Bulletin 329 June, 1931

THE THIRTY-FIFTH REPORT ON FOOD PRODUCTS

AND THE TWENTY-THIRD REPORT ON DRUG PRODUCTS

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Connecticut
Agricultural Experiment Station
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CONTENTS AND SUMMARY

Material	Page	Sampled by, or Submitted to: The Station	Sampled by, or Submitted to: The Dairy and Food Commissioner	Total	Adulterated, below standard, or otherwise illegal
FOODS					
Beverages, soda water type, fruit juices, etc.	613	6	174	180	3
Coffee, etc.:	615		2	2	0
Cafe des Invalides	615	1	0	1	0
Yermat	615	1	0	1	0
Eggs	616	0	3	3	1
Fats and Oils:					
Butter	616	5	2	7	...
Gem Nut Margarine	616	0	1	1	...
Olive oil	616	0	17	17	5
Flavoring extracts:					
"Elpam" imitation maple flavor	616	0	1	1	...
Foods, special and miscellaneous	617	24	0	24	...
Ice cream, etc.	621	0	437	437	5
Meat products:					
Bologna	633	0	1	1	...
Frankfurts	633	8	5	13	5
Freeze-Em pickle, meat preservative	634	...	1	1	...
Freeze-Em, meat preservative	634	0	1	1	...
Frozen clods, beef	634	0	1	1	...
Hamburg steak	634	2	8	10	1
Milk and milk products:					
Market milk	635	120	785	905	377[1]
Milk shakes	635-6	0	65	65	...
Cream	636	5	0	5	...
Miscellaneous	636	3	9	12	2
Salad dressing, mayonnaise	636	2	34	36	...
Vinegar	641	11	39	50	7
Total for foods		188	1586	1774	406

[1] Includes 155 below standard only.

Material	Page	Sampled by, or Submitted to: The Station	Sampled by, or Submitted to: The Dairy and Food Commissioner	Total	Adulterated, below standard, or otherwise illegal
DRUGS					
Ammonia, spirits of	641	0	1	1	...
Ammonia water, solution of	641	0	5	5	4
Ammonia water, stronger	641	0	8	8	4
Ammonium acetate, solution of	641	0	3	3	1
Arsenous and mercuric iodide, solution of	642	0	6	6	5
Bismuth subgallate	643	0	4	4	...
Bismuth subnitrate	644	0	7	7	...
Caffeine sodio-benzoate	645	0	4	4	...
Calcium glycerophosphate	645	0	3	3	...
Calcium hydroxide (lime water)	646	0	10	10	...
Calcium lactate	647	0	5	5	...
Camphor, spirits of	647	0	1	1	...
Chlorinated lime	648	0	4	4	1
Cinchophen	649	0	5	5	...
Citrated caffeine	649	0	5	5	...
Citrate of magnesia, solution of	649	0	3	3	2
Ferrous carbonate, pills of (Blaud's Pills)	650	0	14	14	1
Hydrogen dioxide, solution of	651	0	7	7	2
Hydriodic acid, dilute	651	0	2	2	...
Hydrochloric acid	652	0	27	27	12
Magnesia, milk of	654	0	7	7	...
Nitrous ether, spirit of	655	0	42	42	16
Peppermint, essence of	657	0	1	1	...
Phenobarbital sodium, elixir of	657	0	2	2	...
Phosphoric acid, diluted	658	0	21	21	15
Potassium and sodium hydroxide, solutions of	659	0	2	2	...
Saccharated ferrous carbonate	660	0	4	4	1
Sulphuric acid, diluted, solution of	660	0	15	15	9
Total for drugs		...	218	218	73
MISCELLANEOUS					
Potatoes	661	11	0	11	...
Drugs and other materials	664	28	14	42	...
Materials examined chiefly for poisons	666	52	0	52	...
Total for miscellaneous		91	14	105	
Total for all, exclusive of glassware		279	1818	2097	479
Babcock glassware and thermometers	668	1856	0	1856	8

THE THIRTY-FIFTH REPORT ON FOOD PRODUCTS AND THE TWENTY-THIRD REPORT ON DRUG PRODUCTS

E. M. Bailey

This was the first Agricultural Experiment Station in this country to be officially charged with food control work by the State legislature. Our present law, enacted in 1907, was preceded by a comprehensive and practical statute passed in 1895 which aimed to prevent adulteration of foods generally. Under this old law the first food report was issued by the Station in 1896, thirty-five years ago. Similar duties were imposed upon the Stations in Kentucky in 1898, in North Dakota and Wyoming in 1903, and in Maine in 1905. Prior to 1895 there were a few special laws governing the manufacture and sale of certain foods, notably vinegar, butter and molasses.

The revision of the food law made in 1907 contemplated chiefly an inclusion of drugs in the scope of inspection and control, and for the last twenty-three years the annual report on foods has included also an account of drug inspection.

For the most part samples examined are submitted by the Dairy and Food Commissioner, although the Station may and does examine samples of both foods and drugs collected by its own agent. In all cases, however, instances of adulteration or misbranding are reported to the Commissioner for corrective action as required by law. The Station is not charged with the responsibility of enforcement.

The present report summarizes the work done for the past year in this field. In addition to this, the department has collaborated with the Association of Official Agricultural Chemists in studies of methods and related work; the chemist in charge has continued to serve on the Standards Committee of the U. S. Department of Agriculture and as a member of the Council on Pharmacy and Chemistry of the American Medical Association and of the Committee on Foods of that Council.

For efficient collaboration in the work herein reported, as well as in all other activities of the department, acknowledgment is due and gratefully made to all the members of the department staff.

FOODS

CARBONATED BEVERAGES, ETC.

One hundred and seventy-four samples of this class of products have been examined for the Dairy and Food Commissioner.

The provision of the carbonated beverage law requiring not

less than 5 per cent of sugar in beverages of this type is always met and generally exceeded. Failures to declare artificial colors and flavors in beverages where such ingredients are used are rare. Saccharin is seldom found.

In the past year one instance of failure to declare the presence of artificial color and flavor was noted, and in several other samples the artificial character of some ingredients was suspected but not conclusively demonstrated. Saccharin was found in two samples, but in both cases the products were manufactured outside of this State. A number of beverages sold under distinctive names, Pepsi-Cola, O. C. Kola, Coca Cola and Braser contained caffeine in approximately the proportions found in tea infusions as ordinarily prepared.

A product was rather widely sold during the past season under the name of cherry cider. Artificial color and flavor and a benzoate were characteristic constituents of the samples examined. In one instance the base of the product appeared to be apple cider to which color and flavor had been added to simulate the character of cherry.

The emphasis placed upon the nutritional advantages of fruit juices has resulted in a large increase in consumption of drinks consisting wholly or in part of fruit juice, more especially orange juice. In many instances orange juice is prepared in the presence of the customer and the genuine character of the beverage is unquestioned, but when served from stock solutions the consumer may receive a beverage considerably diluted as regards actual fruit juice. This is well illustrated by the following comparative analyses. Sample 46363 is genuine orange juice prepared in the presence of the inspector, while samples 46359 and 46362 are so-called orange juice considerably diluted and fortified with sugar and citric acid and artificially colored. Analyses are on filtered juice.

	46363 (genuine) gms/100 cc	46359 (diluted) gms/100 cc	46362 (diluted) gms/100 cc
Solids	9.40	....	....
Sucrose	4.36	14.51	14.67
Invert sugar	3.32	0.82	0.94
Total sugars	7.68	15.33	15.61
Acidity as citric-acid	0.76	0.99	0.97
Ash	0.41	0.08	0.07
Nitrogen	0.052	....	0.017

The characteristics of genuine orange juice are seen to be a relatively high ash and a considerable amount of invert sugar. The sugar distribution in the artificial products will, however, vary, depending upon the degree of acidity and the length of time that the acid has had an opportunity to act upon the sucrose present. The chief characteristic of the genuine juice is the ash content which itself is further characterized by its potassium and phosphorus content, in the above cases undetermined.

The proportion of orange juice which should be present in a beverage not claimed to be entirely juice, but stressing orange juice content, is not a matter of concordant opinion or practice at the present time. Some state regulations allow as little as 5 per cent, while others require 15 per cent. It would appear that the higher figure is more nearly in accord with what the consumer may reasonably expect in a beverage such as orangeade. This proportion might or might not hold for other fruit juices, depending upon the character of the fruit in question.

Since orange juice, as ordinarily prepared by reaming, or other means accomplishing a similar result, contains some pulp, abuses may arise from the inclusion of excess of pulp and thus create a false impression of fruit juice content.

Considerable attention has been given to the problem of a fair and rational classification of carbonated and still beverages both by state control officials and by the Standards Committee, but conflicting trade practices and other difficulties have thus far prevented any satisfactory solution to the question.

COFFEE, ETC.

Two samples of coffee submitted by the Dairy and Food Commissioner were examined. No adulteration was found. Microscopic examination revealed no foreign materials and the caffeine content was normal, 1.22 and 1.24 per cent.

A sample of Cafe des Invalides, a product labelled as containing about 7/8 coffee, the remainder being other vegetable substances, was examined. The addition of non-coffee material is designed, in part, to reduce the caffeine content below that of ordinary coffee. A mechanical separation of the ingredients on the basis of 1 gram showed 0.892 gm. coffee, 0.092 gm. of vegetable material which appeared to be pea hulls, and 0.016 gm. of chicory. The caffeine content was 1.10 per cent. The label declaration of 7/8 coffee is borne out by the examination of the product.

A sample of *Yermat* prepared by The Yerba Mate Corporation of Chicago, was submitted for analysis. This is a carbonated infusion of the dried leaves of Yerba Mate (Ilex-Paraguayensis) sweetened, and flavored with an essential oil. It contained 8.5 per cent of sugar and 4 milligrams of caffeine in each 100 cc. of solution. The leaves of this plant, sometimes called Paraguay tea,

are used in the preparation of an infusion largely consumed in South American countries as a beverage. Analyses of the cured leaves of a related shrub, *Ilex Cassine,* are given in a previous bulletin.[1]

EGGS

Three samples of eggs were submitted by the Dairy and Food Commissioner. They were sold as fresh or "fresh western." Two samples were passed as fresh. One was edible but not fresh.

Size of air space, condition of yolk and white in the shell and on breaking, and ammoniacal nitrogen content are the factors depended upon to determine whether or not eggs are properly classified as fresh.

FATS AND OILS

BUTTER AND OLEOMARGARINE

Two samples of butter were examined and no evidence of adulteration was found.

A sample of nut margarine, *Gem,* said to be made from vegetable oils, milk products and salt, was found on analysis to substantiate that claim. It contained 9.00 per cent of moisture, 86.2 per cent of fat, 3.45 per cent of salt and 1.35 per cent of curd.

Five samples of melted butter taken from popcorn vendors' stands were submitted by the Department of Health of New Haven. So far as could be determined all samples were butter, except possibly one, concerning which there was some doubt.

OLIVE OIL

Seventeen samples were examined of which twelve were passed as genuine.

Two samples were short weight. They were labelled as full quarts but contained 0.96 of a quart in each case. One sample was adulterated with cottonseed oil and two samples contained cottonseed oil and artificial color.

FLAVORING EXTRACTS

One sample of imitation maple flavor was submitted by the Dairy and Food Commissioner. The brand name was *Elpam.* The accompanying literature showed plainly the imitation character of

[1] Conn. Agr. Exp. Sta., Bull. 248, p. 433. 1922.

the product, but the identity of the flavoring principle was not established. An attempt was made to isolate choline and trigonelline by the method of Jahns (Ber. 18, 2518, 1885) to show the presence of fenugreek, but although the presence of organic bases was indicated they were insufficient in quantity to make isolation and identification possible.

SPECIAL AND MISCELLANEOUS FOODS

Twenty-four products in this class of foods have been examined and analyses are given in Table 1. Some of the foods have been analyzed in the course of our collaboration with the Committee on Foods of the Council on Pharmacy and Chemistry of the American Medical Association. The analyses are largely at the request of physicians, dietitians and others interested.

TABLE 1. SPECIAL AND MISCELLANEOUS FOODS

No.	Manufacturer and name of product	Water	Ash	Protein (Factor 6.25)	Fiber	Carbohydrate: Starch + Water-soluble calculated as dextrose	Carbohydrate: Undetermined	Fat (ether extract)
	Diabetic Food Co., Inc., 6205 18th Ave., Brooklyn, N. Y.	%	%	%	%	%	%	%
3651	Dia-Mel Low Calorie Flour	5.85	5.38	3.44	4.65	4.08[1]	76.02	0.58
3652	Dia-Mel Neutralized Flour	6.48	11.80	19.88	2.93	2.91[1]	55.80	0.20
3653	Dia-Mel Dietetic Casein Flour	5.68	9.08	43.88	1.90	1.84[1]	37.12	0.50
	Glogau and Co., Chicago							
4910	Aleuronat	8.45	0.59	65.38[2]	0.23	19.63[3]	1.48	4.24
	Loeb Dietetic Food Co., 4378 Broadway, New York City							
5782	Loeb's Dietetic Cheese Tid-Bits	4.05	1.74	34.38	0.30	17.24[3]	4.74	37.55
5780	Loeb's Dietetic Grape Jelly	92.00	0.38	0.38	....	4.76[1]	....	....
5783	Loeb's Karlsbader Style Biscotten	4.10	1.23	32.13	0.35	18.00[3]	4.39	39.80
5781	Loeb's Mapleine Syrup	99.65	0.05	0.13	....	0.28[1]	....	....

[1] Starch, qualitative—none.
[2] Factor 5.70.
[3] Starch, qualitative—much.

TABLE 1. SPECIAL AND MISCELLANEOUS FOODS—*Continued*

No.	Manufacturer and name of product	Water	Ash	Protein (Factor 6.25)	Fiber	Carbohydrate: Starch + Water-soluble calculated as dextrose	Carbohydrate: Undetermined	Fat (ether extract)
	MacDowell Brothers, Ogdensburg, N. Y.	%	%	%	%	%	%	%
3566	Dietetic Wafers	3.60	5.66	25.00	4.42	27.75[3]	19.10	14.47
	Reymond's Bakery, Waterbury, Conn.							
4609	Whole Wheat Bread	39.17	2.44	9.81	1.35	44.82		2.41
4608	100% Whole Wheat Raisin Bread	33.88	2.44	7.47	1.01	52.72		2.48
	Paul Schulze Biscuit Co., Chicago, Ill.							
5618	Rye Brackle Wafers, "Health Bread"	6.65	2.86	11.50	1.50	65.92	10.12	1.45
	Soyolk Company, Inc., 60 John St., New York City							
4059	Soyolk	5.73	4.71	43.63	1.74	23.75		20.44[4]
	Spinach Products Co., Inc., Norfolk, Va.							
3291	Spintrate (Spinach Concentrate)	6.50	14.26	31.38	9.33	3.88[5]	30.00	4.65

[3] Starch, qualitative—much.
[4] Lecithin P_2O_5 0.118%.
[5] Starch, qualitative—trace.

TABLE 1. SPECIAL AND MISCELLANEOUS FOODS—*Concluded*

No.	Manufacturer and name of product	Water	Ash	Protein (Factor 6.25)	Fiber	Carbohydrate		Fat (ether extract)
						Starch + Water-soluble calculated as dextrose	Undetermined	
	Miscellaneous	%	%	%	%	%	%	%
4151[6]	Canova Peanut Butter	1.96	2.65	29.63	5.00	10.56[7]	1.00	49.20
4150[6]	College Inn Tomato Juice Cocktail	94.43[8]	1.12	0.81	0.17	2.48[9]	0.99	
4149[6]	Zed (Twice Baked) Biscuits	2.95	4.60	10.25	2.53	54.63[8]	9.55	15.49
4330[6]	McCormick's Sunwheat Irradiated-Vitamin Biscuits	5.70	5.75	11.38	1.40	63.27		12.50
4961A	Bran (ground)	10.35	6.66	16.31	9.58	51.90		5.20
4961B	Bran (unground)	10.40	6.65	16.25	9.83	51.97		4.90
3180	Cooked Whole Wheat, L. B. Rockwell, New Haven (as sold)	65.99	1.15[10]	4.51	0.84	26.93		0.58
3180	Cooked Whole Wheat, L. B. Rockwell, New Haven (air-dry basis)	7.18	3.15[11]	12.31	2.30	73.48		1.58
4342	Watercress, Commercial (Calif. Vegetable Products Co.)	6.05	19.65	20.81	17.80	4.25	27.89	3.55
4343	Watercress, gathered locally, mainly leafy portion	8.15	14.25	30.81	9.40	10.38	22.45	4.56

[6] Starch, qualitative—much.
[6] Submitted by American Medical Association.
[7] Starch, qualitative—considerable.
[8] Solids, 5.57%.
[9] Trace of erethrodextrin.
[10] Salt, 0.32%.
[11] Salt, 0.87%.

ICE CREAM

Extensive surveys of ice cream have been made by the Dairy and Food Commissioner's office in the last few years. The tests made in this laboratory are almost exclusively for fat content, to determine whether the standard of 8 per cent for plain ice cream and 6 per cent for ice creams containing fruit or nuts, is met. But this represents only a part of the inspection service devoted to this product. In the commissioner's report for the two-year period ending June 30, 1930, it appears that over 2,300 dispensing establishments including drug stores, soda fountains, roadside and other stands, were examined as to sanitary conditions. An increasing use of individual paper cups, dishes and spoons for dispensing purposes was noted, but the criticism is made that there is generally no hot water supply for the adequate cleansing of utensils incidental to handling this product. This is an important feature of inspection and deserves the attention that it receives.

The same report quotes estimates for the total ice cream production in the United States for the year 1929 as more than 250 millions of gallons and for Connecticut in the same period at nearly 4 millions of gallons.

So far as fat content is concerned the results of recent inspections show that the 8 per cent standard is substantially or largely exceeded in most instances. Thus, in the survey for 1929, nearly 90 per cent of the samples tested were in excess of 10 per cent, and more than one-half of the total number were 12 per cent or over. The same is true this year.

Only five instances of deficiencies in fat or failure to declare proper signs for substandard products were found.

The results of analyses are given in Table 2.

TABLE 2. ANALYSES OF ICE CREAM

No.	Flavor	Dealer	Manufacturer	Fat
		Ansonia		%
45743	Vanilla	Purity Tea Room	Own make	15.6
46073	Lemon	Purity Tea Room	Own make	14.8
45741	Vanilla	Stever's Pharmacy	Own make	14.4
45742	Strawberry	Stever's Pharmacy	Own make	13.6
45744	Vanilla	Venetas Bros.	Own make	14.0
45745	Banana	Venetas Bros.	Own make	12.4
		Bridgeport		
45455	Vanilla	Athens Confectionery Co.	Own make	14.0
45456	Strawberry	Athens Confectionery Co.	Own make	14.6
45484	Peach	Athens Confectionery Co.	Own make	14.4
45480	Vanilla	Atlantic Confectionery Co.	Mitchell's I. C. Co., Bgpt.	14.6
45481	Strawberry	Atlantic Confectionery Co.	Own make	13.2
45466	Vanilla	Boston Candy Co.	Own make	13.2
45467	Strawberry	Boston Candy Co.	Own make	14.0
45470	Vanilla	Bridgeport Lemon Ice Co.	Own make	10.6
45471	Strawberry	Bridgeport Lemon Ice Co.	.....	8.8
45490	Vanilla	Candyland Confectionery Co.	Own make	12.6
45491	Strawberry	Candyland Confectionery Co.	Own make	12.4
45489	Vanilla	George Casteines	Own make	9.0
45482	Vanilla	S. Gertsl	Own make	12.4
45483	Strawberry	S. Gertsl	Own make	10.6
45475	Strawberry	Golden Hill Candy Shoppe	Clover Farm I. C. Co., Bgpt.	11.6
45472	Vanilla	Goodie Shoppe	Own make	17.6
45473	Strawberry	Goodie Shoppe	Own make	19.0
45459	Vanilla	M. Izzo	Fro-Joy Brand	13.2
45460	Strawberry	M. Izzo	Fro-Joy Brand	11.0
45485	Vanilla	Kinsella's Pharmacy	Horton's I. C. Co., Bgpt.	10.6
45486	Orange-Pineapple	Kinsella's Pharmacy	Horton's I. C. Co., Bgpt.	9.0
45476	Vanilla	Lane's, Inc.	Own make	12.2
45477	Strawberry	Lane's, Inc.	Own make	11.2
45463	Vanilla	Leverty's Drug Co.	Mitchell's I. C. Co., Bgpt.	14.6
45464	Strawberry	Leverty's Drug Co.	Mitchell's I. C. Co., Bgpt.	13.0
45461	Vanilla	Neary's Drug Co.	Huber's I. C. Co., Bgpt.	13.6
45462	Strawberry	Neary's Drug Co.	Huber's I. C. Co., Bgpt.	12.4
45492	Vanilla	Newfield Candy Co.	Own make	11.8
45493	Strawberry	Newfield Candy Co.	Own make	7.6
45457	Vanilla	North End Chocolate Shop	Park City I. C. Co., Bgpt.	12.6
45458	Strawberry	North End Chocolate Shop	Park City I. C. Co., Bgpt.	12.0
45494	Vanilla	Paradise Candy Co.	Own make	12.2
45495	Strawberry	Paradise Candy Co.	Own make	10.0
45468	Vanilla	Park City Spa	Own make	15.2
45469	Strawberry	Park City Spa	Own make	14.8
45478	Vanilla	Picadilly Soda Shop	Own make	14.2
45479	Strawberry	Picadilly Soda Shop	Own make	12.8
45487	Vanilla	Royal Candy Co.	Own make	14.0
45488	Strawberry	Royal Candy Co.	Own make	13.0
45465	Vanilla	Spaghetti House	Clover Farm I. C. Co., Bgpt.	12.8
45474	Vanilla	Wakin's Confectionery Co.	Own make	12.8

TABLE 2. ANALYSES OF ICE CREAM—*Continued*

No.	Flavor	Dealer	Manufacturer	Fat
		Bristol		%
44855	Vanilla	Center Lunch	Palace of Sweets, Plainville	15.2
44856	Strawberry	Center Lunch	Palace of Sweets, Plainville	15.2
44867	Vanilla	Central Drug Co.	Ce Brook I. C. Co., Hartford	10.8
44863	Vanilla	Liberty Confectionery Co.	Own make	14.0
44864	Strawberry	Liberty Confectionery Co.	Own make	11.8
44860	Vanilla	Noveck Drug Co.	Fro-Joy Brand	13.0
44861	Vanilla	Palace of Sweets	Own make	14.6
44862	Strawberry	Palace of Sweets	Own make	13.2
44857	Vanilla	Sweetland Confectionery Co.	Own make	14.6
44858	Strawberry	Sweetland Confectionery Co.	.....	13.8
44865	Vanilla	The Soda Shoppe	Own make	13.2
44866	Strawberry	The Soda Shoppe	Own make	12.0
44859	Strawberry	The Spa	Crown I. C. Co., New Britain	9.8
		Canaan		
45357	Vanilla	The Service Pharmacy	Semon I. C. Co., New Haven	11.0
45358	Strawberry	The Service Pharmacy	Semon I. C. Co., New Haven	8.8
		Canton		
45319	Vanilla	Margaret Dyer	Own make	17.8
45320	Coffee	Margaret Dyer	Own make	18.0
		Collinsville		
45307	Vanilla	Collinsville Candy Kitchen	Own make	15.2
45308	Strawberry	Collinsville Candy Kitchen	Own make	15.4
		Cos Cob		
45940	Vanilla	Cos Cob Pharmacy	Reid's I. C. Co., N. Y.	10.4
		Danbury		
45370	Vanilla	Danbury Candy Co.	Own make	13.4
45371	Strawberry	Danbury Candy Co.	Own make	12.8
45377	Chocolate	Eagle Confectionery Co.	Own make	15.0
45378	Strawberry	Eagle Confectionery Co.	Own make	13.6
45368	Chocolate	Highland Sweet Shoppe	Highland Sweet Shoppe, Winsted	12.8
45372	Vanilla	Kumer's Drug Co.	Rider's Dairy Co.	12.8
45373	Strawberry	Kumer's Drug Co.	Rider's Dairy Co.	10.4
45376	Orange-Pineapple	Morey Bros.	Huber's I. C. Co., Bgpt.	12.4
45374	Vanilla	Palace Confectionery Co.	Hatch's I. C. Co.	13.6
45375	Strawberry	Palace Confectionery Co.	Hatch's I. C. Co.	11.8
45369	Strawberry	Whelan Drug Co.	Fro-Joy Brand	11.0
		Danielson		
45917	Butter-scotch	Washington Spa	Fro-Joy Brand	15.6
45918	Strawberry	Washington Spa	Fro-Joy Brand	11.6
45915	Chocolate	Woodward Pharmacy	Hood's I. C. Co., Providence, R. I.	12.8

TABLE 2. ANALYSES OF ICE CREAM—*Continued*

No.	Flavor	Dealer	Manufacturer	Fat
		Danielson—Concluded		%
45916	Maple-nut	Woodward Pharmacy	Hood's I. C. Co., Providence, R. I.	12.8
		Darien		
46052	Vanilla	G. E. Taylor	Maplehurst Dairy I. C. Co.	15.2
46053	Black Walnut	G. E. Taylor	Maplehurst Dairy I. C. Co.	15.2
		East Hampton		
46083	Vanilla	East Hampton Candy Co.	Linbrook I. C. Co.	14.8
46084	Orange-Pineapple	East Hampton Candy Co.	Linbrook I. C. Co.	12.8
		Granby		
45354	Vanilla	Mrs. Mary L. Mathews	Casey I. C. Co., Westfield, Mass.	14.0
45355	Strawberry	Mrs. Mary L. Mathews	Casey I. C. Co., Westfield, Mass.	11.6
		Greenwich		
45931	Vanilla	A. B. Libano Co.	Own make	17.2
45932	Strawberry	A. B. Libano Co.	Own make	14.8
45933	Vanilla	A. B. Libano Co.	Own make—special	35.5
45936	Vanilla	Palm Tea Room	Own make	16.2
45937	Strawberry	Palm Tea Room	Own make	15.0
45938	Vanilla	Veaudrey's Pharmacy	Breyer's I. C. Co.	12.0
45939	Peach	Veaudrey's Pharmacy	Breyer's I. C. Co.	10.4
45934	Chocolate	Washington Confectionery	Neilsen's I. C. Co., Portchester	13.6
45935	Strawberry	Washington Confectionery	Neilsen's I. C. Co., Portchester	13.0
		Groton		
45747	Vanilla	Scuris Bros.	Own make	20.2
45748	Strawberry	Scuris Bros.	Own make	20.0
		Hartford		
45565	Vanilla	Besse's	Own make	15.0
45566	Strawberry	Besse's	Own make	11.8
45554	Vanilla	Capitol-Lyric Soda Shop	Own make	12.0
45555	Strawberry	Capitol-Lyric Soda Shop	Own make	13.0
45556	Vanilla	Rosario Cippolo	Own make	8.2
45573	Vanilla	Crown Confectionery Co.	Own make	12.4
45574	Strawberry	Crown Confectionery Co.	Own make	11.2
45569	Vanilla	G. Fox & Co.	Own make	20.0
45570	Strawberry	G. Fox & Co.	Own make	12.8
45550	Chocolate	John Gasper	Fro-Joy Brand	10.8
45551	Strawberry	John Gasper	Fro-Joy Brand	8.8
45496	Vanilla	Highland Dairy I. C. Co.	Own make	12.2
45497	Strawberry	Highland Dairy I. C. Co.	Own make	9.6
45571	Vanilla	Jensen's, Inc.	Own make	20.0
45572	Peach	Jensen's, Inc.	Own make	14.4
45552	Vanilla	L & B Delicatessen	Ce Brook I. C. Co.	11.4
45553	Cherry	L & B Delicatessen	Ce Brook I. C. Co.	11.2

TABLE 2. ANALYSES OF ICE CREAM—*Continued*

No.	Flavor	Dealer	Manufacturer	Fat
		Hartford—Concluded		%
45559	Vanilla	Patterson's Soda Shop	Own make	14.6
45560	Strawberry	Patterson's Soda Shop	Own make	16.6
45498	Chocolate	Rivoli Soda Shop	Crown I. C. Co., New Britain	10.2
45499	Strawberry	Rivoli Soda Shop	Crown I. C. Co., New Britain	10.2
45561	Vanilla	Robbin's, Inc.	Own make	17.0
45562	Strawberry	Robbin's, Inc.	Own make	17.2
45567	Vanilla	Sheldon Lemon Ice Co.	.....	9.2
45557	Vanilla	South Green Confectionery Co.	Own make	17.4
45558	Orange-Pineapple	South Green Confectionery Co.	Own make	16.0
45563	Vanilla	The New Paris	Own make	19.0
45564	Strawberry	The New Paris	Own make	12.8
		Jewett City		
45909	Vanilla	Fred Maynard	Own make	16.4
45910	Orange-Pineapple	Fred Maynard	Own make	14.8
		Lakeville		
45359	Vanilla	Leverty's Pharmacy	Fro-Joy Brand	10.6
45360	Italian Special	Leverty's Pharmacy	Fro-Joy Brand	10.6
		Lyme		
45698	Vanilla	Hall Mark Chocolates, Inc.	Own make	15.4
		Meriden		
45327	Vanilla	Billie Burn's Candy Shoppe	Own make	13.2
45328	Fruit	Billie Burn's Candy Shoppe	.....	9.4
45329	Vanilla	Hartmann's, Inc.	Sagal-Lou Dairy, New Haven	13.4
45330	Strawberry	Hartmann's, Inc.	Sagal-Lou Dairy, New Haven	11.0
45325	Vanilla	Katt Bros.	Own make	12.2
45326	Banana	Katt Bros.	Own make	10.8
45331	Vanilla	Liggett's Drug Co.	Fro-Joy Brand	14.4
45321	Vanilla	The Candy Box	Own make	15.6
45322	Strawberry	The Candy Box	Own make	11.0
45323	Vanilla	The Chocolate Shop	Own make	18.2
45324	Strawberry	The Chocolate Shop	Own make	14.8
		Middletown		
44897	Vanilla	Cubeta Bros.	Millbrook I. C. Co.	12.6
44898	Cherry	Cubeta Bros.	Lynbrook I. C. Co.	13.2
44899	Strawberry	Cubeta Bros.	Millbrook I. C. Co.	11.2
45301	Vanilla	Neville's Soda Shop	Own make	14.6
45302	Cherry	Neville's Soda Shop	Own make	14.2
45305	Vanilla	Olympia Candy Co.	Own make	13.4
45306	Strawberry	Olympia Candy Co.	Own make	13.4
45303	Vanilla	J. W. Stueck & Son	Own make	13.6
45304	Strawberry	J. W. Stueck & Son	Own make	13.0
45300	Vanilla	Woodward Drug Store	Lynbrook I. C. Co.	14.2

TABLE 2. ANALYSES OF ICE CREAM—*Continued*

No.	Flavor	Dealer	Manufacturer	Fat
		Milford		%
46075	Coffee	John T. Howes	Harris-Hart I. C. Co., New Haven	12.0
46076	Strawberry	John T. Howes	Harris-Hart I. C. Co., New Haven	10.8
		Montville		
45671	Vanilla	Unca Candy Kitchen	Own make	16.4
45672	Strawberry	Unca Candy Kitchen	Own make	14.8
		Moosup		
45911	Vanilla	Henry LeCran	Own make	20.0
45912	Strawberry	Henry LeCran	Own make	13.6
		Mystic		
45901	Vanilla	Knox's Drug Store	Hood's I. C. Co., Boston, Mass.	17.2
45902	Peach	Knox's Drug Store	Hood's I. C. Co., Boston, Mass.	14.0
45749	Vanilla	Riverside I. C. Parlor	Own make	21.4
45900	Peach	Riverside I. C. Parlor	Own make	19.6
		Naugatuck		
46070	Vanilla	Andy's Campus	Naugatuck Dairy I. C. Co.	11.2
46071	Strawberry	Andy's Campus	Naugatuck Dairy I. C. Co.	10.2
45737	Vanilla	Stanley's Confectionery	Naugatuck Dairy I. C. Co.	10.8
45738	Peach	Stanley's Confectionery	Naugatuck Dairy I. C. Co.	10.4
		New Britain		
45599	Chocolate	Blew's Soda Spa	Milibrook I. C. Co., Middletown	11.0
45650	Frozen Pudding	Coutaras Bros.	Ce Brook I. C. Co., Hartford	11.0
45651	Vanilla	St. Clair Confectionery Co.	Own make	15.8
45652	Strawberry	St. Clair Confectionery Co.	Own make	10.8
45653	Vanilla	Star Confectionery Co.	Own make	14.6
45654	Strawberry	Star Confectionery Co.	Own make	15.6
		New Canaan		
45929	Vanilla	Olympia Candy Co.	Own make	17.2
45930	Strawberry	Olympia Candy Co.	Own make	16.8
		New Haven		
45577	Vanilla	Basil's Confectionery Co.	Own make	10.6
45578	Strawberry	Basil's Confectionery Co.	Own make	11.2
45338	Vanilla	Beaver Confectionery Co.	Own make	9.8
45339	Strawberry	Beaver Confectionery Co.	Own make	8.2
45661	Vanilla	Boulevard Candy Shop	Own make	10.8
45662	Orange-Pineapple	Boulevard Candy Shop	Own make	9.8
46077	Vanilla	Bouzoucos Bros.	Own make	12.6
46078	Strawberry	Bouzoucos Bros.	Own make	12.4
45589	Vanilla	Cummings Bros.	Own make	11.0

TABLE 2. ANALYSES OF ICE CREAM—*Continued*

No.	Flavor	Dealer	Manufacturer	Fat
		New Haven—Concluded		%
45590	Strawberry	Cummings Bros.	Own make	11.0
45659	Vanilla	F. C. Defelice I. C. Parlor	Own make	9.0
45660	Vanilla	L. Dellamura	.....	7.0[1]
46087	Vanilla	L. Dellamura	Own make	9.6
45352	Vanilla	DeLupe Bros.	Own make	12.8
45353	Fruit-mixed	DeLupe Bros.	Own make	11.2
45350	Vanilla	I. Dickstein	Own make	9.4
45351	Cherry	I. Dickstein	Own make	9.0
45585	Vanilla	Eagle Confectionery Co.	Own make	13.2
45586	Strawberry	Eagle Confectionery Co.	Own make	10.8
45597	Vanilla	Edgewood Confectionery Co.	Own make	9.2
45598	Strawberry	Edgewood Confectionery Co.	Own make	8.4
45657	Vanilla	Gabriel's I. C. Parlor	Own make	6.4[1]
45658	Strawberry	Gabriel's I. C. Parlor	.....	9.0
46086	Vanilla	Gabriel's I. C. Parlor	Own make	10.2
45655	Vanilla	Grand Confectionery Co.	.....	9.8
45656	Strawberry	Grand Confectionery Co.	Own make	10.4
45591	Vanilla	House of Hasselbach	Own make	12.8
45592	Strawberry	House of Hasselbach	Own make	8.2
45346	Vanilla	Howard I. C. Parlor	Own make	14.2
45347	Strawberry	Howard I. C. Parlor	Own make	13.4
45453	Vanilla	Huntington Confectionery Co.	Own make	10.4
45454	Strawberry	Huntington Confectionery Co.	Own make	10.2
45344	Vanilla	Hygrade Soda Shoppe	Marioni I. C. Co.	13.4
45345	Pineapple	Hygrade Soda Shoppe	Marioni I. C. Co.	11.4
45340	Vanilla	Kimberly-Howard I. C. Parlor	Own make	10.0
45341	Cherry	Kimberly-Howard I. C. Parlor	Own make	9.8
45587	Vanilla	Kum-On-Inn Shop	Own make	10.0
45588	Strawberry	Kum-On-Inn Shop	Own make	9.2
45042	Vanilla	Mazzecannie Pharmacy	Brock-Hall I. C. Co.	14.0
45343	Strawberry	Mazzecannie Pharmacy	Brock-Hall I. C. Co.	12.6
45583	Vanilla	Olympia Candy Co.	Own make	11.0
45584	Strawberry	Olympia Candy Co.	Own make	10.0
45581	Chocolate	Olympia Restaurant	Own make	8.6
45582	Strawberry	Olympia Restaurant	Own make	8.8
45579	Vanilla	Polo's Chocolate Shop	Own make	12.8
45580	Strawberry	Polo's Chocolate Shop	Own make	11.0
45593	Vanilla	Mrs. Root	Own make	12.0
45594	Peach	Mrs. Root	Own make	10.4
45348	Vanilla	Geo. Stavreides	Own make	14.8
45349	Cherry	Geo. Stavreides	Own make	14.0
45595	Vanilla	Sweetland Confectionery Co.	Own make	9.4
45596	Strawberry	Sweetland Confectionery Co.	Own make	9.0
45575	Vanilla	Peter Villani	Own make	10.4
45576	Peach	Peter Villani	Own make	8.6
45663	Coffee	Westville Confectionery Co.	Own make	9.4
45664	Strawberry	Westville Confectionery Co.	Own make	9.6
		New London		
45677	Vanilla	Apollo Candy Shop	Own make	16.0
45678	Peach	Apollo Candy Shop	Own make	11.6

[1] Roese-Gottlieb Method.

TABLE 2. ANALYSES OF ICE CREAM—*Continued*

No.	Flavor	Dealer	Manufacturer	Fat
		New London—Concluded		%
45691	Vanilla	Boston Candy Co.	Own make	16.0
45692	Peach	Boston Candy Co.	Own make	14.8
45666	Vanilla	Capitol Candy Co.	Own make	18.8
45667	Strawberry	Capitol Candy Co.	Own make	16.4
45670	Maple nut	College Pharmacy	Maloof's I. C. Co.	15.4
45679	Strawberry	Conti Bros.	Own make	13.8
45680	Vanilla	Conti Bros.	Own make	18.4
45681	Vanilla	Diamond Chocolate Shop	Own make	14.0
45682	Strawberry	Diamond Chocolate Shop	Own make	14.0
45694	Vanilla-French	Laverone & DeBarbarieri	Fro-Joy Brand	11.4
45675	Vanilla	Liberty Candy Co.	Own make	12.2
45676	Strawberry	Liberty Candy Co.	Own make	11.6
45696	Vanilla	Arthur Lockwood	Own make	13.8
45697	Peach	Arthur Lockwood	Own make	12.6
45683	Vanilla	A. J. Maloof	Own make	15.4
45684	Strawberry	A. J. Maloof	Own make	14.2
45687	Vanilla	Mohican Hotel	Own make	22.2
45688	Peach	Mohican Hotel	Own make	16.6
45668	Vanilla	John Nichols	Own make	17.0
45669	Peach	John Nichols	Own make	11.6
45689	Vanilla	Peterson's Tea Room	Own make	18.4
45690	Peach	Peterson's Tea Room	Own make	13.2
45673	Vanilla	G. P. Photos	Own make	11.2
45674	Peach	G. P. Photos	Own make	12.2
45665	Maple nut	Taylor Pharmacy	Hood's I. C. Co., Providence, R. I.	14.2
45685	Vanilla	Victory Candy Shop	Own make	12.6
45686	Lemon	Victory Candy Shop	Own make	16.4
		New Milford		
45361	Vanilla	Arthur Bona	Own make	13.4
45362	Strawberry	Arthur Bona	Own make	13.4
45363	Vanilla	Hipp's I. C. Co.	Own make	13.0
45364	Strawberry	Hipp's I. C. Co.	Own make	11.8
45365	Vanilla	G. P. Nichols	Own make	12.6
45366	Strawberry	G. P. Nichols	Own make	13.2
45367	Strawberry	Park Pharmacy	Fro-Joy Brand	9.8
		Norfolk		
45356	Coffee	Rexall Drug Store	Fro-Joy Brand	10.8
		Norwalk		
46060	Vanilla	Golden Confectionery Co.	Own make	12.8
46061	Strawberry	Golden Confectionery Co.	Own make	10.8
46054	Vanilla	Kelly's Tourist Camp	Anheuser Busch I. C. Co., N. Y.	15.0
46055	Strawberry	Kelly's Tourist Camp	Anheuser Busch I. C. Co., N. Y.	9.4
46062	Vanilla	Peter's Sweet Shop	Own make	15.0
46063	Strawberry	Peter's Sweet Shop	Own make	14.2

TABLE 2. ANALYSES OF ICE CREAM—*Continued*

No.	Flavor	Dealer	Manufacturer	Fat
		Norwalk—Concluded		%
46064	Vanilla	Thomas' Confectionery Co.	Own make	18.6
46065	Peach	Thomas' Confectionery Co.	Own make	14.2
		Norwich		
45384	Vanilla	Miss Mary Clapp	Own make	7.0[1]
45388	Lemon Custard	Neara's Pharmacy	C. C. Treat's I. C. Co.	17.8
45389	Tutti Frutti	Neara's Pharmacy	C. C. Treat's I. C. Co.	17.2
45379	Vanilla	Olympia Candy Kitchen	Own make	14.2
45380	Strawberry	Olympia Candy Kitchen	Own make	8.6
45381	Vanilla	Pitcher & Service Pharmacy	Dairimaid I. C. Co., Worcester, Mass.	12.0
45386	Vanilla	Sellas Spa	Own make	17.0
45387	Strawberry	Sellas Spa	Own make	16.2
45385	Vanilla	Terminal Restaurant	Own make	16.4
45382	Vanilla	The Arcadia	Own make	11.6
45383	Strawberry	The Arcadia	Own make	11.4
		Norwichtown		
45390	Vanilla	Norwich Dairy I. C. Co.	Own make	15.2
45391	Strawberry	Norwich Dairy I. C. Co.	Own make	17.2
		Oakville		
46068	Vanilla	Oakville Fruit Market	Own make	10.0
46069	Strawberry	Oakville Fruit Market	Own make	10.2
		Pawcatuck		
45907	Vanilla	Greek-American Co.	Own make	25.0
45908	Peach	Greek-American Co.	Own make	22.0
		Plainville		
44869	Vanilla	Kaufman's Store	Nelson's Purity I. C. Co., Forestville	13.4
44870	Cherry	Kaufman's Store	Nelson's Purity I. C. Co., Forestville	13.6
44868	Chocolate	Thrall's Drug Co.	Worden's I. C. Co., Forestville	12.0
		Pomfret		
45927	Vanilla	Allard's I. C. Parlor	Own make	31.8
45928	Peach	Allard's I. C. Parlor	Own make	22.4
		Putnam		
45921	Strawberry	Brouseau's Drug Co.	Dairimaid I. C. Co., Worcester, Mass.	12.0
45922	Lemon Custard	Brouseau's Drug Co.	Dairimaid I. C. Co., Worcester, Mass.	13.8
45919	Vanilla	Olympia Candy Co.	Own make	20.0
45920	Strawberry	Olympia Candy Co.	Own make	18.8
45925	Vanilla	The Progress Confectionery Co.	Own make	14.4
45926	Strawberry	The Progress Confectionery Co.	Own make	14.2

[1] Roese-Gottlieb Method.

TABLE 2. ANALYSES OF ICE CREAM—*Continued*

No.	Flavor	Dealer	Manufacturer	Fat
		Putnam—Concluded		%
45923	Vanilla	United Cigar Store	Crown Quality I. C. Co.	15.2
45924	Strawberry	United Cigar Store	Crown Quality I. C. Co.	17.0
		Rockville		
44875	Vanilla	John E. Gawtry	Own make	12.8
44876	Strawberry	John E. Gawtry	Own make	13.4
44877	Vanilla	Peter's Sweet Shoppe	Own make	14.0
44878	Strawberry	Peter's Sweet Shoppe	Own make	13.8
		Seymour		
46072	Vanilla	Rexall Drug Co.	Harris-Hart I. C. Co., New Haven	12.0
45739	Vanilla	Sweetland Confectionery	Own make	14.2
45740	Strawberry	Sweetland Confectionery	Own make	12.8
		Shelton		
45746	Vanilla	E. J. Barton	Own make	8.6
		Somers		
44890	Vanilla	H. M. Kibbe	Somers Creamery I. C. Co., Springfield, Mass.	15.2
44891	Ginger	H. M. Kibbe	Hood's I. C. Co., Springfield, Mass.	16.0
44892	Chocolate	H. M. Kibbe	Somers Creamery I. C. Co., Springfield. Mass.	13.0
44888	Vanilla	Somers Tea Room	Turnbull's Green Mt. I. C. Co., Brattleboro, Vt.	13.2
44889	Banana	Somers Tea Room	Turnbull's Green Mt. I. C. Co., Brattleboro, Vt.	14.4
		Southington		
46066	Vanilla	The Candy Shoppe	Own make	13.4
46067	Strawberry	The Candy Shoppe	Own make	14.0
		South Manchester		
44873	Coffee	Bidwell's Soda Shop	C. C. Treat's I. C. Co., Norwich	15.8
44874	Strawberry	Bidwell's Soda Shop	C. C. Treat's I. C. Co., Norwich	16.2
44871	Vanilla	So. Manchester Candy Kitchen	Manchester Dairy I. C. Co.	14.2
44872	Cherry	So. Manchester Candy Kitchen	Manchester Dairy I. C. Co.	12.6
		South Norwalk		
46057	Strawberry	Palace Confectionery Co.	Own make	9.8
46056	Vanilla	Palace Confectionery Co.	Own make	8.4
46058	Vanilla	Strand Confectionery Co.	Own make	13.4
46059	Peach	Strand Confectionery Co.	Own make	11.6
		Springdale		
45947	Vanilla	Maplehurst Dairy	Own make	15.0
45948	Peach	Maplehurst Dairy	Own make	13.0

TABLE 2. ANALYSES OF ICE CREAM—*Continued*

No.	Flavor	Dealer	Manufacturer	Fat
		Stafford Springs		%
44880	Vanilla	L. Campo	Own make	15.2
44881	Strawberry	L. Campo	Own make	13.8
44882	Vanilla	P. J. Murray	Own make	17.2
44883	Vanilla	P. J. Murray	Own make	13.4
44884	Strawberry	E. J. Parizean	Own make	14.8
44887	Vanilla	Arthur J. Schofield	General I. C. Co., Springfield, Mass.	10.6
44885	Strawberry	Stafford Candy Kitchen	General I. C. Co., Springfield. Mass.	9.0
44886	Orange-Pineapple	Stafford Fruit Co.	Somers Creamery I. C. Co., Springfield, Mass.	11.4
		Stamford		
46051	Peach	Green Pastures Inn	Own make	11.4
45941	Vanilla	Massoletti's	Own make	13.4
45942	Orange-Pineapple	Massoletti's	Own make	8.6
45945	Vanilla	Olympia Candy Co.	Own make	12.0
45946	Strawberry	Olympia Candy Co.	Own make	11.4
45949	Vanilla	Star Confectionery Co.	Own make	15.0
46050	Peach	Star Confectionery Co.	Own make	8.6
45943	Vanilla	Strand Confectionery	Own make	19.0
45944	Vanilla	Strand Confectionery	Own make	18.0
		Stonington		
45906	Peach	George Bailey	Mainis I. C. Co., Wakefield, R. I.	14.0
45903	Strawberry	Danesi Confectionery	Fro-Joy Brand	9.4
45905	Vanilla	Derward Saunders	Mainis I. C. Co., Wakefield, R. I.	17.2
45904	Blueberry	Paul Schipis	Dolbey's I. C. Co., Providence, R. I.	13.2
		Storrs		
45392	Vanilla	Conn. Agricultural College	Own make	16.4
45393	Strawberry	Conn. Agricultural College	Own make	14.8
		Stratford		
45725	Vanilla	W. J. Kershaw	Own make	14.8
45726	Strawberry	W. J. Kershaw	Own make	13.2
		Suffield		
44895	Vanilla	James V. Mix	Own make	14.4
44896	Orange-Pineapple	James V. Mix	Own make	15.0
		Thompsonville		
44893	Vanilla	A. Tatoian	Own make	15.2
44894	Strawberry	A. Tatoian	Own make	13.8

TABLE 2. ANALYSES OF ICE CREAM—*Continued*

No.	Flavor	Dealer	Manufacturer	Fat
		Torrington		%
45309	Vanilla	Allen Candy Co.	Own make	10.8
45310	Orange-Pineapple	Allen Candy Co.	Own make	8.8
45315	Vanilla	M. T. Coury	Jacobs Bros., Torrington	14.6
45316	Orange-Pineapple	M. T. Coury	Jacob Bros., Torrington	13.4
45311	Vanilla	Olympia Candy Co.	Own make	16.2
45312	Strawberry	Olympia Candy Co.	Own make	15.2
45313	Vanilla	Webb & Seigel	Torrington Creamery Co.	12.0
45314	Strawberry	Webb & Seigel	Torrington Creamery Co.	10.8
		Wallingford		
45334	Vanilla	F. D. Foote	Own make	13.6
45335	Orange-Pineapple	F. D. Foote	Own make	12.2
45332	Vanilla	J. H. Griffin	Own make	14.4
45333	Strawberry	J. H. Griffin	Own make	12.8
45336	Vanilla	The Sugar Bowl	Own make	16.0
45337	Strawberry	The Sugar Bowl	Own make	15.6
		Waterbury		
45729	Vanilla	Allen Candy Co.	Own make	16.4
45730	Strawberry	Allen Candy Co.	Own make	13.8
45735	Vanilla	R. Campanaro	Whelan's I. C. Co.	14.0
45728	Coffee	Hillside Pharmacy	Fro-Joy Brand	12.8
45733	Vanilla	Lake Drug Co.	Merriman's I. C. Co.	15.4
45734	Strawberry	Lake Drug Co.	Merriman's I. C. Co.	13.8
45731	Vanilla	Martin's Pharmacy	Worden's I. C. Co.	12.8
45732	Strawberry	Martin's Pharmacy	Worden's I. C. Co.	11.0
45736	Strawberry	P. Puppo	Whelan's I. C. Co.	12.0
		West Haven		
45701	Vanilla	Cameo Confectionery Co.	Own make	12.6
45702	Strawberry	Cameo Confectionery Co.	Own make	11.8
45710	Vanilla	Quality Stand (Savin Rock)	Clark's Dairy I. C. Co.	12.0
45711	Strawberry	Quality Stand (Savin Rock)	Clark's Dairy I. C. Co.	9.2
45699	Vanilla	Thompson Spa	Own make	13.4
45700	Strawberry	Thompson Spa	Own make	14.0
		West Wauregan		
45913	Coffee	F. J. Fournier	Own make	8.6
45914	Vanilla	F. J. Fournier	Own make	12.4
		Willimantic		
45451	Vanilla	Albro's Soda Shop	Own make	12.6
45452	Strawberry	Albro's Soda Shop	Own make	11.2
45396	Frozen Pudding	Bay State Drug Co.	Hood's I. C. Co., Cambridge, Mass.	9.4

TABLE 2. ANALYSES OF ICE CREAM—*Concluded*

No.	Flavor	Dealer	Manufacturer	Fat
		Willimantic—Concluded		%
45397	Vanilla	Hadock's, Inc.	B. C. Hadock's I. C. Co.	13.4
45398	Pineapple	Hadock's, Inc.	B. C. Hadock's I. C. Co.	8.6
45399	Chocolate	Mike Longo	Bushway's I. C. Co., Somerville, Mass.	11.8
45450	Chocolate	Mike Longo	Bushway's I. C. Co., Somerville, Mass.	11.4
45394	Vanilla	Thread City Candy Kitchen	Own make	18.0
45395	Strawberry	Thread City Candy Kitchen	Own make	14.4
		Winsted		
45317	Vanilla	Highland Sweet Shoppe	Own make	15.2
45318	Banana	Highland Sweet Shoppe	Own make	13.2

MEAT PRODUCTS

FRANKFURTS, ETC.

Five samples of frankfurts and one of bologna were examined, and four were found to be illegal because of undeclared cereal or of an amount in excess of 3.5 per cent.

In the manufacture of sausage it is permissible to use 3 per cent water or ice and somewhat more in the case of those types of sausage which are smoked or cooked; but in no case should more water be introduced than is necessary to facilitate satisfactory manufacturing processes or to make the products palatable. In the instance of frankfurts, for example, 10 per cent of added water appears to be an acceptable margin in control practice.

A study of the ratio of water to protein in the cuts of meat generally used in sausage making indicates that the proportion is 4 to 1. The procedure for estimating excess moisture is to determine total moisture and nitrogen in the samples. The nitrogen multiplied by 25 (basis of $N \times 6.25 = \text{protein}$), should not be exceeded by the total moisture in the sample by more than 3 per cent in the case of pork sausage and by not more than 10 per cent in sausage of the frankfurt type.

A number of samples of frankfurts submitted by a local packer afforded an opportunity to try this method and to check our results in some cases with those obtained in other control laboratories. Eight samples were analyzed. The uncertainty in comparing results from different laboratories hinges particularly upon lack of evidence that the samples submitted to the several laboratories were sufficiently alike in composition to make strict comparisons. In one case of disagreement results calculated to the water-free basis showed

that the solids in the two samples worked upon were substantially different in amount. If the uniformity of samples is assured the other sources of disagreement are differences in methods used. Results for nitrogen should be satisfactorily close, but moisture may vary depending upon the procedure followed. In our work drying for 16 hours at 100°C. in an air oven was found to compare very closely with results obtained by the Bidwell-Sterling distillation method.

One sample in this series upon which results for added water from three laboratories are available shows data as follows: This laboratory 9.3%; laboratory A 11.3%; laboratory B 10.7%. Our own results in detail are as follows:

Water (drying oven)	60.2	59.8	59.4	avg. 59.8 %
(distillation method)	.....	.....	.....	59.6 %
Nitrogen	2.01	2.03	2.03	avg. 2.02%
Protein (N x 6.25)	.....	.....	.....	12.63%
Protein x 4	.....	.....	.....	50.5 %
Added water (59.8 — 50.5) ..	.....	.....	.....	9.3 %

On the basis of these data it would appear that only one of these results would raise any question as to whether the limit of 10 per cent added water had been exceeded. How strict an interpretation can be placed upon the margin between the 10 per cent tolerance and the highest result reported, viz., 11.3%, will depend upon what evidence is available that the sample is representative of the batch involved, and the coefficient of error in determining moisture and nitrogen in the laboratory concerned.

HAMBURG STEAK, ETC.

Eight samples of hamburg steak were submitted by the Dairy and Food Commissioner and only one was found to contain sulphites. Sulphurous acid and its salts are not legal preservatives for meat and meat products.

Two samples submitted by the Board of Health of New Britain were found to contain no preservative.

A sample of frozen clods of beef was found to contain 140 milligrams of SO_2 per kilo.

PRESERVING COMPOUNDS

Two samples were submitted by the Dairy and Food Commissioner. One was called "Freeze-Em" in which SO_2 was found in a substantial or large amount. This sample was not in an original or unbroken package, however. The other sample was called "Freeze-Em Pickle." This was found to consist largely or entirely of salt, Chili saltpeter and sodium nitrite, a mixture of salt to which there is no objection for meat preserving purposes.

MILK AND MILK PRODUCTS

MARKET MILK

Seven hundred and eighty-five samples of market milk were examined for the Dairy and Food Commissioner, the quality of which may be judged by the following summary:

	No. of samples	Per cent
Not found adulterated	408	52.0
Adulterated by water	8	1.0
Adulterated by skimming	214	27.3
Below standard:		
in solids and solids-not-fat	45	5.7
in solids and fat	27	3.4
in solids, fat and solids-not-fat	83	10.6
Totals	785	100.0

The large proportion of samples found to be in part skimmed is explained by the fact that many were found in places where milk was dispensed by dipping, or from quart bottles rather than from individual service bottles. The law requires that milk when served by any hotel, restaurant, lunch room, fountain or any other place of public entertainment shall be served in the original bottle, the cap of which shall not be removed except in the presence of the patron. Commenting upon this provision of the statutes the Dairy and Food Commissioner says[1]:

> The enforcement of this act did not require the policing effect which might be anticipated, and which is so carefully avoided by our inspectors. Both the dealer and the consumer were quick to appreciate the advantages brought forth by the use of the original bottle idea, and we can now find a marked improvement in the quality of milk so served. So gratifying are the results of the original or individual bottle law that a sampling campaign is now being carried on to demonstrate, particularly to the fountain interests, the extremely low quality of milk used in mixed drinks. Hundreds of samples indicate that milk so used contained much less than the legal standard of butter fat.

It was with this thought in mind that the inspection was extended by the Commissioner to include tests for milk fat in milk drinks dispensed by fountains. This inspection was confined, however, to so-called milk shakes in the preparation of which other materials are not added in amounts sufficient to substantially reduce the fat content of the drink below that in the milk used in its preparation.

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[1] Biennial report for period ending June 30, 1930.

Sixty-five samples were examined which may be classified as follows:

Below 3.25% fat (legal standard for milk)	39
Above 3.25% fat	26

In the first group the fat content ranged from 0.9% to 3.2% and averaged 2.5%. In the second group the range was from 3.3% to 7.2% and the average 4.0%. High percentages of fat indicate the use of top milk. There is no official definition of what constitutes the article known as a milk shake, but it has been ruled that skimmed milk should not be used in the preparation of drinks sold as chocolated milk or milk-chocolate and, from analogy, it would appear that whole milk should be used in the preparation of milk shakes.

MILK AND CREAM SUBMITTED BY PRODUCERS AND OTHERS

One hundred and twenty-five samples of milk and cream have been tested for dairymen and consumers.

MISCELLANEOUS MILK PRODUCTS

Twelve samples, including semi-solid buttermilk, evaporated milk and chocolate-milk were examined for the Dairy and Food Commissioner.

SALAD DRESSING, MAYONNAISE

Mayonnaise salad dressing is essentially an oil dressing further characterized by varying amounts of egg yolk or whole egg, and contains vinegar or lemon juice and seasoning materials. The U. S. Department of Agriculture in its standard for this product specifies for the major ingredients not less than 50 per cent of oil and a percentage of egg yolk and oil of not less than 78.

The estimation of the egg content in materials of this sort is made upon the basis of accepted average values for lipoid phosphoric acid which is present in egg yolk but absent or negligible in the white. It is evident that the application of a uniform factor for the estimation of the egg content of various brands of market mayonnaise dressings involves necessary reservations. The accepted value for the lipoid phosphoric acid content of whole dry egg is 1.38[1] per cent, and for dry egg yolk 1.78[1] per cent. Assuming 25 per cent solids for fresh whole egg and 50 per cent solids for fresh egg yolk these percentages become 0.35 and 0.89 respectively.

[1] Hertwig, Proc. A. O. A. C., **8**, 2, 118, 1924.

Since a complete separation of white from yolk is not accomplished in practice it is apparent that the correct factor to be used in any given case will depend upon the degree of efficiency with which this separation was made. For example, in two dressings prepared in the laboratory for preliminary experimental studies, our fresh "egg yolk" in one case contained 0.79 per cent of lipoid phosphoric acid, and in the other, where a better separation of white was effected, a value of 0.83 was obtained. In judging the market products, however, we have adopted the value 0.89 as probably typical of commercial practice.

Another factor to be taken into consideration is the possible transformation or disappearance of lipoid phosphorus in mayonnaise after it is made. Such changes have been noted in the case of egg noodles and in liquid egg.[1] We have not sufficient evidence upon which to positively assert that such a change occurs in mayonnaise, but a hint in this direction is afforded by results obtained upon our laboratory-made dressings in which lipoid phosphorus, determined six weeks after manufacture, was sensibly lower than that found for the freshly-prepared product. The criticism of this observation is that during the six weeks' interval our samples were held in containers which had been opened and were, therefore, not so protected from atmospheric conditions as duplicate sealed portions of the original dressings would have been.

In spite of these possibilities for underestimating the egg content of the samples examined, it will be noticed that the combined egg yolk and oil as estimated substantially equals or exceeds 78 per cent with three exceptions. In two of the exceptions the combined egg and oil corresponds reasonably well with the observed total solids, but in the other case there is a considerable discrepancy, reflected in the nitrogen-free constituents.

The samples were not examined for possible fillers or stabilizers beyond tests for starch which, with one exception, were negligible. One sample bore a label declaration of the presence of starch.

Lipoid P_2O_5 was determined directly upon the fat as extracted by the tentative method for the determination of oil in salad dressings,[2] using, however, 5 gms. of sample. It was found that this procedure gave practically the same results for lipoid phosphorus as were obtained by following the procedure of Rask and Phelps,[3] and saved time by avoiding the necessity of a separate extraction of fat from the total solids as required in the tentative method for lecithin phosphoric acid.[4]

Analyses are given in Table 3.

[1] Proc. A. O. A. C., **7**, 1, 96-97, 1923.
[2] Method of Analysis, p. 322, Sec. 41.
[3] Proc. A. O. A. C., **8**, 2, 109, 1924.
[4] Methods of Analysis, p. 322, Sec. 43.

TABLE 3. ANALYSES OF MAYONNAISE DRESSINGS

Station No.	Manufacturer and brand	Starch	Halphen test, on fat	Solids	Ash	Protein (N x 6.25)	Carbohydrate, including fiber, by diff.	Fat (Roese-Gottlieb)	Salt	Acidity as Acetic Acid	Lipoid P_2O_5	Distribution of egg and oil, estimated			Station No.
												Egg yolk, fresh	Oil	Oil and egg yolk	
				%	%	%	%	%	%	%	%	%	%	%	
46668	Aicardi, Jas. A. & Sons. *Icarde*	none	positive	85.87	1.06	1.75	1.96	81.10	0.81	0.50	0.056	6.30	79.00	85.30	46668
46653	Atlantic and Pacific Tea Co. *Encore*	none	negative	84.93	1.62	2.00	3.08	78.23	1.03	0.60	0.058	6.52	76.06	82.58	46653
46682	Belkin's Fruit and Produce Co. *Bell's Home Made*	none	positive	83.17	2.19	1.50	3.67	75.81	1.50	0.50	0.029	3.25	74.72	77.97	46682
46099	Best Foods, Inc., New York City. *Best Foods*	none	positive	84.47	1.46	1.06	1.36	80.59	1.07	0.39	0.022	2.47	79.77	82.24	46099
46662	Bevier, J. L., Windsor, Conn. *Windsor*	none	positive	86.66	2.19	1.44	7.27	75.76	1.91	0.55	0.016	1.80	75.16	76.96	46662
5537	Birdsall and Wilcox, New Haven, Conn. *Oriole*	none	positive	89.10	1.02	1.69	1.68	84.71	0.70	0.31	0.042	4.72	83.14	87.86	5537
46667	Booth, M. W., Meriden, Conn. *Booth's*	none	positive	92.33	0.87	0.88	3.21	87.37	0.68	0.29	0.020	2.25	86.62	88.87	46667
46658	Cain, J. E., Boston, Mass. *Cain's*	none	positive	85.69	1.09	2.25	2.25	80.10	0.74	0.61	0.040	4.49	78.61	83.10	46658
46659	Canton-Maid Products Co., West Hartford, Conn. *Canton-Maid*	none	positive	86.64	1.21	1.38	5.41	78.64	0.96	0.36	0.017	1.91	78.01	79.92	46659
46664	Chapin Grocery Specialties Co., Springfield, Mass. *Chapin*	none	positive	83.91	1.16	1.31	4.57	76.87	0.83	0.62	0.024	2.70	75.97	78.67	46664
46661	Downing, Taylor Co., Springfield, Mass. *Forest Park*	none	positive	82.98	1.94	2.63	4.44	73.97	1.44	0.41	0.099	11.12	70.26	81.38	46661
46855	Dodge, H. A., Hartford, Conn. *Peerless*	none	positive	89.91	1.84	1.31	3.69	83.07	1.56	0.30	0.022	2.36	82.28	84.64	46855

TABLE 3. ANALYSES OF MAYONNAISE DRESSINGS—*Continued*

Station No.	Manufacturer and brand	Starch	Halphen test, on fat	Solids	Ash	Protein (N x 6.25)	Carbohydrate, including fiber, by diff.	Fat (Roese-Gottlieb)	Salt	Acidity as Acetic Acid	Lipoid P_2O_5	Distribution of egg and oil, estimated			Station No.
												Egg yolk, fresh	Oil	Oil and egg yolk	
				%	%	%	%	%	%	%	%	%	%	%	
46672	Duke Products Co., Greenville, S. C. *Duke's*	none	negative	87.91	1.21	1.50	0.82	84.38	1.05	0.55	0.039	4.38	82.92	87.30	46672
46651	Easton, G. J., Newark, N. J. *Easton's*	none	positive	86.29	1.24	1.75	2.46	80.84	0.91	0.49	0.060	6.74	78.60	85.34	46651
46654	First National Stores, Boston, Mass. *Fi-Na-St*	none	positive	85.91	1.72	1.88	7.38	74.93	1.40	0.41	0.019	2.13	74.22	76.35	46654
46850	Heinz, J. H. Co., Pittsburgh, Pa. *Heinz*	none	negative	86.44[1]	1.04	1.88	0.00	83.52	0.76	0.34	0.060	6.74	81.27	88.01	46850
46656	Hellmann, Richard, New York City. *Hellmann's*	none	positive	88.54	1.10	1.44	1.56	84.44	0.72	0.47	0.026	2.92	83.47	86.39	46656
46669	Helwig and Leitch Corp., Baltimore, Md. *Majestic*	none	negative	89.91	1.44	1.38	2.78	84.31	1.25	0.47	0.036	4.04	82.96	87.00	46669
46899	Hull, Wilbur S., Middletown, Conn. *Superior*	none	negative	90.01	1.11	1.19	5.54	82.17	0.94	0.43	0.018	2.02	81.40	83.42	46899
46852	Independent Grocers Alliance, Chicago, Ill. *I. G. A.*	none	negative	75.81	1.66	3.50	6.47	64.18	1.24	0.85	0.086	9.66	64.92	74.58	46852
46884	Ivanhoe Foods, Inc., Auburn, N. Y. *Shady Lane*	present[2]	positive	72.58	1.71	1.75	5.17	63.95	1.40	0.58	0.056	6.30	61.85	68.15	46884
46660	Ivanhoe Foods, Inc., Auburn, N. Y. *Ivanhoe*	none	positive	83.11	2.15	2.00	5.62	73.34	1.77	0.64	0.057	6.40	71.21	77.61	46660
46663	Kraft-Phoenix Cheese Corp., New York City. *Kraft*	none	positive	85.76	1.18	1.44	1.99	81.15	0.92	0.33	0.052	5.84	79.20	85.04	46663

[1] Calculated solids 86.44; determined 85.53.
[2] Corn starch declared.

TABLE 3. ANALYSES OF MAYONNAISE DRESSINGS—*Concluded*

Station No.	Manufacturer and brand	Starch	Halphen test, on fat	Solids	Ash	Protein (N x 6.25)	Carbohydrate, including fiber, by diff.	Fat (Roese-Gottlieb)	Salt	Acidity as Acetic Acid	Lipoid P_2O_5	Distribution of egg and oil, estimated: Egg yolk, fresh	Distribution of egg and oil, estimated: Oil	Distribution of egg and oil, estimated: Oil and egg yolk	Station No.
				%	%	%	%	%	%	%	%	%	%	%	
46652	Leggett, F. H., New York City. *Premier*	none	positive	63.82	3.06	3.75	1.73	55.28	1.83	1.37	0.138	15.50	50.11	65.61	46652
46666	Mohican Co., New York City. *Mohican*	none	positive	75.83	1.79	2.69	4.23	67.12	1.33	0.85	0.124	13.93	62.48	76.41	46666
46665	Pape, Henry, Mayonnaise Co., Inc., Brooklyn, N. Y. *Pape's*	none	positive	89.74	1.07	1.19	1.91	85.57	0.84	0.48	0.029	3.14	84.52	87.66	46665
46673	Preston Market Co., Inc., Hartford, Conn. *Premar*	none	negative	87.60	1.43	1.25	3.09	81.83	1.15	0.43	0.019	2.13	80.60	82.73	46673
46851	Reynolds, Wm. T. and Co., Poughkeepsie, N. Y. *Reliance*	none	positive	74.71	1.80	2.75	1.95	68.21	1.23	0.89	0.076	8.54	65.36	73.90	46851
46655	Seidner, Otto, Westerly, R. I. *Seidner's*	none	positive	75.18	1.80	2.88	2.30	68.20	1.03	0.87	0.126	14.15	63.49	77.64	46655
46861	Sprague, Warner Co., Chicago, Ill. *Ferndell*	none	positive	86.06	2.91	3.75	22.88	56.52	2.35	1.02	0.122	13.70	51.95	65.65	46861
5371	Square Seal Products Co., Milford, Conn. *Square Seal*	none	positive	86.51	1.35	1.63	3.03	80.50	1.10	0.48	0.026	2.92	79.53	82.45	5371
46657	Swift & Co., Chicago, Ill. *Gem*	none	positive	79.17	2.07	1.44	5.43	70.23	1.71	0.66	0.027	3.04	69.22	72.26	46657
46854	Tyler Products Co., Pawtucket, R. I. *Tyler's*	none	negative	80.91	1.98	1.81	2.26	74.86	1.69	0.50	0.060	6.74	72.61	79.35	46854
46670	Vogel Bros., Hartford, Conn. *Elizabeth Park*	none	positive	79.06	0.87	1.50	2.69	74.00	0.63	0.51	0.048	5.40	72.20	77.60	46670

VINEGAR

Thirty-nine samples of cider vinegar were tested for the Dairy and Food Commissioner and eleven were examined for individual producers. Of the official samples seven were below standard or otherwise illegal.

DRUGS

AROMATIC SPIRITS OF AMMONIA

One sample of aromatic spirits of ammonia was examined. It contained 1.83 gms. of ammonia (NH_3) per 100 cc. and 66.21 per cent of alcohol, by volume. The sample was purchased from E. & C. Primrose of Milford.

SOLUTION OF AMMONIUM ACETATE

Solution of ammonium acetate should contain in each 100 cc. not less than 6.5 gm. nor more than 7.5 gm. of ammonium acetate.

Three samples were examined. None of them were within the limits prescribed by the U. S. P., but two were within 10 per cent of those limits. Sample 45404, Liggett's Drug Store, Bridgeport, tested 8.14. No. 45630, Wilson Drug Co., Willimantic, 5.90. No. 46004, Case Drug Store, Winsted, 8.91.

AMMONIA WATER AND AMMONIA WATER STRONGER

Ammonia water should contain not less than 9.5 and not more than 10.5 per cent by weight of ammonia, NH_3. For stronger ammonia the limits are 27 and 29 per cent.

Five samples of ammonia water were examined and four of them were below standard.

Eight samples of stronger ammonia were tested, four of which were below the U. S. P. standard or were below the declared strength.

TABLE 4. ASSAYS OF AMMONIA WATER AND OF AMMONIA WATER, STRONGER

No.	Dealer	Ammonia, NH_3 per cent
	Ammonia Water	
	New Milford	
45646	H. F. Bassett	6.58
	Rockville	
45447	Metcalf's Drug Store	5.65
	Suffield	
45195	Suffield Pharmacy	3.02
	Wallingford	
45427	F. W. Marx	7.52
	Westport	
45618	Achorn's Pharmacy	8.68
	Ammonia Water, Stronger	
	Hamden	
46035	Spring Glen Pharmacy	15.59
	Manchester	
45640	Edward J. Murphy	26.61
	Middletown	
45435	J. P. Kinsella	25.10
	New London	
45184	Town Hill Pharmacy	25.48
	Stafford Springs	
45601	McCormick Drug Co.	21.16
45448	Wickes & Co.	27.15
	Waterville	
45605	W. B. Carney	22.55
	Willimantic	
45631	Wilson's Windham Pharmacy	24.54

SOLUTION OF ARSENOUS AND MERCURIC IODIDE

This preparation should contain in each 100 cc. not less than 0.95 gm. and not more than 1.05 gm. of arsenous iodide; and not less than 0.95 and not more than 1.05 gm. of mercuric iodide.

The U. S. P. specifies that this solution should not be dispensed if it has become darker in color than pale yellow.

Six samples were submitted and only one met the requirements of the pharmacopoeia. In the others the required amount of arsenic was present but, because of decomposition, it was not in

the form required. Mercuric iodide content was not deficient except in one case.

Care was taken to analyze samples submitted promptly on delivery to avoid deterioration after they were received.

TABLE 5. ASSAY OF ARSENOUS AND MERCURIC IODIDE

No.	Dealer	Arsenous Iodide gm/100 cc.	Mercuric Iodide gm/100 cc.
	Bridgeport		
45400	Whelan Drug Co.	0.18	0.59
	Guilford		
46016	Frank F. Douden	0.22	0.95
	Madison		
46032	Monroe's Pharmacy	1.01	0.99
	New London		
45185	Downey's Pharmacy	None	0.93
	So. Manchester		
45635	Miner's Pharmacy	None	0.90
	Torrington		
46029	Claxton's Pharmacy	None	1.00

BISMUTH SUBGALLATE

This drug is a basic salt which, on ignition, yields not less than 52 per cent nor more than 57 per cent of bismuth oxide (Bi_2O_3), on the dry basis.

Four samples were examined and all were passed. No arsenic was found by the test cited in the U. S. P.

TABLE 6. ASSAY OF BISMUTH SUBGALLATE

No.	Dealer	Bi_2O_3 per cent
	Bethel	
45641	English Quality Drug Store	50.31
	Hartford	
46250	Peter Glassman	51.68
	Naugatuck	
45418	Olson's Drug Store	50.58
	Thompsonville	
45188	O'Brien's Pleasant St. Pharmacy	52.59

BISMUTH SUBNITRATE

Bismuth subnitrate is a basic salt which, on ignition, yields not less than 79 per cent of bismuth oxide (Bi_2O_3), on the basis of the salt previously dried over sulphuric acid.

Seven samples were examined and all were passed. No arsenic was found by the test cited in the U. S. P.

TABLE 7. ASSAY OF BISMUTH SUBNITRATE

No.	Dealer	Bi_2O_3 per cent
	Hartford	
46251	Peter Glassman	80.00
	Manchester	
45445	North End Pharmacy	79.90
	New London	
45186	The Cornwall Pharmacy	79.91
	Stafford Springs	
45449	Wickes & Co.	79.91
	Torrington	
46290	Thurlough's Pharmacy	79.90
	Waterbury	
46038	Notkin's Pharmacy	80.00
	Winsted	
46002	Apothecaries Hall	79.99

CAFFEINE SODIO-BENZOATE

This material, when dried to constant weight, contains not less than 47 nor more than 50 per cent of anhydrous caffeine, and not less than 50 nor more than 53 per cent of sodium benzoate.

Four samples were examined and all were passed.

TABLE 8. ASSAY OF CAFFEINE SODIO-BENZOATE

No.	Dealer	Caffeine per cent	Sodium benzoate per cent
	Norwich		
45623	W. D. Ricker	47.46	50.34
	Stafford Springs		
45602	Delmonico's Drug Shoppe	47.24	49.82
	Thompsonville		
45190	Thompsonville Drug Co.	45.73	52.05
	Winsted		
46005	The Case Drug Store	47.37	49.75

CALCIUM GLYCEROPHOSPHATE

This salt, when dried to constant weight at 130°C., should contain not less than 98 per cent of glycerophosphate.

Three samples were examined and all met the standard. As received, the salt contained somewhat in excess of the limit for moisture as specified in the Pharmacopoeia, 10 per cent. The moisture ranged from 10.75 to 12.13 per cent.

TABLE 9. ASSAY OF CALCIUM GLYCEROPHOSPHATE (DRY BASIS)

No.	Dealer	Alcohol soluble	CaO	Calcium glycerophosphate, calc.	
				from CaO	from P_2O_5
	Norwich	%	%	%	%
45624	Treat's Drug Store	0.50	26.65	99.88	99.30
	Stafford Springs				
45603	Delmonico's Drug Shoppe	0.56	26.80	100.40	99.50
	Thompsonville				
45192	Steel's Corner Drug Store	0.20	26.37	98.83	96.20

SOLUTION OF CALCIUM HYDROXIDE (Lime Water)

This solution should contain in each 100 cc. not less than 0.14 gm. of calcium hydroxide at 25°C. Preparations of this drug have been found to be very deficient in the past, but the experience this year is quite different. Ten samples were collected and all found to meet the requirements of the standard.

TABLE 10. ASSAY OF LIME WATER

No.	Dealer	Calcium hydroxide gm/100 cc.
	Deep River	
45639	LaPlace Pharmacy	0.14
	Meriden	
45421	Lynch Drug Co., Inc.	0.17
	New London	
45180	Starr Bros., Inc.	0.16
	New Haven	
46033	North Haven Pharmacy	0.16
	Seymour	
45410	Geo. Smith & Son	0.16
	Shelton	
45408	Mahoney's Drug Store	0.16
	Wallingford	
45429	Moran's Drug Store	0.18
	Waterbury	
46043	Apothecaries Hall Co.	0.14
	Willimantic	
45629	Bay State Drug Co.	0.19
	Windsor Locks	
45199	Bridge Pharmacy	0.14

CALCIUM LACTATE

Calcium lactate should contain not less than 70 nor more than 75 per cent of anhydrous calcium lactate. When dried to constant weight at 120°C. the salt loses not less than 25 per cent nor more than 30 per cent of its weight.

Five samples were examined and all were passed.

TABLE 11. ASSAY OF CALCIUM LACTATE

No.	Dealer	Moisture	Calcium lactate, anhydrous
		%	%
	Ansonia		
46284	George Smith	27.29	70.55
	Darien		
45614	Lombardi Drug Store	28.30	71.37
	Naugatuck		
45419	Olson's Drug Store	27.27	71.09
	Oakville		
45442	Byrne's Drug Store	26.91	71.97
	Thompsonville		
45191	Thompsonville Drug Co.	26.74	72.85

SPIRIT OF CAMPHOR

This preparation should contain in each 100 cc. not less than 9.5 gms. nor more than 10.5 gms. of camphor.

One sample was examined and was passed.

The sample was procured from E. & C. Primrose of Milford and contained 10.4 gms. camphor per 100 cc.

CHLORINATED LIME

This product should yield not less than 30 per cent of available chlorine, according to the U. S. P. standard. Products of less available chlorine content are legal, provided the strength is declared in each case.

Four samples were examined and three met the U. S. P. requirement or were within 10 per cent of it. One sample was more than 10 per cent short of the declared strength.

TABLE 12. ASSAY OF CHLORINATED LIME

No.	Dealer	Available chlorine	
		Found	Guaranteed
	East Hampton	%	%
45177	Chatham Pharmacy	20.59	24.00
	Middletown		
45436	Pelton's Pharmacy	31.30	30.00
	Moodus		
45178	W. J. Thomas & Son	30.97	24.00
	Watertown		
45415	The H. W. Lake Drug Co.	27.10	30.00

CINCHOPHEN

This drug, when dried over sulphuric acid, should be not less than 99 per cent pure.

Five samples were examined and all met the requirement of the standard.

Samples were obtained from The Lynch Drug Co., Inc., Meriden; Branford Pharmacy, Branford; Glendower Drug Store, New Haven; Harding Drug Store, Derby; and Steel's Drug Store, Thompsonville.

CITRATED CAFFEINE

When dried to constant weight, citrated caffeine should contain not less than 48 and not more than 52 per cent of anhydrous caffeine.

Five samples were examined and all met the requirement of the standard.

TABLE 13. ASSAY OF CITRATED CAFFEINE

No.	Dealer	Caffeine, anhydrous
	Norwich	%
45622	W. D. Ricker	49.0
	Rockville	
45446	Vincent Pharmacy	49.8
	Thompsonville	
45189	O'Brian's Pleasant St. Pharmacy	49.28
	Union City	
45417	Union City Pharmacy	48.4
	Willimantic	
45628	Curran & Flynn	49.4

SOLUTION OF CITRATE OF MAGNESIA

Three samples of the product were examined. All were labelled as made according to the specifications of U. S. P. IX, but two were deficient.

A sample obtained at Apothecaries Hall, Waterbury, was low in total citric acid. One from A. H. Botsford, Milford, was low in total and in free citric acid. A sample from E. & C. Primrose of Milford was passed.

PILLS OF FERROUS CARBONATE (Blaud's Pills)

This preparation is so prepared that each pill contains not less than 0.06 gm. of ferrous carbonate.

Fourteen samples were examined, only one of which was below standard.

TABLE 14. ASSAY OF FERROUS CARBONATE PILLS

No.	Dealer	Ferrous Carbonate($FeCo_3$), gm/pill
	Ansonia	
46283	Buckley's Pharmacy	0.04
	Bridgeport	
45402	Hindle Drug Store	0.09
	Collinsville	
46008	McNamara's Pharmacy	0.13
46006	The Valley Pharmacy	0.07
	Danielson	
46021	The M. H. Berthaume Pharmacy	0.07
	Meriden	
45424	V. W. Schmelzer	0.08
	Middletown	
45437	Pelton's Pharmacy	0.08
	New Haven	
46278	Charles T. Hull	0.06
	Old Saybrook	
45636	Watson's Drug Store, Inc.	0.08
	So. Manchester	
45632	Magnell Drug Co.	0.08
45633	Quinn's Drug Store	0.06
	Waterbury	
46039	Higgin's & Glynn	0.11
46040	Kipp Pharmacy	0.08
	Woodbury	
45647	Woodbury Drug Co.	0.09

SOLUTION OF HYDROGEN DIOXIDE

This solution should contain not less than 3 per cent by weight of hydrogen dioxide (H_2O_2).

Seven samples were examined and two were found to be deficient.

TABLE 15. ASSAY OF HYDROGEN DIOXIDE SOLUTION

No.	Dealer	Hydrogen dioxide
	Bridgeport	%
45406	Liggett's Drug Store	3.17
	Canaan	
46267	Freeman Dempsey	3.19
	Litchfield	
46294	Sepples Drug Store	3.00
	New Haven	
46277	Morris Medicine Shop	2.52
	Norwich	
45625	Treat's Drug Store	1.01
	Union City	
45416	Union City Pharmacy	3.00
	Unionville	
46009	Flynn's Drug Store	3.12

DILUTE HYDRIODIC ACID

Diluted hydriodic acid should contain not less than 9.5 nor more than 10.5 per cent of hydriodic acid (HI).

Two samples were examined and both were passed. These were bought of E. J. Barden, Shelton, and Thomas and Hammer, East Hartford.

DILUTE HYDROCHLORIC ACID

This preparation should contain not less than 9.5 nor more than 10.5 per cent of hydrochloric acid (HCl).

Twenty-seven samples were submitted. Fifteen were passed, two were too weak, and ten were too strong. In case of this preparation, and more especially in cases of dilute sulphuric acid and dilute phosphoric acid, dilutions made on the basis of volume instead of weight will be too strong. Inquiries in the past have shown this to be the explanation of excess strength.

TABLE 16. ASSAYS OF DILUTE HYDROCHLORIC ACID

No.	Dealer	Hydrochloric Acid
	Ansonia	%
46285	Schoonmaker's Drug Store	12.69
	Branford	
46013	The Spalding Co.	10.25
	Canaan	
46266	The Service Pharmacy	10.97
	Collinsville	
46007	McNamara's Pharmacy	12.34
	East Hartford	
46296	Noble's Drug Store	11.15
	Essex	
45638	W. H. Pond	11.12
	Fairfield	
45621	Randall's Pharmacy, Inc.	9.96
	Forestville	
46297	Kent's Pharmacy	12.42
	Lakeville	
46271	Laverty's Pharmacy	11.30
	Litchfield	
46293	Sepple's Drug Store	11.17
	New Haven	
46255	J. H. Bezner Pharmacy	7.67
46276	Broadway Pharmacy	11.94
	New London	
45181	Starr Bros., Inc.	11.55

TABLE 16. ASSAYS OF DILUTE HYDROCHLORIC ACID—*Concluded*

No.	Dealer	Hydrochloric Acid
	New Milford	
45645	H. F. Bassett	11.30
	Putnam	
46020	Edward H. Bunt	10.92
46017	J. A. P. Gagne	12.24
	Seymour	
45411	Geo. Smith & Son	9.65
	Sharon	
46272	Eggleston's Drug Store	12.00
	Shelton	
46286	E. J. Barden	12.19
	Southington	
45431	Chafee's Drug Store	10.60
	Salisbury	
46270	Salisbury Pharmacy	11.33
	Stonington	
46259	F. J. Conner	11.52
	Thomaston	
46046	G. A. Lemon	12.20
	Wallingford	
45428	F. W. Marx Pharmacy	12.33
	Waterbury	
46041	John's Drug Store	13.10
	Westville	
46258	Westville Pharmacy	11.38
	Windsor Locks	
45196	R. J. Keefe	5.95

MILK OF MAGNESIA

Milk of magnesia should contain not less than 7 per cent of magnesium hydroxide.

Seven samples were examined and all were passed. They met the standard or were within a reasonable tolerance of variation.

TABLE 17. ASSAY OF MILK OF MAGNESIA

No.	Dealer	Magnesium hydroxide $Mg(OH)_2$
		%
	Ansonia	
46045	Bristol Drug Co.	7.10
	Bridgeport	
45403	Hindle Drug Store	7.31
	Meriden	
45423	Broderick & Curtin	7.96
	Naugatuck	
46047	Naugatuck Drug Co.	6.38
	New Milford	
45644	Park Pharmacy	6.39
	Windsor Locks	
45197	R. J. Keefe	8.31
	Winsted	
46001	The City Pharmacy	6.70

SPIRIT OF NITROUS ETHER

This drug is an alcoholic solution of ethyl nitrite containing not less than 3.5 nor more than 4.5 per cent of ethyl nitrite.

The U. S. Pharmacopoeia emphasizes the precaution that the preparation should be kept in small, well-stoppered, dark amber-colored bottles, in a cool, dark place, remote from fire. Failure to observe these instructions is largely responsible for the deficiencies found in samples of this drug.

Forty-two samples were examined, of which number fifteen were below standard and one was too strong, the excesses being more than 10 per cent of the maximum standard.

TABLE 18. ASSAY OF SPIRIT OF NITROUS ETHER

No.	Dealer	Nitrous Ether
		%
	Ansonia	
46049	McQuade's Drug Store	3.86
	Bethel	
45642	English Quality Drug Store	4.64
	Branford	
46012	The Spalding Co.	3.72
46011	William's Drug Store	3.50
	Canaan	
46268	Farnum's Drug Store	4.32
	East Hampton	
45176	Boston Drug Co.	4.59
	East Port Chester	
45609	D. H. McHugh	0.86
	Fairfield	
45620	Randall Pharmacy, Inc.	4.47
	Hamden	
46282	The Hamden Pharmacy	1.48
	Hartford	
46274	The College Pharmacy	2.46
46275	Campfield Pharmacy	2.93
46273	Franklin Pharmacy	0.29
	Madison	
46031	T. E. Jolly	3.40

TABLE 18. ASSAY OF SPIRIT OF NITROUS ETHER—*Continued*

No.	Dealer	Nitrous Ether
	Meriden	
45425	N. F. Forcier	3.62
45426	The Graeber Pharmacy	3.74
45420	H. F. Pigeon	1.50
	Middletown	
45434	Misentis Drug Store	2.67
45432	Murphey's Drug Store	2.05
	Milford	
43747	A. H. Botsford	2.21
43746	E. & C. Primrose	2.85
	Moodus	
45179	W. J. Thomas & Son	4.70
	New Haven	
46256	Freedman's Pharmacy	1.94
	New Milford	
45643	Park Pharmacy	3.93
	North Woodbury	
45648	Corner Drug Store	4.88
	Norwalk	
45616	H. A. Mead	3.30
	Old Saybrook	
45637	James Pharmacy	4.67
	Plantsville	
45430	F. J. Hallahan	1.25
	Portland	
45438	Conklin Pharmacy	3.96
	Putnam	
46019	J. F. Donahue	2.55
	Shelton	
45407	Mahoney's Drug Store	2.54
	South Norwalk	
45615	Wershow's Drug Store	5.88
	Stafford Springs	
45600	McCormick Drug Co.	4.14
	Stamford	
45613	Ambassador Pharmacy	3.95
	Suffield	
45194	Suffield Pharmacy	2.56

TABLE 18. ASSAY OF SPIRIT OF NITROUS ETHER—*Concluded*

No.	Dealer	Nitrous Ether
	Waterbury	
46042	Costen's Pharmacy	2.51
45412	W. J. Dunphy	3.94
45414	The H. W. Lake Drug Co.	3.52
46044	The Pickett Drug Co.	2.88
45606	West Side Pharmacy	4.98
	Watertown	
45443	Post Office Drug Store	4.39
	Winsted	
46003	Bannon's Drug Store	3.43
	Windsor Locks	
45198	Bridge Pharmacy	3.23

ESSENCE OF PEPPERMINT

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

The one sample submitted contained 11.1 per cent. It was purchased of E. & C. Primrose of Milford.

ELIXIR OF PHENOBARBITAL SODIUM

Two samples were submitted by the Dairy and Food Commissioner. These were not official samples for inspection purposes but were sent to us to determine whether there was any difference between them, one, 46095, being from older stock than the other.

Analyses are as follows:

	46095 gms/100 cc.	46096 gms/100 cc.
Ash	0.11	0.11
Na_2CO_3 in ash (by titration)	0.088	0.095
Phenobarbital, from alkalinity of ash	0.38	0.42
by direct determination	0.40	0.43
Alcohol, by volume	14.56	15.45

Phenobarbital obtained upon recrystallization from water with norite was in form of white crystals which melted at 163°C. These crystals were mixed with known phenobarbital and the mixture melted at 167°C. The second sample treated in the same way had a melting point of 169°C. for the mixture.

There appears to be no considerable difference between the two preparations. The composition found is about that given for elixir of luminal N. N. R., 1930, p. 83, viz., 0.405 gm./100 cc. in a menstruum containing 20 per cent of alcohol.

DILUTED PHOSPHORIC ACID

This preparation is an aqueous solution containing not less than 9.5 nor more than 10.5 per cent of phosphoric acid, H_3PO_4.

Many of the samples submitted were considerably in excess of the specified acid strength. It is quite probable that the dilutions were prepared on the basis of volume rather than weight. Since phosphoric acid is about 1.7 times heavier than water it is evident that if the formula is prepared with a measured volume of acid instead of the weight of acid prescribed, the resulting solution will be very much too strong.

Twenty-one samples were examined and fourteen were too strong. One sample was not the article called for; it was dilute acetic acid.

TABLE 19. ASSAY OF DILUTED PHOSPHORIC ACID

No.	Dealer	Phosphoric acid, H_3PO_4
	Canaan	%
46265	The Service Pharmacy	5.97
	Danielson	
46022	Woodward's Drug Store	15.25
	Greenwich	
45611	Finche's Pharmacy	10.27
	Guilford	
46015	Monroe's Pharmacy	12.49
	Hamden	
46037	Country Club Pharmacy	12.27
46281	Highwood Pharmacy	9.08
	Litchfield	
46291	Corner Drug Store	15.72
	Moosup	
46024	Lavillie & Brennan	10.33
	Mystic	
46263	Knox's Drug Store	12.25
46261	Mystic Pharmacy	10.49
	New Haven	
46279	Harry A. Lamb	11.27
46253	Roger Sherman Pharmacy	12.28
	New London	
45182	Town Hill Pharmacy	15.29

TABLE 19. ASSAY OF DILUTED PHOSPHORIC ACID—*Concluded*

No.	Dealer	Phosphoric acid, H_3PO_4
	Putnam	
46018	W. B. Carroll	20.74
	Stamford	
45612	Sherwood's Drug Store	12.94
	Stonington	
46260	T. J. Conners	12.22
	Taftville	
45627	Taftville Pharmacy	16.32
	Torrington	
46028	Webb & Siegel	14.27
	Waterbury	
45607	Mattatuck Pharmacy	11.67
	Westbrook	
46030	Westbrook Pharmacy	10.35
	Westport	
45617	J. J. O'Conner	17.20

SOLUTIONS OF POTASSIUM HYDROXIDE AND OF SODIUM HYDROXIDE

These solutions should contain in each 100 cc. not less than 4.5 nor more than 5.5 gms. of alkali, potassium hydroxide and sodium hydroxide respectively.

One sample of each of these solutions was obtained at the Wethersfield Pharmacy, Wethersfield, and both met the requirements of the standard.

SACCHARATED FERROUS CARBONATE

Saccharated ferrous carbonate should contain not less than 15 per cent of ferrous carbonate, $FeCO_3$.

Four samples were examined, three of which met the standard. One was very deficient by reason of oxidation.

TABLE 20. ASSAY OF SACCHARATED FERROUS CARBONATE

No.	Dealer	Ferrous Carbonate, $FeCO_3$
	Ansonia	%
46048	Steven's North End Pharmacy	19.89
	Bridgeport	
45405	Liggett's Drug Store	22.48
	Fairfield	
45619	Clampett's Pharmacy	15.13
	South Manchester	
45634	Quinn's Drug Store	1.83

DILUTED SULPHURIC ACID SOLUTION

This preparation should contain not less than 9.5 nor more than 10.5 per cent of sulphuric acid, H_2SO_4.

Fifteen samples were examined and nine of them were found to be considerably over strength. The probable explanation appears to be the same as already noted in the discussion of diluted phosphoric acid. The dilution was, no doubt, made upon the basis of a measured volume of sulphuric without proper regard for the specific gravity of concentrated acid, which is 1.8 times that of water.

TABLE 21. ASSAY OF DILUTED SULPHURIC ACID

No.	Dealer	Sulphuric acid, H_2SO_4
	Hamden	%
46036	Country Club Pharmacy	14.34
	Litchfield	
46292	Corner Drug Store	17.43
	Middletown	
45433	Murphey's Drug Store	17.28

TABLE 21. ASSAY OF DILUTED SULPHURIC ACID—*Concluded*

No.	Dealer	Sulphuric acid, H_2SO_4
	Moosup	
46025	Lavillie & Brennan	10.77
46023	Moosup Pharmacy	17.48
	Mystic	
46264	Knox's Drug Store	11.28
46262	Mystic Pharmacy	10.10
	New Haven	
46257	W. H. Hussion	16.82
46280	Harry A. Lamb	14.94
46254	Roger Sherman Pharmacy	11.15
	New London	
45183	Town Hill Pharmacy	15.45
	Salisbury	
46269	Salisbury Pharmacy	10.15
	Torrington	
46026	Opperman's Drug Store	10.50
46027	Webb & Siegel	13.18
	Taftville	
45626	Taftville Pharmacy	17.77

MISCELLANEOUS

POTATOES

In collaboration with the Storrs station, a number of samples of potato tubers have been analyzed. The experiment is a project of the Storrs station and will be discussed in due time elsewhere, but for purposes of reference the analyses of eleven samples, representing tubers at planting season of 1930, are given here. The results are stated on the basis of air-dry material. Although the drying was accomplished as quickly as possible by heat in a good circulation of air, enzymic action during the drying interval was undoubtedly sufficient to influence the carbohydrate distribution appreciably.

Analyses are given in Table 22.

TABLE 22. ANALYSES OF POTATOES ON AIR-DRY BASIS

Spring 1930

	4594	4595	4596	4597	4598	4601	4602	4603	4605	4606	4607
Moisture	4.58	3.20	3.83	4.58	3.33	3.30	3.85	3.00	2.30	4.13	3.21
Total Ash	4.84	3.93	4.12	4.64	4.32	4.05	5.31	4.88	4.47	4.89	4.96
Acid-Insoluble Ash	0.11	0.09	0.10	0.08	0.06	0.09	0.10	0.06	0.19	0.15	0.10
Soluble Ash	4.73	3.84	4.02	4.56	4.26	3.96	5.21	4.82	4.28	4.74	4.86
Protein	11.00	10.63	12.00	11.44	12.06	11.81	11.00	11.31	12.06	10.31	13.25
Fiber	3.26	2.27	2.19	2.93	2.38	2.14	3.80	3.07	2.76	3.01	2.48
Carbohydrates:											
Starch	50.23	59.01	60.86	52.43	62.10	64.69	52.03	59.74	64.46	56.14	57.83
Soluble	12.90	11.24	9.36	11.62	8.08	7.52	10.32	8.46	6.54	9.86	11.12
Undetermined	12.63	9.37	7.26	11.87	7.29	6.20	13.11	9.08	7.01	11.11	6.70
Fat	0.56	0.35	0.38	0.49	0.44	0.29	0.58	0.46	0.40	0.55	0.45
Total Nitrogen	1.76	1.70	1.92	1.83	1.93	1.89	1.76	1.81	1.93	1.65	2.12
H_2O—Sol. Nitrogen	1.12	1.14	1.38	1.20	1.42	1.35	1.08	1.23	1.39	1.11	1.48
H_2O—Insol. Nitrogen	0.64	0.56	0.54	0.63	0.51	0.54	0.68	0.58	0.54	0.54	0.64
K_2O	2.41	2.05	2.04	2.29	2.11	1.88	2.79	2.39	1.99	2.17	2.36
Cl	0.59	0.56	0.54	0.51	0.55	0.57	0.49	0.56	0.41	0.69	0.66
P_2O_5	0.51	0.41	0.41	0.45	0.49	0.38	0.56	0.50	0.59	0.50	0.58
CaO	0.16	0.09	0.06	0.09	0.09	0.05	0.09	0.06	0.05	0.07	0.06

FLUID EXTRACT OF GINGER

C. E. SHEPARD AND E. M. BAILEY

A sample of fluid extract of ginger was submitted to us by the State Commissioner of Health, the product having come to him from one of the large insurance companies in Hartford. The effects following the drinking of so-called paralytic ginger extract as a beverage is a matter of concern to insurance companies as well as to public health officials. The circumstances connected with the sample in question were such as to convince the medical authorities concerned, or at least to create a strong presumption in their minds, that the article submitted was spurious extract of ginger of a dangerous character. Case histories of pronounced "jake" paralysis were a part of the evidence accompanying the sample.

The sample was submitted to us at about the time that information was published by the Bureau of Industrial Alcohol in Washington on the composition and character of paralytic ginger extract. A preliminary examination of the suspected sample submitted to us failed to show the outstanding characters of the poisonous article. For example, we could detect no odor of phenol on treating the solids with alkali and then acidifying. The phosphoric acid content was found to be about 4 milligrams per 100 cc., whereas the paralytic extract was reported to contain about 300 milligrams for the same unit of volume.

To further investigate the question an extract of known purity was prepared from ground ginger root according to directions of U. S. P. *X*. Another was made using the pure article as a base, reinforcing it with orthotricresylphosphate and diethyleneglycol, the characteristic ingredients of paralytic ginger. Partial analyses of these two preparations and of the suspected sample are as follows:

	Authentic sample, pure	Authentic sample, adulterated	Suspected sample
Solids, gms/100 cc. (by drying at 100° C. in air)	3.67	2.67	4.75
P_2O_5 (magnesium nitrate method)	0.0010	0.379	0.0038
(alcoholic potash method)	.....	0.429	0.0050

Drying at atmospheric pressure at 100°C. probably resulted in loss of other substances than water and alcohol in the case of the adulterated sample. Phosphoric acid determined after ignition with magnesium nitrate gave low results. Ignition after evaporation with alcoholic potash gave practically the theoretical P_2O_5 content in case of the adulterated sample.

These extracts were fed in quantities which represented closely comparable amounts of ginger solids. The portions were absorbed on dog biscuit and allowed to stand overnight in a current of air at 70°C. to expel alcohol before feeding. In early trials there

was some loss of the dry ration by spilling and this was overcome by adding lard to make a more cohesive mixture.

The extract of known purity produced no unfavorable symptoms in the experimental animals. The adulterated extract produced marked paralysis in 7 days. The suspected sample was fed for 21 days. Some loss in weight resulted, but there were no indications of paralysis or other signs of illness or discomfort. The animal was then fed on untreated dog biscuit for about two weeks to regain weight, after which the adulterated extract was fed. The animal then became weak, there was a slight drag in the rear legs, the back was humped at the hips and other unfavorable symptoms were observed. The rat was nearly dead after three weeks when the test was terminated.

The analysis of the suspected sample, as well as the results of feeding experiments made with it, appear to prove that it was not of the poisonous variety but merely U. S. P. ginger extract of double strength.

DRUGS, ETC.

Forty-two samples of drugs and related materials were submitted by the Dairy and Food Commissioner, health officers and others interested. A few of these are of sufficient interest to require special mention.

43919. *Donhide.* This is a medicine prepared by the Riverside Laboratories, Inc., New York. There is nothing on the label to indicate the uses of the medicine. There are some general directions as to diet and specific directions as to dosage. No literature appears to be distributed with the remedy, except a blank to be filled out by the patient giving a history of his illness, which is presumed to be epilepsy. This blank states that "90 per cent of epilepsy can be relieved"; filling out the blank does not obligate the patient to take the treatment; and that if treatment is taken the information given will be used by the physician under whose care the patient will be in prescribing for the case.

Partial analysis:

> Sp. Gr. 1.299; pH 4.3; solids 60.2% (by wt.); ash 18.1%; bromide 27.3%; ammonia (NH_3) 3.2%; chloride trace; purified alkaloids 0.021%; K_2O 0.013; sodium present; alcohol (by vol.) 8.4%; glycerine present; cinchona present; ammonium bromide (calc.) 16.3%; sodium bromide (calc.) 18.1%.

The medicine consists of, or contains, a solution of sodium and ammonium bromides, dilute alcohol, glycerine and fluid extract of cinchona. Other medicaments, if present, were not identified.

Cleaning Fluid. This was a cleaning mixture supposed to contain chloroform 40 parts and benzene 60 parts, and to be non-

inflammable. Crude tests were made by passing a flame over the mixture in small porcelain capsules, and similar tests were made with mixtures of these two ingredients in other proportions with the following results:

Chloroform	Benzene	Remarks
40 parts	60 parts	Flash and considerable burning period.
60	40	Flash and short burning period.
65	35	Faint flash.
70	30	No flash.

The sample submitted flashed and burned in a manner which indicated a rather greater proportion of benzene than 60 per cent. Seventy parts of chloroform and 30 parts of benzene would appear to offer no fire risk and the proportion 65 to 35 would probably be reasonably safe. Good ventilation is necessary when working with benzene because of the poisonous character of its vapor.

45401. *Omin,* tonic tablets claimed to contain iron peptonate, selected endochrine glands and aromatics, was examined for the Dairy and Food Commissioner.

Partial analysis is as follows:

> Moisture 3.73%; ash 19.59%; nitrogen 2.15%; CaO 9.49%; $Fe_2O_3 + Al_2O_3$ 0.49%; P_2O_5 0.70%. No alkaloids, anthraquinone derivatives or substances extractable by ether or chloroform were found. No hypophosphites or iodine were detected. Carbonate, magnesium, sodium, potassium phosphate, sulphate and chloride present. Odor resembling anise noted.

Absence of detectable amounts of iodine would indicate no appreciable quantity of thyroid, but granting the presence of glandular substances, these are not medicaments to be taken indiscriminately. Iron peptonate is probably present.

46300. *Condition Pills.* A sample of pills which were used as medicine for dogs was submitted through the Dairy and Food Commissioner's office by the Humane Society. Our information is that several small dogs had died soon after taking these pills and the symptoms described were typical of strychnine poisoning.

Analysis, stated in terms of grains per pill, is as follows:

> Quinine, alkaloid 0.190; strychnine, alkaloid 0.010; arsenic, as trioxide 0.010; phenolphthalein present; ferrous and ferric iron present; reduced iron present; licorice indicated; other medicaments, if present, not identified.

The medicaments found are common tonic and laxative drugs. As for dosage we cannot pass authoritative judgment. Certain texts state 1/70 grain as the dose of strychnine for dogs, but a veterinary of wide experience advises us that he usually prescribes 1/250 grain, and never over 1/150 grain. Some dogs are partic-

ularly susceptible to strychnine; and moreover, 1/70 or 1/100 grain would appear to be a large dose for a small animal. Strychnine is a powerful drug and it should be administered with caution.

The pills were of a well-known make. As a check upon the dosage of alkaloid found in them a second sample was procured in a local drug store. In this sample quinine and strychnine were not determined separately, but the combined alkaloids were substantially less in amount than was found in the first sample submitted. It is possible that the dosage in this first sample was greater than is ordinarily present in this medicine.

MATERIALS EXAMINED CHIEFLY FOR POISONS

Fifty-two samples, many of them being viscera of animals suspected of having been poisoned, were submitted by the Commissioner on Domestic Animals and other authorities. These examinations often serve as a basis for official investigation or for diagnosis, but not often can they be used successfully as a basis for prosecutions. To prove malicious intent it is practically necessary to see the suspected person in the act of feeding animals and the difficulties in obtaining such evidence are obvious. However, in the past year several such cases have been prosecuted and convictions secured.

EXAMINATION OF ANIMAL TISSUE FOR ARSENIC

C. E. Shepard and E. M. Bailey

In the examination of animal organs for evidence of arsenical poisons the Reinsch test, in conjunction with the sublimation of the deposit on copper and observation of the crystalline character of the sublimate, affords a rapid and valuable preliminary test. Negative tests should be repeated after treating the material with reducing agents to make sure that arsenic is in the arsenous form. This procedure, when supported by the Gutzeit test on a quantitative basis, is sufficiently conclusive for most cases which come to our attention. In cases likely to be vigorously contested it is desirable to have as much convincing evidence as possible, and since the Marsh test is classic, it generally figures in forensic cases. The Ramberg method is also a valuable procedure when accompanied by suitable tests for the identity of arsenic.

An examination made recently, when it seemed advisable to utilize all of the procedures noted, is recorded here because of its interest from the standpoint of closely agreeing analytical results.

The material was finely comminuted to insure reasonable uniformity of sample. A portion was first subjected to the Reinsch test and a copious steel grey deposit on copper foil was obtained. Thin strips of the foil were then introduced into a capillary tube, and by careful heating a sublimate was formed which revealed the characteristic octahedral crystals of arsenic trioxide when viewed with a microscope. The crystals may be seen distinctly in the capillary tube and it is not necessary to resort to manipulation to obtain them on a slide before making the microscopic examination. This test alone establishes a strong presumption of the presence of arsenic but since antimony deposits as a film on copper foil and yields a sublimate which, although generally amorphous, may consist of, or contain, octahedral crystals, further tests to identify arsenic are necessary. This test is carried out on the original materials, without destruction of organic matter, placing the copper foil in a suspension of the tissue in water acidified with hydrochloric acid. A weighed quantity of material was then boiled with sulphuric acid and nitric acid until organic matter was destroyed and the solution made up to definite volume with water. Aliquots were taken for subsequent determinations.

The Gutzeit test furnishes qualitative evidence of arsenic and the method may also be conducted on a quantitative basis. Aliquots from each of the solutions representing 0.4 gram of original material were used. Freshly prepared and standardized mercuric bromide strips were used in measuring the arsenic liberated. This test was conducted substantially as described by Sanger and Black (American Academy of Arts and Sciences 43, 297-324, 1907). Freedom from all reagents used from contamination with arsenic was established by suitable blank determinations. Duplicate determinations, representing two separate portions of original material, gave 35 micro-milligrams of arsenic (as trioxide) or 1.75 grains calculated to the basis of the original weight of material submitted (2 lbs., 14 ozs.).

The Ramberg method, described by Cox (Analyst, 50, 3, 1925), has been found to be reliable for the determination of small amounts of arsenic in animal tissues and was used in this laboratory in the investigation of experimental mixtures of arsenical spray materials (Conn. Exp. Station Bull. 278, 1926). Arsenic was distilled and titrated with standard potassium bromate solution, 1 cc. of which was equivalent to .00037 gm. As_2O_3. The quantity of arsenic found by this procedure, when calculated to the basis of the original weight of material submitted, was 1.69 and 1.80 grains As_2O_3 obtained in duplicate determinations.

Finally the well-known Marsh test, as modified by Berzelius, was applied. A characteristic mirror was obtained, the weight of which calculated to its equivalent in As_2O_3 and to the basis of the original material submitted was 1.32 grains. This figure is, no doubt, less accurate than those obtained by the other two

methods employed. The mirror is probably not of uniform composition; the darker portion of the mirror is metallic arsenic but the lighter, brownish portion, according to Rettgers (Peterson, Haynes and Webster 2, 231), consists of suboxide, As_2O, and hydride, AsH. The spot test with silver nitrate and nitric acid, the characteristic yellow sulphide and the odor of arsine confirmed the identity of arsenic.

To summarize the quantitative results, amounts of arsenic found were as follows:

By Gutzeit method	1.75 and 1.75 grains
Ramberg method	1.69 and 1.80 grains
Marsh-Berzelius method	1.32 grains

BABCOCK GLASSWARE, ETC.

During the year, 1,723 Babcock test bottles and 133 dairy thermometers were tested. All of the thermometers were passed and only eight test bottles were inaccurate.

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