bore the same type of label and was purchased at the same store), as well as on the two revised-label samples, *J.S.-145 and 146*. Results were as follows:

No.	Ascorbic acid, mgm. per quart of 1 to 7 mix	pH
J.S.-145	61	....
J.S.-146	69	6.98
J.S.-147	75	6.72

No decomposition was observed in any of the four samples, but they were misbranded because the thiamine (vitamin B₁) was declared in terms of an obsolete unit and because the labels failed to list what proportions of the minimum daily requirements of the stated vitamins would be supplied by a stated quantity of "Similac".

J.S.-156. Similac Liquid. Similac Division, M & R Laboratories, Columbus, Ohio. This was labelled "for feeding infants during the all important first year"; the ingredient statement was as follows: "A modified milk product especially prepared for infant feeding, made by homogenization of tuberculin tested cows' milk (casein modified) from which part of the butter fat is removed and to which has been added lactose, olive oil, coconut oil, corn oil, cocoa butter, fish liver oil concentrate, ascorbic acid, thiamine". The label also bore quantitative claims for various vitamins (which we did not check), and gave an "approximate composition" that corresponded closely with our analysis:

	Declared, per cent	Found, per cent
Fat	6.80	6.59
Carbohydrate	13.10	13.29
Protein	3.45	3.25
Minerals	0.75	0.67
Moisture	75.90	76.20
Calcium	0.13	0.18
Phosphorus	0.10	0.11

While the sample appeared to be of its claimed composition, it was misbranded because it was a special dietary food whose label failed to bear a statement of what proportions of the minimum daily requirements of the declared vitamins were supplied by a stated quantity of the product; it was also at least technically in violation of the filled milk law, G.S. 3214.

K.F.-965. Star Brand Sugared Popcorn. Star Brand Popcorn Co., New York, N. Y. Net weight: Declared, 0.75 oz.; found, 0.85 oz. No artificial sweetener found; passed.

J.W.-256. Wheat Germ. Manufacturer unknown. Microscopic examination showed no evidence of adulteration, so sample was passed.

K.C.-270 and 271. White Paper. Central Market, Danbury, Conn. Test for sulphite negative; passed.

K.F.-294, 295, 296, 297 and 298. Whole Grain Soft White Wheat. Pacelli's Flour Storage, Bridgeport, Conn. All of these samples contained from four to eleven small stones, together with traces of weed seed, but, because the U.S. Grain Standards¹ permit as much as 0.5 per cent of foreign material not other grains in even No. 1 grade white wheat, the samples were passed.

S.O.-150. Whole Kernel Soft White Wheat. Minin Bread Co., Stamford, Conn. Contained about 0.2 oz. of stones (70 stones) and a little coal and cinders. Because these foreign materials represented only 0.12 per cent of the sample, it was passed for the reason outlined above.

K.F.-728. Wilderness Raspberry Pie Mix. Northern Foods, Inc., Duluth, Minn. Declared ingredients were "Red raspberries, sugar, corn starch, salt, water". Many raspberry seeds were present and no intact raspberries, but, because the product had a good natural raspberry flavor and it was possible that the raspberries originally present had lost their shape in cooking, the sample was passed.

Forty-one unofficial samples were received from local health and police departments, manufacturers and private citizens; nothing objectionable was found in 14 of these, while 27 were contaminated, mislabelled or otherwise not what they should be. The following samples may be of interest:

2935. Batter for Deep Frying. Restaurant Institute of Connecticut, Inc., New Haven, Conn. This sample was submitted with a request that its recipe be determined; it was believed to contain egg and milk but it was not known whether the other ingredient was cornstarch or flour. Analysis was as follows: Moisture, 75.58, ash, 0.58, total nitrogen, 1.00, lipoids, 1.57, lipoid phosphoric acid (P_2O_5), 0.0196, and lactose, 2.13, per cent; cornstarch absent. On the basis of an average lipoid P_2O_5 content of 0.36 per cent for whole eggs, and an average lactose content of 4.90 per cent for milk, it was estimated from the analysis that each 100 parts of the batter contained the following number of parts of the following ingredients: Whole egg, 5; milk, 44; flour, 20 and water, 31.

¹Handbook of Official Grain Standards of the United States, Revision of June 1937.

6329. Coffee Extender. Empire State Flour Co., New Haven, Conn. Moisture, 5.94, ash, 4.70, protein, 18.75, fat, 2.51, fiber, 9.76, starch, 14.74, and other carbohydrates, 43.60 per cent. This cereal product was intended for sale to State institutions as a "stretcher" for their coffee; it was pointed out that such use would constitute adulteration of the coffee and would be illegal.

3378. Danda Brand Vitamin A and D Concentrate No. 600. General Mills, Inc., Special Commodities Division, Minneapolis, Minn. Labelled in part: "This can contains 150 cc. of a sterilized, biologically standardized concentrate of Vitamin A and D in evaporated skim milk. Each cc. contains 8,000 U.S.P. Units of Vitamin A and 1,600 U.S.P. units of Vitamin D." The sample barely passed a rat assay for vitamin D.

5211. De-Liquid Vitamin D Concentrate for Fortifying Fluid Milk. Vitamins, Inc., Chicago, Ill. Labelled "A concentrated solution of irradiated ergosterol in edible vegetable oil with self-emulsifier. Content: 100 Mls. (c.c.) 3.24 oz. by wt. 4 Million U.S.P. units Vitamin D 40,000 units per milliliter." Sample barely passed a rat assay for vitamin D, and was misbranded because the specific ingredients were not declared.

6590. Drew Pure Crystalline Vitamin D₂ in Non-Fat Milk, No. 4 Potency. E. F. Drew & Co., Inc., Dairy Products Division, Boonton, N. J. Labelled "Guarantee of vitamin potency: Contents: 236 cc. with 4,000 U.S.P. Units/cc". Rat assay for vitamin D was satisfactory.

3337. Drew Vitamin A and D Concentrate in Edible Vegetable Oil. E. F. Drew & Co., Inc., Boonton, N. J. Labelled "Guarantee of vitamin Potency—This product is biologically tested and guaranteed to contain at least 4,000 U.S.P. units of Vitamin A and 8,000 U.S.P. XI units of Vitamin D per cc". Rat assay for vitamin D was satisfactory, but specific ingredients were not declared and the term "U.S.P. XI unit" was obsolete.

8041. Lusol. F. E. Anderson Oil Co., Portland, Conn. This material, which was a cutting fluid for machining, was submitted by the Bridgeport Health Department because it was being emptied into storm sewers, whence it flowed into Long Island Sound, and the health officials wished to know whether it might be harmful to bathers on the beaches. Since Lynch had shown¹ that "Lusol" (whose composition was stated to be 96 per cent water with 0.1 per cent or less of triethanolamine, sodium nitrite and diethyleneglycol monoethyl ether and trace of "Triton N-100" and sulfonates) had caused allergic reactions in one factory where it was used, we reported that there was a possibility that it might produce dermatitis on some bathers.

4725. Metal Foil. Mrs. F. Kane, Wallingford, Conn. Mrs. Kane submitted this wrapping material to determine what it was; it proved to be pure aluminum foil, 0.005" thick, coated on one side with a red lacquer.

¹Industrial Medicine and Surgery, 18, 394 (1949).

3997. *Niagara Grapes*. Mrs. Vincent R. Holtham, West Granby, Conn. Analysis of the edible portion (excluding seeds) was as follows: Water, 81.28, tartaric acid, 0.81, ash, 0.65, fat, 0.35, protein, 0.63, fiber, 0.76, and sugars (by difference), 15.52, per cent.

6712 and 6573. *Piece of Rug and Sofa Cushion*. W.J. Seamour, New Haven, Conn. Mr. Seamour submitted these samples because of mysterious holes that had developed in his living room rug and furniture; analysis showed that these holes definitely had been caused by sulphuric acid. Presumably this was a case of malicious damage.

7210. *Sano Queens Cigars*. M & N Cigar Manufacturers, Inc., Cleveland, Ohio. Labelled "Select All-Havana Tobacco De-Nicotinized to less than 1% Nicotine". Analysis showed 0.93 per cent of nicotine.

5378. *Stafford's Out-Rite Ink Eradicator*. S.S. Stafford, Inc., New York, N.Y. Analysis showed this to be a 1.07 per cent solution of sodium hypochlorite.

3530. *Vitex "A-D" (2000) Vitamin A and D Concentrate from Fish Liver Oil Emulsified in Milk Constituents*. Vitex Laboratories Division of Nopco Chemical Co., Harrison, N.J. Rat assay for vitamin D was satisfactory.

DRUGS

Ammoniated Mercury Ophthalmic Ointment

The U.S.P. XIV requires that this ointment contain between 2.7 and 3.3 per cent of ammoniated mercury (HgNH_2Cl). Two official samples, both manufactured by Eli Lilly & Co., Indianapolis, Ind., met the U.S.P. requirement:

J.S.-99. South End Pharmacy, New Britain. Ammoniated mercury 2.81 per cent.

W.S.-168. John's Pharmacy, Bridgeport. Ammoniated mercury 3.23 per cent.

Argyrol Solution

"Argyrol" is a proprietary brand of Mild Silver Protein made by A.C. Barnes Co., New Brunswick, N.J. Experiments at this Station in 1925¹ showed that the different brands of Mild Silver Protein could be distinguished from one another by means of their ash to silver and nitrogen to silver ratios; for "Argyrol" these ratios were respectively 1.74 and 0.42.

One ounce of a 10 per cent solution of "Argyrol" was requested of five drugstores by an inspector of the Food and Drug Commission; these five samples were analyzed with results as shown in Table 12. All samples were passed, although W.S.-155 showed a slightly abnormal ash to silver ratio that was somewhat nearer to the value for "Cargentos" (1.67) than to that for "Argyrol".

¹Conn. Agr. Expt. Sta. Bul. 276, 376 (1926).

TABLE 12 10% ARGYROL SOLUTION

No.	Pharmacy	Solids, per cent	Ash, per cent	Silver, per cent	Nitrogen, per cent	Ratios	
						Ash/Silver	Nitrogen/Silver
W.S.-150	Bridgeport Horen's Pharmacy	10.46	3.86	2.24	1.01	1.72	0.44
J.S.-90	Hartford Washington Pharmacy	9.89	3.43	1.96	0.92	1.75	0.47
W.S.-162	New Haven Westville Pharmacy	10.15	3.65	2.06	1.00	1.77	0.49
W.S.-155	West Haven Kelsey Pharmacy	10.04	3.72	2.28	1.05	1.63	0.46
J.S.-88	Wethersfield Wethersfield Pharmacy	10.40	3.70	2.09	1.00	1.77	0.48

Ascorbic Acid Tablets

The U. S. P. XIV requires that Ascorbic Acid (vitamin C) Tablets contain between 95 and 115 per cent of their labelled amounts of this vitamin. Of six samples received from the Food and Drug Commissioner all except one met this requirement: *W.S.-157*, 25 mgm. tablets manufactured by Eli Lilly & Co., Indianapolis, Ind. (serial number 1217 x 35470), were brownish-colored and only 80 per cent of their declared concentration. Analyses are given in Table 13.

Benzedrine Sulfate Tablets

Two official and one unofficial samples of Benzedrine Sulfate Tablets were examined. "Benzedrine" is the trade-marked name of Smith, Kline & French Laboratories, Philadelphia, Pa., for their particular make of racemic amphetamine sulphate. The original "Benzedrine" tablets were white, circular, and marked with two indentations at right angles in the form of a cross; in May 1949 the manufacturer changed their color to brownish orange and their shape from circular to a sort of triangle with curved sides bearing only one transverse indentation. It was due to this change in form that the three samples were submitted, because a patient who had received tablets of the old type on a prescription had complained to the Commissioner that he suspected his druggist had substituted some other preparation for the authentic benzedrine sulfate tablets. All samples proved, however, to be genuine:

W.S.-181. Sachem Pharmacy, New Haven. New type tablets. Amphetamine sulphate, 9.50 mgm./tablet.

5413 and J.S.-106. West End Pharmacy, New Britain. Old type tablets. Amphetamine sulphate, 8.10 and 8.19 mgm./tablet respectively.

Boric Acid Solution

The N. F. IX requires that Boric Acid Solution contain in each 100 cc. not less than 4.25 grams of boric acid (H_3BO_3); it also requires that the solution be "a clear, colorless, odorless liquid". Samples of this preparation obtained by inspectors of the Food and Drug Commission from four drugstores were analyzed; three samples were satisfactory and one was too weak:

W.S.-158. Chapel Drug Store, New Haven. Boric acid, 4.83 gm./100cc.

W. S.-169. Clinton Pharmacy, Bridgeport. Boric acid, 2.17 gm./100cc.; below standard.

J.S.-94. Coöperative Pharmacy, Windsor Locks. Boric acid, 4.63 gm./100cc.

W.S.-147. Westfair Pharmacy, Greens Farms. Boric acid, 4.73 gm./100cc.

TABLE 13. ASCORBIC ACID TABLETS

No.	Manufacturer	Pharmacy	Ascorbic acid, mgm./tablet	
			Declared	Found
J.S.-91	Chase Chemical Co., Newark, N. J.	Park Ave. Pharmacy, Bloomfield	25	25.6
J.S.-97	Harco Co., Newark, N. J.	Zackin's Pharmacy, New Britain	100	101.9
J.S.-105	International Vitamin Division, New York, N. Y.	Williams Pharmacy, Hartford	100	106.7
W.S.-166	Eli Lilly & Co., Indianapolis, Ind.	Bridgeport Pharmacy, Bridgeport	50	53.6
W.S.-157	Eli Lilly & Co., Indianapolis, Ind.	Coughlan's Pharmacy, West Haven	25	20.0
J.S.-101	Mead, Johnson & Co., Evansville, Ind.	Carroll Cut Rate Store, Middletown	25	27.4

Citrate of Magnesia

The U.S.P. XIV requires that each 100 cc. of Magnesium Citrate Solution contain between 1.6 and 1.9 grams of magnesium oxide and not less than 9.10 grams of citric acid. Of three samples submitted by the Commissioner, two met these requirements and the third came sufficiently close thereto to be passed:

No.	Manufacturer and brand	Magnesium oxide, gm./100cc.	Citric acid, gm./100cc.	Remarks
W.S.-172	McCambridge & McCambridge Co., Baltimore, Md. <i>Everfresh</i> .	1.56	9.45	Passed
J.S.-95	Nesia Co., New York, N. Y. <i>Orbiss</i> .	1.63	9.10	O.K.
W.S.-151	Regal Drug Co., New Haven, Conn.	1.62	9.22	O.K.

Diethylstilbestrol Tablets

The U.S.P. XIV requires Diethylstilbestrol Tablets to contain between 95 and 110 per cent of their labelled amounts of the active drug. Three samples submitted by the Commissioner met these requirements:

W.S.-176. Eli Lilly & Co., Indianapolis, Ind. Diethylstilbestrol, mgm./tablet: Declared, 0.25; found, 0.23.

J.S.-96. Manufacturer unknown. Diethylstilbestrol, mgm./tablet: Declared, 25; found, 24.27.

W.S.-171. Winthrop Chemical Co., New York, N. Y. Diethylstilbestrol, mgm./tablet: Declared, 1; found, 1.05.

Digitoxin Tablets

The U.S.P. XIV requires these tablets to contain between 90 and 110 per cent of their labelled amounts, and all three official samples came within these limits:

J.S.-103. Park Drug Co. Digitoxin, mgm./tablet: Declared, 0.1; found, 0.098.

W.S.-159. *Purodigin*. Wyeth, Inc., Philadelphia, Pa. Digitoxin, mgm./tablet: Declared, 0.2; found, 0.198.

W.S.-167. *Purodigin*. Wyeth, Inc., Philadelphia, Pa. Digitoxin, mgm./tablet: Declared, 0.1; found, 0.098.

Diluted Hydrochloric Acid

The U.S.P. XIV requires that Diluted Hydrochloric Acid contain between 9.5 and 10.5 grams of hydrogen chloride (HCl) in each 100 cc. Of three samples submitted by the Commissioner, two met this standard and one was too dilute:

W.S.-160. Alden Pharmacy, New Haven. HCl, 8.18 gm./100 cc; below standard.

W.S.-163. Daintoft & Son, Bridgeport. HCl, 9.67 gm./100 cc.

W.S.-148. Grasmere Pharmacy, Fairfield. HCl, 9.97 gm./100 cc.

Mild Mercurial Ointment

Mild Mercurial Ointment N.F. IX, Diluted Mercurial Ointment, "Blue Ointment", is an ointment containing between 9 and 11 per cent of mercury (Hg). Three official samples were of the required concentration, but all were labelled "U.S.P.", which is no longer correct, since this preparation has not been official in the U.S. Pharmacopoeia since November 1, 1950:

J.S.-93. *Blue Ointment U.S.P., Mild Mercurial Ointment.* Purepac Corp., New York, N. Y. Mercury, 10.60 per cent.

W.S.-156. *Norwich Blue Ointment U.S.P.* Norwich Pharmacal Co., Norwich, N. Y. Mercury, 9.58 per cent.

J.S.-92. *Park Blue Ointment U.S.P., Mercurial Ointment Mild 10%.* Park Laboratories, New York, N. Y. Mercury, 10.10 per cent.

Potassium Arsenite Solution

This preparation is more commonly known as "Fowler's Solution"; the National Formulary IX requires that it contain between 0.95 and 1.05 grams of arsenic trioxide (As_2O_3) in each 100 cc. Years ago Fowler's Solution was colored and perfumed with Compound Tincture of Lavender, but this flavored variety has not been official since June 1, 1936. In spite of this 15-year obsolescence one of the three official samples was found to contain lavender and was consequently adulterated; the other two samples were satisfactory:

W.S.-170. Eli Lilly & Co., Indianapolis, Ind., manufacturer; Clinton Pharmacy, Bridgeport. Arsenic trioxide, 1.05 gm./100cc.

W.S.-153. Parke, Davis & Co., Detroit, Mich., manufacturer; Silver's Drug Shop, West Haven. Arsenic trioxide, 0.95 gm./100cc.

W.S.-152. West Shore Pharmacy, West Haven, Conn., manufacturer and dispenser. Arsenic trioxide, 1.08 gm./100cc.; colored; lavender odor; adulterated.

Potassium Iodide Solution

The N.F. IX requires that Potassium Iodide Solution contain between 97 and 103 grams of potassium iodide (KI) in each 100 cc. Of four samples submitted by the Commissioner one met this standard, one was sufficiently close thereto to be passed, and two were deficient in potassium iodide:

W.S.-149. Black Rock Drug Store, Bridgeport. Potassium iodide, 96.12 gm./100cc.; passed.

W.S.-177. Flexer's Pharmacy, New Haven. Potassium iodide, 86.16 gm./100cc.; below standard.

W.S.-178. Visel's Drug Store, New Haven. Potassium iodide, 103.25 gm./100cc.; O.K.

J.S.-89. Wethersfield Pharmacy, Wethersfield. Potassium iodide, 80.51 gm./100cc.; below standard.

Quinacrine Hydrochloride Tablets

"Quinacrine hydrochloride" is the U. S. P. XIV name of these tablets, but they are better known under the proprietary name of "Atabrine tablets"; they must contain between 95 and 110 per cent of the declared amount of the drug. Analysis of two official samples, both manufactured by Winthrop Chemical Co., Inc., New York, N. Y., showed both to be satisfactory:

W.S.-164. King's Highway Pharmacy, Fairfield. Quinacrine hydrochloride, gm./tablet: Declared, 0.1; found, 0.100.

W.S.-174. Riverside Pharmacy, Riverside. Quinacrine hydrochloride, gm./tablet: Declared, 0.1; found, 0.099.

Seconal Sodium Capsules

"Seconal" is a trade-marked name of Eli Lilly & Co., Indianapolis, Ind., for a short-acting barbiturate that has never been adopted as official in either the U. S. Pharmacopoeia or the National Formulary. Three samples of Seconal Sodium capsules were submitted by the Commissioner, chiefly to establish whether the drug was Seconal and not some other barbiturate. Infrared comparison with authentic material showed that all three samples contained Seconal; quantitative analysis indicated that the amounts were as claimed in two cases, while one sample was deficient:

J.S.-73, 74 and 100. *Pulvules Seconal Sodium.* Sodium Seconal, grains/tablet: Declared, 1.5; found, 1.55, 1.26 and 1.64 respectively.

Thiamine Hydrochloride Tablets

The U. S. P. XIV requires that Thiamine Hydrochloride (vitamin B₁) Tablets contain between 95 and 115 per cent of the labelled amounts of the vitamin. Five official samples all met this standard; analyses are given in Table 14.

Miscellaneous Drugs

Thirty-three miscellaneous drug samples were submitted by the Commissioner. Twenty-three of these were passed and 10 were adulterated or misbranded:

J.S.-158 and 159. *Aspirpop.* Smith Pharmacal Co., New Brunswick, N. J. These lollipops (colored respectively orange and red) were labelled: "(Aspirin 3 gr.) For relief of pain and discomfort resulting from tonsillectomy and simple colds. DIRECTIONS: Adults, 1 to 2 Aspirpops 3 or 4 times daily or as directed by a physician. Children 3-10 years, 1 Aspirpop repeated as directed by physician."

The sale without restriction of such products as this is objectionable primarily because children could buy and eat the lollipops as candy and so overdose themselves with aspirin. The samples were specifically misbranded under the Food, Drug and Cosmetic Act because the labels were so inconspicuously printed and so wrapped about the lollipops

TABLE 14. THIAMINE HYDROCHLORIDE TABLETS

No.	Manufacturer	Pharmacy	Thiamine hydrochloride, mgm./tablet	
			Declared	Found
W.S.-154	International Vitamin Division, Ives-Cammerton Co., Inc., New York, N. Y.	Silver Drug Shop, West Haven	5	5.3
W.S.-161	Unknown	A. M. Beck, New Haven	5	5.6
J.S.-102	Unknown	Woodward Drug Store, Middletown	25	24.5
J.S.-98	Unknown	Zackin's Pharmacy, New Britain	10	10.2
W.S.-165	Wyeth, Inc., Philadelphia, Pa.	Tunxis Hill Pharmacy, Fairfield	25	27.7

that they were not "likely to be read and understood by the ordinary individual under customary conditions of purchase and use," and because the warnings against misuse were inadequate in that they were not adequately displayed.

H.P.-168. Arthritis Remedy. Analysis of these pink tablets showed: Aspirin, 4.03, and phenobarbital, 0.70, grains/tablet.

H.P.-169. Arthritis Remedy. Analysis showed each of these orange tablets to contain 4.76 grains of aspirin; no other active drug was found.

J.S.-108. Brill Rubbing Alcohol Compound 70% Isopropyl By Volume. S. T. Brill Chemical Co., Brooklyn, N. Y. Analysis showed 67.70 per cent by volume of isopropyl alcohol. Adulterated because the names "Alcohol Rubbing Compound" and "Rubbing Alcohol" are official National Formulary titles that can be legally applied only to specially denatured ethyl alcohol of concentrations between 68.5 and 71.5 per cent by volume; this product should have been labelled "Isopropyl Alcohol Rubbing Compound" or "Isopropanol Rubbing Compound".

W.S.-173. Dexedrine Dextro Amphetamine Sulfate. Smith, Kline & French Laboratories, Philadelphia, Pa. The racemic forms of "amphetamine" (1-phenyl-2-aminopropane) base and its sulphate are U. S. P. XIV drugs, but the dextro isomers, which are more active physiologically, are not official. Analysis of this sample showed 4.75 mgm. of amphetamine sulphate with an optical rotation of + 8.25 circular degrees in each tablet, as against 5 mgm. of dextro-amphetamine sulphate declared; sample was satisfactory.

W.S.-175. Dextro Amphetamine Sulfate Tablets. Chase Chemical Co., Newark, N. J. Dextro-amphetamine sulphate, grains/tablet: Declared, 5; found, 5.02. Optical rotation + 8.13 circular degrees. Satisfactory.

J.S.-139. Dormin Brand Methapyrilene Hydrochloride. Dormin, Inc., New York, N. Y. Labelled in part: "An aid for the relief of insomnia—non-narcotic—Dormin is a non-narcotic formula to be used as an aid in the relief of insomnia and the inducement of a refreshing sleep. Each capsule contains 25 mg. N, N-Dimethyl, N¹(2-Thenyl)-N¹(2-Pyridyl) Ethylene Diamine Hydrochloride".

The active ingredient of this preparation is identical with the antihistaminic drug sold by Eli Lilly & Co. as "Histadyl" and by Abbott Laboratories as "Thenylene".

"Dormin" violated the law in that it was a new drug for which no application had been allowed to become effective for the use recommended in its labelling (namely, as a sleep-producer); there was further some doubt about its safety, because the sleep-inducing property of the antihistaminics was a side-effect that might be expected to work with just those people who were abnormally sensitive to antihistaminics.

J.S.-138. Dormison, Brand of Methylparafynol. Schering Corporation, Bloomfield, N. J. Labelled: "Each capsule contains 250 mg. 3-methyl-

pentayne-ol-3. Caution: to be dispensed only by or on the prescription of a physician. Literature available on request. Clinical sample not to be sold."

This was an entirely new drug claimed to produce sleep with little or no after-effects. It was understood that a new drug application had been filed for it with the U. S. Food and Drug Administration and had been allowed to become effective. The sample was passed.

H.P.-180. Eljay Saccharin Tablets Effervescent Soluble. Eljay Drug Co., Newark, N. J. Sodium saccharin, grains/tablet: Declared, 0.25; found, 0.249. O.K.

H.P.-165 and 166. Forni's Magolo. Dr. Peter Fahrney & Sons, Inc., Chicago, Ill. *H.P.-165* was labelled: "Alcohol 20 per cent. This valuable medicine owes its effectiveness to the following well-recognized timed ingredients: Potassium Bicarbonate, Sodium Bicarbonate, Peppermint, Golden Seal, Rhubarb. . . . An effective pleasant-tasting alkaline medicine for the temporary relief of heart-burn and of acid indigestion and sour stomach, due to functional disturbances. Not laxative." *H.P.-166*, which was received in an unlabelled bottle, was supposed to be the same material but was suspected of having been "doctored" with a barbiturate.

No barbiturate was found in either sample, and both gave essentially identical quantitative analyses; that for *H.P.-165* was as follows: Chloroform extract from acid solution, 0.070, chloroform extract from ammoniacal solution, 0.120, total solids, 17.03, and ash, 2.14, gm./100 cc.; alkalinity of ash from 100 cc. equivalent to 35.45 cc. of normal hydrochloric acid. Both samples were passed.

J.S.-87. HACC. Harry A. Anderson, Terryville, Conn. Labelled: "Contents: Saltpeter, sulphur, charcoal, acetic acid and grain alcohol." This sample was submitted in connection with a new drug application under the Connecticut Food, Drug and Cosmetic Act; it was not analyzed; and no comment concerning it need be made here except that the specimen label bore no directions for use.

J. S.-84. Histaline. Pharmaceuticals, Inc., Newark, N. J. Labelled in part: "(Pyranisamine Maleate 2.5 mg. per c.c.) - FOR SYMPTOMATIC RELIEF OF COLDS - Designed especially for CHILDREN." This was a pinkish, slightly fluorescent liquid, which was not analyzed; its active ingredient is also known as "Neoantergan". Sample was passed.

J.S.-153. Hope Mineral Tablets Dietary Supplement. Hope Co., East St. Louis, Ill. Labelled: "Each tablet contains 20 mgm. of Iron and traces of other minerals (extracted from a natural clay) plus 1/2 mgm. Vitamin B¹, 1 mgm. Vitamin B², 5 mgm. Niacin and 1/2 mcg. Vitamin B¹²." The package containing the tablets bore no medicinal claims, but newspaper advertising used to promote their sale ("Meriden Record" of October 3, 1951) gave the impression that they were a cure for "arthritis, stomach ailments, neuritis, rheumatism, headaches, weak kidneys, dizzy spells, nervousness, bloating, also acids, toxins, lack of

vitality, energy, aching back, lumbago, underweight, decaying teeth, failing eyesight, bad complexion". This advertising was clearly in violation of Sections 3931 (e) and 3949 of the General Statutes.

J.S.-83. Liquid Thenylhist. Thenylhist Co., Dallas, Tex. - Chicago, Ill. Labelled in part: "Anti-histaminic for relief of coughs due to colds, asthma, allergies, excessive smoking and other minor throat irritations. . . . Thenylpyramine HCl 80 mg. Chloroform 2 min. per oz., plus Ammonium Chloride, Sodium Citrate and aromatics."

"Thenylpyramine hydrochloride" is sold by Eli Lilly & Co. as "Histadyl" and by Abbott Laboratories as "Thenylene"; it is the same drug present in "Dormin" (see *J.S.-139* above). The sample, which was an orange-pink liquid similar to "Histaline" (*J.S.-84* above) in appearance, was not analyzed; since its labelling was satisfactory, it was passed.

J.S.-129. Liver Injection U.S.P. (Crude). VCA Laboratories, Newark, N. J. Labelled: "2 U.S.P. Units Injectable. Each cc. of material prepared by the method employed in producing the contents of this vial constitutes 2 U.S.P. units Injectable. Phenol 0.5%." Such a preparation as this could be tested only clinically on persons with Addisonian pernicious anemia; since such tests were beyond the resources of the Station, the sample was passed.

J.S.-124 and 125. Menocrin Tablets. Harrower Laboratory, Inc., Glendale, Calif. These samples were received in unlabelled containers; according to the Modern Drug Encyclopedia¹ each tablet contains: Ovarian residue, 0.194, and anterior pituitary, 0.016, grams; concentrated thyroid extract (principally thyroglobulin) equivalent to 16 mgm. of U.S.P. thyroid.

The samples were submitted for analysis to see if they had deteriorated; because the only assay possible was a pharmacological one, they were passed.

J.S.-107. Nembutal Capsules. Abbott Laboratories, North Chicago, Ill. Analysis showed 1.62 grains/capsule of a barbiturate that both infrared comparison and mixed melting-point proved was pentobarbital. ("Nembutal" is Abbott's trade-marked name for their brand of pentobarbital.)

W.S.-242. Nu-Pax. Somnyl Pharmacal Corporation of America, New York, N. Y. Labelled: "A mild sedative for relief of simple nervousness—Relax with NU-PAX—Active ingredients: Passiflores P. E. Anthemis P. E. Xalyl (Valeryl Diethylamide)—Not habit forming—Contains NO barbiturates, NO opiates.—NU-PAX is an effective, mild sedative for relief of nervousness, jumpiness and restlessness. NU-PAX does not depress the nervous system but calms and soothes it. Taken as directed, NU-PAX will help calm you down during the day—and help you get a restful, refreshing night's sleep."

Of the three active ingredients mentioned on the label, the passion flower (*Passiflora incarnata L.*) was formerly in the National Formulary and used as a nerve sedative to allay general restlessness and relieve insomnia; English or Roman chamomile (*Anthemis nobilis*) is an aromatic

¹ 4th Ed., p. 510.

bitter once in the British Pharmacopoeia; and no reference could be found to the use of valeric acid diethylamide as a drug.

Because of the presence of a synthetic drug that is unquestionably a new drug, filing of a new drug application would be required for this preparation.

E.C.-482. Oil of Camphor. This was not camphorated oil as it was supposed to be, but a 2.85 per cent alcoholic solution of natural camphor with an angular rotation of +2.40°. This is only 29 per cent of the concentration of Camphor Spirit N.F. IX.

H.P.-160. Prescription No. 10055. Center Pharmacy, Southington, Conn. This prescription called for 1/25 grain of atropine sulphate made to 2 fluid drams with water; analysis showed 0.003 grain of atropine sulphate in 2 fluid drams, which is only one-thirteenth the concentration called for; starch and lactose were also present.

H.P.-135. Reducing Aid. Manufacturer unknown. This sample consisted of one capsule containing 0.0980 gram of a white powder. Analysis showed the presence of starch and chloride but no benzedrine, ephedrine or other alkaloid; sample was not further identified.

J.S.-152. Riker Dymons. United Rexall Drug Co., St. Louis, Mo. These were cough drops labelled "Tends to relieve hoarseness and simple throat irritations—Speakers singers smokers find them soothing"; claimed ingredients were "menthol, oil eucalyptus, capsicum, acacia, sugar, corn syrup, and flavoring oils". Sample was passed.

H.P.-170. Rutin-Ascorbic Acid Tablets. Vitamix Corp., Philadelphia, Pa. Rutin, mgm./tablet: Declared, 60; found, 62.5. Ascorbic acid, mgm./tablet: Declared, 300; found, 319. O.K.

H.P.-177. Scopolamine Hydrobromide Solution. Courtesy Drug Store, New Haven. This solution was supposed to contain 5 grains of scopolamine (hyoscyne) hydrobromide in one-half ounce of water, which is 2.19 gm./100 cc.; analysis showed 2.28 gm./100 cc. O.K.

W.S.-183. Syrup Histadyl (Thenylpyramine, Lilly). Eli Lilly & Co., Indianapolis, Ind. Labelled as containing 5 per cent of alcohol and 6 mgm./cc. of thenylpyramine fumarate. This was a clear brown liquid with a cinnamon odor that was procured for comparison with an unofficial prescription sample (see 5749 below).

W.S.-184. Syrup No. 125 Histadyl E.C. (Thenylpyramine Compound, E.C., Lilly). Eli Lilly & Co., Indianapolis, Ind. This cherry-red liquid with a cherry odor was labelled as containing 5 per cent of alcohol and the following active ingredients in each 100 cc.: Codeine phosphate 0.2 gm., ephedrine hydrochloride 0.1 gm., thenylpyramine fumarate 0.27 gm., ammonium chloride 2.2 gm., chloroform 0.4 cc. It was obtained for comparison with Sample 5749 below.

H.P.-167. Tablets No. 324 Calcium Lactate. Eli Lilly & Co., Indianapolis, Ind. These tablets were sampled because of a complaint that they had a "medicinal" odor and taste and caused violent cramps when taken, but no adulteration could be detected.

H.P.-164. Unknown Pills. These were 9.17 grain quinine sulphate pills.

J.S.-135. Unknown Pill. This large (2.62 gram) brown pill contained licorice and nux vomica; strychnine content was 0.45 grain. Sample was suspected of having caused the death of a pig. Since one-half grain of strychnine has been known to be fatal to human beings, it would be quite possible for one of these pills to kill a pig.

H.P.-161. Witch-Hazel. Mansfield State Training School and Hospital, Mansfield Depot, Conn. The National Formulary requires Hamamelis Water to contain between 14 and 15 per cent of alcohol and be free of denaturants. This sample contained 13.76 per cent of alcohol by volume, had an odor of witch hazel, and no denaturant was detected. Passed.

Forty-six unofficial drug samples were examined for the Pharmacy Commission, the Mansfield State Training School, local police departments and others. Twenty-three of these samples were passed, while 23 were adulterated or misbranded or otherwise objectionable. The following samples may be of interest:

7436. Capsules suspected of containing a narcotic. State Dept. of Health. Analysis was as follows: Aspirin, 3.60, phenacetin, 1.05, and caffeine, 0.51, grains/capsule.

7059. Liquid in sealed glass tube found on a lawn in Stratford. Narcotic Division, U.S. Treasury Dept. Analysis showed the contents to be aromatic spirits of ammonia.

7204. Liquid in sealed glass tube. State Dept. of Health. Contents were a 1.28 per cent aqueous solution of ammonia (NH₃).

7986 and 7987. Narcotics. New Haven Police Dept. Average analysis of these white powders was as follows: Diacetylmorphine hydrochloride (heroin), 16.70, quinine hydrochloride, 25.10, and lactose, 58.20, per cent.

8391. Plant suspected of being marijuana. Homer Nims, Portland, Conn. This proved to be *Lespedeza virginica* L.

4723. Polymorph X. William Wics, New York, N. Y. Supposed to contain steer glands (exclusive of testes) plus processed grain products. Microscopic examination showed the presence of rye bran with possibly some wheat. Quantitative analysis was as follows: Moisture, 8.82, ash, 2.42, protein, 21.19, fat, 4.53, fiber, 1.79, and other carbohydrates (by difference), 61.25, per cent.

5749. Prescription from Whelan Drug Store, Hartford. State Pharmacy Commission. This prescription called for one-half grain of dilaudid hydrochloride made up to 4 fluid ounces with Syrup Histadyl (Lilly). The sample was analyzed because of a complaint that its use caused nausea, numbing of the extremities and vomiting. Infrared comparison with mixtures made by dissolving the appropriate quantity of dilaudid hydrochloride in authentic samples of Lilly's "Syrup Histadyl" and

"Syrup No. 125 Histadyl E.C." (see *W.S.-183* and *184* above) showed that the "Syrup No. 125 Histadyl E.C." had been erroneously used instead of the "Syrup Histadyl" called for. The codeine that was thereby added to the dilaudid may have accounted for the symptoms observed.

6980. Prescription No. 44558. Liggett Drug Co., New Haven, Conn. This prescription called for 45 cc. of Pyribenzamine Expectorant to be made up to 90 cc. with water. "Pyribenzamine Expectorant with Ephedrine" is a product of Ciba Pharmaceutical Products, Inc., Summit, N.J., labelled to contain 30 mgm. of pyribenzamine citrate, 10 mgm. of ephedrine sulfate and 80 mgm. of ammonium chloride in each teaspoonful. Comparison with an authentic sample showed that the prescription was correctly compounded.

6516. Prescription of Veterans' Administration. State Dept. of Health. This red liquid was suspected of containing a narcotic, but analysis showed it to be Elixir of Three Bromides N.F. Quantitative analysis was as follows: Total solids, 51.12, ash, 14.02, and total bromide, 17.00, gm./100cc.

6502. Unknown Tablets. Mansfield State Training School. Sodium bicarbonate (NaHCO₃), 0.6568 gm./tablet.

4193, 4194, 4195 and 4196. Vineland Tenderettes. Vineland Poultry Laboratories, Vineland, N. J. Diethylstilbestrol, mgm./pellet: Declared, 15; found, 14.0.

7435. White Capsules. State Dept. of Health. These were 4.74 grain quinine sulphate capsules.

6576. Yellow Capsules. State Dept. of Health. These were aureomycin hydrochloride capsules.

COSMETICS

Fourteen official samples of cosmetics were examined; 11 were passed and three were adulterated or misbranded:

J.S.-123. Blue Cross Cuticle Remover. Vonet Sales Co., Hollywood, Calif. Labelled "It's lanolized". Analysis was as follows: Lanolin and petrolatum, 4.06, potassium soap, 7.09, ammonia (NH₃), 0.60, and water (by difference), 88.25, per cent; pH, 8.8. Passed.

J.S.-118. Bobbi Creme-Oil Waving Lotion. Bobbi Co., Chicago, Ill. This was an ammonium thioglycollate preparation containing 0.26 per cent of free ammonia (NH₃); it was passed.

J.S.-86. Cara Nome Eye Shadow, Gray. Langlois, Boston, Mass. This sample was not analyzed, but tests on three persons showed no irritation, so it was passed.

J.S.-134. De-Ce-Co Dry-Wash Shampoo. Dodge Chemical Co., Boston, Mass. Composition was claimed to be "30% or over of carbon tetrachloride, 30% or over of ethylene dichloride, perfumed to mask odor with vegetable products oils - alcohol 1 or 2% balance water". Because

of the possibility of carbon tetrachloride poisoning, this preparation was considered to be adulterated under Section 3947 (a) of the Food, Drug and Cosmetic Act; it was also misbranded because its net contents were not declared.

H.P.-172. Finger Waving Lotion. Manufacturer unknown. This was a bluish perfumed 1.18 gm./100 cc. solution of an anionic wetting agent; its pH was 3.75. Passed.

H.P.-175. Hair Lacquer. Manufacturer unknown. This was a perfumed brown alkaline (pH 7.2) liquid whose composition was as follows: Shellac, 8.24, and borax ($\text{Na}_2\text{B}_4\text{O}_7$), 0.49, gm./100 cc. It was passed.

J.S.-127. Halo Shampoo. Colgate-Palmolive-Peet Co., Jersey City, N.J. This was a sodium alkyl sulphate preparation; its pH was 5.9. Passed.

H.P.-134. "Instant" Clairol Salon Formula. Clairol, Inc., Stamford, Conn. This preparation contained a dye or dyes of the *p*-phenylenediamine type; a newspaper advertisement that stated that it was "not a dye" was therefore in violation of Sections 3931 (e) and 3949 of the General Statutes.

H.P.-174. Lustron Golden Normalizer. Manufacturer unknown. Analysis showed: Gum (probably galagum), 2.12, and borax ($\text{Na}_2\text{B}_4\text{O}_7$), 0.54, gm./100cc.; perfume present. Passed.

J.S.-151. Music Bar Lanolin Castile Soap. Manufacturer unknown. Tested only for free alkali and none found. Would have been misbranded because it bore no manufacturer's name or address and no net weight declaration, except for the exemption under Sec. 3930 (i) for "soap intended for cleansing purposes only".

J.S.-82. Petroleen for the Hair. Petroleen Products, New York, N. Y. Deceptively packed (misbranded Sec. 3948 (d)); carton only 36 per cent filled.

H.P.-173. Shampoo. Manufacturer unknown. This was a 5.74 gm./100 cc. solution of a potassium soap, colored with a dye that was probably dichlorofluorescein; the pH was 8.45. Passed.

J.S.-155. Stopette Spray Deodorant. Jules Montenier, Chicago, Ill. This was submitted because of a complaint that a user's "limbs became bloated". Analysis showed it to be a perfumed solution of aluminum chloride and aluminum sulphate with a pH of 4.45. While this preparation was quite acid, it could not have caused "bloating", and was passed.

J.S.-126. Tar-Gon Dental Stick. House of Huston, New York, N. Y. According to information from the American Dental Association¹, the composition of this stick was as follows: Pumice, 73.0, calcium carbonate, 18.0, casein, 7.0, polyvinyl alcohol (du Pont), 0.2, gum arabic, 0.5, glycerine, 0.5, flavoring, 0.2, dye, 0.4, and "Aerosol OT" wetting agent, 0.2, per cent. It was to be used to remove superficial stains from the

¹Letter to Dr. Max E. Soifer of June 19, 1951.

teeth; the chief active ingredient was no doubt the pumice. Its label did not list any of the ingredients, but because it was not a drug within the meaning of the law such listing was not required; sample was passed.

COLLABORATION WITH OTHER DEPARTMENTS

Five hundred and eighty-seven samples, not included in other reports from this laboratory, were analyzed for other Federal, State and Station departments. Distribution was as follows:

	<i>Samples</i>
U. S. Geological Survey (water)	29
U. S. Treasury Dept. (narcotics)	5
State Board of Fisheries and Game	1
State Dept. of Health (narcotics)	25
State Police	62
State Water Commission	2
Station departments:	
Biochemistry	21
Entomology	208
Forestry	102
Genetics	12
Plant Pathology	58
Soils	62
	587

BABCOCK GLASSWARE, ETC.

As required by Sections 3191 and 3240 of the General Statutes, milk and cream test bottles and milk pipettes, and check thermometers used in milk pasteurizing plants, have been examined as follows:

	<i>Pieces</i>	<i>Incomplete or inaccurate</i>
Babcock glassware	5,039	5
Thermometers	129	11

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