
The 55th Report on

FOOD PRODUCTS

And the 43rd Report on

DRUG PRODUCTS, 1950

Bulletin 558

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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	13	25	.....	25	1
Beverages, carbonated, etc.	16	83	18	101	37
Cereals	18	3	.....	3	.....
Cheese	18	6	2	8	5
Coffee	19	2	.....	2	.....
Confectionery:					
Normal confectionery	20	41	.....	41	38
"Dietetic" confectionery	23	15	.....	15	4
Contaminated or decomposed foods ...	23	90	18	108	52
Deceptive packaging	27	32	.....	32	25
Eggs	28	2	1	3	2
Extracts and flavors	28	5	.....	5	2
Fats and oils:					
Butter and oleomargarine	29	32	.....	32	20
Lard	29	5	.....	5	4
Olive oil	29	24	5	29	9
Other oils	31	31	1	32	15
Fish and shellfish	32	13	.....	13	7
Fruit, canned	33	1	.....	1	.....
Fruit juices and "nectars":					
Grape juice	33	31	1	32	16
Other fruit juices	33	10	2	12	3
"Nectars"	36	32	.....	32	.....
Jams and jellies	37	8	.....	8	4
Meat and meat products	41	12	4	16	1
Milk and milk products:					
Cream	41	1	1	2	.....
Ice cream	42	3	.....	3	3
Unfortified milk	43	.....	226	226	.....
Vitamin D milk	43	167	.....	167	10
Nuts and nut products	43	9	1	10	1
Preservatives	47	1	.....	1	.....
Salad dressings and mayonnaise	47	1	2	3	.....
Soups	47	13	.....	13	.....
Spices and condiments:					
Horseradish	47	32	.....	32	17
Pepper	51	5	.....	5	.....
Other spices and condiments	52	4	.....	4	1

CONTENTS AND SUMMARY (Continued)

Material	Page	FROM		Total	Adulterated, mis- branded or otherwise questionable
		Food and Drug Commission	Other sources		
Spray residues	52	12	5	17	2
Syrups:					
Fruit flavored syrups	53	7	.....	7	7
Pancake syrups	54	8	.....	8	2
Other syrups	55	3	1	4	1
Vegetable products:					
Olives	55	5	.....	5	4
Tomato paste and purée	56	5	1	6	.....
Other vegetable products	56	7	3	10	1
Vinegars:					
Cider vinegar	57	1	6	7	3
Wine vinegar	59	18	.....	18	13
Other vinegars	59	4	.....	4	1
Water	59	.....	20	20	.....
Miscellaneous	60	19	282	301	9
Totals		828	600	1,428	320
<i>Drugs and Devices</i>					
Cod liver oil	63	8	.....	8	.....
Para amino salicylic acid	65	4	1	5	.....
Rubber prophylactics	66	2	.....	2	.....
Miscellaneous drugs	66	15	18	33	8
Totals		29	19	48	8
Cosmetics	70	7	1	8	5
Collaborative	72	.....	1,182	1,182	.....
Total for all		864	1,802	2,666	333
Babcock glassware, etc.	72	.....	2,620	2,620	26

The Fifty-Fifth Report on
FOOD PRODUCTS
and the Forty-Third Report on
DRUG PRODUCTS
1950

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 1950, 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.

Fourteen hundred and eighty-four samples of foods, drugs, cosmetics and miscellaneous materials were examined for the year — 230 more than in 1949. This increase was more than accounted for by additional miscellaneous samples and samples of milk analyzed for farmers, because there was a decline in official food, drug and cosmetic samples of 124.

Milks for butter fat determination led the list in number of samples examined, followed by milks for vitamin D assay, foods suspected of insect or rodent infestation or contamination with foreign materials, carbonated and still beverages, and fats and oils.

Mr. George Nelson resigned as assistant chemist on April 15 to take a position with the Dennison Co., Framingham, Mass., and was succeeded on April 24 by Mr. Sherman Squires (B.S., Yale University).

The writer wishes to express his gratitude to all the members of the staff for their loyal and efficient work. It is they who are primarily responsible for the contents of this bulletin. Particular thanks are due to Messrs. Wickroski and Merwin for their painstaking analyses of so large a share of the food samples and drug and cosmetic samples respectively, and to Mrs. Thorpe for typing this bulletin and the reports to the Food and Drug Commissioner. In addition, Mr. Mathis, Mr. Nolan, Miss Kocaba, Miss Shepard and Mr. Keirstead were each responsible for a portion of the work reported in this bulletin.

The Connecticut Agricultural Experiment Station celebrated its seventy-fifth anniversary in 1950. It therefore seems appropriate to give in this report some account of the history of food and drug inspection in Connecticut and the part that this Station has played in that inspection. At the annual meeting of the Association of New England Food and Drug Officials at North Rye Beach, N. H., on June 28, 1950, the department head presented a paper on this subject which is reproduced here, as a matter of record and for its possible general interest:

SEVENTY-FIVE YEARS OF FOOD AND DRUG INSPECTION IN CONNECTICUT

H. J. FISHER

I am taking a certain amount of license in the title of this paper, because it was not until 1882 that there was a beginning of any real examination of human foods in Connecticut, and a general food law was not passed until 1895. However, 1875 did see the founding of the first agricultural experiment station in the United States, and it was because the staff of that station already existed that Connecticut was able to start controlling the quality of the public's food supply when it did and in the manner that it did; therefore, there is justification for tracing the beginning of this work back to 1875.

Connecticut had the honor of establishing the first agricultural station because one man, Samuel W. Johnson, got his early training under J. P. Norton at Yale and came back from his studies in Germany to teach agricultural chemistry at that institution. He was fired with enthusiasm for what agricultural experiment stations could do for the farmer by what he had learned of the work of such stations in Germany, and when he returned to Connecticut he worked through the State Agricultural Society and later the Board of Agriculture to persuade the state legislature to establish such a station in Connecticut. As things turned out (there is not time to go into details), the legislature finally accepted a proposal that was not Johnson's and established the first station at Wesleyan University in Middletown, not under Johnson but under W. O. Atwater, later to become famous for his tables of the composition of foods and his work with the respiration calorimeter.

The Connecticut Agricultural Experiment Station at its beginning concerned itself primarily with the analysis of fertilizers. During the two years it was at Middletown the only reports that were made on any human foods were analyses of several samples of wheat and the flour made from it, corn and apples. In 1877 the legislature passed a new law setting up the Station on a permanent basis and transferring it to New Haven to be specifically under the direction of Professor Johnson. At New Haven it has since remained, most of the time in the same spot, and from 1877 to 1900 it remained under Johnson's direction.

The 1877 report contained a few analyses of waters for total solids, chloride, and free and albuminoid ammonia as estimations of their purities for drinking purposes, and in the 1878 report we find an explanation to a farmer that the ropiness of his milk was caused by a fungus, *Oidium lactis*, originating in cow dung.

Nothing further appears on human foods until 1882, when some 300 samples of milk are reported as having been analyzed by E. H. Jenkins, who had worked under Atwater at Middletown and transferred to New Haven, and who was destined to succeed Johnson as director in 1900. The report includes a rather detailed discussion of methods of detecting watering and skimming, and concludes: "No instance appears to be on record where a competent observer has found for the mixed milk of a number of healthy cows a specific gravity less than 1.029, and we may conclude with certainty, that milk which falls below that density has been watered. As evidence of watering simply, specific gravity furnishes by far the most satisfactory test, and if 1.029 is adopted as a minimum, no pure milk will be condemned. In some cases moderately watered milk may escape detection. If we establish a minimum limit for the percentage of solids and fat which shall in no case condemn pure milk in any locality, we shall have to make it absurdly low, and thus offer a premium on watering milk of good quality."¹

The reason for this sudden attention to the quality of the milk supply was the passage by the 1882 legislature of a law that placed on the director of the Station the responsibility for detecting adulteration in milk, particularly milk offered to creameries. So far as I can find, this was Connecticut's first pure food law.

The Station reports of 1883 to 1885 contained more analyses of milk and notes on analytical methods. In 1885 the legislature passed an imitation butter law and established a Dairy Commissioner to enforce it. The law stated that "The Dairy Commissioner may have samples suspected to be imitation butter analyzed at the Connecticut Agricultural Experiment Station or by any State chemist, and a sworn and affirmed certificate of the analyst shall be *prima facie* evidence of the ingredients and constituents of the sample analyzed". The first Commissioner appointed under this law was J. B. Tatem; from 1886 to the present, or for 64 years, the Station has maintained a very close relationship in enforcement of food laws with a succession of 14 Commissioners who bore somewhat varying titles.

That the Station undertook its first work for the Commissioner with a certain reluctance is shown by the following quotation from Director Johnson's report:²

"The Commissioner, Hon. J. B. Tatem, having in May represented to the Director that he must depend solely upon the Experiment

¹Ann. Rept. of the Conn. Agr. Expt. Sta. for 1882, p. 88.

²Ann. Rept. of the Conn. Agr. Expt. Sta. for 1886, p. 132.

Station for the chemical work requisite for identifying 'imitation butter', it was decided to undertake the analyses needed, in order that there should be no failure in the enforcement of the law, although evidently the Station was under no legal obligation to assume the work, and notwithstanding the Commissioner represented that there were no funds at his disposal to sustain the expenses which would be incurred."

Sixty-one samples of supposed butter were examined that year and 47 of these were found not to be butter. The tests relied on were the specific gravity of the fat at the temperature of boiling water and the Reichert value. The former of these tests is no longer used; the latter has been superseded by a refinement bearing the name of Meissl as well as that of Reichert; it is still the most satisfactory single test for the purity of butter fat.

In 1887, 34 more samples were tested for the Commissioner, all except one of which were found not to be butter. The preceding year the General Assembly had passed a new law providing for inspection of molasses by the Dairy Commissioner, and the Commissioner had applied to the Station to make the necessary examination of suspected samples. The Director was unprepared to accede to this request on his own responsibility; partly because of doubts as to whether testing molasses was a proper function of the Station under its charter, since the Station was established "for the purpose of promoting agriculture by scientific investigation and experiments", and partly because of the time and expense involved. He referred the matter to the executive committee of the Station Board of Control and "it was decided that since the law would otherwise remain without effect, the Station should cooperate with the Dairy Commissioner as far as due regard to its other obligations would permit".¹ The Station then proceeded to purchase a Schmidt and Haensch saccharimeter (which was still in use at the Station until a year ago) and to send Dr. Jenkins to the New Jersey Station at New Brunswick to familiarize himself with methods of sugar analysis. Fifty samples of molasses were tested in 1888; of the first 22 samples, nine were found adulterated with glucose and one also contained tin salts, but after notice was given that all adulterators would be prosecuted, the quality of the samples rapidly improved.

It may appear that I am paying more attention to the part of the Station than I am to the part of the Commission in food and drug work. This is perfectly true, but records of the Commission's work comparable to the records of the Station in its printed reports were not available to me, if they exist.

It will be necessary to skip over the next few years, noting in passing that in 1892 cheese joined the ranks of foods being examined.

In 1895 the first general food law was passed. This law defined

¹Ann. Rept. of the Conn. Agr. Expt. Sta. for 1887, p. 10.

food to include "every article used for food or drink by man, horses, or cattle". Misbranding and adulteration were defined in terms that resemble those of present-day laws. The whole administration of the law was entrusted to the Agricultural Experiment Station, which was empowered to take samples, analyze them and report findings of adulteration to "a grand juror or prosecuting attorney of the town in which said adulterated food product was found". This action of the legislature made the Connecticut station the first Agricultural Experiment Station in the country to be entrusted with enforcement of a pure food law; Kentucky was the next in 1898; North Dakota and Wyoming followed in 1903 and Maine was added in 1905.

The Station was now in the somewhat anomalous position of analyzing samples of butter and molasses for the Dairy Commissioner under the special statutes governing these two foods and of doing its own sampling and analyzing of foods in general under the general food law. (As a matter of fact the molasses law survives unchanged to the present day, as does a special vinegar law passed in 1889; and the imitation butter law still exists in modified form.) The Station began its work under the new law in the fall of 1895, and the 1896 report shows that up to October 31 of that year 1,132 food samples were collected by the Station agent. The chemical work on these samples was done by Messrs. Winton, Ogden and Mitchell, and all microscopic examinations were made by Winton. This same Andrew Winton was to become head of the department in 1902, succeeding Dr. Jenkins. (Jenkins became Director and, therefore, chief chemist, in 1900; Winton's appointment as chief of the chemistry laboratory in 1902 represented the start of departmentalization at the Station, because prior to this time there was no intermediate authority between the Director and the worker in the ranks.)

It is interesting to list the types of food that were examined the first year the law was in operation. Of the 947 samples actually analyzed the distribution was as follows:

Maple syrup	72	Cream of tartar	103
Maple sugar	7	Cereal foods	9
Other syrups	4	Coffee	124
Cane sugar	16	Milk	105
Honey	60	Cheese	72
Lard and lard substitutes	162	Miscellaneous	25
Pepper	114		
Mustard	74		947

Of these samples, 254 were found to be definitely adulterated and the purity of 24 others was considered doubtful. The worst offenders were lard, pepper, mustard, coffee and cream of tartar.

It might be interesting — provided your patience held out — if I continued to show what types of foods were examined for each of the next 54 years, and how the pattern of adulteration changed with the

years. Certainly there is not time for this, but annually beginning with the 1896 report the Station has published full accounts of its examinations, and these reports still survive in print for the perusal of anyone who is interested.

In the same year of 1896, besides its examinations of its own samples, the Station analyzed nine samples of butter, 15 of molasses and 54 of vinegar for the Dairy Commissioner. This pattern persisted for some years, with the Dairy Commissioner taking two or three hundred samples of butter, molasses and vinegar and the Station agent taking a thousand or more samples of other foods. It was not until 1899 that the Dairy Commissioner's agents collected any general food samples; in that year they submitted 61 samples of coffee. In this same year the station collected and analyzed four samples of formaldehyde solution; this represented the first drug product to be examined. In 1901 a new law required the Station to test all Babcock bottles and pipettes used in the State, and 2,312 pieces were examined the first year.

Nineteen hundred and two signalled the addition to the staff of Station chemists of E. M. Bailey, who became department head 16 years later. That same year a revision of the General Statutes transferred authority for enforcement of the general food law to the Dairy Commissioner, but this brought only a gradual change in the pattern of law enforcement. It is true that in 1903 the Station agent took only 227 food samples and the Commissioner's agents 882, but the next year the Station agent took 904 samples and the Commissioner 608, and it was not until 1918 that the Commissioner's samples again considerably exceeded in number those taken by the Station itself. In that year 1,669 samples were taken by Commission inspectors and only 194 by the Station agent, and since that time the authority of the Station to take its own samples, which still exists, has been rarely exercised.

In 1902 Congress had passed a law authorizing the Secretary of Agriculture to set official standards for food products in the United States, and on June 3, 1903, the Secretary used this authority to promulgate a series of standards which had been proposed to him by a committee of the Association of Official Agricultural Chemists composed of William Frear, Edward H. Jenkins, Melvill A. Scovell, Henry A. Weber and Harvey W. Wiley. The Connecticut food law authorized the Station to "fix standards of purity, quality or strength", and the Station took advantage of this authority to adopt formally for Connecticut in 1903 these first Federal food standards.

On May 1, 1907, Dr. Winton resigned as head of the chemistry laboratory to accept a position as head of the Chicago laboratory of the Bureau of Chemistry; he was succeeded by John Phillips Street, who came from the New Jersey Experiment Station. That same year marked the death of the first director of the Station, W. O. Atwater, who had gone on to serve 14 years as director of the Storrs Agricultural Experiment Station and finally to become the first director of the

Office of Experiment Stations of the U. S. Department of Agriculture. In 1907 Director Jenkins noted sadly that the State appropriation for enforcement of the food law still remained only \$2,500.00, and in that same year the General Assembly passed a new law modeled after the Federal law of 1906 that included drugs, as well as foods, within its provisions. All of you are too familiar with the old Wiley law, which we worked under for so many years, for me to need to outline its provisions. It brought to the Station an entirely new field of duties — that of examining drugs — with no additional appropriation; but in spite of the lack of funds, 338 samples of drugs were analyzed in detail in 1908, including 92 samples of beef, wine and iron; 69 of headache preparations containing acetanilide and acetophenetidin; 55 of ammonia water; 92 of tincture of iodine; and 30 of borax. Annually since that date the Station has published full drug, as well as food, reports.

In 1909 Director Emeritus Johnson died, and Clarence Shepard, whom some of you know, joined the staff; the following year the present laboratory building was completed. At this time it was the general practice for the Station to take the original samples and to have the Dairy Commissioner take second samples of such products as analysis showed to be adulterated. This was done to save the expense of taking triplicate samples the first time, but apparently some dealers got onto the scheme, because frequently the second sample would be all right when the first one was not.

In 1911 the legislature passed a turpentine law and assigned the duty of its enforcement to the Station and the Dairy and Food Commissioner jointly; it was with the passage of this law that the Commissioner's title was changed from "Dairy Commissioner" to that of "Dairy and Food Commissioner". The same year a law requiring the declaration of net contents on food stuffs and authorizing the Station and the Commissioner to set tolerances was passed, and in 1912 over 2,000 food samples were weighed or measured as a basis for setting such tolerances.

The closest interest of Mr. Street became exposing the composition of the numerous proprietary drug preparations which then flooded the market; the Station began analyzing such products in 1914, and in 1917 its analyses and those of others were assembled by Mr. Street in a book that was published by the American Medical Association.¹

In the early years of the drug law, preparations were sold freely whose composition seems incredible today; for instance, of 13 catarrh powders analyzed in 1909, seven contained cocaine hydrochloride in percentages ranging from 0.99 to 3.77.

It was in 1914 that the first cosmetics were analyzed — two deodorants, two depilatories, 24 hair and scalp preparations and 26 skin remedies.

In 1916 a law was passed forbidding the use of wood alcohol in any

¹"The Composition of Certain Patent and Proprietary Medicines".

preparations intended for internal or external application to the body. Of 25 toilet preparations examined the following year, 12 were found to contain methyl alcohol in percentages ranging from 11 to 84.80.

In December, 1917, Mr. Street left for military service and was succeeded as head of the department by E. M. Bailey, and in 1918 the Dairy and Food Commissioner, Mr. Stadtmueller, died in office. From this time on the sampling duties were taken over almost exclusively by the Commissioner's inspectors, and what I may call the modern period of food and drug inspection began. Most of this is familiar to you, and I shall hit only the high spots and jump rapidly to the present.

In the ensuing years what stands out most prominently in my mind is the period represented by E. H. Woodward's tenure as Commissioner and the adoption of the new Food, Drug and Cosmetic Act in 1939. Mr. Woodward served as Food and Drug Commissioner from 1934 to 1941 and died tragically three years later in the famous Ringling Bros. circus fire at Hartford. He is generally admitted to have been one of the best Commissioners the State ever had, and the organization of the Food and Drug Commission into its present divisions is due to him. It was his ability to convince people which, probably more than anything else, was responsible for Connecticut's adopting the model law only a year after the Federal law became effective. This law added cosmetics to the list of products controlled and did many other things that cannot be outlined here.

In October, 1945, Dr. Bailey retired and was succeeded by the present writer. In 1947 one of the periodic state reorganizations occurred which, while it did not change the Food, Drug and Cosmetic Act as such, nor change the Station's relations to the Act, did abolish the Dairy and Food Commission and split its duties between two new departments, a Food and Drug Commission and a Department of Farms and Markets. Enforcement of the law as regards milk and milk products, exclusive of ice cream, frozen desserts and frozen dessert mixes, was transferred to the Department of Farms and Markets, while the Food and Drug Commission was given supervision over drugs and cosmetics and all other foods. For the Station this has meant that now we assay vitamin D milks for the Department of Farms and Markets instead of for a Dairy and Food Commissioner as formerly, while almost all our other food, drug and cosmetic work is done for the Food and Drug Commission.

This paper has run to such an inordinate length that I have no time to compare our work of the present day with that of 55 years ago as I should like to do; in many ways the similarities are more striking than the differences. The people we work with now you all know — Commissioner Richard, Mr. Clark, Mr. Plank and Mr. Goslee. They are certainly no less capable than their predecessors and they have more to work with; the result, I believe, is a level of protection of the people of Connecticut of which the State should be proud.

FOODS

Baked Products

Twenty-five samples of baked products, including one of bread, 15 of cookies and crackers, one of "lady fingers", three of pie, four of pretzels and one of rolls, were submitted by the Commissioner.

K.F.-604, Reymond's Hollywood Bread, baked by the Reymond Baking Co., Waterbury, Conn., was 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 proteins 11.48% fats 0.63% carbohydrates 48.99% mineral residue 2.04% — Approx. 44 calories per 17 gram slice". Our analysis, as compared with the declared analysis and the average analysis of ordinary bread, was as follows:

	Found, per cent	Declared, per cent	Ordinary bread, per cent
Moisture	33.88	.....	35.3
Protein	11.87	11.48	9.2
Fat	2.38	0.63	1.3
Fiber	0.71	.....	0.5
Ash	2.20	2.04	1.1
Nitrogen-free extract	48.96	48.99	52.6
Calories per 17 grams	45.	44.	44.

K.C.-169, Holiday Spice Drops, Rum and Brandy Flavored, manufactured by Allied Food Industries, Inc., Perth Amboy, N. J., was labelled "Selected ingredients: wheat flour, vegetable shortening, select eggs, pure honey, melon tidbits, nut meats, all-spices, dextrose syrup, cane sugar, fat-free milk solids, table salt, leavening, artificial rum and brandy flavors". It should have been labelled "Imitation Rum and Brandy Flavored".

A.F.-791, Plain Lady Fingers, made by Shulls Bakery, Marysville, Pa., was suspected of being artificially colored because of its deep yellow color, but no coal tar dye was found.

K.F.-583, Stella D'Oro Pure Egg Biscuit, manufactured by Stella D'Oro Biscuit Co., Inc., New York, N. Y., was submitted because of a claim for the presence of eggs. Declared ingredients were "Flour, vegetable shortening, sugar, leavening, eggs, 'Mycoban', and vanilla flavor". Analysis showed: Moisture, 9.05; total fat, 11.04, and lipid phosphoric acid, 0.11, per cent; indicating 5.89 per cent of egg solids on the dry basis, which meets the requirement of the Federal standard for egg noodles. No artificial color was found.

The other 21 samples were all submitted because of claims for the presence of butter. At the present time there is no Federal or State

TABLE I. BAKED PRODUCTS CLAIMED TO CONTAIN BUTTER

No.	Manufacturer and Brand	Declared ingredients	Total fat, per cent	Constants of fat			Estimated per cent butter fat	
				Refrac- tion, 40°C.	Reichert- Meissl value	Polenske value	In total fat	In sample
S.O.-31	American Comet Pretzel Co., Philadelphia, Pa. <i>Rold Gold Butter Pretzels</i>	Flour, shortening, yeast, salt, soda, malt, sugar, butter	3.25	56.0	5.02	0.72	17.1	0.6
A.F.-641	Burry Biscuit Corp., Elizabeth, N. J. <i>Burry's Butter Flavored Cookies</i>	Flour, sugar, shortening, butter, eggs, salt, leavening, art. flavor, cert. color	16.85	49.0	0.25	0.40	0.9	0.1
E.S.-412	H. W. Clark Biscuit Co., North Adams, Mass. <i>Farm Butter Cookies</i>	Soft winter wheat flour, sugar, shortening, butter, condensed milk, eggs, leavening, salt, artificial flavor	16.00	50.0	8.22	1.47	28.0	4.5
K.N.-263	Conn. Pie Baking Co., Inc., Hartford, Conn. <i>Mother's Butter-Crust Apple Pie</i>	Fruit, chocolate, starches, flavors (synthetic), colors (synthetic), lemon powder, vegetables, meringue powder, eggs, flour, leavening, sugar, milk, salt	28.60	52.5	0.37	0.34	1.3	0.4
E.S.-532	Conn. Pie Baking Co., Inc., Hartford, Conn. <i>Mother's Butter-Crust Pies</i>	Sugar, fruit, starches, shortening, eggs, flavor and U. S. certified colors	33.80 ¹	53.0	0.50	1.20	1.7	0.6
K.N.-264	Conn. Pie Baking Co., Inc., Hartford, Conn. <i>Mother's Chocolate Cream Pie, Butter-Crust</i>	Same as K.N.-263.	30.15	53.0	0.37	0.34	1.3	0.4
K.F.-471	Golden Flake Baking Co., Cambridge, Mass. <i>Golden Flake Butter Gems</i>	White flour, fresh creamery butter, shortening or oleomargarine, evaporated milk, non-fat milk solids, sugar, salt, yeast, calcium propionate	5.85	50.3	6.29	1.08	21.4	1.3
E.S.-414	J. S. Ivins' Son, Inc., Philadelphia, Pa. <i>Ivins Butter Flavored Cookies</i>	Wheat flour, shortening, sugar, salt, leavening, powdered milk, butter, eggs, artificial flavoring	16.62	57.0	0.75	0.45	2.6	0.4
E.S.-347	Keebler-Weyl Baking Co., Philadelphia, Pa. <i>Buttercup Cookies</i>	Flour, sugar, shortening, butter, powdered skim milk, salt, leavening, eggs, powdered buttermilk	15.48	48.0	2.74	1.10	9.3	1.4
E.S.-407	Keebler-Weyl Baking Co., Philadelphia, Pa. <i>Butter Flavored Thins</i>	Flour, shortening, condensed whole milk, sugar, malt, leavening, salt, and butter	13.05	50.0	1.99	0.57	6.8	0.9
E.S.-431	Megowen-Educator Food Co., Lowell, Mass. <i>Educator Butter Flavored</i>	Flour, sugar, shortening, eggs, milk solids, butter, salt, imitation flavor, leavening	20.10	48.0	1.00	0.79	3.4	0.7
E.S.-348	National Biscuit Co., New York, N.Y. <i>Nabisco Butter Flavored Cookies</i>	Flour, sugar, shortening, pure creamery butter, cornstarch, eggs, milk, corn syrup, salt, leavening and artificial flavoring	17.75	50.7	2.49	0.57	8.5	1.5
E.S.-368	National Biscuit Co., New York, N.Y. <i>Nabisco Butter Thins</i>	Flour, shortening, sugar, corn starch, pure creamery butter, milk, malt, corn syrup, salt, leavening	13.50	51.0	3.61	0.91	12.3	1.7
A.F.-619	National Biscuit Co., New York, N.Y. <i>Nabisco Salty Twist Butter Pretzels</i>	Flour, salt, shortening, pure creamery butter, malt, and leavening	2.40	56.5	3.70	0.96	12.6	0.3
E.S.-349	National Biscuit Co., New York, N.Y. <i>Nabisco Salty Twist Butter Pretzels</i>	Same as A.F.-619.	2.40	51.8	6.23	1.02	21.2	0.5
E.S.-417	National Pretzel Co., Inc., Scranton, Pa. <i>Butter Thin Pretzels</i>	Flour, vegetable shortening, butter, salt, malt, yeast	4.75	55.0	2.74	0.57	9.3	0.4
E.S.-527	Richmond Baking Co., Richmond, Ind. <i>Butternut Cookies</i>	Flour, sugar, shortening, egg yolks, skimmed milk solids, malt syrup, leavening, salt, lecithin, corn starch, spice and artificial flavor	8.20	51.6	0.25	1.02	0.9	0.07
E.S.-528	Richmond Baking Co., Richmond, Ind. <i>Harvest Butter Crackers</i>	Flour, shortening, salt, malt syrup, leavening, lecithin	16.88	52.5	1.49	0.34	5.1	0.9
E.S.-401	Southern Biscuit Co., Inc., Richmond, Va. <i>Butter Flavored Cookies</i>	Flour, sugar, vegetable shortening, powdered skim milk, salt, butter, leavening, eggs, artificial flavoring	25.40	41.0	9.21	8.94	21.1	5.4
K.F.-625	Southern Biscuit Co., Inc., Richmond, Va. <i>F. F. V. Orange Thins</i>	Flour, sugar, vegetable shortening, eggs, butter, fresh orange juice, salt, leavening, and oil of orange						
E.S.-430	Sunshine Biscuits, Inc., New York, N.Y. <i>Sunshine Butter Macarons</i>	Flour, sugar, coconut, shortening, butter, eggs, powdered whey, leavening, salt, vanilla, artificial flavor						

¹Dry basis.

standard for the butter content of such products as "butter cookies", "butter gems", "butter pretzels", "butter thins", etc. When the Federal standards for bakery products were being prepared, the U.S. Food and Drug Administration proposed that "butter bread", "butter rolls" and "butter buns" be required to contain 12 parts of butter fat for each 100 parts of flour, while the American Bakers' Association stood out for only one-third as much butter fat. The hearing examiners apparently concluded that the A. B. A. proposals were so low as to amount to deception and that the Food and Drug Administration's proposals were unreasonably high, but instead of fixing on some intermediate standard they let the matter drop and adopted no standard at all.¹

In order to have some information on the actual butter content of bakery products now on the market that might serve as a basis for the eventual adoption of a standard for this State, nineteen of the samples were analyzed for their total fat content, and the refractions, Reichert-Meissl values and Polenske values of the fats were determined. The amounts of butter fat present were then estimated from the Reichert-Meissl values, assuming a value of 29.4 for pure butter fat. A correction was made for cocoanut oil, when present, on the basis of the Polenske value. Results are shown in Table 1.

Beverages, Carbonated, etc.

Fifty-seven samples of carbonated beverages were examined for the Commissioner. J.C.-57, *Dietary Beverage, Saccharine Sweetened*, bottled by the Avery Bottling Works, New Britain, Conn., was labelled "Contains water, saccharine, artificial flavor and color", and was intended for sale only to diabetics; saccharin and 1.44 per cent of sugar were present. S.O.-115 and 116, "Penguin Brand" *Raspberry Soda* and "Penguin Brand" *Cherry Soda*, manufactured for the Grand Union Co., New York, N. Y., were examined for their flavors only; the "cherry" soda was definitely imitation cherry, although not so labelled. Of the other 54 samples, none was found to contain saccharin or undeclared artificial color or less than the 5 per cent of sugar required by the carbonated beverage law. Approximate sugar content (solids by refraction) ranged from 7.73 to 18.11 per cent and averaged 12.35 per cent (0.48 per cent more than was found in 1949).

There were 26 official samples of uncarbonated beverages. Seventeen of these were sold as "orangeade" or "orange drinks", and consequently should have contained at least 15 per cent of orange juice.² Results of their analyses are shown in Table 2; seven were passed and 10 were either deficient in orange juice or otherwise mislabelled.

The nine beverages other than the orange drinks were the following: K.F.-653 and 654. *Bireley's Drink, Grape Flavor*. Bireley's Bottling

¹Federal Register, 15, 5102ff (1950).

²Rules and Regulations Relating to the Food and Drug Law of Connecticut, Regulation 36 (Revised). (April 6, 1938.)

TABLE 2. ORANGEADES AND ORANGE DRINKS

No.	Manufacturer or dealer and brand	Total sugars, per cent	Ash, per cent	Potassium oxide, mgm/100cc	Ascorbic acid, mgm/100cc	Orange juice, per cent	Remarks
K.F.-657	Bireley's Bottling Co., Hamden, Conn., <i>Bireley's Drink, Orange Flavor</i>	.....	0.057	20	1.54	9	Deficient in orange juice.
K.F.-658	Bireley's Bottling Co., Hamden, Conn., <i>Bireley's Drink, Orange Flavor</i>	.....	0.057	21	1.54	9	Deficient in orange juice.
J.W.-198	Bryce Bottling Co., Troy, N. Y. <i>Bireley's Orange Flavor Drink</i>	.....	0.057	20	1.02	9	Deficient in orange juice.
E.S.-579	Castle Products Co., Irvington, N. J. <i>Mrs. Simm's Quality Ready to Use Sunshine Orange Drink</i>	.....	0.17	54	8.23	24	Pass. Saccharin present but sold for diabetic use only; coal tar dye present not declared.
E.C.-333	Fox Spring Beverage Co., Norwich, Conn. <i>Fox Spring Dietary Beverage—Saccharine Sweetened</i>	0.27	0.036	***	.....	***	Pass on claim of 46 milligrams of vitamin C in 12 ounces.
K.F.-495	Grand Union Market, Danbury, Conn. <i>Vitamin Hi C Enriched Orangeade</i>	.....	.....	.....	15.27	.....	.....
K.F.-578	Grand Union Market, Danbury, Conn. <i>Vitamin Hi C Enriched Orangeade</i>	.....	.....	.....	16.71	24	Pass.
K.F.-641	Pal Bottling Co., Waterbury, Conn. <i>Pal Ade Orange</i>	.....	0.14	54	0.64	10	Deficient in orange juice.
K.F.-642	Pal Bottling Co., Waterbury, Conn. <i>Pal Ade Orange</i>	.....	0.077	23	0.64	10	Deficient in orange juice.
J.W.-196	Pal Bottling Co., Waterbury, Conn. <i>Pal Ade Orange</i>	.....	0.057	26	0.64	11	Deficient in orange juice.
E.C.-344	J. Rondeau Grocery, Norwich, Conn. <i>Mortell's Orange Pulp Beverage</i>	.....	.....	.....	.....	.....	.....
J.C.-58	Silver Bros., New Britain, Conn. <i>Tru Ade</i>	9.10	0.19	.....	.....	.....	Pass.
J.C.-59	Silver Bros., New Britain, Conn. <i>Tru Ade</i>	12.50	0.015	.....	.....	4	Deficient in orange juice.
K.F.-614	Stop & Save Grocery, Waterbury, Conn. <i>Orangeade</i>	8.89	0.013	.....	.....	3	Deficient in orange juice.
H.P.-153	Sunlife Fruit Juice Co., Springfield, Mass. <i>Sunlife Orange Tru-Ade Bottling Co., New Britain, Conn. Tru Ade</i>	12.36	0.116	41	.....	18	Pass.
J.W.-199	Tru-Ade Bottling Co., New Britain, Conn. <i>Tru Ade</i>	9.67	0.081	44	13.33	19	Pass.
E.S.-562	Valencia Fruit Juice Co., New Haven, Conn. <i>Orange</i>	.....	0.057	27	0.90	12	Deficient in orange juice.
		.....	0.19	97	9.90	43	Pass.

Co., Hamden, Conn. Ash, 0.027 per cent; potassium oxide, 4.4, and ascorbic acid, 0.77, mgm./100 cc.; grape juice, 4 per cent. Low in grape juice.

K.F.-655 and 656. Bireley's Drink Pineade. Bireley's Bottling Co., Hamden, Conn. Ash, 0.065 per cent; potassium oxide, 23, and ascorbic acid, 1.80, mgm./100 cc.; pineapple juice, 12 per cent. Low in pineapple juice.

K.C.-155. Choc. Treat Chocolate Flavored Drink. Maryland Beverage Co., Inc., Baltimore, Md. Total solids, 15.59 per cent; passed.

K.F.-643 and 644. Pal Ade Grape. Pal Bottling Works, Waterbury, Conn. Ash, 0.023 per cent; potassium oxide, 7.8, and ascorbic acid, 0.64, mgm./100 cc.; grape juice, 7 per cent. Low in grape juice.

K.F.-645 and 652. Pal Lemonade. Pal Bottling Co., Waterbury, Conn. Ash, 0.054 per cent; potassium oxide, 17, and ascorbic acid, 0.77 mgm./100 cc.; lemon juice, 11 per cent. Low in lemon juice.

Eighteen samples of alcoholic beverages were analyzed, mostly for police in connection with sales after hours or on unlicensed premises. One sample is of interest:

1637. Black Seal Finest Old Demerara Rum. Frith's Liquors, Ltd., Hamilton, Bermuda. Alcohol by volume, 43.38, and color insoluble in amyl alcohol, 34.4, per cent. This was not a "finest old" rum but a very new rum, little more than raw spirits, colored with caramel to give the appearance of age.

Cereals

One sample of whole wheat flour and two of packaged cereals were submitted by the Commissioner; all were passed:

J.W.-221. Blue Cross Toasted Whole Wheat Cereal. The Quaker Oats Co., Chicago, Ill. Iron, 0.56 mgm./half ounce.

J.W.-222. Instant Ralston. Ralston Purina Co., St. Louis, Mo. Iron, mgm./half ounce: Declared, 4.25; found, 3.97.

A.F.-720. Mill Streams Whole Wheat Flour. The Winchell Smith Flour Mill, Farmington, Conn. The Federal Standard [15.80(a)] requires that not less than 90 per cent of whole wheat flour pass a No. 8 sieve and that at least 50 per cent pass a No. 20 sieve. Sieving tests on this sample showed that all of it passed an 8 mesh sieve and 98 per cent passed a 20 mesh sieve.

Cheese

Six official and two unofficial samples of cheese were examined; three were passed and five were adulterated or misbranded:

K.F.-624. Beau Guest Pasteurized Process American Loaf. Manufacturer unknown. Water, 50.91; casein, 26.54; fat, 11.96; lactose, 2.04,

and ash, 6.58, per cent. Process cheese should contain not more than 40 per cent of water and at least 50 per cent of fat on the dry basis. This sample was adulterated because it contained excess water and too little fat (24.36 per cent on the dry basis).

K.C.-187. Buitoni Parmesan Cheese. Buitoni Macaroni Corp., New York, N.Y. Water, 20.17; casein, 41.15; fat, 24.34; lactose, 0.00, and ash, 5.92, per cent. Passed.

1470. Cottage Cheese. Mohican Co., New Haven, Conn. Fat, 4.49 per cent; this was a "creamed" cottage cheese.

1469. Cottage Cheese. New Haven Dairy, New Haven, Conn. Fat, 0.54 per cent. Passed.

E.S.-470 and 471. Emsco Imported Grated Parmesan Cheese. Emsco Food Products, Inc., Boston, Mass. Both samples were short weight (0.23 oz.) and rancid.

K.C.-162 and 182. Town Hall Brand American Grated. Wm. Faehndrich, Inc., New York, N.Y. Both samples were deceptively packed (cans 58 per cent full).

Coffee

Because of a complaint to the Food and Drug Commissioner that "Instant Sanka" coffee contained a substance that was injurious to people with high blood pressure, rather extensive analyses were made of two official samples, *W.S.-54, Instant Sanka Coffee, 97% Caffeine Free*, and *W.S.-55, Drip Grind Coffee, Sanka New Improved Flavor*. These analyses showed that the "Drip Grind Sanka" was a straight decaffeinated coffee, while the "Instant Sanka" was a coffee extract containing added reducing sugar (presumably dextrose) and probably also some added dextrin; they did not show the presence of anything that would be injurious to hypertensive individuals. The analyses were as follows:¹

	<i>W.S.-54,</i> <i>"Instant Sanka",</i> <i>per cent</i>	<i>W.S.-55,</i> <i>"Drip Grind Sanka",</i> <i>per cent</i>
Moisture	3.45	3.84
Ash	11.15	4.76
Water-soluble ash	8.66	3.56
Water-insoluble ash	2.49	1.20
Soluble solids	95.32	21.46
Fat	0.04	15.29
Protein	12.31	12.06
Fiber	0.06	13.22
Nitrogen-free extract	72.99	50.83
Caffeine	0.19	0.08
Reducing sugars as dextrose	4.44	0.05

¹See *Conn. Agr. Expt. Sta., Bul. 307, 816 (1928)*, for an earlier analysis.

Analyses of the ash were as follows:

	W.S.-54 per cent	W.S.-55 per cent
Potassium oxide	53.15	47.57
Calcium oxide	3.00	3.98
Magnesium oxide	8.05	8.14
Sodium	0.0010	0.0007
Phosphorus pentoxide	7.87	7.79
Chlorine	0.65	0.31
Silica	0.00	0.67
Carbonate	present	present

Confectionery

Forty-seven official samples of candy and nine of chewing gum were examined. Most of these were submitted because they were unlabelled or improperly labelled, but 12 of the candies and three of the chewing gums were so-called "dietetic" preparations intended for use by diabetics.

Normal Confectionery

S.O.-94. Ammo Pops! P-G Sales Corp., New York, N.Y. This sample consisted of a package containing 14 individually wrapped lollipops of assorted flavors. The front panel was labelled "New! The ammoniated lollipop that helps prevent tooth decay! 5 delicious flavors! You can not taste the ammonium! Ingredients: Sugar, corn syrup, citric acid, U.S. certified colors, natural and artificial flavors, ammonium ion and amberlite". The back panel read "New! Ammo Pops! The ammoniated lollipop that helps prevent tooth decay! For the first time, ammonium, the amazing discovery of modern dental research is incorporated in lollipops, the children's favorite confection! Ammo pops, the ammoniated lollipop, contain ammonium ion and amberlite in a tasteless form. Together these two substances work fast to help prevent bacteria from turning sugar into fatty acids that attack tooth enamel! Now the children can enjoy delicious lollipops and at the same time help prevent tooth decay!"

These confections were obviously inspired by recent claims that dentifrices containing diammonium phosphate and urea prevent tooth decay — claims that most dentists have greeted with a "wait and see" attitude. Whether such dentifrices do or do not work, it is not logical to do as the manufacturers of "Ammo Pops" recommend, and suck lollipops freely in the belief that the small quantity of ammonium compounds present will neutralize completely the bad effects of the large quantity of sugar. In any case, the claim that "Ammo Pops" contained ingredients that would prevent tooth decay made them a drug within the meaning of the law, and since no new drug application had been filed for them, their sale was forbidden in Connecticut.

W.M.-115. Candy. Supreme Candy Co., Middletown, Conn. Stick candy with wax closures simulating a dachshund. Misbranded because unlabelled.

K.C.-111. Candy Filled Ball Point Pens. Walgreen Drug Store, Bridgeport, Conn. Misbranded because unlabelled.

K.C.-148. Candy Novelty. E. Rosen Co., Providence, R. I. This was a Valentine novelty; the labelling was concealed.

K.C.-209 to 218 inclusive. Candy Novelties. E. Rosen Co., Providence, R. I. These were Hallowe'en novelties; the labels were concealed.

K.F.-573 and 574. Chocolate Candy Eggs. F.W. Woolworth Co., Waterbury, Conn. Misbranded because unlabelled.

K.C.-166. Chocolate Marshmallow Eggs. Frantz Candies, Inc., Lancaster, Pa. Misbranded because unlabelled.

K.C.-163 to 165 inclusive. Chocolate Marshmallow Eggs. Hardie Bros. Co., Pittsburgh, Pa. Misbranded because unlabelled.

K.F.-584 and 585. Chocolate Marshmallow Eggs. G. C. Murphy, Inc., Naugatuck, Conn. Misbranded because unlabelled.

K.F.-580. Coconut Crisp. Confections, Inc., Chicago, Ill. Labelled "Cane sugar, popcorn, corn syrup, salt, baking soda, toasted coconut, artificial coconut flavor". Should have been labelled "imitation coconut-flavored popcorn".

W.M.-219. Confettini. Rosemarie Products Co., Brooklyn, N.Y. These were Jordan almonds; they were misbranded because there was no ingredient declaration and because they were not labelled "artificially colored".

W.S.-75 and 76. Duke's Ammoniated Chewing Gum. True-Health Chemical Products Co., Bradford, Pa. This gum was labelled "Whitens teeth, reduces tooth decay", "Contains Denium", and "Active ingredients: Dibasic ammonium phosphate, ammonium chloride, calcium phosphate". Because of its therapeutic claims, it was a new drug within the meaning of the law, but no new drug application had been filed for it.

K.C.-131. Elite Orange Cream Chocolate. Elite Palestine Chocolate and Sweets Mfg. Co., Ltd., Ramat-Gan, Israel. Sample was short weight 0.5 gram, but was passed.

R.G.-14. Gum and Prizes. Andrew Capone. Mixed with the gum balls were small metal and plastic toys in the form of basketballs, footballs, license plates, enamelled metal buttons, hollow plastic balls with metal crosses inside, plastic rings, plastic figures, etc. Such a mixture is dangerous because small children might easily swallow the toys; it was considered to be a case of adulteration with deleterious substances.

R.G.-15 and 16. Gum and Prizes. Jean's Soda Shop, East Hartford, Conn. These were identical with *R.G.-14*; adulterated.

K.C.-171. Hollow Chocolate Orange. The W and F Manufacturing Co., Inc., Buffalo, N.Y. This was a beautifully made and extremely realistic imitation of an orange. It was thinly coated with paraffin to protect it; directions told how to peel the paraffin off before eating it. Sample was passed.

S.O.-72. Leader Handy Surprise Candy Chews. Novelty Candy Co., Inc., Brooklyn, N.Y. Besides eight candy kisses, the package contained another cellophane-wrapped package, labelled "Leader Kool-mints - Ingredients: Sugar, corn syrup, gelatine, natural gum, true peppermint oils", but actually containing (instead of candy mints) a piece of cardboard to which were glued four watercolors (yellow, blue, red and green). While analysis of these colors showed that all of them were essentially organic colors on chalk bases, traces of barium, zinc, lead and chromium were present. Sample was adulterated.

K.C.-222. Licorice Pipes. W.R. Wilkinson Co., Ltd., Pontefract, England. This sample consisted of five churchwarden pipes of black licorice candy, with tiny magenta-colored spheres of sugar candy scattered over the tops of the bowls to simulate flames, and with metallic bands around the stems near the bowls. Spectrographic analysis showed that the metal bands were aluminum and consequently harmless, but the sample was misbranded because artificial color was not declared.

K.C.-167 and 168. Lollipops in Pail. Cardinal Candy Co., Brooklyn, N.Y. Misbranded because illegibly labelled.

K.C.-154. Marmalade Candy Jelly Dish. Ames Candy Mfg. Co., Inc., Rockaway Beach, N.Y. This sample consisted of a box of 120 plastic dishes, some pink and some green, with plastic spoons attached to the sides by perforations. Inside each dish was a layer of gumdrop-like material covered with a layer of tiny spheres of hard candy. The spoons were intended for digging the candy out of the dishes, but the candy was relatively hard and the plastic was brittle and broke easily, so there was considerable danger that a child's tongue might be cut on a fragment of plastic or that such a fragment might be swallowed and cause internal laceration. Adulterated.

K.C.-132. Marque D'Or Milk Chocolate. Elite Palestine Chocolate and Sweets Mfg. Co., Ltd., Ramat-Gan, Israel. Analysis showed 37.74 per cent of sucrose; passed.

A.F.-692. Martha-Ann Rum Butter Pecanets. Gracea Rush, Inc., Cincinnati, Ohio. Declared ingredients were "Sugar pecans, creamery butter, imitation rum and butter flavor". Analysis showed 6.60 per cent of fat with a Reichert-Meissl value of 21.0, indicating that 72 per cent of the total fat, or 4.72 per cent of the sample, was butter fat. The sample was short weight 1.35 oz., however.

K.C.-189. Plastic Favor with Pops. E. Rosen Co., Providence, R. I. Misbranded because the ingredient statement was concealed and not visible to the purchaser.

W.M.-223. Plastic Glo-Bal. Gum Products, Inc., Boston, Mass. This sample consisted of three plastic balls, inside of each of which were seven balls of gum. Misbranded because the labelling was concealed.

W.M.-116. Touchdown Football Candy with the Famous G & G Trading Card. Burton Burrows Co., New York, N.Y. Adulterated because the thumbtack mixed with the candy was dangerous.

"Dietetic" Confectionery

Both the Connecticut Food and Drug Commission and officials of the U.S. Food and Drug Administration have interpreted the provision of the law that confectionery is adulterated when it bears or contains "any . . . non-nutritive article or substance except harmless coloring, harmless flavoring, harmless resinous glaze not in excess of four-tenths of one per cent, harmless natural gum or pectin" to bar the use of saccharin in any confectionery, even that sold solely for the use of diabetics. But some of the "dietetic" confections are sweetened with mannitol or sorbitol instead of saccharin, and, because these alcohols are not "non-nutritive", the above interpretation of the law on adulteration does not apply to them.

Results of our analysis of 15 official samples of "dietetic" candy and chewing gum are given in Table 3.

Contaminated or Decomposed Foods

Ninety 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. Forty-one samples were passed and 49 were found to be adulterated. Of the contaminated samples, 12 were flour, 10 each were carbonated beverages and macaroni, five were popcorn, two each were bread, candy, cheese and malted milk shakes, and one each was bread crumbs, fish, a relish and vinegar. All of the flour, macaroni and popcorn samples were infested with insects, as were some of the other samples. Unusual cases of contamination were the following:

J.W.-173. Bond Enriched Honey and Butter Thin Sliced White Bread. General Baking Co., Boston, Mass. Two balls of string present, blackened with grease.

W.M.-163. Bread. Mohican Bakery, Middletown, Conn. Mouse excreta present.

J.W.-155. Canada Dry Pale Dry Ginger Ale. Canada Dry Ginger Ale, Inc., New York, N.Y. Bottle contained two cigarette butts.

J.W.-215. Candy Bar. Piece of grapevine stem.

K.N.-294. Chee-Zee Clearfield Brand Food Product. Clearfield Cheese Co., Inc. Hard crystals were present which had been suspected of being glass but which were actually harmless lactose crystals.

K.F.-519. Coca-Cola. Contaminated with tar oil.

J.W.-156. Coca-Cola. Contaminated with paint.

H.C.-81. Pal Orangeade. Bottle contained an empty match book.

K.F.-701. Pepsi-Cola. Pepsi-Cola Bottling Co., Bristol, Conn. Sand and wood chips present.

J.W.-209. Sugar 'N' Spice Brand Hot Dawg Relish. Delta Packing

TABLE 3. "DIETETIC" CONFECTIONERY

No.	Manufacturer and brand	Ingredient declaration	Invert sugar, per cent	Sucrose, per cent	Total sugars, per cent	Saccharin	Calories as sugar, per piece	Remarks
E.C.-356	Dietetic Food Co., Inc., Brooklyn, N. Y. "Dia-Mel" Dietetic Peppermint Chewing Gum	Mannitol, gum base, sorbitol, & flavor. No protein. No fat. Each stick contains approx. 7 calories.	0.78	0.49	1.27	none	0.14	Passed.
J.W.-158	Dietetic Food Co., Inc., Brooklyn, N. Y. Same brand	Same as E.C.-356	0.67	0.63	1.20	.....	0.14	Passed.
E.C.-358	Dietetic Food Co., Inc., Brooklyn, N. Y. "Dia-Mel" Mint Pattie	Sorbitol 5 gms., mannitol 1 gm., protein 4.5 gms., lactose 2.5 gms., fat 7.5 gms. - one-half of this pattie contains approx. 62 calories. - Ing. sorbitol, milk powder, chocolate liquor, cocoa butter, mannitol, calcium carbonate, and mint flavor.	.....	.....	17.33 ¹	none	26.11	Passed. Saccharin present; adulterated.
E.C.-357	Dietetic Food Co., Inc., Brooklyn, N. Y. "Dia-Mel" Dietetic Root Beer Drops	Gum arabic, glycerine, flavor, certified color and 0.25% saccharin.	0.37	4.35	4.72	present	0.13	Saccharin present; adulterated.
E.C.-359	Charles Kilgore Co., Inc., Yonkers, N. Y. "Dietician" Brand Assorted Chocolates Substitute	Chocolate liquor, cocoa butter, hydrogenated vegetable oils, sorbitol, mannitol, glycerine, acacia gum, calcium carbonate, tricalcium phosphate, cocoa malt, caramel, flour, raisins, citric acid, lecithin, natural and artificial flavors, starch, U. S. certified colors, and saccharin 0.3%.	.....	.....	.....	.....	.....	.....
E.C.-361	Loeb Dietetic Food Co., Inc., New York, N. Y. "Loeb" Chocolate Coffee Flavored Dietetic Verithins	Chocolate liquor, cocoa butter, skimmed milk, sorbitol, mannitol, natural and artificial flavor. Average analysis, protein 13%, fat 41%, carbohydrates 17%, hexitols 20%.	4.56	4.14	8.70	present	3.92	Saccharin present; adulterated.
			9.73	1.04	10.77	none	1.98	Passed.

E.C.-362	Loeb Dietetic Food Co., Inc., New York, N. Y. "Loeb" Chocolate Flavored Dietetic Candies	Choc. liquor, cocoa butter, skimmed milk, sorbitol, mannitol, egg whites, gelatin, natural and artificial flavor, certified food color, kaolin, and calcium carbonate - Average analysis: protein 16%, fat 25%, carbohydrates 29%, hexitols 9%. Fine chocolate, whole milk solids, skim milk solids, cocoa butter, toasted aerated wheatmeal, hexitols and vanillin. Average analysis: protein 16%, fat 32%, carbohydrates 27%, hexitols 16.5%. Powdered skim milk, sorbitol, shortening, gelatin, cocoanut, vanillin, calcium carbonate, and kaolin. Average analysis: protein 5½%, fat 15½%, carbohydrate 20%, sorbitol 35%.	6.92	0.97	7.89	none	3.07	Passed.
E.C.-363	Loeb Dietetic Food Co., Inc., New York, N. Y. "Loeb" Dietetic Dee-Bar		15.74 ¹	0.97	16.71	none	21.26	Passed.
E.C.-365	Loeb Dietetic Food Co., Inc., New York, N. Y. "Loeb" Dietetic Coconut Creme Bar		13.12 ¹	3.41	16.53	none	25.21	Passed. Saccharin present, but no dulcin present although declared; adulterated.
E.C.-366	Loeb Dietetic Food Co., Inc., New York, N. Y. "Loeb" Dietetic Fruit Drops	Vegetable gum, sorbitol, glycerine, citric acid, natural or artificial flavors, and 0.08% saccharin and dulcin. Average analysis: protein 1.2%, fat 0.0%, hexitols 20.4%, non-nutritives 65%.	3.32	2.74	6.06	present	0.76	Saccharin present; adulterated.
E.C.-368	Loeb Dietetic Food Co., Inc., New York, N. Y. "Loeb" Dietetic Fruit Drops	Vegetable gum, sorbitol, glycerin, citric acid, artificial or natural flavors, certified food color, 0.08 saccharin. Average analysis: protein 1¼%, no fat, hexitols 20¼%. Milk powder, egg white, gelatin, mannitol, sorbitol, cocoa butter, natural & artificial flavor, chocolate, 1.3% calcium carbonate and kaolin. Average analysis: protein 14%, fat 20%, hexitols 46%.	5.51	1.29	6.80	present	0.77	Saccharin present; adulterated.
E.C.-366	Loeb Dietetic Food Co., Inc., New York, N. Y. "Loeb" Dietetic Marshmallo Bar		9.00 ¹	3.17	12.17	none	11.87	Passed.

¹Lactose.

TABLE 3. "DIETETIC" CONFECTIONERY—(Concluded)

No.	Manufacturer and brand	Ingredient declaration	Invert sugar, per cent	Sucrose, per cent	Total sugars, per cent	Saccharin	Calories as sugar, per piece	Remarks
E.C.-367	Loeb Dietetic Food Co., Inc., New York, N. Y. "Loeb" Dietetic Mintmallo Bar	Milk powder, egg white, gelatin, mannitol, sorbitol, cocoa butter, natural & artificial flavor, chocolate, 1.3% calcium carbonate and kaolin. Analysis: protein 14%, fat 20%, hexitols 44%. Powdered skim milk, shortening, gelatin, chocolate, sorbitol, oil of peppermint, egg white, calcium carbonate and kaolin. Average anal.: protein 6.3%, fat 15.8%, carbohydrates 16.7%, sorbitol 37.7%.	10.19 ¹	1.56	11.75	none	12.06	Passed.
E.C.-364	Loeb Dietetic Food Co., Inc., New York, N. Y. "Loeb" Dietetic Peppermint Creme Bar		12.83 ¹	3.29	16.12	none	29.88	Passed.
E.C.-369	Loeb Dietetic Food Co., Inc., New York, N. Y. "Loeb" Dietetic Peppermint-Spearmint & Fruitee Gum	Gum base, hexitols and flavors.	0.95	4.97	5.92	none	0.73	Passed.

¹Lactose.

Co., Inc., New York, N. Y. Piece of paring knife present, about 3 inches long.

E.C.-354. *Tru Ade*. Tru-Ade Bottling Co., Norwich, Conn. Gray bottle cap inside of bottle.

J.W.-188 and 189. *Vanilla Malted Milk Shake and Malted Milk from which made*. The malted milk had been mixed with "B-K Powder" and contained 12.81 per cent of available chlorine; a test for hypochlorite was positive on the milk shake itself.

It should be noted that none of the above samples was received in an unopened container.

Eighteen 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 15 of these samples; the other three were the following:

1980. *Ballantine's Light Beer*. P. Ballantine & Sons, Newark, N. J. A considerable quantity of sand and earth with pieces of stems of some plant material was present; the beer was putrefied.

2240. *Borden's Homogenized Vitamin D Milk, Pasteurized*. A small gray imitation leather change purse was present.

4217. *Homogenized Vitamin D Approved Milk, Pasteurized*. Brock-Hall Dairy Co., Hamden, Conn. Fragments of a house fly were present.

Deceptive Packaging

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. Thirty-two samples were submitted by the Commissioner because of suspected slack fill; seven were passed and 25 were misbranded. The deceptively packed samples were the following:

K.F.-559. *Dainty Jell Lemon Flavor Gelatin Dessert*. First National Stores, Inc., Somerville, Mass. Fill of container 53 per cent.

K.F.-560. *Dainty Jell Raspberry Flavor Gelatin Dessert*. First National Stores, Inc., Somerville, Mass. Fill of container 65 per cent.

K.F.-561. *Dainty Jell Strawberry Flavor Gelatin Dessert*. First National Stores, Inc., Somerville, Mass. Fill of container 59 per cent.

K.F.-558. *Dainty Pudding, Chocolate Flavor*. First National Stores, Inc., Somerville, Mass. Fill of container 65 per cent.

K.F.-556 and 557. *Dainty Pudding, Vanilla Flavor*. First National Stores, Inc., Somerville, Mass. Fill of container 53 per cent.

W.M.-206. *Dunhill's Lemon Shapes, Extra Sour*. Cocilana, Inc., Brooklyn, N. Y. Fill of container 62 per cent.

K.C.-149 and 177 and E.S.-526. Federal Noodles. Federal Tea Co., Springfield, Mass. Fill of container 55 per cent.

K.C.-138. G. and G. Games 'N' Goodies. Burton Burrows Co., New York, N.Y. Fill of container 50 per cent.

W.M.-207. Indian Chewing Gum. Goudey Gum Co., Boston, Mass. Fill of container 40 per cent.

K.F.-605. Leader Airline Surprise and Candy Chews. Leader Novelty Candy Co., Inc., Brooklyn, N.Y. Fill of container 50 per cent.

S.O.-70, 74, 75, 76, 78, 79 and 80. Paramount Brand Macaroni. Paramount Macaroni Mfg. Co., Brooklyn, N.Y. Fill of container 66 per cent.

K.C.-192. Penny King Delicious Candies with Novelty Toy. Penny King Co., Pittsburgh, Pa. Fill of container 36 per cent.

W.M.-205. Pure Candy Toys—Fruit Flavored. Cocilana, Inc., Brooklyn, N.Y. Fill of container 60 per cent.

K.C.-232 and K.F.-547. Sky Birds Bubble Gum. Goudey Gum Co., Boston, Mass. Fill of container 42 per cent.

W.M.-160. Sport Kings. Pan American Candy Co., Cashley, Ill. Fill of container 30 per cent.

Eggs

Two official and one unofficial samples of eggs were examined:

K.F.-686 and 687. Fresh Cracked Eggs. New York Bakery, Waterbury, Conn. These eggs contained bloody yolks and were not fresh.

4287. Norpaco Brand Pickled Eggs. Norwich Packing Co., Norwich, Conn. Total acidity as acetic acid, 1.45 per cent.

Extracts and Flavors

Five samples of flavoring agents were submitted by the Commissioner, mostly on behalf of the State Supervisor of Purchases. Three were passed and two were misbranded:

J.W.-210. Holler's Imitation Lime Flavor. Holler's Concentrated Beverages, Miami, Fla. Labelled "Contains: Citric acid, flavor derived from oil of the peel, certified color, gum acacia, brominated olive oil and water". Sample was passed.

J.W.-185. Imitation Lemon Flavor. This was an artificially colored imitation lemon flavor, in an aqueous base probably containing some propylene glycol; it was passed.

J.W.-197. 20% Lemon Oil 80% Cottonseed Oil. Analysis showed 19.74 per cent of lemon oil.

K.F.-622. Vanilla Concentrate Powder. Drew Corporation of America, Brooklyn, N.Y. Labelled "Ingredients: Vanillin, ethyl vanillin, pure Mexican vanilla, sugar and flour to assist in grinding". Analysis showed 11.00 per cent of vanillin and ethyl vanillin and no coumarin. Misbranded because not a straight powdered vanilla concentrate.

K.F.-621. Vanobene. Hardenburgh Mfg. Co., Auburn, N.Y. Labelled "Vanobene contains alcohols, aldehydes, esters, methyl and ethyl vanillin; carmel (sic), coumarin and sugar". Analysis showed vanillin and ethyl vanillin, 2.50, and coumarin, 1.30, per cent. The name "Vanobene" is misleading because it suggests the presence of vanilla bean; misbranded because not labelled "Imitation" and "Artificially Flavored and Colored".

Fats and Oils

Butter and Oleomargarine

Thirty samples of butter and two of oleomargarine were examined for the Commissioner.

Both oleomargarine samples were passed:

K.F.-504. Country Lane Oleomargarine, Vitamin A Added. E. F. Drew & Co., Inc., New York, N.Y. Moisture, 15.00; fat, 80.08; and casein and salt, 4.92, per cent.

K.F.-524. Golden Maid Vegetable Oleomargarine. Delmar Products Co., Cincinnati, Ohio. Moisture, 14.63; fat, 80.81; and casein and salt, 4.56, per cent.

Analyses of the butter samples are given in Table 4; 10 were passed and 20 were adulterated or misbranded.

Lard

Five samples of lard, *K.C.-144, 150, 151, 152 and 153*, all from Food Saver Market, Bridgeport, Conn., were examined; all except one were rancid.

Olive Oil

Twenty-four official and five unofficial samples of oil sold for pure olive oil were analyzed; 20 were passed and nine were adulterated or misbranded.

Of the pure olive oils, four were distinguished by very high squalene values:

No.	Manufacturer or dealer and brand	Squalene, mgm./100 gm.	Butyro refraction, 25°C.
K.F.-613	Capitol Importing Co., Waterbury, Conn. <i>Pure Spanish</i>	434	61.8
A.F.-754	International Importing Co. <i>Venetian Queen</i>	495	61.6
H.C.-116	Universal Products Co., Hartford, Conn.	443	62.2
F.H.-2830	Universal Products Co., Hartford, Conn.	388	61.9

TABLE 4. BUTTER

No.	Manufacturer and brand	Moisture, per cent	Fat, per cent	Casein and salt, per cent	Net wt., oz.	Remarks
K.F.-706	Breakstone Bros., Inc., New York, N. Y. <i>Breakstone's Sweet Butter</i>	.....	.....	.....	15.86	Passed.
K.F.-707	Breakstone Bros., Inc., New York, N. Y. <i>Breakstone Whipped Butter</i>	.....	.....	.....	7.86	Passed. Low in butter fat and short weight.
K.C.-226	Gildener & Schimmel, Inc., New York, N. Y. <i>Mountain Purity Brand</i>	17.90	79.79	2.31	15.43	Short weight. Short weight.
K.C.-231	Gildener & Schimmel, Inc., New York, N. Y. <i>Mountain Purity Brand</i>	14.28	83.08	2.64	15.31	Short weight. Short weight.
S.O.-119	Lynch & Barker, New York, N. Y. <i>Fancy Creamery Butter</i>	.....	.....	.....	15.46	Passed.
K.C.-228	Purity Food Co., Bridgeport, Conn. <i>Ess Kay Brand</i>	15.21	82.19	2.60	15.78	Passed.
K.C.-229	Purity Food Co., Bridgeport, Conn. <i>Ess Kay Brand</i>	17.44	80.03	2.53	15.76	Passed.
K.C.-227	Purity Food Co., Bridgeport, Conn. <i>Purity Brand</i>	15.72	81.83	2.45	15.73	Passed.
K.C.-230	Purity Food Co., Bridgeport, Conn. <i>Purity Brand</i>	15.76	81.70	2.54	15.65	Short weight.
K.F.-703	Swift & Co., Chicago, Ill. <i>Swift's Brookfield</i>	.....	.....	.....	15.84	Passed.
K.F.-704	Swift & Co., Chicago, Ill. <i>Swift's Brookfield</i>	.....	.....	.....	15.81	Passed.
K.F.-705	Swift & Co., Chicago, Ill. <i>Swift's Brookfield</i>	.....	.....	.....	15.81	Passed.
J.W.-139	U. S. Dept. of Agriculture. <i>Creamery Butter</i>	13.32	83.90	2.78	.....	Rancid.
J.W.-140	U. S. Dept. of Agriculture. <i>Creamery Butter</i>	14.83	82.68	2.49	.....	Rancid.
J.W.-141	U. S. Dept. of Agriculture. <i>Creamery Butter</i>	14.36	83.67	1.97	.....	Rancid.
J.W.-142	U. S. Dept. of Agriculture. <i>Creamery Butter</i>	14.38	82.90	2.72	.....	Rancid.
J.W.-143	U. S. Dept. of Agriculture. <i>Creamery Butter</i>	14.56	82.44	3.00	.....	Rancid.
J.W.-144	U. S. Dept. of Agriculture. <i>Creamery Butter</i>	15.60	81.28	3.12	.....	Rancid.
J.W.-145	U. S. Dept. of Agriculture. <i>Creamery Butter</i>	14.65	81.77	3.58	.....	Rancid.
J.W.-146	U. S. Dept. of Agriculture. <i>Creamery Butter</i>	16.03	81.09	2.88	.....	Rancid.
J.W.-147	U. S. Dept. of Agriculture. <i>Creamery Butter</i>	16.30	81.03	2.67	.....	Rancid.
J.W.-148	U. S. Dept. of Agriculture. <i>Creamery Butter</i>	16.68	80.78	2.54	.....	Rancid.
J.W.-149	U. S. Dept. of Agriculture. <i>Creamery Butter</i>	16.32	80.96	2.72	.....	Rancid.
J.W.-150	U. S. Dept. of Agriculture. <i>Creamery Butter</i>	17.10	80.71	2.19	.....	Rancid.
J.W.-151	U. S. Dept. of Agriculture. <i>Creamery Butter</i>	15.41	82.13	2.46	.....	Rancid.
J.W.-152	U. S. Dept. of Agriculture. <i>Creamery Butter</i>	16.28	80.82	2.90	.....	Rancid.
J.W.-153	U. S. Dept. of Agriculture. <i>Creamery Butter</i>	16.21	80.99	2.80	.....	Rancid.
K.F.-710	Universal Food Stores, Inc., Norwich, Conn. <i>Green Acres Fancy Creamery Butter</i>	.....	.....	.....	15.43	Short weight.
K.F.-708	Universal Food Stores, Inc., Norwich, Conn. <i>Laurel Dale</i>	.....	.....	.....	15.92	Passed.
K.F.-709	Universal Food Stores, Inc., Norwich, Conn. <i>Laurel Dale Sweet Cream Butter</i>	.....	.....	.....	15.83	Passed.

Adulterated or misbranded samples were the following:

H.C.-31. Cerva Brand Pure Olive Oil. Musco & Co., Oakland, Calif. Short volume 2.8 fl. oz.

A.F.-683. Giulietta Brand Pure Imported Olive Oil, Superior Quality. Antonio Corrao, Brooklyn, N. Y. Short volume 1.1 fl. oz.

E.C.-436. Lion Brand Pure Olive Oil, Extra Fine Imported. Lion Brand Products Co., Boston, Mass. Short volume 3.2 fl. oz.

K.F.-606. Mamma Mia Brand 100% Pure Olive Oil. Mamma Mia Importing Co., Inc., Brooklyn, N. Y. Short volume 1.6 fl. oz.

W.M.-218. Marcello Brand Pure Olive Oil. Finest Sublime M. Thomas Acello, Providence, R. I. Short volume 1.6 fl. oz.

S.O.-93. Minervini Brand Pure Olive Oil, Genoa Type. V. & F. Food Market, Stamford, Conn. No manufacturer's name or address; short volume 2.3 fl. oz.

K.F.-670. Nettuno Brand Olio Puro D'Oliiva. Roma Importing Co., Waterbury, Conn. No manufacturer's name or address; short volume 2.9 fl. oz.

H.C.-49. Rome Brand Superfine Olive Oil. Rome Importing Co., New York, N. Y. Short volume 5.4 fl. oz.

E.S.-488. Unknown Olive Oil. This sample was rancid.

Other Oils

Of two official samples sold for corn oil, one, *H.C.-115*, sold by Universal Products Co., Hartford, Conn., was adulterated with cottonseed oil.

One unofficial sample, 2533, supposed to be linseed oil, was at least 98.5 per cent mineral oil; it had a saponification number of 1.5 and the sulphonation test showed 75 per cent unsulphonated.

Of five official samples of peanut oil, three were passed and two were adulterated:

H.C.-114. Peanut Oil. Universal Products Co., Hartford, Conn. Contained a small proportion of cottonseed oil.

S.O.-95. Refined Peanut Oil. G. Sclafani, Stamford, Conn. This sample was rancid.

Twenty-four official samples of blended or unknown oils were examined; 13 were passed and 11 were adulterated or misbranded. Deficient samples were the following:

S.O.-96. Blended Cooking Oil, 85% Peanut 20% Olive Oil. G. Sclafani, Stamford, Conn. Adulterated with cottonseed oil.

K.F.-582 and 607. Buon Giorno Brand Oil, 80% Peanut 20% Pure Olive Oil. Gus Sclafani, Stamford, Conn. Adulterated with cottonseed oil.

E.S.-477. Edible Oil. This was an artificially flavored mixture of peanut and cottonseed oils in a completely unlabelled can.

H.C.-50. Fabiola Brand 90% Peanut Oil 10% Pure Olive Oil. Fabiola Food Products, Hoboken, N.J. Adulterated with cottonseed oil and short volume 2.2 fl. oz.

K.F.-581, 609, 610 and 611. Lucky Star Brand Oil, a Special Blend of Corn Oil and Pure Olive Oil. Olivola Co., Waterbury, Conn. Squalene values indicated no more than a trace, if any, of olive oil; one sample contained a fly, and dirt was present in another; three samples averaged 1.6 fl. oz. short volume.

K.F.-608. Olivola Brand Oil, Corn Oil Flavored and Colored Artificially. Olivola Co., Waterbury, Conn. Should have been labelled "Imitation Olive Oil"; the brand name was misleading.

K.N.-311. Soave Oil, Corn Oil with Olive Flavor from Crushed Olives. Clinton Foods, Inc., Clinton, Iowa. Short volume 1.2 fl. oz.

Fish and Shellfish

Thirteen samples of fish and shellfish were examined for the Commissioner; six were passed and seven were adulterated or misbranded:

K.F.-500. Adventure Grated Tuna, Light Meat. E. M. Darrimon & Co., Los Angeles, Calif. Net weight: Declared, 6 oz.; found, 5.64 oz. Passed.

J.W.-174, 175, 176 and 177. Cape King Deep Sea Scallops. Cape King Fisheries, Inc., New Bedford, Mass. All samples were extremely putrid.

J.W.-166. Connecticut Brand Shad. Connecticut Canneries, Inc., East Glastonbury, Conn. This fish was too soft to be edible.

J.W.-213. Home Canned Tuna Fish. John Toczko, East Hartford, Conn. This sample was submitted by the canner because of its "bitey" taste; this taste appears to be inherent in the dark meat of some tuna.

W.M.-197. McLean's Selected Fresh Frosted Lobster Cocktail. Friends Frosted Foods, Chester, Conn. Misbranded because it bore no list of ingredients.

K.C.-186. Peacock Brand Fancy Crab Meat. Point Adams Packing Co., Hammond, Ore. Net contents: Declared, 7½ oz.; found, 8.14 oz. Passed.

W.M.-200. Shrimp Ahoy Brand Fresh Shrimp Cocktail. Miami Packing Co., Hackensack, N.J. Labelled "Contains fresh shrimp, salt, cat-sup and tang horseradish". Sample was passed.

K.C.-146. South African Rock Lobster. Hicksons Canning Co. (S.A.), Ltd., Port Nolloth, South Africa. Net drained weight: Declared, 5½ oz.; found, 6.06 oz. Appearance and odor were normal; passed.

J.W.-223. Sweet Life White Meat Tuna Fish, Fancy. Sweet Life Food Corp., Brooklyn, N.Y. This sample was sent to Glenn G. Slocum, chief of the division of microbiology, U.S. Food and Drug Administration, Washington, D.C., for examination. Dr. Slocum reported that "Our examination . . . revealed that it contained fancy solid pack white meat (albacore) tuna as labeled".

J.W.-232. Vita Brand Sliced Lunch Herrings. Vita Food Products, Inc., New York, N.Y. Sample was passed.

Fruit, Canned

J.C.-71. Climber Michigan Black Raspberries, Water Pack, packed by Michigan Fruit Cannery, Inc., Benton Harbor, Mich., contained 4.74 per cent of invert sugar and no sucrose, indicating that it was a water pack as labelled, containing no added sugar.

Fruit Juices and "Nectars"

Seventy-three official and three unofficial samples of fruit juices, concentrated fruit juices and so-called "fruit nectars" were examined. These included one apple, 32 grape, two lemon, one lime, three loganberry, one concentrated orange, two pineapple, one prune and one tangerine juices and 32 "nectars". Fifty-seven samples were passed and 19 were adulterated.

Grape Juice

Analyses of the 32 grape juices are given in Table 5; 16 samples were passed and 16 were adulterated. One sample, 208, was a home-made grape juice, made by Mr. Wickroski of this laboratory, which was analyzed for comparison purposes.

Other Fruit Juices

There were 10 official and two unofficial samples of fruit juices other than grape juice; nine samples were passed and three were adulterated:

E.S.-534. Coronet Brand Unsweetened Prune Juice. H. & M. Packing Co., Brooklyn, N.Y. Labelled "An aqueous infusion of dried prunes", which is what so-called "prune juice" is — there is no true prune juice (or tomato juice, for that matter) on the market. Analysis showed total solids, 18.66, and ash, 0.52, per cent; passed.

2474. Fresh Lemon Juice. This was an authentic sample prepared in this laboratory by Mr. Wickroski. Analysis showed: Ash, .028 gm./100 cc.; K₂O, 160, and ascorbic acid, 45, mgm./100 cc.

K.F.-539 and 588 and E.S.-508. Libby's Loganberry Juice, Diluted and Sweetened. Libby, McNeill & Libby, San Francisco, Calif. Total solids, 18.12; total sugars, 16.40; non-sugar solids, 1.72; ash, 0.31; and total acidity, 1.30, gm./100 cc.; P₂O₅, 18, and K₂O, 146, mgm./100 cc. Per cent loganberry juice: Declared, 63; found, 59. Passed.

TABLE 5. GRAPE JUICE

No.	Manufacturer and brand	Total solids, gm./100cc.	Total sugars, gm./100cc.	Non-sugar solids, gm./100cc.	Ash, gm./100cc.	P ₂ O ₅ , mgm./100cc.	Total acidity as tartaric acid, gm./100cc.	Actual tartaric acid, gm./100cc.	Grape juice, per cent	Remarks
W.M.-102	American Grape Juice Corp., Fredonia, N. Y. <i>Taft's Supreme Quality</i>	19.20	16.78	2.42	0.25	43	1.26	0.63	97	Passed.
K.C.-156	Cain Canning Co., Springdale, Ark. <i>Mary Lou</i>	15.70	13.46	2.24	0.27	22	0.66	0.68	69	Passed. Concentrated grape juice; passed.
E.S.-478	Elm Farm Foods, Boston, Mass. <i>Elm Farm</i>	16.25	12.34	3.91	0.25	36	1.25	0.66	124	Passed.
K.F.-515	First National Stores, Inc., Somerville, Mass. <i>Finast</i>	18.71	16.02	2.69	0.26	27	1.03	0.57	93	Adulterated with water.
E.C.-343	Fruitcrest Corp., Brooklyn, N. Y. <i>Fruitcrest</i>	16.19	14.50	1.69	0.33	38	0.69	0.37	63	Adulterated with water.
E.C.-345	Fruitcrest Corp., Brooklyn, N. Y. <i>Fruitcrest</i>	16.26	14.12	2.14	0.25	...	0.74	.....	65	Adulterated with water.
E.C.-346	Fruitcrest Corp., Brooklyn, N. Y. <i>Fruitcrest</i>	16.93	15.08	1.85	0.30	...	0.78	.....	66	Adulterated with water.
K.C.-141	Fruitcrest Corp., Brooklyn, N. Y. <i>Fruitcrest</i>	16.36	14.50	1.86	0.23	...	0.66	.....	62	Adulterated with water.
K.C.-142	Fruitcrest Corp., Brooklyn, N. Y. <i>Fruitcrest</i>	16.33	14.32	2.01	0.24	...	0.66	.....	64	Adulterated with water.
K.F.-488	Fruitcrest Corp., Brooklyn, N. Y. <i>Fruitcrest</i>	16.35	14.50	1.85	0.30	31	0.68	0.38	63	Adulterated with water.
K.F.-489	Fruitcrest Corp., Brooklyn, N. Y. <i>Fruitcrest</i>	16.30	14.60	1.70	0.27	...	0.72	.....	60	Adulterated with water.
K.F.-490	Fruitcrest Corp., Brooklyn, N. Y. <i>Fruitcrest</i>	16.39	14.60	1.79	0.29	...	0.67	.....	61	Adulterated with water.
K.F.-491	Fruitcrest Corp., Brooklyn, N. Y. <i>Fruitcrest</i>	16.36	14.40	1.96	0.27	...	0.68	.....	62	Adulterated with water.
K.F.-492	Fruitcrest Corp., Brooklyn, N. Y. <i>Fruitcrest</i>	16.64	14.88	1.76	0.28	...	0.68	.....	60	Adulterated with water.
K.F.-493	Fruitcrest Corp., Brooklyn, N. Y. <i>Fruitcrest</i>	16.48	14.78	1.70	0.28	...	0.71	.....	61	Adulterated with water.
K.F.-508	Fruitcrest Corp., Brooklyn, N. Y. <i>Fruitcrest</i>	17.08	14.60	2.48	0.26	...	0.79	.....	72	Passed.

Food Products

K.F.-511	Fruitcrest Corp., Brooklyn, N. Y. <i>Fruitcrest</i>	16.64	14.88	1.76	0.22	...	0.72	.....	58	Adulterated with water.
K.F.-512	Fruitcrest Corp., Brooklyn, N. Y. <i>Fruitcrest</i>	16.93	14.60	2.33	0.27	...	0.83	.....	72	Passed.
E.S.-458	Fruitcrest Corp., Brooklyn, N. Y. <i>Fruitcrest</i>	16.97	15.16	1.81	0.30	34	0.76	0.38	65	Adulterated with water.
E.S.-524	Fruitcrest Corp., Brooklyn, N. Y. <i>Fruitcrest</i>	16.32	14.02	2.30	0.26	25	0.69	0.46	71	Passed. K ₂ O 138 mgm./100cc.; passed.
S.O.-69	Great Atlantic & Pacific Tea Co. New York, N. Y. <i>A. & P.</i>	19.26	16.22	3.04	0.26	27	1.15	0.68	104	Passed. K ₂ O 110 mgm./100cc.; passed.
K.F.-548	New England Stores Service Corp., Boston, Mass. <i>Glee Club</i>	16.86	14.88	1.98	0.26	...	0.78	.....	69	Adulterated with water.
W.M.-98	New England Stores Service Corp., Boston, Mass. <i>Glee Club</i>	16.95	14.98	1.97	0.22	35	0.68	0.39	65	Adulterated with water.
W.M.-110	New England Stores Service Corp., Boston, Mass. <i>Glee Club</i>	16.74	15.08	1.66	0.26	37	0.82	0.44	65	Adulterated with water.
E.S.-495	S. S. Pierce Co., Boston, Mass. <i>Epicure</i>	19.44	16.12	3.32	0.24	27	1.15	0.68	109	Passed.
K.F.-525	Sweet Life Food Corp., Brooklyn, N. Y. <i>Sweet Life</i>	19.24	16.88	2.36	0.26	32	0.73	0.43	74	Passed.
W.M.-107	Sweet Life Food Corp., Brooklyn, N. Y. <i>Sweet Life</i>	17.47	15.36	2.11	0.29	30	1.17	0.79	87	Passed.
E.C.-351	Universal Food Stores, Inc., Norwich, Conn. <i>Thames Valley</i>	18.58	14.78	3.80	0.26	23	1.16	0.77	118	Concentrated grape juice; passed.
K.F.-496	Welch Grape Juice Co., Westfield, N. Y. <i>Welch's</i>	16.75	14.22	2.53	0.36	27	0.92	0.79	82	K ₂ O 110 mgm./100cc.; passed.
W.M.-119	Westfield Planters Co-op. Fruit Products, Inc., Westfield, N. Y. <i>Westfield Maid</i>	15.00	12.62	2.38	0.20	20	1.02	0.53	86	Passed. K ₂ O 132 mgm./100cc.; authentic sample.
208	Alphonse Wickroski, Middletown, Conn. <i>Home Made</i>	19.63	16.12	3.51	0.25	26	1.44	0.66	100	Concentrated grape juice; passed.
W.M.-113	R. C. Williams & Co., Inc., New York, N. Y. <i>Regal Scarlet</i>	17.95	14.12	3.83	0.26	25	1.03	0.75	114	Concentrated grape juice; passed.

H.C.-57. Nu-Zest Tangerine Juice, Sugar Added. Polk Packing Association, Winter Park, Fla. Total solids, 14.02; total sugars, 10.65; non-sugar solids; 3.37; ash, 0.41; and total acidity, 0.88, gm./100 cc.; P_2O_5 , 32, and K_2O , 216, mgm./100 cc. Estimated per cent tangerine juice, 99; passed.

H.P.-154. Orange Juice Concentrate. Manufacturer unknown. Supposed to be a 6 to 1 concentrate. Analysis showed: Total solids, 67.13; ash, 2.22, and K_2O , 1.03, per cent; ascorbic acid, 288 mgm./100 cc. This indicates a concentration of about 4.5 to 1 instead of 6 to 1.

K.C.-207 and K.F.-697. Quick-Frozen Sunny Isles, Contains 64% Pure Pineapple Juice, Imitation Pineapple Flavor & Color Added. Henderson's, Inc., Monticello, Ga. Labelled "Ingredients: Pineapple juice, sugar, citric acid, artificial pineapple flavor, glycerine and artificial color added". Total solids, 42.28; total sugars, 36.22; non-sugar solids, 6.06; ash, 0.27, and total acidity, 1.38, per cent; K_2O , 135, and P_2O_5 , 9, mgm./100 cc. Estimated per cent pineapple juice, 65; probably contained about 28 per cent of added sugar and 0.9 per cent of added citric acid. This was essentially an imitation frozen pineapple juice.

J.C.-55. Realemon 100% Real California Lemon Juice. Puritan Company of America, Chicago, Ill. Total solids, 7.25, and ash, 0.29, gm./100 cc.; K_2O , 113, and P_2O_5 , 22, mgm./100 cc. Estimated per cent lemon juice, 117; passed.

W.M.-103. Sullivan's Pink Meat Lem'n Tang Pure Lime Juice. H. C. Sullivan, Frost Proof, Fla. Ash, 0.33 per cent. Chatfield and Adams¹ give the average ash content of fresh lime juice as 0.3 per cent; sample was passed.

9801. Tenedine's Apple Juice. V. Tenedine & Sons, Inc., North Haven, Conn. Analysis showed 13 mgm. of ascorbic acid in 10 ounces of this apple juice; sample was passed.

"Nectars"

Recently there has appeared on the market a number of canned fruit preparations that are essentially mixtures of pulped fruit, fruit juice, sugar and water. They are displayed with the canned fruit juices and are sometimes purchased under the impression that they are fruit juices, although few of them actually are labelled as fruit juices; most of them are called "nectars".

According to Webster's New International Dictionary, "nectar" is "(1) the drink (sometimes, less properly, the food) of the gods; hence, any delicious or inspiring beverage; (2) a sweet liquid secreted by the nectaries of a plant". Obviously the second definition does not apply to any of these fruit beverages; whether they are "delicious or inspiring" is a matter of opinion. The Food and Drug Commission and food control authorities of the other New England States have

believed that since these "nectars" were being sold in competition with actual fruit juices, there should be some standard to regulate their composition; there is none at present. In order to have data on which to base such a standard, the Food and Drug Commissioner submitted to this Station for analysis 32 samples of "nectars" now on the market; their analyses are given in Table 6. Included are a few samples that were labelled "Juices" or "Diluted Juices" but which have not been classified by us as juices because they were actually diluted sweetened pulped fruits instead of true fruit juices. The percentages of fruit in these samples were calculated mostly on the basis of Sale's figures.¹

The average calculated percentage of fruit in 10 samples of "apricot nectar" was 46; the same average was found for three "peach nectars", while two "pear nectars" averaged 49 per cent fruit. The single samples of boysenberry, fruit cocktail, grape and pineapple beverages showed 31, 35, 58 and 22 per cent of fruit respectively.

Because these beverages are often used as breakfast drinks as substitutes for orange juice, ascorbic acid (vitamin C) was determined in 11 of them; values ranged from 1 to 8 mgm./100 cc., which is only from 2 to 17 per cent of the amount of vitamin C (48 mgm./100 cc.)² present in fresh orange juice. From the point of view of their vitamin content, these drinks are not satisfactory substitutes for orange or tomato juice.

Jams and Jellies

Eight official samples of jams and jellies were examined, of which four were passed and four were misbranded:

E.C.-347 and K.F.-513. Fruitcrest Pure Concord Grape Jam. Fruitcrest Corp., Brooklyn, N. Y. Total solids, 68.6; total sugars, 66.81; ash, 0.34, and total acidity as tartaric acid, 0.91, per cent; P_2O_5 , 25, and K_2O , 110, mgm./100 gm. This corresponds to a ratio of 60 lb. of grapes to 55 lb. of sugar, while the Federal standard requires at least 45 lb. of fruit to 55 lb. of sugar. Samples were passed.

K.F.-514. Fruitcrest Pure De Luxe Grape Jelly. Fruitcrest Corp., Brooklyn, N. Y. Total solids, 70.7; total sugars, 69.23; ash, 0.29, and total acidity as tartaric acid, 0.86, per cent; P_2O_5 , 27, and K_2O , 94, mgm./100 gm. This corresponds to a ratio of 51 lb. of fruit to 55 lb. of sugar; the Federal standard requires 45 lb. of fruit to 55 lb. of sugar, so sample was passed.

E.C.-349. Fruitcrest Pure De Luxe Strawberry Preserves. Fruitcrest Corp., Brooklyn, N. Y. Total solids, 64.6; total sugars, 61.67; ash, 0.30, and acidity as citric acid, 0.59, per cent; P_2O_5 , 41, and K_2O , 91, mgm./100 gm. This corresponds to a ratio of 51 lb. of fruit to 55 lb. of sugar, which meets the Federal requirement of 45 lb. of fruit to 55 lb. of sugar; but the Federal standard also requires a minimum of 68 per

¹U. S. Dept. Agr., Circ. 549 (1940).

¹J. Assoc. Official Agr. Chem., 21, 506 (1938).

²Conn. Agr. Expt. Sta. Bul. 415, 684 (1938).

TABLE 6. FRUIT "NECTARS"

No.	Manufacturer or distributor and brand	Total solids, per cent	Total sugars, per cent	Non-sugar solids, per cent	Ash, per cent	K ₂ O, mgm./100 gm.	P ₂ O ₅ , mgm./100 gm.	Total acidity, per cent	Fruit, per cent	Added sugars, per cent	Added water, per cent	Remarks
W.M.-148	Bercut Richards Packing Co., Sacramento, Calif. <i>Sacramento Fruit Cocktail Nectar</i>	11.47	9.89	1.58	0.18	78	16	0.35	35	6	59	
K.F.-545	Bernice Foods, Inc., New York, N.Y. <i>Bernice Apricot Nectar</i>	16.32	12.51	3.81	0.52	286	24	0.38	63	6	31	
K.F.-563	California Packing Corp., San Francisco, Calif. <i>Del Monte Apricot Nectar</i>	15.67	12.42	3.25	0.35	181	35	0.40	47	8	45	
W.M.-141	Diamond T Preserving Co., Los Angeles, Calif. <i>California Morning Homogenized Boysenberry Nectar</i>	11.32	10.18	1.14	0.15	53	14	0.47	31	8	61	
K.C.-157	Fruitcrest Corp., Brooklyn, N.Y. <i>Fruitcrest Apricot Nectar</i>	13.37	.....	.....	0.22	.....	.....	.....	.....	.....	.....	Tartaric acid
K.C.-158	Fruitcrest Corp., Brooklyn, N.Y. <i>Fruitcrest Grape Nectar</i>	15.20	13.56	1.64	0.21	.....	23	0.58	58	7	35	0.41 per cent
K.C.-161	Fruitcrest Corp., Brooklyn, N.Y. <i>Fruitcrest Pineapple Nectar</i>	16.97	14.52	2.45	0.10	39	22	0.40	22	13	65	
W.M.-131	Krasdale Foods, Inc., New York, N.Y. <i>Krasdale Apricot Nectar</i>	15.25	12.18	3.07	0.37	173	23	0.23	39	8	53	
E.S.-513	Krasdale Foods, Inc., New York, N.Y. <i>Krasdale Apricot Nectar</i>	12.72	9.61	3.11	0.38	115	25	0.26	38	6	56	Ascorbic acid 5 mgm./100cc.
K.F.-595	Krasdale Foods, Inc., New York, N.Y. <i>Krasdale Apricot-Pineapple Nectar</i>	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
W.M.-135	Francis H. Leggett & Co., New York, N.Y. <i>Premier Apricot Nectar</i>	16.03	12.33	3.70	0.54	247	34	0.49	57	7	36	
W.M.-133	Francis H. Leggett & Co., New York, N.Y. <i>Premier Pear Nectar</i>	12.77	9.51	3.26	0.17	70	17	0.20	54	4	42	

W.M.-139	Libby, McNeil & Libby, San Francisco, Calif. <i>Libby's Apricot Juice, Diluted and Sweetened</i>	16.76	14.16	2.60	0.44	177	31	0.44	49	9	42	
W.M.-137	Libby, McNeil & Libby, San Francisco, Calif. <i>Libby's Peach Juice, Diluted and Sweetened</i>	12.62	10.72	1.90	0.27	108	27	0.25	53	6	41	Ascorbic acid 1 mgm./100cc.
K.F.-596	Libby, McNeil & Libby, San Francisco, Calif. <i>Libby's Pear Juice, Diluted and Sweetened</i>	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Ascorbic acid 3 mgm./100cc.
K.F.-598	Miner, Read & Tullock, Inc., New Haven, Conn. <i>Sunrise Apricotade</i>	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Ascorbic acid 3 mgm./100cc.
K.F.-597	S. S. Pierce Co., Boston, Mass. <i>Apricot Breakfast Cocktail</i>	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Ascorbic acid 6 mgm./100cc.
E.S.-510	Richmond-Chase Co., San José Calif. <i>Heart's Delight Juic-drinks Apricot Nectar</i>	15.06	12.76	2.30	0.26	148	27	0.40	37	9	54	
K.F.-543	Richmond-Chase Co., San José Calif. <i>Heart's Delight Juic-drinks Peach Nectar</i>	13.19	12.53	0.66	0.22	95	27	0.23	46	8	46	Ascorbic acid 3 mgm./100cc.
K.F.-589	Richmond-Chase Co., San José Calif. <i>Heart's Delight Juic-drinks Peach Nectar</i>	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Ascorbic acid 1 mgm./100cc.
K.F.-590	Richmond-Chase Co., San José Calif. <i>Heart's Delight Juic-drinks Pear Nectar</i>	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Ascorbic acid 1 mgm./100cc.
H.C.-33	Santa Clara Packing Co., San José, Calif. <i>Glorietta Apricot Nectar</i>	16.12	.....	.....	0.29	.....	.....	.....	.....	.....	.....
K.F.-587	Santa Clara Packing Co., San José, Calif. <i>Glorietta Apricot Nectar</i>	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Ascorbic acid 3 mgm./100cc.
W.M.-129	Seeman Bros., Inc., New York, N.Y. <i>White Rose Peach Delight</i>	13.13	11.02	2.11	0.15	77	19	0.23	39	8	53	

TABLE 6. FRUIT "NECTARS" (Concluded)

No.	Manufacturer or distributor and brand	Total solids, per cent	Total sugars, per cent	Non-sugar solids, per cent	Ash, per cent	K ₂ O, mgm./100 gm.	P ₂ O ₅ , mgm./100 gm.	Total acidity, per cent	Fruit, per cent	Added sugars, per cent	Added water, per cent	Remarks
K.F.-594	Seaman Bros., Inc., New York, N. Y. <i>White Rose Pear De-light</i>	11.94	9.73	2.21	0.10	43	12	0.14	33	7	60	Ascorbic acid 1 mgm./100cc.
W.M.-130	Seaman Bros., Inc., New York, N. Y. <i>White Rose Pear De-light</i>	11.94	9.73	2.21	0.10	43	12	0.14	33	7	60	Ascorbic acid 3 mgm./100cc.
K.F.-592	S. & W. Fine Foods, Inc., San Francisco, Calif. S. & W. <i>Apricade</i>	11.94	9.73	2.21	0.10	43	12	0.14	33	7	60	Ascorbic acid 2 mgm./100cc.
K.F.-586	Sweet Life Food Corp., Brooklyn, N. Y. <i>Sweet Life Apricot Nectar</i>	11.94	9.73	2.21	0.10	43	12	0.14	33	7	60	Ascorbic acid 2 mgm./100cc.
W.M.-146	Universal Food Stores, Inc., Norwich, Conn. <i>Thames Valley Apricot Nectar</i>	16.39	13.56	2.83	0.33	166	28	0.47	43	9	48	Ascorbic acid 8 mgm./100cc.
K.F.-541	Welch Grape Juice Co., Westfield, N. Y. <i>Welch's Apricot Nectar</i>	15.20	11.42	3.78	0.27	163	22	0.62	38	8	54	Ascorbic acid 8 mgm./100cc.
K.F.-591	Welch Grape Juice Co., Westfield, N. Y. <i>Welch's Apricot Nectar</i>	15.20	11.42	3.78	0.27	163	22	0.62	38	8	54	Ascorbic acid 8 mgm./100cc.
W.M.-150	R. C. Williams & Co., Inc., New York, N. Y. <i>Royal Scarlet Apricot Nectar</i>	17.04	14.21	2.83	0.37	168	28	0.44	44	10	46	Ascorbic acid 8 mgm./100cc.

cent of soluble solids in strawberry preserves, and since this requirement was not met, sample was misbranded.

E.C.-350. Fruitcrest Pure Pineapple Preserve. Fruitcrest Corp., Brooklyn, N. Y. Total solids, 65.9; total sugars, 62.88; ash, 0.28, and acidity as citric acid, 0.57, per cent; P₂O₅, 15, and K₂O, 91, mgm./100 gm. This corresponds to a ratio of 55 lb. of fruit to 55 lb. of sugar, which meets the Federal requirement of 45 lb. of fruit to 55 lb. of sugar; but the other Federal requirement of a minimum of 68 per cent soluble solids was not met, and sample was therefore misbranded.

E.C.-348. Fruitcrest Pure Raspberry Preserves. Fruitcrest Corp., Brooklyn, N. Y. Total solids, 66.8; total sugars, 63.80; ash, 0.31, and acidity as citric acid, 1.15, per cent; P₂O₅, 37, and K₂O, 100, mgm./100 gm. This corresponds to a ratio of 57 lb. of fruit to 55 lb. of sugar, which meets the Federal requirement of 45 lb. of fruit to 55 lb. of sugar; but because the soluble solids content was below 68 per cent, sample was misbranded.

K.F.-531. Spencer Farms Pure Mint Flavored Apple Jelly, Artificial Color and Flavor. Palmer Fruit Prods. Co., Long Island City, N. Y. The flavor was doubtful, but because a jelly cannot be both "pure mint flavored" and artificially flavored, the sample was misbranded.

K.C.-147. Sun Gold Concord Grape Flavored Concentrated Spread. California Fruit Products, Ltd., Pasadena, Calif. Labeled "Contains concentrated fruit, dextrose, fruit pectin, citric acid from citrus fruits, and U.S. certified color". Sample was passed.

Meat and Meat Products

Twelve official and four unofficial samples of meat and meat products were examined. These included 11 samples of hamburger, two each of frankforts and pork sausage, and one of beef loaf; 15 samples were passed and one was adulterated.

The eight official and three unofficial samples of hamburger were tested for preservatives, but none was found in any of them. The two official samples of pork sausage and the one unofficial sample of beef loaf were also free of preservatives.

The two official frankfort samples were the following:

A.F.-762. Roger's Drive In, Pleasant Valley, Conn. No lactose, starch or soybean flour present; passed.

H.P.-150. State Supervisor of Purchases, Hartford, Conn. Water, 45.40; protein, 14.15; lactose, 1.82, and dextrose, 0.83, per cent; soybean flour present; estimated per cent dry skim milk, 3.51. Adulterated because the combined total of dry skim milk and soybean flour exceeded the maximum permissible limit for cereals of 3.50 per cent.

Milk and Milk Products

Cream

K.F.-501. Dairy Dream Light Cream, 18%, bottled by Dairy Dream Farms, Inc., Mauston, Wis., contained 18 per cent of butter fat as la-

belled, and was passed.

A sample of light cream, 2103, submitted by the New Haven Health Department for testing for formaldehyde, was found to be free of this preservative.

Ice Cream

One sample each of ice cream, ice cream mix and chocolate coated ice cream bars was submitted by the Commissioner, in connection with a problem introduced by the offering for sale by the General Ice Cream Corp., New Haven, Conn., of a new type of cocoanut ice cream. This ice cream contained a substantial proportion of "creamed coconut", a finely ground cocoanut made by Franklin Baker Division of the General Foods Corporation, Hoboken, N. J. Recommended formulas for making cocoanut ice cream using this product were two, designated respectively as "High Coconut Flavor Level" and "Standard Coconut Flavor Level"; they were as follows:

	High coconut flavor level, per cent	Standard coconut flavor level, per cent
Regular ice cream base mix	84.50	90.10
"Creamed coconut"	11.50	5.90
Grated cocoanut	4.00	4.00

Analysis (see page 46) showed that the "creamed coconut" and grated cocoanut each contained about 68.5 per cent of fat, and, if it is assumed that the ice cream base mix used contained 10 per cent of butter fat, the percentages and relative proportions of butter fat and cocoanut oil in ice creams made by the above formulas would be as follows:

	"High coconut" ice cream	"Standard coconut" ice cream
Butter fat, per cent	8.45	9.01
Cocoanut oil, per cent	10.62	6.78
Total fat, per cent	19.07	15.79
Percentage of total fat which would be cocoanut oil	55.7	42.9

That is, nearly or more than half of the fat content of such ice creams would be not butter fat but cocoanut oil. If, in practice, the ice cream manufacturer used an ice cream mix containing less than 10 per cent of butter fat in order to keep the total fat content of his ice cream down, an even lesser proportion of the total fat would be butter fat. Both the Food and Drug Commission and we were convinced that such ice creams were adulterated under the Food, Drug and Cosmetic Act because they contained a substance, cocoanut oil, added to them that made them "appear better or of greater value than" they were.

The three ice cream samples analyzed were the following (all from

General Ice Cream Corp., New Haven, Conn.):

F.H.-3662. *Cocoanut Fudge Royale Ice Cream.*

F.H.-3661. *"Hoppy" Chocolate Coated Ice Cream Bars.*

F.H.-3659. *Ice Cream Mix.*

Analyses were as follows:

	F.H.-3662	F.H.-3661	F.H.-3659
Total fat, per cent	13.70	13.73	13.82
Reichert-Meißl value of fat	21.66	25.15	23.50
Polenske value of fat	5.55	4.98	5.30
Kirschner value of fat	14.11	16.17	15.89
Butter fat in sample, per cent	7.47	8.68	8.56
Cocoanut oil in sample, per cent	6.23	5.05	5.26

The relative proportions of butter fat and cocoanut oil were calculated from the Polenske and Kirschner values by the formula of Bolton, Richmond and Revis.¹

Unfortified Milk

Butter fat was determined for dairy farmers in 226 samples of milk.

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 milk 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 1949, 167 samples were examined; results of the assays are shown in Table 7. Ten samples were definitely below the unitage claimed. The percentage of samples fully or substantially meeting guaranties was 94.

In the 16-year period, 1935-1950 inclusive, 1,667 samples have been tested; 85 per cent contained the unitage claimed for them or were sufficiently close to guaranties to be passed.

Nuts and Nut Products

Eight samples of cocoanut and one of salted nuts were submitted by the Commissioner, and one sample of peanut butter was analyzed for the manufacturer.

The cocoanut samples all came from the Franklin Baker Division of the General Foods Corporation, Hoboken, N. J., and represented shredded cocoanut of Philippine origin and a finely ground product prepared therefrom known as "creamed coconut". They were the materials used in making the cocoanut ice cream reported under "Milk and Milk Products". The analysis of the shredded cocoanut claimed by the General Foods Corporation, as compared with analyses of shredded

¹Analyst, 37, 185 (1912).

TABLE 7. SUMMARY OF ASSAYS OF VITAMIN D MILK

City or town	Dairy	No. of samples tested	Satis- factory	Passed	Below unitage claimed
Berlin	Johnson's Dairy	1	1	....	....
	Ventres Dairy	1	1	....	....
Bloomfield	Peter V. Boysen & Son	1	1	....	....
	H. E. Holcomb	1	1	....	....
	Milton Dairy	1	1	....	....
	Chris Neilsen & Sons	1	1	....	....
Bridgeport	Beechmont Dairy	2	2	....	....
	Clover Farms, Inc.	2	1	....	1
	Dewhurst Dairy, Inc.	2	2	....	....
	Mitchell Dairy	2	2	....	....
Bristol	E. H. Elton	2	2	....	....
	Roberge Dairy	2	2	....	....
Clinton	Burr Dairy	2	2	....	....
Danbury	Marcus Dairy	2	1	1	....
	Rider Dairy	1	1	....	....
East Haddam	Sprecher Dairy	1	1	....	....
East Hampton	Woodland View Dairy	2	2	....	....
East Hartford	J. A. Bergren Dairy	1	1	....	....
East Lyme	Drabik Dairy	1	1	....	....
East Norwalk	Devine's Dairy	2	2	....	....
Easton	March Dairy	2	2	....	....
Ellington	Cordtsen Dairy	2	2	....	....
	Windermere Dairy, Inc.	2	1	....	1
Fairfield	Supreme Dairy	2	2	....	....
	Wade's Dairy	1	1	....	....
Greenwich	Round Hill Farm	1	1	....	....
Hamden	Brock-Hall Dairy	1	1	....	....
Hartford	Bayer Milk Co.	1	1	....	....
	Bryant & Chapman	1	1	....	....
	Cloverdale Dairy	1	1	....	....
	A. Dubrow	2	1	1	....
	Farmers' Co-Operative, Inc.	1	1	....	....
	H. P. Hood & Sons	2	1	1	....
	Lincoln Dairy	1	1	....	....
Jewett City	Norman's Dairy	1	1	....	....
Kensington	Ferndale Dairy	2	2	....	....
Litchfield	Toll Gate Farms	2	2	....	....
Manchester	Dart's Dairy	1	1	....	....
	Oak Grove Dairy	1	1	....	....
	Sunshine Dairy	2	1	1	....
	West Side Dairy	2	2	....	....
	A. R. Wilkie	1	1	....	....
Meriden	Carmello Barillaro	1	1	....	....
	Charles Greenbacker & Sons	2	2	....	....
	E. J. Kaemmer	1	1	....	....
	W. F. Knapp	1	1	....	....
	Lawrence Bros.	2	2	....	....
	W. G. Schwnik	1	1	....	....
Middlefield	Stanley Coleman	1	1	....	....
Middletown	Brock's Lake View Dairy	2	2	....	....
	Daniels Farm	1	1	....	....
	Hillside Dairy	1	1	....	....
	Sunshine Dairy	1	1	....	....
Milford	Clover Dairy	2	2	....	....
Nepaug	Mountain View Farm	2	1	....	1
New Britain	Heslin Dairy	1	1	....	....
	J. E. Seibert & Son	2	....	2	....
	J. J. Shapiro & Sons	1	1	....	....
	A. J. Spring & Sons	2	2	....	....

TABLE 7. SUMMARY OF ASSAYS OF VITAMIN D MILK (Concluded)

City or town	Dairy	No. of samples tested	Satis- factory	Passed	Below unitage claimed
New Canaan	Miller Farm Dairy	1	1	....	....
New Haven	Augur Dairy	1	1	....	....
	General Ice Cream Corp.	1	1	....	....
	H. P. Hood & Sons	1	1	....	....
Newington	Eckerts Dairy	2	2	....	....
	J. William Holt	2	2	....	....
	Meadow Brook Dairy	1	1	....	....
	Spring Brook Farm	2	1	....	1
New London	Michael's Dairy	2	2	....	....
	New London & Mohegan Dairies	2	2	....	....
	Radway's Dairy	1	1	....	....
Nichols	Parker's Dairy	1	1	....	....
North Haven	Knudsen Bros.	1	1	....	....
	Twin Maples Farm	2	1	....	1
Norwalk	Clover Farms Dairy	2	2	....	....
Norwichtown	Beebe's Dairy	2	2	....	....
Orange	McDermott Dairy	1	1	....	....
Plainville	Peterson's Dairy	1	1	....	....
Preston	Broad Brook Dairy	2	1	....	1
	Preston Dairy	2	1	1	....
Putnam	Fisher Bros.	2	1	1	....
Rocky Hill	Charles B. Gilbert	2	2	....	....
	Mingo's Dairy	1	1	....	....
	Sunny Crest Farm	2	2	....	....
Simsbury	Woodford Farm	1	1	....	....
South Norwalk	Harrick's Dairy	2	2	....	....
Springdale	Sheffield Farms Co., Maplehurst Div.	2	2	....	....
Stratford	Deering Dairy	1	1	....	....
Bryantville	E. E. Freimuth	2	1	....	1
Thompsonville	H. S. Reid, Inc.	2	1	....	1
	Skipton's Dairy	2	2	....	....
	Smyth Farm	1	1	....	....
Torrington	Clover Dairy	2	2	....	....
	Torrington Co-Operative Dairy	2	2	....	....
	Torrington Creamery	2	2	....	....
Wallingford	Beaumont Farm	1	1	....	....
	Fair View Dairy	2	2	....	....
	J. H. Daly	1	1	....	....
Waterbury	Brookside Dairy	1	1	....	....
	Cashin's Dairy Products, Inc.	2	2	....	....
	Vendo Dairy	2	1	....	1
	R. F. Worden & Sons	2	2	....	....
Webster, Mass.	Deary Bros.	1	1	....	....
Westfield	Brookfield Dairy	1	....	1	....
West Hartford	A. C. Petersen Farms	2	1	1	....
West Haven	Clark Dairy, Inc.	2	2	....	....
Westport	Ferris Dairy	1	1	....	....
Wethersfield	Kelly's Dairy Farm	2	1	....	1
Wilton	Orem's Dairy	1	1	....	....
Winsted	Avery's Dairy	1	1	....	....
	J. O. Johnson & Son	1	1	....	....
Wolcott	Willow Brook Dairy	1	1	....	....
Woodbridge	Rose Hurst Farm	1	1	....	....
	Total	167	147	10	10

cocoanut and cocoanut kernels reported by Atwater and Bryant¹ and Woods and Merrill² (reduced to the same moisture content), was as follows:

	Atwater and Bryant, per cent	Woods and Merrill, per cent	General Foods Corp., per cent
Water	1.5	1.5	1.5
Protein	6.4	6.5	9.5
Fat	58.6	58.0	68.0
Sugars			6.0
Fiber			4.0
Pentosans			8.5
Total carbohydrates	32.2	32.1	18.5
Ash	1.3	1.9	2.5

It will be seen that the General Foods Corporation's Philippine cocoanut is claimed to contain about 10 per cent more fat than is indicated by the average analyses of shredded cocoanut in the literature. This claim was confirmed by our own analyses of the samples submitted by the Commissioner, some of which were taken by the inspector directly from the original bags in which the shredded cocoanut had arrived from the Philippines, and some of which were "creamed cocoanut" prepared in a "Mikro Samplmill" by representatives of the manufacturer in the presence of the Commissioner and the chief chemist of the Experiment Station. The samples were the following:

E.S.-674. Baker's Coconut Shredded.

E.S.-676. Coconut-Coarse.

F.H.-3658 and E.S.-672. Creamed Coconut.

F.H.-3734. Ground Coconut.

E.S.-673. Processed Coconut.

F.H.-3733. Shredded Coconut.

E.S.-675. White Creamed Coconut, Baker's Coconut.

Analyses were as follows:

No.	Total fat, per cent	Butyro refraction, 40° C.	Reichert-Meissl value	Polenske value	Kirschner value
E.S.-674	67.93	33.9	.....	.....	.....
E.S.-676	44.40	33.9	.....	.....	.....
F.H.-3658	68.50	33.6	6.48	15.80	1.86
E.S.-672	68.46	34.1	.....	.....	.....
F.H.-3734	66.85	.....	6.48	14.34	2.01
E.S.-673	20.38	33.5	.....	.....	.....
F.H.-3733	66.85	.....	6.48	14.24	2.01
E.S.-675	68.51	34.0	.....	.....	.....

W.M.-212, Best Brand Quality Foods, Salted Nuts, packed by G. Backus, New York, N. Y., was misbranded because it bore no ingredient declaration.

¹Office of Experiment Stations, U. S. Dept. of Agriculture, *Bul. 28*, rev. (1906).

²Maine Agr. Expt. Sta., *Bul. 54* (1899).

9316, Yeasted Peanut Butter No. J35, made by Lewis Glaser, New Haven, Conn., was analyzed as follows: Moisture, 2.63; protein, 34.86; fat, 45.39; ash, 3.64; fiber, 0.98, and nitrogen-free extract, 12.50, per cent; calories per 100 grams, 598.

Preservatives

H.P.-152, X-Tend, made by Techlab Co., Boston, Mass., was the only preservative sample submitted. It was labelled as "An anti-oxident (sic) that doubles the life of shortenings—fats—oils". Declared ingredients were "Butylated hydroxyanisole, propyl gallate, anhydrous citric acid, propylene glycol". The propylene glycol serves as a solvent for the other ingredients, which have been accepted by the Bureau of Animal Industry of the U. S. Dept. of Agriculture as safe and effective substances, in proper concentration, for preventing or retarding the oxidation of fats. The sample was passed.

Salad Dressings and Mayonnaise

One official and two unofficial samples of mayonnaise were analyzed; all were passed:

A.F.-751. Mayonnaise. Bantam Inn, Bantam, Conn. Egg, 11.80; corn or soy oil, 82.97; vinegar, 3.72, and sugar, salt and spices, 1.51, per cent.

3838. Mayonnaise. State Supervisor of Purchases, Hartford, Conn. Egg yolk, 5.20; egg white, 0.26; corn or soy oil, 80.18; vinegar, 10.25; sugar, salt and spices, 2.28, and added water, 1.83, per cent.

2528. State-Wide Brand Pure Homogenized Mayonnaise. State Wide Distributors, New Haven, Conn. Egg yolk, 5.24; egg white, 3.68; corn or soy oil, 84.98; vinegar (7.2% acidity), 5.42, and sugar, salt and spices, 0.68, per cent.

Soups

Thirteen samples of canned soup were submitted by the Commissioner, all except one at the request of the State Supervisor of Purchases, who wished to know which brands were best for the State to buy. As there were no standards for soups, the samples were analyzed only for total solids and were compared subjectively for flavor. Results of our examination are given in Table 8.

Spices and Condiments

Thirty-two samples of prepared horseradish, five of pepper, two of hamburger seasoning, and one each of monosodium glutamate and mustard powder, were submitted by the Commissioner. Twenty-three samples were passed and 18 were adulterated or misbranded.

Horseradish

The horseradish samples, of which 15 were passed and 17 were adulterated or misbranded, were the following:

TABLE 8. SOUPS

No.	Manufacturer and brand	Declared ingredients	Net wt., oz.	Total solids, per cent	Remarks
J.W.-183B	Campbell Soup Co., Camden, N. J. <i>Campbell's Condensed Chicken Noodle</i>	Chicken stock, egg noodles, chicken, salt, celery, sugar, onions, mono- sodium glutamate and spice.	10.72	13.80	Preferable to Gibbs soup because it had as much meat and more noodles but less fat.
J.W.-229	Campbell Soup Co., Camden, N. J. <i>Campbell's Condensed Cream of Asparagus</i>	Asparagus, milk, wheat flour, butter, corn oil, onions, celery, salt, sugar, spices and water.	11.08	14.18	More natural asparagus flavor than Hurff soup.
J.W.-228	Campbell Soup Co., Camden, N. J. <i>Campbell's Condensed Green Pea</i>	Green peas, butter, onions, celery, salt, sugar, monosodium glutamate, spice and water.	11.43	16.41	Superior to Hurff soup in solids content and flavor.
J.W.-183A	Campbell Soup Co., Camden, N. J. <i>Campbell's Condensed Tomato</i>	Tomatoes, wheat flour, corn and/or soybean oil, onions, butter, parsley, salt, sugar, seasoning and spice.	11.29	16.54	Flavor not so good as that of Gibbs soup.
J.W.-183C	Campbell Soup Co., Camden, N. J. <i>Campbell's Condensed Vegetable with Beef Stock</i>	Beef stock, tomatoes, carrots, white potatoes, peas, corn, lima beans, barley, milk macaroni product, onions, water, salt, sugar, green beans, beef fat, pea beans, sweet potatoes, okra, potato starch, cab- bage, turnips, celery, peppers, corn oil, beef extract, parsley, spice and flavoring.	10.86	17.84	Preferable to Gibbs soup because it contained twice as much vegetables and was not so highly seasoned.
J.W.-230	Campbell Soup Co., Camden, N. J. <i>Campbell's Condensed Vegetable with Beef Stock</i>	Same as J.W.-183C.	10.92	14.92	Better flavor than Hurff soup; not so highly seasoned and solids content higher.
J.W.-184B	Gibbs & Co., Inc., Baltimore, Md. <i>Gibbs Condensed Chick- en Noodle</i>	Chicken broth, egg noodles, chicken, chicken fat, salt, flour, monosod- ium glutamate and spices.	11.08	12.19	Contained 5-10 times as much fat as Campbell soup, but only half as many noodles; too fatty.
J.W.-184A	Gibbs & Co., Inc., Baltimore, Md. <i>Gibbs Condensed Tomato</i>	Tomatoes, wheat flour, sugar, cracker meal, salt, vegetable oil, onion, spices.	10.94	18.88	Better tomato flavor than Camp- bell soup.

J.W.-184C	Gibbs & Co., Inc., Baltimore, Md. <i>Gibbs Condensed Vege- table</i>	Carrots, tomato purée, stringless beans, peas, lima beans, barley, salt, alphabets, corn starch, rice, sugar, vegetable oil, onions, mono- sodium glutamate.	10.94	15.64	Contained only half as much vegetables as the Campbell soup and was too highly sea- soned.
J.W.-226	Edgar F. Hurff Co., Swedesboro, N. J. <i>Hurff Condensed As- paragus</i>	Asparagus, powdered milk, shorten- ing, salt, vegetable protein deriva- tive, sugar, seasoning, water.	11.08	15.43	Higher solids content than Camp- bell soup but flavor less de- sirable.
J.W.-225	Edgar F. Hurff Co., Swedesboro, N. J. <i>Hurff Condensed Pea</i>	Fresh green peas, salt, sugar, corn starch, wheat flour, spices, with sufficient water added to properly prepare.	20.80	13.87	Less desirable than Campbell soup.
J.W.-227	Edgar F. Hurff Co., Swedesboro, N. J. <i>Hurff Condensed Vege- table</i>	Tomato purée, carrots, potatoes, peas, lima beans, corn, celery, bar- ley, peppers, cabbage, rice, onions, salt, sugar, spices, flour, flavoring, shortening, water.	10.92	13.31	Solids content less than Campbell soup and flavor inferior; more highly seasoned.
E.S.-523	Manufacturer unknown.	Unknown.	.....	.....	Tested for potassium nitrate and none found.

K.F.-534. Andrews Pure Quality Horse Radish. Andrews Horse Radish Co., Inc., Wolcott, Conn. Declared ingredients were "horse radish, vinegar, and salt". No turnip was found, and sample was passed.

E.S.-474. Arrow Pure Prepared Horseradish. Arrow Horseradish Co., New York, N. Y. Labelled "Made from pure horse radish root, distilled vinegar, mustard oil, salt and less than 1/10 of 1% sulphur dioxide". Prepared horseradish should consist only of comminuted horseradish (*Radicula armoracia* root), with or without vinegar.¹ The addition of mustard oil to cover up a deficiency in pungency of the horseradish constitutes adulteration.

K.F.-533 and E.S.-485. Cain's Horse-Radish. John E. Cain Co., Cambridge, Mass. Labelled "Made from horse radish roots, water, distilled vinegar, salt and flavoring". Adulterated because of added water, salt and flavoring.

K.F.-532 and E.S.-484. Cain's Prepared Horse Radish with Beets. John E. Cain Co., Cambridge, Mass. Labelled "Made from horse radish roots, beets, water, distilled vinegar, salt and flavoring". Adulterated with water.

E.S.-465, 468 and 469. Dell's Best Horse Radish. Podell, Inc., New Haven, Conn. Declared ingredients were "Grated pure horse radish roots, beets, cider vinegar, mustard and salt". Adulterated with mustard oil.

K.C.-159 and 160 and E.S.-492. Eureka Brand Prepared Horse Radish. Nonpareil Pickle Works, Jersey City, N. J. Labelled "Contains horse radish, parsnips, turnips, non fat dry milk solids, vinegar, salt, artificial flavor, 1/100 of 1% sulphur dioxide and sodium benzoate". Adulterated with parsnips and turnips.

E.S.-482. Gold's Pure Horse Radish Prepared in Vinegar. Gold Pure Food Products Co., Brooklyn, N. Y. Labelled "Made from grated pure horse radish root, distilled vinegar and salt". Sample was passed.

E.S.-486. Good and Hot Prepared Horse Radish. Ralph Zolan, Bridgeport, Conn. Labelled "Made from grated horse radish roots, white distilled vinegar and salt". Sample was passed.

W.M.-166. Horseradish and Beets. Manufacturer unknown, Brooklyn, N. Y. Labelled "Ingredients: Horseradish, beets, cider-vinegar and salt". Misbranded because most of the labelling was in Hebrew and not in English.

E.S.-514. Imitation Horseradish. Arrow Horse Radish Co., New York, N. Y. Microscopic examination indicated that a fairly large proportion of horseradish was present, together with some other material, probably turnip. Sample was passed.

¹Rules and Regulations Relating to the Food and Drug Law of Connecticut, Revision of July 1, 1937, p. 92.

W.M.-169. Karnilow's 100% Pure Horseradish & Beets, Prepared Grade A. Karnilow & Son, Brooklyn, N. Y. Labelled "Made with beets, horseradish, salt and distilled vinegar". Sample was passed.

K.C.-223. Kraft Cream Style Horseradish. Kraft Foods Co., Chicago, Ill. Labelled "Grated horse radish, vinegar, cream, salt, and flavoring". Analysis showed 0.87 per cent of fat with a butyro refraction of 46.0 at 40° C., which could indicate as much as 5.4 per cent of 16 per cent cream, so sample was passed.

E.S.-483. Kraft Pure Prepared Horseradish. Kraft Foods Co., Chicago, Ill. Labelled "Made with grated horseradish, vinegar and salt". Sample was passed.

E.S.-466. Merit Brand Pure Horse Radish (with Beets). Merit Fish Co., New Haven, Conn. Misbranded because the "With Beets" was inconspicuous and there was no ingredient or net weight declaration.

K.C.-173, 178, 179 and 180 and K.F.-598. Parfait Brand Creamed Horse Radish. H. E. Whitaker Co., Philadelphia, Pa. Labelled "Prepared with vinegar, cream, and salt". Analysis showed 0.22 per cent of fat with a butyro refraction of 84.6 at 25°C. Adulterated with turnip; little or no cream present.

K.C.-181. Parfait Brand Horse Radish, Prepared with Vinegar. H. E. Whitaker Co., Philadelphia, Pa. Analysis showed 0.25 per cent of fat with a butyro refraction of 85.6 at 25°C. Adulterated with turnip.

K.N.-265. Pride of Richfield Pure Horse Radish. George San Giacomo, Clifton, N. J. Labelled "Contains white vinegar, salt and pure root". Sample was passed.

E.S.-577 and 578. Rosoff Horse Radish. Rands Pickle Works, Boston, Mass. Labelled "Contains horse radish, vinegar, salt, sugar, mustard oil, certified food color". Adulterated with mustard oil.

E.S.-494. Seidner's Pure Prepared Horseradish. Otto Seidner, Inc., Westerly, R. I. Labelled "Made from horse radish root, distilled white vinegar and salt". Sample was passed.

E.S.-489. Shirley Brand Prepared Horse Radish. Atlantic Food Packing Co., Trenton, N. J. Labelled "Made from grated horse radish roots, white distilled vinegar, and salt"; sample was passed.

W.N.-123. Tulkoff's Hot Horseradish Relish, 100% Pure. New York Fruit Co., Baltimore, Md. Labelled "Horseradish, pickles, peppers, mustard, onions, vinegar, spices". Very little horseradish was present, but the sample was passed.

Pepper

The five official samples of pepper, all of which were passed, were the following:

E.S.-480. Lily Brand Pure Black Pepper. Lily Food Products Co., Brooklyn, N. Y.

W.M.-118. Safe Owl Pure Black Pepper. Safe Owl Products, Inc., Brooklyn, N. Y.

A.F.-690. Special Fine Ground Black Pepper. Woolson Spice Co., Toledo, Ohio.

E.S.-479. Van Loan's Black Pepper. Van Loan and Co., Inc., New York, N. Y.

A.F.-691. Woolson's White Style Pepper. Woolson Spice Co., Toledo, Ohio.

Other Spices and Condiments

S.O.-73. Ac' cent. International Minerals & Chemical Corporation, Chicago, Ill. Labelled "Makes food flavors sing - Crystals of 99+% Pure Mono Sodium Glutamate". Analysis showed that this product was 99.4 per cent monosodium glutamate *monohydrate* crystals, but the percentage of anhydrous sodium glutamate was only 90.2; moisture content was 10.28 per cent.

K.F.-616. Formula No. 88-H Aromix Products Special Hamburger Seasoning. Aromix Corporation, Chicago, Ill. Labelled "Processed from: Salt, sugar, glutamate, pepper, celery, onion, and paprika. Use 12 to 16 ozs. to 100 lbs. of ground meat". Since the present regulation¹ defines "hamburg steak, hamburger steak" as "Comminuted fresh beef, with or without addition of suet and/or seasoning", the use of a seasoning mixture such as this in hamburg is not illegal.

K.F.-603. Hamburger Pattie Seasoning. William J. Stange Co., Chicago, Ill. Labelled "Use 1 lb. to 100 lbs. finished product". Analysis showed: Sodium chloride, 79.20; sodium glutamate, 19.80, and spices, 1.00, per cent. Misbranded because the label did not list the ingredients.

A.F.-694. Mustard Powder. Grote & Weigel, Hartford, Conn. Appeared to be powdered mustard as labelled.

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 1950 season only 12 samples were taken; when no excessive spray residue was found on any of these samples, inspection was discontinued, because it was believed that the heavy August rains of that year had washed off any heavy deposits that might previously have existed.

The official tolerance for lead on apples and pears is 0.050 grain of that element per pound of fruit. Analysis of 11 of the 12 samples had shown values ranging from 0.027 to 0.048 grains/lb. of lead, and averaging 0.033 grains/lb. One sample from an orchard in which DDT was used instead of arsenate of lead, showed 5.7 parts per million of that compound.

¹Rules and Regulations Relating to the Food and Drug Law of Connecticut, Revision of July 1, 1937, p. 64.

Five unofficial samples from the Plant Pathology and Entomology Departments of this Station were tested for spray residue. A specimen from an injured *Taxus* tree, 1494, showed 19.8 parts per million of arsenic trioxide, while no arsenic was found on an uninjured tree, 1493; twigs from a willow tree, 2387, showed no arsenic, but 6.6 parts per million of As_2O_3 were found on the leaves of another plant, 2342. A sample of plums, 2760, contained 1.0 part per million of DDT and possibly as much as 4.5 p.p.m. of aldrin.

Syrups

Eighteen official and one unofficial samples of syrups were examined. Eight were pancake syrups, seven were fruit flavored syrups for preparing beverages in the home, and one each was a chocolate, coffee, pure maple and vanilla syrup. Nine samples were passed and 10 were adulterated or misbranded.

Fruit Flavored Syrups

All seven of these samples were misbranded:

K.N.-285. Eclipse Punch Flavored Syrup. Eclipse Food Products Corp., Providence, R. I. Labelled "Contains cane sugar syrup, concentrated raspberry, grape, cherry and pineapple flavors with other natural flavors, orange extract, citric acid and U. S. certified colors. Preserved with 1/10 of 1% benzoate of soda". Water, 40.36 per cent; misbranded because not prominently labelled "Artificially Colored".

K.N.-286. Eclipse Strawberry Flavored Syrup. Eclipse Food Products Corp., Providence, R. I. Labelled "Contains cane sugar syrup, concentrated strawberry flavor and other natural flavors, citric acid and U. S. certified colors. Preserved with 1/10 of 1% benzoate of soda". Water, 42.10 per cent; misbranded because not prominently labelled "Artificially Colored".

W.M.-167. Frezee—A Pure Orange Flavored Syrup. Helen's Cash Market, New Haven, Conn. Ingredient declaration was "Sugar, water, orange juice, orange flavor, citric acid, U. S. certified color added. 1/10 of 1% benzoate of soda". Misbranded because not prominently labelled "Artificially Colored".

K.N.-289. Snow-Crest Syrup, Cherry Flavored Syrup Imitation. Snow-crest Beverages, Inc., Salem, Mass. Labelled "Contains sugar, water, pure cherry juice, conc. cherry flavor, citric acid, artificial flavor, caramel, 1/10 of 1% benzoate of soda and U. S. Cert. color". Analysis showed 37.31 per cent of water; the flavor appeared to be at least partly genuine cherry. Should have been labelled "Imitation Cherry Flavored Syrup", or "Cherry and Imitation Cherry Flavored Syrup".

K.N.-288. Sun Ripe Cherry Flavored Syrup. Sun Ripe Orange Co., East Hartford, Conn. Labelled "Prepared with cane sugar syrup, water, imitation cherry flavor, cherry juice, citric acid and U. S. certified food color". Analysis showed 41.94 per cent of water; the flavor appeared to be a mixture of true cherry and benzaldehyde. Should have been

labelled "Imitation Cherry Flavored Syrup, Artificially Flavored and Colored", or "Cherry and Imitation Cherry Flavored Syrup, Artificially Flavored and Colored".

E.S.-533. Sun Ripe Grape Flavored Syrup. Sun Ripe Orange Co., East Hartford, Conn. Labelled "Prepared with pure cane sugar, water, finest grape juice, oil of grape, U.S. certified food color and citric acid. Preserved with 1/10 of 1% benzoate of soda". Misbranded because not prominently labelled "Artificially Colored".

K.N.-287. Sweet Life Pure Punch Flavored Syrup. Sweet Life Food Corp., Brooklyn, N. Y. Labelled "Prepared with cane sugar syrup, raspberry and orange juices, concentrated raspberry, cherry and grape flavors, citric acid, U.S. certified color added, 1/10 of 1% sodium benzoate". Water, 36.28 per cent; misbranded because not prominently labelled "Artificially Colored".

Pancake Syrups

Of these eight samples, six were passed and two were adulterated and misbranded:

E.S.-476. Ann Page Syrup. Great Atlantic & Pacific Tea Co., New York, N. Y. Labelled "85% sugar syrup flavored with 15% maple syrup". Analysis showed: Water, 33.49, and ash, 0.10, per cent; Winton lead number, 0.20; probable percentage of maple syrup from ash, 12. Sample was passed.

E.S.-522. Bernice Pancake Syrup. Krasne Bros., New York, N. Y. Labelled "Made of cane and maple syrups". Analysis showed: Water, 32.69, and ash, 0.15, per cent; lead number, 0.33. Passed.

E.S.-507. Blue Diamond Pancake Syrup. Henry Brosky & Sons, Bridgeport, Conn. Labelled "Made of 85% cane & 15% maple syrup". Water, 31.24, and ash, 0.13, per cent; lead number, 0.13. Passed.

E.S.-459. Elm Farm Pancake Syrup. Elm Farm Foods Co., Boston, Mass. Labelled "Composed of 85% pure cane sugar syrup and 15% pure maple syrup". Water, 34.16, and ash, 0.09, per cent; lead number, 0.09. The lead number indicated no more than 6 per cent of maple syrup at most, so sample was adulterated and misbranded.

A.F.-687. Lyle's Golden Syrup. Tate & Lyle, Ltd., London, England. Labelled "Partially inverted refiners' syrup". While "golden syrup" is not too well known to the general public, the name has long been recognized as that of the product formed in sugar refining in the course of crystallizing out granulated sugar; it is sometimes called "drip syrup". Analysis of the present sample showed: Water, 15.28; ash, 1.15; sucrose, 32.63; invert sugar, 49.27, and total sugars, 81.90, per cent; Winton lead number, 0.39. Sample was passed.

E.S.-506. Premier Pancake Syrup. Francis H. Leggett & Co., New York, N. Y. Labelled "A mixture of 85% pure cane sugar syrup and 15% pure maple syrup". Water, 33.22, and ash, 0.16, per cent; lead number, 0.42. Passed.

W.M.-97. Royal Scarlet Pancake Syrup. R. C. Williams & Co., Inc., New York, N. Y. Labelled "Composed of 75% pure cane sugar, 25% pure maple sugar". Water, 32.87, and ash, 0.13, per cent; lead number, 0.19. Probably contained no more than 8 per cent of maple sugar, and was therefore adulterated and misbranded.

W.M.-201. Vermont Orchard Pure Cane & Maple Syrup. Lincoln Foods, Inc., Lawrence, Mass. Water, 32.49, and ash, 0.07, per cent; lead number, 0.20. The ash would indicate 9 per cent of maple syrup; passed.

Other Syrups

K.F.-505. Eclipse Pure Vanilla Syrup. Eclipse Food Products Corp., Providence, R. I. Labelled "Contains water, sugar, pure vanilla and caramel color. Preserved with 1/10 of 1% benzoate soda". Water, 42.64 per cent. Misbranded because not prominently labelled "Artificially Colored".

W.M.-106. Gold Cup 100% Pure Maple Syrup. Fred Fear & Co., Brooklyn, N. Y. Water, 32.10, and ash, 0.60, per cent; lead number, 1.39. Passed.

233. Miami Pure Coffee Syrup. Sparkling Beverages, New Haven, Conn. Labelled "Contains: Cane sugar, water, freshly ground roasted coffee, U.S. certified color, and benzoate of soda". This syrup was submitted by the manufacturer because he could not understand why it had a greenish color. Analysis showed that it was colored with a mixture of three dyes: tartrazine, Fast Green FCF and Brilliant Blue FCF. The greenish color in the finished syrup was no doubt due to use of too much green and blue dye by the manufacturer of the extract from which the syrup was prepared.

K.F.-620. P.D.Q. Chocolate Flavored Syrup. Doelger Malt Products Corp., Harrison, N. J. Passed.

Vegetable Products

Seventeen official and four unofficial samples of vegetable products were examined, including six samples of tomato paste and purée, five of olives, three of spinach, two of canned peas, and one each of canned okra, canned sweet potatoes, mixed vegetable juices, sauerkraut and tomato juice. Sixteen samples were passed and five were adulterated or misbranded.

Olives

Of the five samples, one was passed and four were misbranded:

W.M.-100 and 101 and E.S.-473. Amico Spanish Olives. Manufacturer unknown. Misbranded because there was no ingredient statement listing the red peppers and the packing liquid.

A.L.-15. Libby's Pitted Ripe Olives. Libby, McNeill & Libby, San Francisco, Calif. This sample was submitted with a complaint of an "iodine taste", but no iodine, quaternary ammonium compound, mon-

ochloracetic acid, fluoride, or significant quantity of heavy metals, was found, and the odor, taste and appearance were normal.

W.M.-164. Royal Scarlet Spanish Olives. R. C. Williams & Co., Inc., New York, N. Y. Labelled "Sandwich Olives, Chopped". Because the bottle contained not just olives alone but a chopped mixture of olives and red peppers, it was misbranded.

Tomato Paste and Purée

Federal standards require that tomato paste contain not less than 25 per cent of salt-free tomato solids and that tomato purée contain at least 8.37 per cent of salt-free solids. All of the six samples were passed:

K.F.-565, 566 and 567. Sclafani Tomato Paste. Gus Sclafani, Stamford, Conn. Total solids, 28.01; salt, 0.31, and salt-free solids, 27.70, per cent.

422 and K.F.-572. Suzy Bel Fancy Tomato Purée. Stanislaus Canning Co., Modesto, Calif. Total solids, 20.30; salt, 0.20, and salt-free solids, 20.10, per cent.

E.S.-487. Tom Tom Brand Fancy Tomato Purée. Mel-Williams Co., San Francisco, Calif. Total solids, 11.44; salt, 0.22, and salt-free solids, 11.22, per cent.

Other Vegetable Products

Of the 10 miscellaneous vegetable products, nine were passed and one was misbranded:

K.C.-76. Diana Sweet Peas, Mixed Sizes. Curtice Brothers Co., Rochester, N. Y. Federal standards for canned peas require that alcohol-insoluble solids be not more than 23.5 per cent for Alaska or other smooth-skinned varieties of peas, and not more than 21 per cent for sweet, wrinkled varieties; these standards also require that when peas and liquid are removed from the container and returned thereto the leveled peas must completely fill the container within 15 seconds. Analysis showed 19.41 per cent of alcohol-insoluble solids, and the peas completely filled the container, so sample was passed.

J.W.-164. King Pharr Brand Cut Velvet Okra. King Pharr Canning Operations, Inc., Laurel, Miss. This sample was submitted because of a complaint that this brand of okra was excessively salty, but analysis showed only 1.49 per cent of salt, so sample was passed.

K.C.-225. Magnetic Brand Vacuum Packed Whole Sweet Potatoes. Magnetic Products, New York, N. Y. This sample was submitted to determine if it contained added undeclared sugar or syrup; the potatoes were dry pack and were passed.

K.C.-185. Newport Brand Tomato Juice. Newport Can Co., Indianapolis, Ind. Total solids, 5.39; ash, 1.37; salt, 0.65, and salt-free solids, 4.74, per cent. Passed.

K.C.-130. Rialto Sweet Peas. Grand Union Co., New York, N. Y. Alcohol-insoluble solids, 23.44 per cent; peas completely filled container.

Because the alcohol-insoluble solids were in excess of the maximum of 21 per cent permitted for sweet peas, this sample was misbranded.

2010, 2011 and 2012. Spinach. Associated Seed Growers, New Haven, Conn. These three samples were lots of fresh spinach that were respectively healthy, disease-resistant and yellowed; they were submitted by the growers for comparative spectrographic analysis. Results were as follows:

	2010, healthy spinach	2011, disease- resistant spinach	2012, yellowed spinach
Potassium, per cent	6.80	5.80	3.40
Calcium, per cent	1.36	1.18	1.20
Magnesium, per cent	0.98	0.86	0.64
Phosphorus, per cent	0.49	0.38	0.27
Manganese, per cent	0.009	0.010	0.012
Iron, per cent	0.08	0.09	0.14
Aluminum, per cent	0.11	0.13	0.20
Zinc, per cent	Less than 0.01	Less than 0.01	Less than 0.01
Sodium, per cent	0.17	0.35	0.23
Copper, parts per million	9	6	3
Boron, parts per million	18	21	30

W.M.-74. Stearn's Brand New Kraut. Stern Pickle Works, Inc. (no address). Total acidity as lactic acid, 1.30; volatile acidity as acetic acid, 0.53; salt, 2.16, and invert sugar, 0.19, per cent; ratio of volatile to total acidity, 0.41; drained weight, 25.2 ounces. Appeared to contain added vinegar, but was passed.

S.O.-71. V-8 Cocktail. Campbell Soup Co., Camden, N. J. Labelled "An inspired combination of 8 juices from garden fresh vegetables — tomato, celery, carrot, parsley, lettuce, beet, spinach, watercress. Mildly seasoned with spices, salt, and other natural and artificial seasonings". Tests for arsenic, fluorine and monochloracetic acid were negative. Spectrographic analysis showed: Lead, less than 1; zinc, none; copper, 5, and tin, 15, parts per million. Sample was passed.

Vinegar

Eighteen samples of wine vinegar, two of red wine-flavored distilled vinegar, and one each of cider, distilled and "distilled pineapple" vinegars, were submitted by the Commissioner; six samples of cider vinegar were analyzed for a wholesale grocer. Twelve samples were passed and 17 were adulterated or misbranded.

Cider Vinegar

K.F.-502, Fi-Na-St Pure Cider Vinegar, distributed by First National Stores, Inc., Boston, Mass., was analyzed as follows: Solids, 1.39, and acidity, 4.16, per cent; Hortvet No. 1.00; no caramel. Did not meet the statutory requirement for undiluted cider vinegar of 1.60 per cent solids.

933, 1001, 1002, 1003, 1004 and 1005, Sunrise Cider Vinegar, Miner, Read & Tullock, Inc., New Haven, Conn., distributor, were analyzed

TABLE 9. RED WINE VINEGAR

No.	Manufacturer or distributor and brand	Total solids, per cent	Total ash, per cent	Total acidity as acetic acid, per cent	Tartaric acid, per cent	Remarks
K.N.-283	Bellview Olive Oil Co., New York, N. Y.	2.62	0.28	5.16	0.028	Labelled "Reduced with water to 5% acidity"; passed.
K.N.-284	Bellview Bellview Olive Oil Co., New York, N. Y.	1.66	0.23	4.51	0.121	Misbranded because it failed to meet its claim of 5% acidity. Labelled "Reduced with water to 5% acetic strength", but in very small type, so misbranded.
K.F.-649	John Bozzuto & Sons, Inc., Waterbury, Conn.	2.10	0.22	5.08	0.092	Passed.
A.F.-686	Palmeri Food Products, New Haven, Conn.	2.24	0.51	4.68	0.165	Passed.
K.F.-575	S. Pappas Co., Inc., Boston, Mass. Pappas	3.11	0.52	6.08	0.092	Passed.
K.F.-538	Pure Gragnano Rex Vinegar Co., Newark, N. J. Rex	3.57	0.31	4.50	0.060	Labelled "Reduced to 5% acidity with water"; low in acidity.
K.F.-568	Rex Vinegar Co., Newark, N. J. Rex	3.53	0.31	4.51	0.054	Low in acidity.
K.F.-569	Rex Vinegar Co., Newark, N. J. Rex	2.15	0.25	4.11	0.094	Low in acidity.
K.F.-570	Rex Vinegar Co., Newark, N. J. Rex	3.49	0.29	4.93	0.064	Low in acidity.
K.F.-571	Rex Vinegar Co., Newark, N. J. Rex	2.21	0.27	3.55	0.095	Low in acidity.
K.F.-617	Rex Vinegar Co., Newark, N. J. Rex	.....	.....	4.36	.....	Low in acidity.
K.F.-618	Rex Vinegar Co., Newark, N. J. Rex	.....	.....	4.51	.....	Low in acidity.
K.C.-201	Serto Packing Co., New York, N. Y. Serto	1.21	0.22	5.36	0.083	Labelled "Reduced with water to 5% acidity"; passed.
A.F.-709	Eugenio Testa, Inc., Boston, Mass. Testa	0.61	0.10	4.31	0.039	Labelled "Reduced with water to 4% acid strength", but adulterated with distilled vinegar or acetic acid.
K.F.-615	Unita Packing Co., Providence, R. I. Barbera	1.88	0.17	4.19	0.012	Labelled "4% Acidity"; misbranded because not "pure" wine vinegar.
K.F.-619	Unita Packing Co., Providence, R. I. Barbera	1.88	0.18	4.22	0.014	Labelled "4% Acidity"; misbranded because not "pure" wine vinegar.
E.S.-567	Unita Packing Co., Providence, R. I. Barbera	1.38	0.20	4.40	0.074	Labelled "4% Acidity"; misbranded because not "pure" wine vinegar.
S.O.-64	Wayne County Produce Co., Green Point, L. I., N. Y. Wayne County	2.63	0.35	5.10	.....	Passed.

for total acidity at the request of the distributor. Results were 3.98, 4.00, 3.99, 4.00, 4.00 and 4.00 per cent, respectively; all except two samples met the legal requirement of 4 per cent acidity.

Wine Vinegar

Analyses of the 18 wine vinegar samples are given in Table 9; 13 were adulterated or misbranded and five were passed.

Other Vinegars

Three out of four samples were passed:

J.C.-69. Barra's Distilled Hawaiian Pineapple Vinegar. The Barra Co., Los Angeles, Calif. Labelled "This special salad vinegar is made from the crushed juice of ripe Hawaiian pineapples, fermented and distilled in Hawaii and made into vinegar in California. Enriched with true-fruit and artificial flavor. Delightful on all salads, especially on fruit salads. Water added for uniform acetic strength. Aged in wood". Analysis showed a total acidity of 5.32 per cent.

While this preparation is not strictly a pineapple vinegar—that is, a vinegar made by the acetic fermentation of pineapple juice—but is rather a distilled vinegar made from pineapple brandy, artificially flavored and diluted with water, the sample was passed because the label explained the composition in such detail. Another sample of this product was analyzed in 1946.¹

E.C.-371. Krasdale Fine Foods Pure White Vinegar, Reduced with Water to 4½% Acidity. Krasdale Foods, Inc., New York, N. Y. Total acidity, 4.99 per cent; permanganate oxidation number, 8.34. Sample was passed.

A.F.-765. Lily Brand Red Wine Flavored Distilled Vinegar. Lily Food Products Co., Brooklyn, N. Y. Labelled "Contains: Distilled vinegar, red wine, reduced by water to 5% acidity". Acidity, 5.56 per cent; passed.

K.F.-648. Progresso Red Wine Flavored Distilled Vinegar, Reduced with Water to 5% Acidity. Uddo & Taormina Co., Brooklyn, N. Y. Labelled "Contains: Distilled vinegar, red wine, reduced by water to 5% acidity". Acidity, 4.90 per cent; misbranded because it did not meet its declared acidity of 5 per cent.

Water

Twenty samples of well, pond and river waters were analyzed for a local health department, a physician, a veterinarian, a florist and private citizens. In most cases the pH only was determined in order to see if the waters would be corrosive to copper tubing, but total hardness was determined on some waters, and chloride in others where contamination with sea water was suspected.

This Station does not make sanitary analyses of drinking water.

¹Conn. Agr. Expt. Sta., Bul. 510, 36 (1947).

Miscellaneous

Nineteen miscellaneous samples were submitted by the Commissioner; 10 were passed and nine were adulterated or misbranded:

E.S.-516. Aunt Millie's Real Italian Spaghetti Sauce without Meat. S. Di Mauro, Hawthorne, N. Y. Declared ingredients were "Tomatoes, tomato purée, tomato paste, garlic, onion, cheese, salt, pepper, 20% olive oil, 80% peanut oil, basil leaf". Analysis showed 1.18 per cent of oil with a refraction of 64.7 at 25° C. and a squalene value of 26, which indicated that no olive oil at all was present. Sample was therefore adulterated and misbranded.

A.F.-684. Chinese Chop Suey. Hi Hat Food Products Co., Providence, R. I. Declared ingredients were "Celery with chicken, onions, bean sprouts, corn starch, salt, monosodium glutamate and hydrolized (sic) vegetable protein". Sample actually contained chicken, and it was passed.

E.S.-568. Chun King Complete Vegetable Chow Mein Dinner. Chun King Sales, Inc., Duluth, Minn. This sample consisted of a carton containing a can of "Chun King Chow Mein Noodles", a can of "Chun King Vegetable Chow Mein Without Noodles", and a bottle of soy sauce. The bottle of soy sauce was completely unlabelled, and the sample was therefore misbranded.

J.W.-186. Cups. This sample consisted of two large earthenware cups with raised designs of chickens and flowers on the outside and a green frog in high relief inside on the bottom. It was submitted because a lead-containing glaze was supposed to have been used and it was desired to know if beverages drunken from the cups would absorb lead from the glaze.

When 100 cc. of 4 per cent acetic acid were allowed to stand in one of the cups for 24 hours at room temperature, 21 micrograms of lead were picked up; 100 cc. of water standing in the other cup for the same period of time picked up 11 micrograms of lead. However, when the same quantity of water stood for 24 hours in the cup that had previously been treated with dilute acetic acid, only one microgram was extracted. It therefore appeared that, while traces of lead might be extracted from a new cup by a beverage, there would be little danger of the cups' causing lead poisoning.

K.F.-529 and 530. Fancy Triestina Macaroni Products. Cassarino & Carpinteri Co., Inc., New Britain, Conn. These samples were labelled "Enriched Vitamins B₁ B₂ Niacin Iron"; this declaration of added vitamins made them special dietary foods within the meaning of the law, but they did not bear statements as to what proportions of the minimum daily requirements of the vitamins would be contributed by a definite quantity of the macaroni, as is required for all special dietary foods; they were therefore misbranded.

S.O.-114. Franco-American Macaroni with Cheese Sauce. Campbell Soup Co., Camden, N. J. Misbranded because it bore no list of ingredients.

S.O.-113. Franco-American Spaghetti, Tomato Sauce with Cheese. Campbell Soup Co., Camden, N. J. Misbranded because it bore no list of ingredients.

E.S.-531. Gino Sauce. Gino Corporation, Milford, Conn. Declared ingredients were "Tomatoes, pork, beef, imported olive oil, butter, garlic, herbs, salt and spices". Total fat, 7.30 per cent; constants of fat: refraction, 25° C., 59.8; Reichert-Meissl value, 2.15; Polenske value, 0.43; squalene value, 66; no cottonseed, peanut or mineral oil. On the basis of these values, the 7.3 per cent of total fat in the sauce was composed of 1.3 per cent olive oil, 0.5 per cent butter fat and 5.6 per cent beef and pork fat; these percentages were not sufficient to justify claims on the label for the presence of either olive oil or butter.

J.W.-208. Heinz Prune Pudding for Younger Children. H. J. Heinz Co., Pittsburgh, Pa. Tests for arsenic, heavy metals, fluoride and nitrate were negative, and sample was passed.

A.F.-685 and 799. Hi Hat Chicken Pie. Hi Hat Food Products Co., Providence, R. I. Ingredient statement was "Fillings consist of chicken broth, chicken meat, flour, carrots, peas, onions, celery salt and monosodium glutamate. Crust consists of flour, shortening, baking powder, water and salt. Wash consists of egg yolks, soya flour and milk powder". It was not obvious what was meant by "Wash", but presumably this was material brushed on the pies before baking to give them a glaze. As the samples contained a substantial quantity of chicken meat, they were passed.

K.C.-170. Holiday Shortbread Cookie Mix. Allied Food Industries, Inc., Perth Amboy, N. J. Labelled "Contains: Flour, vegetable shortening, sugar, corn sugar, salt and artificial flavor". Passed.

J.W.-182. Insects. These insects were submitted with requests for their identification and an opinion on what temperatures would prevent their multiplication. They were identified by Mr. Johnson of our Entomology Department as confused flour beetles (*Tribolium confusum*); he stated that it would take a temperature of 40° F. or below to slow down their reproduction, and that they would be killed by exposure to a temperature of 120°.

K.C.-224. Jean's Ready-Frozen Pancake Batter. Galand Farms, Inc., Westport, Conn. Labelled "Contains pastry flour, buttermilk, eggs, shortening, sugar, baking soda, and pure vanilla extract". Passed.

W.M.-220. Old English Plum Pudding. Spalding Bakeries, Binghamton, N. Y. The ingredient statement was buried underneath the pudding and completely invisible to the purchaser; the sample was therefore misbranded.

K.C.-191. Orange Gelatine. State Supervisor of Purchases, Hartford, Conn. Analysis showed: Moisture, 3.25; ash, 1.04; gelatin, 6.22; citric acid, 1.23; sucrose, 57.90; dextrose, 30.30, and sodium carbonate in ash, 62.40, per cent; per cent passing 30 mesh sieve, 94.60.

This sample was purchased to pass Federal purchasing specifications for gelatine desserts, which require, among other things, that: (1) there be not more than 12½% gelatin; (2) there be at least 80% total sugars, of which not more than 25% may be dextrose; (3) the total acidity calculated as citric acid be 2 to 4%; (4) buffering salts be not less than 0.6% nor more than 1.0%; and (5) all of the material pass a 30 mesh sieve. The sample failed to meet the specifications on three counts: it contained more than 25 per cent dextrose; it was deficient in acidity; and it contained too high a proportion of buffering salts (the alkalinity of the ash indicated 1.20 per cent of sodium citrate).

K.F.-599. Parfait Brand Cocktail Sauce. H. E. Whitaker Co., Philadelphia, Pa. Declared ingredients were "Tomatoes, spices, horseradish". Microscopic examination showed tomatoes and horseradish present, and no coal tar dye was detected. Sample was passed.

K.F.-623. Sawdust Substitute. Fred La France, West Hartford, Conn. This material was shredded corn cobs and stalks.

Two hundred and eighty-two miscellaneous samples were examined for local health and police departments, a hospital, and private citizens. The following may be of interest:

3290. Clay Pigeons. Phil Racette, Canaan, Conn. These were submitted at the request of a veterinarian because it was suspected that they contained arsenic and were poisoning animals eating them. Analysis showed no arsenic; there was some zinc and lead in the surface paint, but the bulk of the "pigeons" was lime and magnesia colored black with carbon.

1606. Deltaxin in Propylene Glycol for Vitamin D Fortification of Milk. Winthrop-Stearns, Inc., New York, N. Y. Assay showed that this product contained the 64,000 units of vitamin D per cc. claimed for it.

3565. Gray Topcoat. G. Talbot, West Haven, Conn. Small holes in this topcoat were proved to be caused by sulphuric acid.

2483. Liquid for Taking Rust off Stone. Fred Apuzzo, New Haven, Conn. Analysis showed this liquid to be a 48.81 per cent (by weight) solution of phosphoric acid.

1360. Maple Sap. John Krier, Forestry Dept., The Connecticut Agricultural Experiment Station. Total solids, 11.14, and ash, 0.15, per cent; pH 4.70.

1803. Material Found in Olive Oil Can. City Dept. of Health, New Haven, Conn. This material was a 2.68 per cent soap solution.

1282. Metal Polish. City Dept. of Health, New Haven, Conn. This was a suspension of kaolin and light lubricating oil in 0.66 per cent hydrochloric acid, perfumed with amyl acetate.

3194, 3195, 3196 and 3197. Plastic Picks. Marvin Display Corp., New Haven, Conn. These picks, which were intended for use with food,

were made of transparent polystyrene plastic; they were colored respectively red, colorless, green and green; imbedded in all of them, except one green pick, were tiny fragments of silver foil. Since the picks were insoluble, even in hot water, they could not be toxic.

416. Pooled Human Plasma. Stamford Hospital, Stamford, Conn. Specific gravity, 1.0233; nitrogen: per cent by weight, 1.017; gm./100 cc., 1.041; protein: per cent, 6.36; gm./100 cc. 6.51.

1491. Rubber Easter Egg and White Tablet. Food and Drug Commission, Hartford, Conn. This sample consisted of a rubber egg bearing a design of a white rabbit with red markings on a green background; inside the egg, to act as a rattle, was a white tablet weighing 0.4750 gram or 7.33 grains. Another white tablet, identical with the one in the egg, was also supplied. Analysis of the tablets was as follows: Magnesium carbonate ($MgCO_3$), 54.06; magnesium hydroxide ($Mg(OH)_2$), 5.57; calcium carbonate, 3.12; stearic acid, 3.50, and water, 33.75, per cent. The tablets were flavorless, and contained no starch or sugar.

This sample had been submitted to see if drug tablets or tablets containing poisonous ingredients were being used as the rattling components of the eggs. Since the constituents of the tablets were non-poisonous, and not drugs in any real sense, it appeared doubtful if the Food, Drug and Cosmetic Act applied to these eggs, which were really toys rather than confectionery.

3566. Soil. William M. Hotchkiss Co., New Haven, Conn. This soil, from the fill under an apartment house, was submitted with a complaint that it emitted a strong garlic odor that permeated the building; the soil had previously been treated with sodium arsenate to kill termites.

We confirmed the strong garlic-like odor, and the presence of a penicillium mold was demonstrated. It is a known fact that a number of molds (particularly *Penicillium brevicaulis*), when growing in the presence of arsenic compounds, form diethyl arsine, which is a gas with an intense garlic odor. This reaction has actually been used as a very sensitive test for arsenic, as little as a tenth of a milligram of arsenic being said to yield an odor lasting a week.¹ It appears reasonable to believe that a reaction of this sort was responsible for the odor in the sample submitted, and this raises a question of whether it is advisable to use arsenicals in soils to prevent termite attacks on buildings if these soils are likely to become damp and moldy.

DRUGS AND DEVICES

Cod Liver Oil

Eight samples of cod liver oil were submitted by the Commissioner and were assayed for their vitamin D content by feeding to rats; all samples were passed. Results of our assays are given in Table 10.

¹Autenrieth and Warren, *Laboratory Manual for the Detection of Poisons and Powerful Drugs*, 4th Ed., pp. 235-238 (P. Blakiston's Son & Co., Philadelphia, 1915).

TABLE 10. COD LIVER OIL

(U. S. P. requires not less than 85 units of vitamin D per gram of oil.)

No.	Manufacturer and brand	Retail pharmacy	Control No.	Vitamin D	Labelled
W.S.-19	Mckesson & Robbins, Bridgeport, Conn. <i>McKesson's U. S. P. High Potency</i>	Courtesy Drug, New Haven Concord Pharmacy, Hamden	1121	Passed	"Contains not less than 250 U. S. P. units of vitamin D per gram." "Standardized to contain not less than 175 Vitamin D units, U. S. P., per gram."
W.S.-17	Mead, Johnson & Co., Evansville, Ind. <i>Mead's Standardized</i>	Misenti Drug, Middletown	154	O.K.	"Certified to contain not less than 85 vitamin D units per gram U.S.P."
W.S.-15	Norwich Pharmacal Co., Norwich, N. Y. <i>Norwich</i>	Parkview Pharmacy, Middletown	830-405448-415134	O.K.	"Guaranteed to be more than 200 Vitamin D units per gram."
W.S.-16	E. L. Patch Co., Boston, Mass. <i>Patch's Flavored</i>	Allen's Cut Rate, New Haven	1995	O.K.	"Vitamin Assay per gram: 180 U.S.P. units Vitamin D."
W.S.-20	E. R. Squibb & Sons, New York, N. Y. <i>Squibb</i>	Trotta Pharmacy, New Haven	8J46650	O.K.	"Vitamin Assay per gram: 180 U.S.P. units Vitamin D."
W.S.-23	E. R. Squibb & Sons, New York, N. Y. <i>Squibb</i>	Mayfair Pharmacy, New Haven	8L40015	O.K.	"The Vitamin D Potency of Nason's Palatable Cod Liver Oil is in excess of the minimum standards of the U. S. Pharmacopoeia."
W.S.-24	Tailby-Nason Co., Boston, Mass. <i>Nason's Palatable</i>	Chapel Drug, New Haven	36200	Passed	"The Vitamin D content of Super D Cod Liver Oil is in excess of the U.S.P. requirements for Cod Liver Oil."
W.S.-18	Upjohn Co., Kalamazoo, Mich. <i>Super D</i>		VKY-M5613	O.K.	

Para Amino Salicylic Acid

Recently a new drug, *p*-aminosalicylic acid (2-hydroxy-4-aminobenzoic acid), has come into use for the treatment of tuberculosis, being administered in combination with streptomycin. This treatment has been used at at least two of the State sanatoria (Cedarcrest and Undercliff). In August of 1950 complaints were received from both sanatoria that a particular lot of *p*-aminosalicylic acid was behaving abnormally in that its solution darkened as soon as it was prepared (instead of in 48 hours as was usual), had an abnormal taste and odor, and caused nausea, vomiting and diarrhea. The drug was purchased as the free acid, and it is our understanding that it was prepared for administration at Undercliff by dissolving 40 grams of it and 25 grams of sodium bicarbonate in 300 cc. of distilled water; 25 cc. of this solution were administered to patients three times a day. At Cedarcrest 100 grams of the acid and 60 grams of sodium bicarbonate were dissolved in 500 cc. of water, and the patients were given 20 cc. doses of this more concentrated and more alkaline solution.

The lot of *p*-aminosalicylic acid about which the complaints were received was manufactured by Hexagon Laboratories, Inc., Bronx, N. Y., and sold by the Panray Corp., New York, N. Y., under the name of "Parasal" Powder". Two samples of this lot, from Undercliff State Tuberculosis Sanatorium, Meriden; two replacement samples supplied by the Panray Corp. to Undercliff and Cedarcrest Sanatoria; and one sample from another manufacturer (the American Pharmaceutical Co., Inc., New York, N. Y.), were submitted by the Food and Drug Commissioner for analysis. The five samples were the following:

2480. "*Parasal*" Powder. Hexagon Laboratories, Inc., Bronx, N.Y. Received by Undercliff Sanatorium from Panray Corp., New York, N.Y., on July 27, 1950. This was from the lot complained of.

H.P.-156. "*Parasal*" Powder. Unopened pound bottle from Undercliff Sanatorium; same lot as above.

H.P.-157. "*Parasal*" Powder. Unopened pound bottle; replacement lot received by Cedarcrest Sanatorium from the Panray Corp.

H.P.-158. *Para Amino Salicylic Acid*. American Pharmaceutical Co., Inc., New York, N. Y. Material from another manufacturer stated to be satisfactory.

H.P.-159. "*Parasal*" Powder. Replacement lot received by Undercliff Sanatorium from the Panray Corp.

Upon inspection by us, none of the five samples was found to have any perceptible odor, and all were essentially white powders. More than three months after they were received all still remained white, except H.P.-159 (one of the replacement samples), which had gradually turned brownish. The infrared curves of all five were essentially identical and did not differ from that of recrystallized *p*-aminosalicylic acid. All five samples melted at 140°C., and no volatile matter was found in any of them. Percentages of nitrogen, and of *p*-aminosalicylic

acid calculated from nitrogen (the theoretical nitrogen content is 9.15 per cent), were as follows:

No.	Nitrogen, per cent	<i>p</i> -Aminosalicylic acid, per cent
2480	9.03	98.7
H.P.-156	9.00	98.4
H.P.-157	8.96	97.9
H.P.-158	9.08	99.3
H.P.-159	8.92	97.5

When a mixture of 2480 and water was allowed to evaporate to dryness, the infrared pattern of the residue was identical with that of *m*-aminophenol. According to O'Connor,¹ above 80° C. solutions of *p*-aminosalicylic acid are readily decarboxylated to give brown solutions, containing mainly *m*-aminophenol; he says that "In neutralizing *p*-aminosalicylic acid to form the sodium salt, contact with strong alkali should be avoided, to prevent decomposition to dark brown products". We were not able to explain with certainty the phenomena complained of by the two sanatoria, because we could not duplicate some of their observations—that is, we noted no foreign odor in any of the samples, and none of them were off color. However, we suspect that the lot complained of may have contained a trace of *m*-aminophenol as an impurity, although we could not demonstrate this for lack of a satisfactory method for determining *m*-aminophenol in the presence of *p*-aminosalicylic acid. We also suspect that part of their troubles may have been caused by their heating the mixtures of the acid, sodium bicarbonate and water to hasten solution, with the result that some of the acid was decarboxylated to *m*-aminophenol, which very readily undergoes oxidative decomposition and darkening in the presence of alkali. At any rate, our examination did not show any significant difference between the lot of "Parasal Powder" complained of and the replacement lot that was supposedly all right, with the one exception that one of the replacement samples (H.P.-159) darkened spontaneously on standing for several months.

Rubber Prophylactics

Two samples of rubber prophylactics submitted by the Commissioner were found free of holes and passed:

H.P.-149. *Dean's Peacocks, Reservoir Ends, and Dean's Redi-Wet Peacocks.* Dean Rubber Mfg. Co., North Kansas City, Mo.

H.P.-148. *The White Trojans.* Young's Rubber Corp., Trenton, N. J.

Miscellaneous Drugs

Fifteen official and 18 unofficial samples were examined. Eight samples were adulterated or misbranded and 25 were passed. The following may be of interest:

¹Lancet, 254, 191 (1948).

H.P.-137 and 147. *Arthritis Remedy.* These were multi-vitamin capsules, containing 21.30 per cent of an oil that was probably a vitamin D oil, as well as 4.13 per cent of tricalcium phosphate.

J.S.-35. *Beatsol Black-Eye-Bleach.* G & W Laboratories, Inc., Jersey City, N. J. Labelled "For bleaching out the discoloration popularly known as 'Black Eye' without injury to the face or optics. Formula—Ammonium Chloride, Pot. Nitrate, Glacial Acetic Acid, Butyl Ester Para Hydroxy Benzoic Acid". If the preparation had actually been a solution of the other named ingredients in glacial acetic acid, as the label appeared to indicate, it would have been a corrosive and highly dangerous mixture to apply to the eyelids, but actually the total acidity corresponded to only 0.60 per cent of acetic acid; the pH was 3.15. Sample was passed.

995. *Capsule, White Tablet and Portion of Salmon-Colored Tablet.* Adam Rembis, New Britain, Conn. These were respectively a "Dilantin Sodium" (sodium diphenylhydantoinate) capsule, a "Mebaral" (N-methyl ethyl phenylbarbituric acid) tablet, and a portion of a benzene sulphate tablet.

J.S.-43. *Dent's Ear Wax Drops.* C. S. Dent & Co., Cincinnati, Ohio. Labelled "Contains per fluid ounce: 10 grs. chloral hydrate, % in product 1.75%. Warning — may be habit forming — 8 mins. fluid extract hyoscyamus, containing: total alkaloids of hyoscyamus 0.003 grain—alcohol 1.0% — Also contains carbolic acid and glycerin. — For external use only". Also labelled "The action of DENT'S EAR WAX DROPS is such that it softens accumulated ear wax, thus relieving ear discomforts due to this cause and thereby giving temporary relief to conditions caused by accumulated wax". Misbranded because the carton was only 26 per cent filled, but otherwise passed.

H.P.-155 and J.S.-65. *Esotérica.* Mitchum, New York, N.Y. Sold as "That mildly medicated cream in delightful vanishing form for skin that is spotted, discolored, roughened or darkened from weather or neglect". Labelled "Contains 3% Ammoniated Mercury"; analysis showed 3.07 and 2.98 per cent respectively of ammoniated mercury. Misbranded because of failure to bear a warning that application to a large area of the body is dangerous and to direct that a thin layer be applied and left on for not more than one-half hour and then be cleaned off with some such substance as benzine or oil.¹

J.S.-80. *Harwood's Pin Worm Remedy.* Manufacturer unknown. Labelled "Active Ingredient; Gentian Violet (Enteric Coated)"; passed.

W.S.-33. *Hotacol, the Liniment with the Cool Heat.* Phillips Pharmaceutical Products, Inc., Darien, Conn. Labelled "For relief of simple neuralgia and muscular pain due to exertion or fatigue; also for tired legs or feet. Ingredients: Soap liniment (Alcohol Compound) 90.027% by Vol. Chloroform 6.426% by Vol. Menthol and Oil of Cloves. For external use only". Because this sample did not caution against "ex-

¹Food and Drug Administration, Federal Security Agency, T.C.-9 (May 13, 1939).

cessive irritation of the skin, particularly if applied with rubbing", nor say "Avoid getting it into the eyes", and because the ingredient statement was in such fine type as to be almost illegible, it was misbranded.

9339 and W.S.-30. *Ivy-Chek Rexall*. United-Rexall Drug Co., Los Angeles, Calif. Labelled "Contains: Alcohol 21% - Solution Chloride of Iron and Sodium Octyl Sulfate". Analyses of the two samples were as follows:

	9339	W.S.-30
Ferric chloride (FeCl ₃), gm./100 cc.	3.95	4.33
Free hydrochloric acid (HCl), gm./100 cc.	1.97	0.04
pH	0.60	1.10

9339 was submitted with a complaint that it caused a severe burn on the arms; the almost 2 per cent of free hydrochloric acid found in this sample was sufficient to account for this reaction.

J.S.-77. *Mineral Oil, Extra Heavy*. Bernice Cut Rate, New Haven, Conn. Saybolt viscosity, 100°F.: Declared, 340-355 seconds; found, 364 seconds. Passed.

H.P.-142. *Octine Eye Lotion*. Walgreen Co., Chicago, Ill. Declared active ingredients were "Boric acid, distilled extract of witch hazel, camphor water and 0.5% chlorobutanol (chloroform derivative) in aromatic water". Analysis showed 2.19 gm./100 cc. of boric acid, 0.40 per cent of alcohol, camphor present, and no formaldehyde. Passed.

3476 and 3477. *Ovine Kamacutine Tabules*. Manufacturer unknown. Claimed to contain copper sulfate, nicotine sulfate and kammala. The tablets in 3476 were light green, and those in 3477 darker green. Analyses were as follows:

	3476		3477	
	Per cent	Gm./tablet	Per cent	Gm./tablet
Copper sulfate (CuSO ₄ ·5H ₂ O)	56.25	1.34	63.56	1.30
Nicotine sulfate (C ₁₀ H ₁₄ N ₂) ₂ ·H ₂ SO ₄	6.54	0.16	8.79	0.18
Brownish-yellow resin, possibly kamala resin	14.92	0.36	14.00	0.29

J.S.-26. *Ozium Glycol-Ized Air Conditioner*. Woodlets, Inc., Portland, Pa. Labelled "Reduces air-borne bacteria and virus—for use only in Woodlet Dispenser. Active ingredients 20%; Triethylene glycol 10%, propylene glycol 10%".

It is apparently accepted that under proper conditions triethylene glycol vapors will kill bacteria and viruses. It is the opinion of the U. S. Food and Drug Administration, however, that any statements on the labels or attached literature of a glycol vaporizer that claim or imply that its use will prevent infection are false or misleading, unless the device provides measures designed to: (1) assure an adequate

mixing of the glycol vapor with the air; (2) maintain a uniform and adequate concentration of the vapor in all parts of the air during the period of occupancy of the room. The literature with the "Ozium Conditioner" did not make any flat statement that its use would prevent infection, but rather said that it "Reduces air-borne bacteria and virus", would "Help prevent infection from air-borne germs and virus", "substantially reduces air-borne germs and virus", etc. However, the implication was clear through all the circular, that if "Ozium" were used as directed it would be effective in preventing colds and other infectious diseases. Since the directions in the circular were in effect only to hold the container in the hand and spray the "Ozium" about the room, with no particular duration of spraying specified, they could not be considered adequate to ensure a bactericidal concentration of glycol vapor in any room. Sample was therefore held to be misbranded.

2341. *Pastusol*. Diakem, Inc., New York, N.Y. Labelled "An effective palliative for the paroxysms of Spasmodic and of Whooping Cough". The only ingredients listed in the English portion of the label were 0.12 gm./100 cc. gold tribromide and 4 per cent alcohol, but the Spanish portion also listed 1.20 gm./100 cc. of 40 per cent hydrobromic acid, which is equivalent to 0.48 gm./100 cc. of hydrogen bromide. Analysis showed: Gold tribromide (AuBr₃), 0.10; hydrobromic acid (HBr), 0.44, and glycerine and solid material, 10.40, gm./100 cc.; alcohol, 4.04 per cent by volume.

There are reports in the literature of gold bromide having been used for the treatment of whooping cough,¹ but the recommended adult doses are 8 to 12 milligrams of gold bromide alone, while the recommended unit adult dose of "Pastusol" corresponds to not only 12 mgm. of gold bromide but also 48 mgm. of hydrobromic acid. The best-recognized uses of gold salts in medicine today are for the treatment of lupus erythematosus and rheumatoid arthritis, the double thiosulfate with sodium being the salt most commonly used. However, it is well known that administration of gold salts may be dangerous. Sollmann² says "Excessive, toxic and sometimes fatal reactions occur in a considerable proportion of patients, generally after a few hours". Since "Pastusol" was a new drug for which no new drug application had been filed, its sale was in any case a violation of the law; it was recommended to the Commissioner that should an application be filed it not be allowed to become effective until the manufacturer had presented convincing evidence of the safety of the product when taken as directed.

1924. *Prescription No. 85605*. Essex Pharmacy, Inc., Essex, Conn. This prescription called for dilute hydrochloric acid; our analysis showed 9.77 gm./100 cc. of hydrogen chloride, which is within the U.S.P. limits for dilute hydrochloric acid.

J.S.-69. *Prevent*. J. A. Lusky Co., Willimantic, Conn. Labelled "Used

¹U. S. Dispensatory, 24th Ed., p. 1467.

²Manual of Pharmacology, 6th Ed., p. 1110.

in the treatment of shoes to help prevent the recurrence of athlete's feet. Active ingredients—formaldehyde 6%, inert 94%". Analysis showed 5.50 gm./100 cc. of formaldehyde and no ash. This was essentially a fungicide; it was labelled in compliance with the insecticide law, and was passed.

W.S.-31. Rexall Poison Oak Cream. Rexall Drug Co., Los Angeles, Calif. Labelled "Contains zinc oxide, carbolic and boric acid and menthol in a special greaseless base"; also "Soothes the itching and burning caused by poison oak, poison ivy. Also relieves discomfort of sunburn, minor burns and scalds and other skin irritations of a dry nature". Analysis showed 1.98 per cent of phenol. Misbranded because it bore no warnings against using a bandage and against applying to large areas of the body.

1492. Unknown Pills. Mrs. F. W. Griffin, West Cheshire, Conn. These two yellow-coated pills were 1.36 grain theophylline pills.

497. Unknown Tablets. State Department of Health, Hartford, Conn. These were 0.94 grain citrated caffeine tablets.

1490. Unknown Tablets. Harry S. Davis, South Norwalk, Conn. These were theobromine sodium salicylate tablets, probably of 5 grain strength.

J.S.-25. Vitamin A Capsule. Columbia Medical Co. Claimed to be a 50,000 unit capsule; analysis showed 45,870 units. Passed.

COSMETICS

Seven official and one unofficial samples of cosmetics were examined; three were passed and five were adulterated or misbranded:

W.S.-34. Colgate Ribbon Dental Cream. Colgate-Palmolive-Peet Co., Jersey City, N. J. Submitted with a complaint that it was different from other lots of Colgate toothpaste in that it contained gritty material and burned the membranes of the mouth. Examination showed that the sample was not alkaline (pH 6.1), and presumably contained sodium alkyl sulphate or some other synthetic detergent; it had a spearmint odor, but a very strong flavor of menthol. The menthol in this sample was probably excessive due to an error in compounding, which explained the burning sensation complained of, but no grittiness was observed.

J.S.-63. Estrogenic Hormone Cream. F. W. Woolworth Co., Hartford, Conn. Labelled "Cont. 7500 I. U. estrogenic hormones per oz. (85% estrone). This hormone cream is scientifically prepared with natural estrogenic estrogen essentially estrone, free of stearic acid, beeswax, and water. Use half a teaspoon full for one application to help achieve beauty for skin on face and neck".

It has apparently been proved that the application of estrogens to the skin will cause it to absorb water and so stretch out and gain an appearance of smoothness. This phenomenon has been taken advantage of by cosmetic manufacturers to promote the sale of estrogen-containing face creams with claims that they "give the appearance of youth", or

even "produce a youthful skin". Because there has been some evidence that estrogenic hormones could produce cancer in rats, this sample was referred to the Connecticut Committee on Foods, Drugs, Cosmetics and Devices, for an opinion on its safety when used as directed; the Committee reported that there was no danger in the use of a cream containing no more estrogen than this one.

J.S.-64. Estron-Hormone Cream with Petrolatum, Lanolin, Mexican Turtle Oil. F. W. Woolworth Co., Hartford, Conn. This sample was essentially identical with *J.S.-63*, differing chiefly in the fact that it listed its ingredients. It was also referred to the Connecticut Committee on Foods, Drugs, Cosmetics and Devices.

9963. Lilac After Shave by Parfum Internationale. Parfum Internationale, Chicago, Ill. Labelled "Concentrated true flower fragrance for after shaving, atomizer and kerchief—Alcohol 50%". Analysis showed only 40.22 per cent of alcohol by volume; no methyl alcohol was found.

J.S.-57. Newport Brand Bathing Salts. William H. Carney, Waterbury, Conn. Sodium chloride, 96.52; calcium chloride, 0.74; water-insoluble, 0.67, and moisture, 2.07, per cent; magnesium, trace; no phosphate, borate, sulphate or iodide. Not sea salts as claimed.

J.S.-58. Sea Salt Solution. William H. Carney, Waterbury, Conn. Total solids, 6.65, and sodium chloride, 6.42, per cent. This sample was submitted with a request for information on the dilution that would be required to make it isotonic with tears, so that it could be used as an eyewash. Since a 1.40 gm./100 cc. solution of sodium chloride is isotonic with tear secretion,¹ one part of *J.S.-58* mixed with 3.59 parts of water would yield the dilution desired. Such a mixture would not, however, be a sea salt solution, because it would contain no more than a trace of magnesium chloride.

J.S.-40. Skid. Hydrocarb Corp., Orange, N. J. Labelled "Shave with water that's all - A new scientific discovery - Not a lather - Not a brushless - No depilatories - No irritants - The once-over shave with the twice-over result - Directions: 1. Apply to dry face; 2. Let dry to a powder; 3. Wash off with water; 4. Shave wet face". Analysis showed: Sodium carbonate, 1.69; calcium carbonate, 5.61; magnesium carbonate, 4.12; organic matter, 15.96, and water, 73.46, per cent. Sample was essentially an aqueous suspension of sodium, calcium and magnesium carbonates emulsified with an organic wetting agent and highly perfumed; while it contained no free caustic, it was quite alkaline (pH 9.70).

J.S.-81. Willat Dynacurl, the Antiseptic Permanent Wave Lotion. Willat Production Co., San Francisco, Calif. This sample consisted of a carton containing: A 3½ oz. bottle of lotion; a paper cap; a cellophane envelope, labelled "Willat Dynacurl Neutralizer", containing a white powder; and an unlabelled cellophane envelope, containing pink crystalline material. Directions with the contents of the two

¹Husa and Rossi, *J. Am. Pharm. Assoc.*, 31, 270 (1942).

envelopes said to "Dissolve both bags in one cup of cold water to make concentrated neutralizer and read directions for use on hair and hands". The carton was labelled "Willat Dynacurl (non-thioglycolic) - Completely New - The Lotion that is itself an antiseptic - The Lotion that is unbelievably mild - The Lotion that gives thrilling results - The Lotion with its own applicator bottle - The Lotion with the new type neutralizer . . . and *it's* colored for your protection". There were no directions for use in the package as received; presumably these were in a missing circular.

Analysis of the lotion showed: Thioglycerine, 6.85; sodium sulphite, 5.40, and ammonia, 1.60, per cent. The white powder in one envelope was borax; and the pink crystalline material in the other was citric acid colored with a dye.

Thioglycerine shares with thioglycolic acid (and with ammonium acid sulphide, the active ingredient of the original Willat heatless permanent wave solution that proved to be too toxic) the property of containing an -SH group that reacts with the keratin of hair to soften it. Whether it is more effective or less harmful than thioglycolic acid we do not know.

COLLABORATION WITH OTHER DEPARTMENTS

One thousand, one hundred and eighty-two 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)	43
State Department of Health (narcotics)	3
State Department of Motor Vehicles (gasoline)	5
State Police	81
Station departments:	
Botany	11
Entomology	569
Forestry	316
Genetics	1
Soils	152
Tobacco Laboratory	1
	1,182

Examinations for the State Police were largely spectographic analyses and microscopic examinations of paint in motor vehicle collision cases.

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	2,554	23
Thermometers	66	3
	2,620	26

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