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Connecticut Agricultural Experiment Station
New Haven, Connecticut

THE THIRTIETH REPORT ON

FOOD PRODUCTS

AND THE EIGHTEENTH REPORT ON

DRUG PRODUCTS

1925

Connecticut Agricultural Experiment Station
New Haven, Connecticut

The Thirtieth Report on
FOOD PRODUCTS
and the Eighteenth Report on
DRUG PRODUCTS

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By

E. M. BAILEY

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March, 1926

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CONTENTS AND SUMMARY.

Materials	Page	Sampled by, or at request of			Total	Adulterated, below standard, or otherwise illegal
		Station Agent	Dairy and Food Commissioner	Individuals		
FOODS						
Bread	335	...	...	8	8	...
Carbonated Beverages	336	...	23	...	23	...
Cacao Products	337	3	...	2	5	...
Coffee	337	22	...	...	22	...
"Diabetic," Special and Miscellaneous foods	340	36	6	...	42	...
Eggs	349	...	24	...	24	16
Fats and Oils:						
Butter	350	...	23	...	23	5
Oleomargarine	350	...	3	...	3	1
Lard	350	...	16	...	16	...
Flavoring Extracts:						
Vanilla	352	...	5	...	5	2
Lemon, etc.	352	...	38	...	38	4
Orange	353	...	7	...	7	...
Gelatin	358	7	...	...	7	...
Ice Cream	358	...	405	7	412	3
Meat Products:						
Hamburg Steak	359	...	14	...	14	3
Frankfurts	359	...	16	...	16	11
Bologna, etc.	360	...	3	...	3	3
Pork Sausage	360	...	25	...	25	6
Milk and Milk Products:						
Market Milk	360	...	522	131	653	216 ¹
Condensed Milk	361	...	1	...	1	...
Evaporated Cream	361	...	1	...	1	...
Colostrum	363	30	...	...	30	...
Malted Milk	363	1	...	...	1	...
Human	364	...	...	2	2	...
Tea	364	5	...	...	5	...
Vinegar	364	2	2	13	17	2
Miscellaneous	364	...	...	5	5	...
<i>Total</i>		106	1134	168	1408	272

¹ Includes 162 below standard only.

CONTENTS AND SUMMARY—*Concluded.*

Materials	Page	Sampled by, or at request of			Total	Adulterated, below standard, or otherwise illegal
		Station Agent	Dairy and Food Commissioner	Individuals		
DRUGS.						
Tablets, Pills, etc.	365	...	15	...	15	1
Iodine, Tincture of	369	...	1	...	1	1
Lime Water	369	...	12	...	12	2
Peppermint, Essence of	369	...	9	...	9	2
Prescriptions:						
Potass. Iodide	370	...	56	...	56	14
Arsenous Acid, Soln.	371	...	22	...	22	12
Spirits Ammonia, Aromatic ..	372	...	43	...	43	25
Silver Preparations, Colloidal						
Argyrol Type	377	13	59	...	72	22
Protargol Type	378	3	17	...	20	5
Proprietary Remedies	383	4	...	...	4	...
Toilet Preparations	386	...	4	...	4	...
Turpentine	386	...	22	...	22	4
Miscellaneous, for Poisons, etc. ...	387	...	1	21	22	...
<i>Total</i>		20	261	21	302	88
<i>Total, Foods and Drugs</i> ..		126	1395	189	1710	360
Whiskey	389	...	...	...	...	...
Babcock Glassware, etc.	392	...	...	...	3826	4

The Thirtieth Report on Food Products and the Eighteenth on Drug Products

E. M. BAILEY

This report summarizes the work done upon foods and drugs for the calendar year 1925 and includes a few samples of drugs taken in 1924 which could not be examined in time to be included in the report for that year.

As in past years, collaborative work for the Association of Official Agricultural Chemists has been done, the subjects this year being cacao products, vinegar and certain insecticides. The report on cacao products and analytical results on the other materials are reported elsewhere.¹ Coöperation has been continued also with the Council on Pharmacy and Chemistry of the American Medical Association in the examination of foods intended for diabetic dietaries; and the writer, as a member of the Joint Committee on Definitions and Standards, has attended the two meetings of that committee during the year.

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

I. FOODS.

BREAD.

Eight samples of bread were examined for the County Commissioners of New Haven County, the samples being submitted by Deputy Jailer Baldwin. The breads were from four different bakeries and they were sampled at different times in two lots of four each, under as nearly the same conditions as possible. Analyses and other data obtained are given in Table I.

The loaves, particularly samples 2, 3 and 4, are very uniform in composition as shown by the results obtained at different intervals; and as regards the percentage amounts of food solids, and actual weights of food solids per loaf, the loaves are evaluated in the same order by each series of analyses. Caloric values are not very different, but loaf 3 derives a somewhat greater proportion of calories from protein and fat than the others.

We have no information as to the baking formulas of these products. If some of the breads are made with milk they will be superior to those not so made even though the caloric values are practically the same.

¹ Jour. A. O. A. C. Report of the Proceedings for 1925.

TABLE I. ANALYSES OF BREADS.

Sampler's No.	No. 1		No. 2		No. 3		No. 4	
	First	Second	First	Second	First	Second	First	Second
Station No.	2865	3031	2866	3032	2867	3063	2868	3034
Water	37.01%	38.16%	35.43%	35.78%	36.12%	36.69%	35.34%	34.94%
Ash	1.28	....	1.56	....	2.08	....	1.60	....
Protein (N x 6.25)	9.07	8.59	8.70	8.51	9.89	9.80	9.17	9.08
Fiber	0.17	....	0.14	....	0.16	....	0.17	....
Carbohydrates other than fiber	51.71	....	51.99	....	49.29	....	51.45	....
Fat	0.76	....	2.18	....	2.46	....	2.27	....
Calories per 100 gms.	250.00	....	262.00	....	259.00	....	263.00	....
Solid food material	62.99	61.84	64.57	64.22	63.88	63.31	64.66	65.06
Weight of loaf, ozs.	24.00	25.40	19.50	19.30	20.00	20.20	21.00	20.30
Solid food material per loaf, ozs. ..	15.10	15.70	12.60	12.40	12.80	12.80	13.60	13.20

CARBONATED BEVERAGES.

Chapter 102, Public Acts of 1925, concerning the manufacture and bottling of beverages provides, among other things, that beverages other than cereal beverages, cider and spring or mineral water, shall have a sugar content of not less than 5 per cent by weight.

Twenty-three samples were submitted by the Dairy and Food Commissioner and the same examined for total solids, sugar and saccharin.

The occurrence of saccharin in this type of products is now very rare and in none of the samples examined was this artificial sweetener found. Sugars were determined by reduction methods before and after inversion, the sugar content being taken as the sum of invert sugar and sucrose. Varying but substantial increases in reduction after inversion were found in all cases. Sugar exceeded 5 per cent in all samples, the highest amount found being 15.7 per cent.

The results are given in Table II.

TABLE II. ANALYSES OF CARBONATED BEVERAGES.

No.	City or Town	Manufacturer	Solids		Sugar	
			%	%	%	%
26278	Ansonia	Crystal Bottling Works	9.42	8.91		
26263	Bristol	C. E. Perkins Bottling Works	9.66	9.49		
26269		Perkins Bottling Works	9.66	9.61		
26271		Perkins Bottling Works	10.55	9.82		
26270	Canton Center	O'Keefe's Beverages, Limited.	7.32	7.24		
26273	Hartford	Bacon Bottling Works	10.82	10.26		
26277		Bacon Bottling Works	10.27	9.71		
26266	New Haven	Kene's Bottling Works	12.60	11.66		
26274		Sweeney's Bottling Works ...	7.45	6.99		
26251	New London	Nutmeg Bottling Works	11.42	10.87		
26256		Purity Bottling Works	12.51	12.87		

TABLE II. ANALYSES OF CARBONATED BEVERAGES—*Concluded.*

No.	City or Town	Manufacturer	Solids %	Sugar %
26264	<i>Stamford</i>	Silver Spring Water Co.	9.52	9.29
26272	<i>Torrington</i>	Fox Bottling Works	10.78	10.89
26254	<i>Waterbury</i>	Brass City Bottling Works ..	16.45	15.65
26253		Brooklyn Bottling Co.	12.17	11.63
26276		Diamond Beverage Corp. ...	7.90	7.59
26255		Hamilton Bottling Works ...	13.96	12.47
26261		Puritan Ale Co.	7.87	7.61
26257		Mascola Bottling Works	12.16	11.52
26260		C. Mascola Bottling Works ..	10.65	10.16
26252		Reiner Bros.	10.23	10.72
26258		Riverside Bottling Co.	13.62	12.93
26275	<i>Westville</i>	West Rock Bottling Works ..	12.83	12.07

CA CAO PRODUCTS.

Only two samples of this class of foods were examined. One was Cho-Lay, a product made by the Saville Chocolate Products Co., Pittsburgh, Pa. It contained 7.38 per cent of protein and 7.60 per cent of fat. A more complete analysis of this product was made by us last year.¹ The other was a sample of cocoa submitted by the Hartford Tuberculosis Society to be examined for fat content. The sample contained 15.35 per cent of fat.

In connection with a critical study of the present official and tentative methods of the Association of Official Agricultural Chemists for the analysis of cacao products, complete analyses of a sample of bitter chocolate, of sweet chocolate and of sweet milk chocolate were made by Messrs. Shepard and Mathis. Their results, together with those of other collaborators, will be published elsewhere.²

COFFEE, ETC.

Twenty samples of coffee, one of Kaffee Hag, and one coffee substitute were collected by the station agent.

According to the present standard, coffee should contain not less than 10 per cent of fat and not less than 3 per cent of ash. Kaffee Hag is modified coffee, the caffeine being practically eliminated. In other respects, so far as determined, it corresponds to the limits of composition as given for coffee. Sample 454 is a coffee substitute, so labelled, and contains about 50 per cent of pure coffee.

For the determination of caffeine in coffee the Fendler-Stüber is the optional official method. The optional official method for caffeine in tea appears, however, to be equally well adapted to coffee according to the results here reported.

Analysis are given in Table III.

¹ Conn. Exp. Sta. Bull., 267, 428, 1924.

² Assoc. Off. Agr. Chemists, Proceedings, 1925.

TABLE III. ANALYSES OF COFFEE, ETC.

Station No.	Manufacturer or Dealer and Brand Name	Soluble Solids		Ash	Fat	Caffeine						
		Fendler-Stüber Method				Bailey-Andrew Method		Fendler-Stüber Method		Bailey-Andrew Method		
		%	From N.	%	%	From N.	%	From N.	%	From N.	%	
	COFFEE.											
442	Austin, Nichols & Co., Inc., N. Y. Java and Mocha	11.48	14.03	4.15	%	1.39	1.26	1.36	1.40	1.28	1.37	
431	Austin, Nichols & Co., Inc., N. Y. Sunbeam	11.17	15.60	3.88	%	1.24	1.17	1.15	1.43	1.21	1.32	
441	Baker Importing Co., N. Y. Barrington Hall Bakerized	11.00	4.15	4.15	%	1.29	1.21	1.25	1.27	1.18	1.27	
433	Beech-Nut Packing Co., Canajoharie, N. Y. Beech Nut	11.50	14.83	4.38	%	1.42	1.33	1.29	1.42	1.34	1.27	
440	The Wm. Boardman & Sons Co., Hartford. Boardman's Gold Star	11.43	4.38	4.38	%	1.63	1.36	1.32	1.58	1.37	1.32	
411	Brownell & Field Co., Providence, R. I. Autocrat	11.10	4.03	4.03	%	1.25	1.15	1.15	1.32	1.18	1.15	
457	Brown-Thompson & Co., Hartford	10.65	4.08	4.08	%	1.29	1.21	1.29	1.27	1.22	1.22	
412	Cheek-Neal Coffee Co., N. Y. Maxwell House High Grade Coffee	11.48	4.23	4.23	%	1.37	1.19	1.37	1.33	1.19	1.19	
443	Andrew Davey, Inc., N. Y. Atlas	11.18	3.98	3.98	%	1.37	1.29	1.37	1.34	1.28	1.28	
409	Dwinnell-Wright Co., Boston. White House	11.55	4.08	4.08	%	1.40	1.17	1.40	1.37	1.19	1.19	
424	B. Fischer & Co., Inc., N. Y. Astor	10.95	4.25	4.25	%	1.28	1.14	1.28	1.33	1.17	1.17	
403	Hartford Market Co., Hartford	11.75	4.33	4.33	%	1.12	1.07	1.12	1.25	1.05	1.05	
420	Francis H. Leggett & Co., N. Y. Premier	11.92	4.38	4.38	%	1.40	1.09	1.40	1.38	1.18	1.18	
413	Lipton's, Hoboken, N. J. Yellow Label	11.09	4.25	4.25	%	1.51	1.16	1.51	1.44	1.19	1.19	
495	Logan Bros. Co., Bridgeport. Midas Highest Quality	13.00	4.10	4.10	%	1.35	1.23	1.35	1.27	1.20	1.20	
417	Logan Bros. Co., Bridgeport. Mojave	13.29	4.15	4.15	%	1.31	1.16	1.31	1.30	1.19	1.19	

TABLE III. ANALYSES OF COFFEE, ETC.—Continued.

Station No.	Manufacturer or Dealer and Brand Name	Soluble Solids	Ash	Fat	Caffeine			
					Fendler-Strüber Method		Bailey-Andrew Method	
					Grav.	From N.	Grav.	From N.
		%	%	%	%	%	%	
465	COFFEE—Continued. Wm. T. Reynolds & Co., Poughkeepsie, N. Y. <i>Reynolds' Reliance Steel Cut Coffee</i>	11.55	4.33	14.48	1.26	1.18	1.24	1.17
459	E. Schoenberger & Sons, New Haven. <i>Ground Coffee</i>	11.48	4.28	14.50	1.26	1.18	1.32	1.18
444	United States Stores System. <i>Rex Blend</i>	10.69	4.05	14.58	1.24	1.16	1.23	1.17
439	R. C. Williams & Co., Inc., N. Y. <i>Royal Scarlet Brand</i>	10.95	4.25	13.90	1.24	1.13	1.30	1.17
	Modified Coffee and Coffee Substitute.							
458	E. Schoenberger & Sons, New Haven. <i>Kaffee Hag</i>	10.20	4.05	13.58	0.16	0.10	0.20	0.00
454	Hartford Market Co., Hartford. <i>Coffee Substitute</i>	11.95	5.48	8.35	0.70	0.62	0.69	0.59

DIABETIC, SPECIAL AND MISCELLANEOUS FOODS.

(Analyses are given in Table IV.)

GLUTEN FLOUR, ETC.

Gluten Flour should contain, on the moisture-free basis, not less than 7.1 per cent of nitrogen and not more than 44 per cent of starch.¹ All of the six samples of this type of flour examined met these requirements.

Two samples of Diaban diabetic flour were analyzed. Literature accompanying the samples states that this flour is made from wheat, edible nuts, casein with flavoring and leavening agents. Wheat flour contains 75 to 80 per cent of carbohydrate, whereas the two samples of Diaban diabetic flour contained about 38.5 and 43.0 per cent respectively of this constituent, which is substantially one half the amount generally found in wheat flour.

Jireh "Starch-Treated" flour was not sold as "gluten" flour nor as "diabetic" flour. Whatever "treatment" the flour has undergone it contains practically the same amount of carbohydrate as the average of wheat flours, and over 60 per cent of starch as determined by the diastase method.

NON-NUTRITIVE FLOUR, ETC.

Cellulose flour and Vitae Special Starch-free Bran are both made from the husks of the soy bean. In both of these products the greater part of the carbohydrate belongs to the undetermined nitrogen-free extract and consists chiefly of hemicellulose complexes not generally regarded as a source of danger in the diabetic diet. The term "bran" indicates a cereal product, and generally in human foods, a wheat product. The term "starch-free bran," therefore, in this instance is misleading.

Callard's Washed Bran is free from any determinable amount of starch.

BAKERY PRODUCTS.

Since gluten flours vary greatly in composition, containing from 40 per cent protein (as required by the standard) to 80 per cent, it follows that gluten breads vary according to the flour used. These breads aim to fill a need in the diabetic diet for a bread of relatively low carbohydrate content. This reduction in carbohydrate is effected at the expense of an increase in protein and, when carried to extremes, the greatly increased protein becomes a disadvantage in itself. In advising a patient upon questions of diet the physician will, therefore, need to know the

¹ Circ. 136, Office of the Secretary, U. S. Dept. Agr.

composition of the particular bread in question, and he should keep in mind also the composition of ordinary wheat bread for comparison. On the basis of about 35 per cent of water, ordinary bread contains about 9 per cent of protein and 53 per cent of carbohydrate; or, on the basis of the moisture found in hard (dry) breads, viz., about 5 per cent, 13 per cent protein and 77 per cent of carbohydrate.

Of the gluten breads examined, the soft breads, i. e. those containing approximately 35 per cent of moisture, have a protein content of from 17 to 31 per cent and contain from 24 to 39 per cent of carbohydrate. This is excluding **32805** which does not differ from ordinary wheat bread. The hard (dry) breads contain about 5 per cent of moisture, from 21 to 73 per cent of protein and from 13 to 49 per cent of carbohydrate. The bread which is lowest in carbohydrate, **32810**, contains only 6 per cent of available carbohydrate, as such, but the 73 per cent of protein which accompanies it is a potential source of a very considerable amount of sugar. In the other dry bread, **2337**, the amount of carbohydrate is practically the same as in wheat bread.

The soluble carbohydrate, calculated as dextrose, in products containing agar, **2703** and **1204**, is enhanced somewhat by reducing sugars obtained from that substance after hydrolysis, but which are regarded as indigestible.

The fat content of two samples is high, due in one case, **2337**, to added vegetable oils, and in the other, **3175**, largely to butter.

The baked products of Callard & Co. are in most cases high in fat, which, so far as could be determined, is digestible fat or oil. No evidence of mineral oil was obtained. The "fat" in Nutrivoïd Bran Wafers, **1240**, is largely mineral oil and is indigestible. Whether the fat in Cellu products, **1241**, **1242** and **1243** is, in part, due to mineral oil was not determined.

CONFECTIONS AND FRUIT PRODUCTS.

No evidence of mineral oil was found in the confections of Callard & Co. and the fat is, therefore, presumably assimilable. The chocolate creams, **2710**, and Marzipan chocolate, **2706**, contain glycerine according to information furnished by the manufacturer.

Our information from the same source is that the Callard jellies, jams, marmalade and fruit in syrup are packed with from 10 to 45 per cent of glycerine.

TABLE IV. SO-CALLED "DIABETIC," SPECIAL, AND MISCELLANEOUS FOODS.

No.	Manufacturer and Brand	Moisture	Ash	Nitrogen	Protein		Fiber	Nitrogen-free Extract				Fat, Ether Extract
					N x 6.25	N x 5.7		Starch	Sugar as Dextrose	Other N-free Extract		
31142	Flour, Meals, etc. <i>Battle Creek Food Co., Battle Creek, Mich.</i> Gluten Flour	8.08	0.93	7.57	....	43.15	0.34	36.45	2.88	6.35	1.82
2701	<i>Callard & Co., London</i> Washed Bran	8.60	4.37	1.06	10.38	....	21.48	none	2.31	46.41	6.45
31144	<i>The Farwell & Rhines Co., Watertown, N. Y.</i> Gluten Flour	8.23	0.72	7.38	....	42.07	0.29	37.91	3.08	6.30	1.40
32334	<i>Jirch Food Company, Inc., Morris Plains, N. J.</i> Jirch "Starch Treated" Flour	8.08	1.36	2.14	13.38	....	1.29	60.47	5.48	7.89	2.05
1290	<i>MacDowell Bros., Ogdensburg, N. Y.</i> Diaban Diabetic Flour	6.78	6.46	4.48	28.00	....	2.15	32.06	32.06	6.48	18.07
3201	Diaban Diabetic Flour	5.95	6.15	4.17	26.06	....	1.35	28.13	5.04	9.97	17.35
31143	<i>Potter-Wrightington, Inc., Boston, Mass.</i> Gluten Flour, Diet-Ease	7.93	1.18	7.12	....	40.58	0.44	33.58	4.80	8.89	2.60
32884	Gluten Flour, Diet-Ease	7.74	1.76	7.03	....	40.07	0.46	34.88	5.72	6.54	2.83

TABLE IV. SO-CALLED "DIABETIC," SPECIAL, AND MISCELLANEOUS FOODS—Continued.

No.	Manufacturer and Brand	Moisture	Ash	Nitrogen	Protein		Fiber	Nitrogen-free Extract			Pat. Ether Extract
					N x 6.25	N x 5.7		Starch	Sugar as Dextrose	Other N-free Extract	
32643	Flour, Meals, etc.—Concluded. <i>Pieser-Livingston Co., Chicago, Ill.</i>	8.78	0.89	7.37	....	42.01	0.30	35.33	4.04	6.96	1.69
32335	<i>The Pure Gluten Food Co., New York City.</i>	8.23	0.94	7.56	....	43.09	0.28	34.65	5.76	5.20	1.85
2516	<i>Vitae Health Food Co., Seattle, Wash.</i>	9.95	4.18	1.85	11.56	....	32.33	none	3.76	35.42	2.80
2624	<i>Vitae Special Starch-Free Bran</i>	9.75	4.39	3.58	22.38	....	20.98	none	5.80	27.77	8.93
32734	<i>Barker System of Bakeries, Hartford, Conn.</i>	38.71	1.91	2.93	....	16.68	0.40	26.38	5.92	6.45	3.55
32735	<i>BerOTH Bread Shop, Hartford, Conn.</i>	33.28	2.65	5.02	....	28.60	0.42	19.04	4.28	7.13	4.60
32805	<i>Bibeau, Meriden, Conn.</i>	38.87	2.31	1.51	....	8.58	0.92	34.02	7.79	6.13	1.38

TABLE IV. SO-CALLED "DIABETIC," SPECIAL, AND MISCELLANEOUS FOODS—Continued.

No.	Manufacturer and Brand	Moisture	Ash	Nitrogen	Protein		Fiber	Nitrogen-free Extract					
					N x 6.25	N x 5.7		Starch	Sugar as Dextrose	Other N-free Extract	Fat, Ether Extract		
	Bakery Products, etc.—Continued.												
	<i>Callard & Co., London.</i>												
2703	Bran and Agar Biscuits ("Cellulon")	10.15	4.51	1.75	10.94	....	15.93	none	10.90	40.57	7.00		
2709	Chocolate Biscuits ("Casoid")	4.30	4.25	3.68	23.00	....	2.00	5.44	5.44	9.43	51.58		
2702	Starchless Ginger Biscuits	3.83	3.41	4.38	27.38	....	1.28	none	2.68	4.49	50.93		
	<i>Chicago Dietetic Supply House.</i>												
1244	Bran Agar Wafers	5.85	7.32	1.91	11.94	....	13.10	trace	8.24	47.86	5.69		
1243	Cellu Bran Wafers	4.28	4.17	0.66	4.13	....	21.50	none	3.05	38.63	24.24		
1241	Cellu Cheese Wafers	3.48	3.21	1.24	7.75	....	21.15	none	2.31	31.46	30.64		
1242	Cellu Chocolate Wafers	4.08	3.43	1.04	6.50	....	19.18	2.11	1.44	34.93	28.33		
	<i>Community Bake Shop, Norwich, Conn.</i>												
32800	Gluten Bread	33.37	2.37	5.42	....	30.88	0.51	18.33	3.99	5.76	4.79		
	<i>Fougeron, Paris.</i>												
2337	Pain Anti-diabétique	6.75	2.95	3.34	20.88	....	0.48	34.34	9.04	5.51	20.05		
	<i>Hallinan's Bakery, New Britain.</i>												
32728	Gluten Bread	33.40	1.97	4.83	....	27.54	0.46	19.30	4.08	7.50	5.75		

TABLE IV. SO-CALLED "DIABETIC," SPECIAL, AND MISCELLANEOUS FOODS—Continued.

No.	Manufacturer and Brand	Moisture %	Ash %	Nitrogen %	Protein		Fiber %	Nitrogen-free Extract			Fat, Ether Extract %
					N x 6.25 %	N x 5.7 %		Starch %	Sugar as Dextrose %	Other N-free Extract %	
32811	Bakery Products, etc.—Concluded. <i>Keney Tower Bakery, Hartford.</i> Gluten Bread	37.79	3.19	3.61	....	20.57	0.34	27.25	2.55	3.29	5.02
32736	<i>Mory's Bakery, New Haven.</i> Gluten Bread	38.30	1.30	4.92	....	28.06	0.18	21.08	2.91	4.30	3.87
1240	<i>Nutrizoid Diabetic Flour Co.</i> Nutrizoid Bran Wafers	4.98	6.33	0.92	5.75	....	8.68	none	4.20	38.98	31.08
32737	<i>Mrs. Roof's Food Shop, New Haven.</i> Gluten Bread	35.91	1.00	5.06	....	28.85	0.20	18.93	4.98	5.05	5.08
32807	<i>Schaeffer Bros., Inc., Middletown</i> Gluten Bread	34.22	2.69	4.87	....	27.75	0.43	20.19	4.87	5.32	4.53
32810	<i>Therapeutic Foods Co., Inc., New York.</i> Gluten Bread	5.67	4.59	12.81	....	73.02	0.26	4.67	1.26	6.85	3.68
3175	<i>Wasburn-Crosby Co., Minneapolis.</i> Gluten Bread	27.23	3.71	4.13	....	23.56	2.26	8.66	1.58	13.49	19.51

TABLE IV. SO-CALLED "DIABETIC," SPECIAL, AND MISCELLANEOUS FOODS—Continued.

No.	Manufacturer and Brand	Moisture %	Ash %	Nitrogen %	Protein		Fiber %	Nitrogen-free Extract			Fat, Ether Extract %
					N x 6.25 %	N x 5.7 %		Starch %	Sugar as Dextrose %	Other N-free Extract %	
Confections.											
<i>Callard & Co., London.</i>											
2710	Chocolate Creams ("Casoid")	11.80	2.77	3.48	21.75	....	1.58	4.75	35.80	21.55
2708	Chocolate Peppermints ("Casoid")	12.98	2.66	3.57	22.31	....	1.48	4.06	36.03	20.48
2707	Chocolate Truffles ("Casoid")	5.90	3.43	4.44	27.75	....	1.78	5.19	9.25	46.70
2706	Marzipan Chocolate ("Casoid")	7.50	3.44	3.96	24.75	....	1.70	4.19	21.24	37.18
2704	Ponos Marzipan	13.42	2.38	3.22	20.13	....	2.50	3.08	23.83	34.66
2705	Ponos Marzipan (creme de menthe)	9.74	2.63	3.48	21.75	....	1.89	2.72	15.91	45.36
Fruits and Vegetables (Fresh).											
2729	Des Moines Squash	84.42	1.13	0.25	1.55	....	1.56	5.18	3.48	0.10
2730	Des Moines Squash	87.96	0.83	0.21	1.33	....	1.23	3.77	2.60	0.11
Fruits and Vegetables (Canned).											
<i>Callard & Co., London.</i>											
2712	Cranberries, Callard's Sugarless Fruit	82.24	0.14	0.05	0.31	....	1.00	none	1.33	....
2711	Plums, Callard's Sugarless Fruit	76.44	0.17	0.04	0.25	....	0.28	none	1.46	....
<i>John Sexton & Co., Chicago.</i>											
2629	Alp Rose Refugee Beans (small green)	95.26	0.33	0.17	1.03	....	0.48	0.09	1.35	1.41
1437	Alp Rose Beets (small)	84.17	0.48	0.20	1.28	....	1.04	0.31	8.08	4.59

TABLE IV. SO-CALLED "DIABETIC," SPECIAL, AND MISCELLANEOUS FOODS—Continued.

No.	Manufacturer and Brand	Moisture	Ash	Nitrogen	Protein		Fiber	Nitrogen-free Extract			Fat, Ether Extract
					N x 6.25	N x 5.7		Starch	Sugar as Dextrose	Other N-free Extract	
Fruits and Vegetables (Canned)—Concl'd.											
<i>John Sexton & Co., Chicago.</i>											
2628	Alp Rose Black Cherries	82.60	0.40	0.09	0.56	0.19	none	9.95	6.04	0.26	
2627	Alp Rose Red Pitted Cherries	86.76	0.34	0.08	0.51	0.19	none	6.99	4.94	0.27	
2630	Alp Rose Peas (sifted early June)	90.16	0.32	0.42	2.64	1.06	2.62	1.55	1.45	0.20	
2625	Alp Rose Black Raspberries	87.08	0.39	0.13	0.81	2.58	none	3.34	3.83	1.07	
2626	Alp Rose Strawberries	93.83	0.30	0.07	0.43	0.72	none	2.03	2.37	0.32	
1436	Edelweiss Sauer Kraut	93.60	1.77 ¹	0.18	1.10	0.66	0.08	0.33	2.31	0.15	
1438	Alp Rose Spinach	91.94	1.17 ²	0.46	2.87	0.65	0.19	0.80	1.92	0.46	
1435	Alp Rose Sweet Corn	83.23	0.53 ²	0.34	2.11	0.31	2.42	7.85	2.46	1.09	
<i>Washington County Company, Dennyville, Me.</i>											
2031	Aunt's Mountain Cranberries	82.76	0.24	0.08	0.48	1.01	none	3.28	11.39	0.84	
2030	Aunt's Blueberries	81.35	0.28	0.10	0.66	1.53	none	8.04	7.21	0.93	

¹ Salt (NaCl), 1.29%.
² Salt (NaCl), 0.06%.
³ Salt (NaCl), 0.04%.

TABLE IV. SO-CALLED "DIABETIC," SPECIAL, AND MISCELLANEOUS FOODS—Concluded.

No.	Manufacturer and Brand	Moisture %	Ash %	Nitrogen %	Protein		Fiber %	Nitrogen-free Extract					
					N x 6.25 %	N x 5.7 %		Starch %	Sugar as Dextrose %	Other N-free Extract %	Fat, Ether Extract %		
	Jams and Marmalades.												
	<i>Callard & Co., London.</i>												
2717	Sugarless Jam (apricot)	61.62	0.43	0.71	3.94 ¹	.....	0.30	none	3.34	.....	.....	.....	.....
2714	Sugarless Jam (green gage plums)	60.68	0.39	0.90	5.00 ¹	.....	0.29	none	2.75	.....	.....	.....	.....
2715	Sugarless Marmalade (orange)	59.64	0.37	1.04	5.77 ¹	.....	0.55	none	1.15	.....	.....	.....	.....
2713	Sugarless Pineapple Jelly	80.44	0.28	1.23	6.83 ¹	.....	none	none	none	.....	.....	.....	.....
2716	Sugarless Jam (plum)	67.42	0.33	0.90	5.00 ¹	.....	0.28	none	1.68	.....	.....	.....	.....
	Miscellaneous.												
2384	Soy Bean Meal .....	.....	6.63 ²	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

¹ Calculated as gelatine-factor N x 5.55.² Lime (CaO), 0.42%; Phosphoric acid (P₂O₅), 1.92%.

EGGS.

Twenty-four samples of eggs were submitted by the Dairy and Food Commissioner, and one sample by the Department of Health of New Haven. The eggs were sold as "fresh eggs" and examinations were made to determine whether they showed the characteristics indicated by that description.

Eight samples were passed as fresh and sixteen were found to be not fresh although in most cases they were edible. In these eggs the air spaces were generally in excess of 1 inch in diameter, yolks were settled in the shell and ammoniacal nitrogen ranged from 1.4 to 3.6 mgms. per 100 gms. of egg, averaging 2.1 mgms.

In those samples which were passed the ammoniacal nitrogen ranged from 0.9 to 1.7 mgms. per 100 gms. and averaged 1.3 mgms. The air spaces were relatively small (less than 1 inch), in all cases.

TABLE V. EXAMINATION OF EGGS.

No.	City or Town	Dealer	Sold for	Remarks
32864	Ansonia	M. Gorosko	Cold storage eggs	Not Fresh
32865		A. Remkun	Fresh eggs	Not Fresh
32863		Lesko Dencsko	Fresh eggs	Not Fresh
32877	Bloomfield	H. Fairman	Fresh eggs	Not Fresh
29468	Bridgeport	E. Tancos	Fresh eggs	Not Fresh
32955	Colchester	C. H. Levine	Fresh eggs	Pass.
32951	Glastonbury	Joseph C. Tiboni	Fresh eggs	Pass.
32850	Hartford	Austin's Market Co.	Fresh eggs	Not Fresh
32956		Antonio Parano	Fresh eggs	Not Fresh
31125		S. Satriano	Western fresh eggs	Not Fresh
31271		West Hill Grocery	Fresh eggs	Pass.
32953	Moodus	I. Beckeroff	Fresh eggs	Pass.
32952		M. Elkin	Fresh eggs	Pass.
32954		M. Sonkin	Fresh eggs	Pass.
3111 ¹	New Haven	Submitted by City Board of Health	Fresh eggs	Not Fresh
32646		A. Malfonte	Fresh eggs	Not Fresh
32957	No. Westchester	S. Elkin	Fresh eggs	Pass.
32958	Rockville	Sam Sokolor	Fresh eggs	Pass.
32627	Waterbury	C. Bencivenga	Fresh eggs	Not Fresh
32628		Eastern Provision Co.	Fresh eggs	Not Fresh
32629		Quality Market	Fresh eggs	Not Fresh
32625		United Meat Market & Gro. Co.	Fresh eggs	Not Fresh
32626		United Meat Market & Gro. Co.	Fresh eggs	Not Fresh
32799	West Simsbury	R. A. Fyler	Fresh eggs	Not Fresh

¹ Station No.

FAT AND OILS.

Twenty-three samples of butter were examined, eighteen of which were not found adulterated. Four were adulterated by reason of an excess of water or deficiency of fat, or both, and one was short weight.

The water in the adulterated samples ranged from 19.6 to 29.7 per cent. The short weight sample was 1.1 ozs. short of one pound.

Adulterated and misbranded samples are listed as follows:

No.	City or Town	Dealer	Manufacturer	Sold for	Remarks
33063	Bridgeport	Oak Hill Dairy	Own make	Sweet butter	Excess water, Low in fat.
32251	Hartford	S. Gold	.....	Butter	Excess water, Low in fat.
32961		S. Gold	.....	Sweet butter	Excess water.
32959	Moodus	I. Buckeroff	.....	Sweet butter	Short weight.
30573	New Haven	A. Gold	Own make	Sweet butter	Excess water.

OLEOMARGARINE.

Two samples of oleomargarine, 31268 and 31269, made by the Verco Nut Products Co., Providence, R. I., were submitted by the Norwich State Hospital through the office of the Dairy and Food Commissioner. The analyses indicated that both were vegetable margarines.

35078. A sample labelled Higgins Nut Product made by the Higgins Manufacturing Co., Providence, R. I., was examined as follows:

Water 9.8 per cent; fat 87.9 per cent; nitrogen none; salt 2.3 per cent; Reichert-Meissel No. 5.8; Refraction at 40° C. 38.2; Halphen test for cottonseed oil positive; color turmeric.

This analysis is substantially the same as that of a similar product called Nut-z-all made by the same manufacturer and examined by us in 1923,¹ except that no cottonseed oil was detected at that time and the product was not found to be colored. The product has essentially the same composition as the vegetable margarines which we have examined; but it is our understanding that the product is not taxable as oleomargarine under a decision of the Treasury Department. The product, however, is imitation butter as that product is defined in the Statute (Sec. 2449).

LARD.

Sixteen samples of lard were submitted by the Dairy and Food Commissioner and all were passed as genuine. Refraction at 40° C was determined and the Halphen and Belfield-Gladding

¹ Conn. Exp. Sta. Bull. 255, p. 188.

tests were applied. The melting point of the glycerides were also observed in some cases.

The list of brands examined is as follows:

No.	City or Town	Local Dealer	Manufacturer
33072	<i>Bridgeport</i>	Atlantic & Pacific Groc. Co.	International Provision Co., Brooklyn N. Y.
32739	<i>Bristol</i>	Bristol Public Market	Goebel's, New York
32798	<i>Meriden</i>	Atlantic & Pacific Tea Co.	.....
33073		Atlantic & Pacific Tea Co.	Independent Packing Co.
32771		Bushnell's Grocery	Swift & Co.
32770		Economy Grocery Co.	Otto Stahl, New York
32780		Russell Bros.	Armour & Co.
33075	<i>New Haven</i>	Long Island Grocery	Federal Packing Co.
33076		People's Market	Morris & Co.
32745	<i>Plainville</i>	W. J. Hemingway	Parker, Webb, Detroit, Mich.
32803	<i>Waterbury</i>	Atlantic & Pacific Tea Co.	Danahy Packing Co., Buffalo
32802		B. M. Freeman	Sperry & Barnes, New Haven
32782	<i>Wallingford</i>	Central Market	John Morrello & Co., Boston
32781		Kelman's Market	Wilson & Co.
33069	<i>Winsted</i>	J. P. Gagner & Co.	Cudahy Packing Co.
33071		J. A. Redochio	Albany Packing Co., Albany, N. Y.

OLIVE OIL.

Twenty-two samples of olive oil, of which two samples were found to be adulterated with cottonseed oil, were examined for the Dairy and Food Commissioner. Two other samples were tested for the research laboratory of this station.

The official samples examined are listed as follows:

No.	City or Town	Local Dealer	Manufacturer, Importer or Jobber	Remarks
32738	<i>Bristol</i>	Bristol Public Market	Rome Importing Co., Italy	Passed
32740		A. J. Duval	Jose Ban, Tortosa, Spain	Passed
32741		D. Nicotera	Musolino & Berger, Boston	Passed
32742		D. Nicotera	Alberti Importing & Ex. Co., Boston	Passed
26916	<i>Hartford</i>	International Importing Co.	.....	Adulterated
26917		International Importing Co.	.....	Adulterated
32778	<i>Meriden</i>	Dubin Butter Co.	Jose Ban, Tortosa, Spain	Passed
32779		Dubin Butter Co.	.....	Passed
32806	<i>Middletown</i>	Main and Washington St. Fruiterie	R. C. Williams Co., New York	Passed
32733	<i>New Britain</i>	Atlantic & Pacific Tea Co.	.....	Passed
32730		Economy Grocery	Lamauro, Azema & Farnan, New York	Passed
32731		Mohican Co.	Austin, Nichols Co., New York	Passed
32732		Mohican Co.	Carmelo Co., New York	Passed
32729		James Spinetta	Parodi, Erminio & Co., Inc., New York	Passed

No.	City or Town	Local Dealer	Manufacturer, Importer or Jobber	Remarks
32801	Norwich	R. F. Smith	Los Angeles Olive Growers' Asso., Los Angeles, Cal....	Passed
32743	Plainville	W. J. Hemingway	Guglielmo Co., Genova, Italy	Passed
32744		W. J. Hemingway	R. C. Williams Co., New York	Passed
32746		Modern Market Co.	L. A. Manzie, Worcester, Mass.	Passed
32804	Waterbury	Frank Pepe	Frank Pepe, Waterbury, Conn.	Passed
32747	Willimantic	F. B. Lombardo	Iwan Berger, Inc., New York	Passed
32748		F. B. Lombardo	Philip Berio & Co., Lucca, Italy	Passed
32749		C. Stomaton	Enrico Ganni Co., Italy	Passed

FLAVORING EXTRACTS.

(Analyses given in Table VI.)

VANILLA EXTRACTS.

Five samples of vanilla extract have been examined for the Dairy and Food Commissioner. Four of these, viz., Puritan, Royal Scarlet, Morrow's and Champion brands, were official samples taken in connection with the station's inspection of these products a year ago and the results substantiated those previously reported.¹ Morrow's was adulterated. Sample 33060, sold for pure extract of vanilla and manufactured by Chas. H. Baldwin and Son, West Stockbridge, Mass., was found to be of sub-standard quality.

The analysis is as follows:

Lead precipitate, volume of, medium; color of, brown; color of filtrate from, dark brown. Vanillin 0.05 gm/100 cc; coumarin none; solids 34.38; ash 0.22; water-sol. ash 0.17; water insol. ash 0.05; alkalinity of ash 24.5 cc N/10 acid per 100 cc; alk. of sol. ash 15.5 cc; alk. of insol. ash 9.0 cc; acidity of total extract 25.0 cc N/10 alkali per 100 cc; acidity due to vanillin 3.8 cc; due to other than vanillin 21.2 cc; lead number 0.26.

No coumarin was found but the vanillin content is but $\frac{1}{3}$ to $\frac{1}{4}$ that of an extract of standard quality and the color is largely or in part due to caramel.

LEMON EXTRACT, ETC.

Thirty-eight samples of lemon extract, five samples of terpeneless lemon extract and one of lemon flavor were examined for the Dairy and Food Commissioner. Some of these were composites of two samples of the same brand taken at different sources.

Thirty-one samples of lemon extract equaled or exceeded the

¹ Conn. Exp. Sta. Bull. 267, p. 440.

required 5 per cent of lemon oil, four were 90 per cent or more of the required standard, and three were less than 90 per cent strength. One sample, **32991**, bore no declaration of net volume and in the duplicate of the same brand the color was questionable. The sample was labelled as being prepared with non-beverage alcohol which may account for the character of the color present. The lemon flavor, **32971**, consisted of a mineral oil base with about 5 per cent of lemon oil, and artificial color. Color was declared.

ORANGE EXTRACTS.

The seven samples examined, all except one being composites, were of standard quality and strength.

TABLE VI. ANALYSES OF FLAVORING EXTRACTS.

Number	City or Town	Dealer	Manufacturer	Oil Per cent.	Refraction of oil 25° (Butyro- refrac.)	Alcohol by vol. Per cent.	Solids Gms. per 100 cc.	Color
32870	<i>Bridgeport</i>	<i>Lemon Extract.</i> Bridgeport Public Market..	Baker Ext. Co.	5.3	69.5	80.00	0.130	natural
32761 } 32972 }	<i>Bristol</i>	L. L. Glasson	F. E. Harris Co.	6.2	69.3	83.36	0.120	"
32754 } 32895 }	<i>Bristol</i> <i>Hartford</i>	North Side Market	Wm. Boardman & Sons Co...	5.8	69.0	85.92	0.130	"
32753 } 32980 }	<i>Bristol</i> <i>Hartford</i>	Public Market	Hallock-Denton Co.	5.6	70.0	82.56	0.260	"
32750 } 32856 }	<i>Bristol</i> <i>Branford</i>	W. A. VanNess	Schlotterbeck & Foss	9.2	69.0	82.00	0.200	"
32755 } 32966 }	<i>Bristol</i> <i>Hartford</i>	Charles Reynolds	The Sisson Drug Co.	5.2	72.0	82.80	0.085	"
32762 } 32893 }	<i>Hartford</i>	W. B. Woodruff	R. C. Williams & Co.	5.0	69.0	87.60	0.215	"
32769 } 32891 }	<i>Hartford</i>	Clark's Market	The Belmont Co.	5.2	69.6	84.48	0.100	"
32763 } 32894 }	<i>Hartford</i>	G. Fox & Co.	A. H. Phillips, Inc.	5.2	68.8	79.36	0.100	"
32772 } 32890 }	<i>Hartford</i>	A. H. Phillips, Inc.	Brewer & Co.	5.2	70.5	89.44	0.105	"
32764 } 32892 }	<i>Hartford</i>	Sage-Allen Co., Inc.	Loomis & Wilson Co.	5.1	69.3	88.96	0.135	"
32765 } 32852 }	<i>Hartford</i>	Tunnell Grocery Co.	Williams & Carlton Co.	6.4	70.5	81.92	0.335	"
32765 } 32852 }	<i>Hartford</i>	Tunnell Grocery Co. Austin's Market, Inc.						

TABLE VI. ANALYSES OF FLAVORING EXTRACTS—Continued.

Number	City or Town	Dealer	Manufacturer	Oil Per cent.	Refraction of oil at 25° (Butyro. refract.)	Alcohol by vol. Per cent.	Solids Gms. per 100 cc.	Color
32882	New Britain	<i>Lemon Extract—Con.</i>	Sprague, Warner & Co.	10.8	69.2	78.00	0.815	natural
32883	New Haven	Miller & Olson, Inc.	Baker Ext. Co.	6.8	69.0	84.00	0.140	"
32631 } 32793 }	Stamford	Miller & Olson, Inc.	Atlantic & Pacific Tea Co. ...	4.4	70.0	73.60	0.410	"
33054	New London	Atlantic & Pacific Tea Co. ...	Atlantic & Pacific Tea Co. ...	5.1	70.1	81.28	...	"
32649 } 32986 }	New Haven	Beirne's Pharmacy	Hance Bros. & White	2.0	70.2	67.60	0.070	"
32648 } 32857 }	New Haven Branford	Economy Grocery Economy Grocery	Garrett & Co.	11.4	70.0	80.00	0.280	"
32639 } 32860 }	New Haven New Haven	Grand Union Tea Co.	Grand Union Tea Co.	6.0	70.2	80.40	0.075	"
32640 } 32875 }	New London New Haven	The Mohican Co.	The Mohican Co.	6.2	70.0	80.56	0.090	"
32637 } 32789 }	Westport New Haven	R. J. Smith & Co. D. Sachs	Joseph Burnett & Co.	12.8	70.0	80.80	0.320	"
32642 } 32797 }	Stamford Norwalk	Van Dyk Co. Van Dyk Co.	Van Dyk Co.	9.9	69.3	87.60	0.200	"
32786	Norwalk	James Butler, Inc.	James Butler, Inc.	5.7	69.5	88.40	0.100	"
32785	So. Norwalk	Andrew Davey, Inc.	Andrew Davey, Inc.	4.8	69.5	81.76	0.095	"
33061	So. Norwalk	Andrew Davey, Inc.	Andrew Davey, Inc.	4.7	70.2	82.00	...	"
32879	Norwich	The Cloverdale Co.	The Cloverdale Co.	5.7	69.0	87.20	0.140	"
32795 } 32788 }	Stamford Westport	V. Sessa Modern Grocery Co.	Albert Ehlers McCormick & Co.	6.4 8.1	71.5 69.2	86.00 79.20	0.115 0.140	" "

TABLE VI. ANALYSES OF FLAVORING EXTRACTS—Continued.

Number	City or Town	Dealer	Manufacturer	Oil Per cent.	Refraction of oil 25° (Butyro- refrac.)	Alcohol by vol. Per cent.	Solids Gms. per 100 cc.	Color
32878	Norwich	John Jordan	Seeman Bros.	6.3	69.3	79.60	0.370	natural
32633	New Haven	Frank Caro	Helwig & Leitch	7.0	71.0	.....	.....	.....
32644	New Haven	Shartenberg's	C. F. Sauer Co.	10.6	70.5	70.20	0.330	natural
32999	New London	The Nichols & Harris Co.	Own Make	5.8	70.0	.....	0.115	"
32991	New London	The Nichols & Harris Co.	Own Make	6.2	69.3	82.00	.....	?
33055	New London	The Nichols & Harris Co.	Own Make	6.9	69.9	81.60	.....	?
32962	Torrington	M. Khoury	C. F. Slade Co.	5.5	69.4	87.20	0.125	natural
33070	Winsted	J. B. Nichols	C. F. Slade Co.	4.9	69.9	88.96	.....	"
32898	Winsted	J. A. Reddocchio	C. H. Baldwin & Son	4.5	69.1	80.80	0.130	"
33059	Winsted	J. A. Reddocchio	C. H. Baldwin & Son	4.4	70.2	79.60	.....	"
<i>Terpeneless Lemon</i>								
<i>Extract</i>								
32899	Bridgeport	A. Klein	Ross W. Weir & Co.	0.0	.....	45.36	0.260	"
32636	New Haven	White Rose Food Shop	Blackstone Mfg. Co.	trace	.....	48.16	3.310	"
32984	New Haven	Star Paper Co.	Diamond Seal Products Co., Inc.	trace	.....	42.40	0.065	"
32635	New Haven	M. Cretella	Boyce Extract Co.	none	.....	43.60	0.025	"
32992	New Haven	B. Dickstein	National Economy Grocery	none	.....	53.76	0.110	"
32634	New London	Co.	T. J. Foley	none	.....	.....	.....	.....
32871	New London	Co.	B. Masone	none	.....	.....	.....	.....
32632	New Haven							
32794	Stamford							

TABLE VI. ANALYSES OF FLAVORING EXTRACTS—Concluded.

Number	City or Town	Dealer	Manufacturer	Oil Per cent.	Refraction of oil at 23° (Butyro. refrac.)	Alcohol by vol. Per cent.	Solids Gms. per 100 cc.	Color
32971	Bristol	<i>Lemon Flavor.</i> W. B. Woodruff	Burrill's	4.8	....	none	80.81	artificial
32851	Hartford	<i>Orange Extract.</i> Austin's Market, Inc.	R. C. Williams & Co.	5.6	67.5	85.60	0.680	natural
32630 } 32792 }	New Haven	Atlantic & Pacific Tea Co. . .	Atlantic & Pacific Tea Co. . .	5.4	67.0	86.00	0.385	"
33052	New Haven	Atlantic & Pacific Tea Co. . .	Atlantic & Pacific Tea Co. . .	5.4	68.4	86.00	....	"
32647 } 32985 }	New Haven	Dingwall Bros.	Van Duzer Extract Co.	6.0	67.0	85.12	0.085	"
32638 } 32859 }	New Haven	Grand Union Tea Co.	Grand Union Tea Co.	6.0	67.5	80.40	0.955	"
32645 } 32861 }	New Haven	Shartenberg's	Austin, Nichols & Co.	6.6	67.2	80.80	0.125	"
32641 } 32796 }	New Haven	Van Dyk Co.	Van Dyk Co.	10.0	67.0	84.48	0.145	"

GELATIN.

Seven samples of gelatin were collected by the station agent and analyses are given in Table VII. Arsenic did not exceed 1 part in 700,000 in any case, the fat and keratin were low, and the products were free from objectionable odor when dissolved in hot water.

TABLE VII. ANALYSES OF GELATIN.

Sta. No.	Brand	Water %	Ash %	Nitrogen %	Gelatin (N x 5.55) %	Fat %	Keratin %
475	A. & P. Gelatin	10.03	1.32	16.06	89.13	0.03	0.03
469	Boston Brand Crystal Gelatin	11.02	1.32	15.88	88.13	0.05	0.04
473	Cox's Instant Powdered Gelatin	10.67	1.58	15.86	88.02	0.06	0.05
477	Knox Plain Sparkling Gelatin	10.70	1.36	15.88	88.13	0.15	0.09
489	Peter Cooper's Clarified Gelatin	10.73	3.55	15.42	85.58	0.09	0.07
467	Plain Minute Gelatin	10.87	1.67	15.62	86.69	0.07	0.05
482	Plymouth Rock Phosphated Gelatin	7.52	1.96	14.35	79.64	0.11	0.07

ICE CREAM.

Four hundred and five samples of ice cream were examined for the Dairy and Food Commissioner. Of the total number only seven samples contained less than the 8 per cent of fat required by the State standard, and four of these were but slightly deficient and were passed. The three which were deficient in substantial amounts were as follows:

		% Fat
31106	Ansonia Purity Confectionery Co.	6.4
31113	New Haven Olympia Candy Co.	6.8
32709	New London College Pharmacy	5.6

The distribution of samples on the basis of fat content is as follows:

Per cent of fat	No. of Samples	Per cent of total 1925	Per cent for 1924	Per cent for 5 yr. period 1919-1923
8.0 to 9.9	69	17.0	17.4	26.1
10.0 to 11.9	140	34.6	24.8	23.2
12.0 and above	189	46.7	55.9	41.1
7.9 and below	7	1.7	1.9	9.6

This summary shows that for the past two years about 80 per cent of the samples examined have contained 10 per cent or more of fat; and about 50 per cent of all samples have contained 12 per cent or more. As compared with the 5 year period previous to 1924 the percentage of fat in ice cream appears to be on the increase.

Seven samples submitted by manufacturers for checking purposes require no special comment.

MEAT PRODUCTS.

All samples of meat products were submitted by the Dairy and Food Commissioner to be examined for the illegal use of cereal, color, or preservatives.

HAMBURG STEAK.

Of fourteen samples of hamburg steak three were found to contain sulphites and were, therefore, adulterated. The amounts found were equivalent to from 512 to 1144 mgms. of sulphur dioxide per kilo of meat.

These samples were as follows:

No.	City or Town	Dealer or Manufacturer
30567	Ansonia	M. Brown & Co.
30562	New Haven	F. X. Hutmacher
30563		F. X. Hutmacher

FRANKFURTS.

Sixteen samples were examined and eleven found to contain undeclared cereal or other starchy material or undeclared color, or both.

The samples were as follows:

No.	Dealer	Manufacturer	Remarks
<i>Branford.</i>			
30429	Branford Public Market.	T. J. McNamara, B'gp't	Color undeclared
<i>Bridgeport.</i>			
30583	Cudahy Packing Co.		Color undeclared
30580	T. J. McNamara & Sons		Color undeclared
30582	New England Market ...		Color undeclared
<i>Hartford.</i>			
30588	Hartford Center Bologna Co.	Own make	Color undeclared
<i>Meriden.</i>			
30555	Henry Behrens	Own make	Starch undeclared
30554	M. Frost	T. J. McNamara & Sons, Bridgeport	Starch and color undeclared
<i>New Haven.</i>			
30449	Carl Roessler	Own make	Color undeclared
<i>Taftville.</i>			
30585	Otto Czikowsky	Own make	Color undeclared
30586	John Habberle	Own make	Starch and color undeclared
<i>Willimantic.</i>			
30570	Joe Astmann	Own make	Starch undeclared

BOLOGNA AND BEEF SAUSAGE.

Two samples of bologna contained color which was not declared; and one sample of beef sausage contained cereal without declaration.

No.	City or Town	Dealer or Manufacturer
30581	Bridgeport	T. J. McNamara & Sons
30584	New Haven	Chas. Hertler
30441	Bridgeport	Coyne Bros.

PORK SAUSAGE.

Twenty-five samples of pork sausage were submitted and six were found to contain cereal or other starchy material which was not declared.

The samples were as follows:

No.	City or Town	Dealer or Manufacturer
30568	Naugatuck	Naugatuck Public Market
30569		P. Boylan
30411	New Britain	Miller & Olsen, Inc.
30419	So. Manchester	William Patterson
30445	Waterbury	S. Guiffre
30447		Verilante & Perrotti

MILK AND MILK PRODUCTS.

MARKET MILK.

Six hundred and fifty-three samples of milk have been analyzed. Of these 522 were submitted by the Dairy and Food Commissioner, 353 of them being official. One hundred and thirty-one were submitted by producers or consumers.

The results of the official inspection may be summarized as follows:

	No. of samples	Per cent
Not found adulterated	137	38.9
Adulterated by watering	42	11.9
Adulterated by skimming	10	2.8
Adulterated by watering and skimming	2	0.6
Below Standard:		
in solids and solids-not-fat	72	20.4
in solids and fat	3	0.8
in solids, fat and solids-not-fat	87	24.6
Total	353	100.0

The above classification does not at all represent the quality of our general milk supply because, as we have pointed out before, inspection samples very often are taken on complaints from distributors or from local milk inspectors.

Adulterated samples, other than those found to be substandard, are given in Table VIII.

CONDENSED MILK.

30541. A sample of sweetened condensed milk sampled at the plant of the New England Milk Products Co., Hawleyville was found to conform to the standard for condensed milk.

EVAPORATED CREAM.

30576. A sample of Walter Jahn's Evaporated Cream made by the Rico Milk Product Co., E. Troy, Wis., labelled as containing 24 per cent of fat and 31 to 33 per cent of total solids was found to conform to the declaration. It contained 25.2 per cent of fat and 31.5 per cent of solids. So-called "light" cream as obtained in the market contains from 18 to 20 per cent of fat and so-called "heavy" cream contains from 38 to 40 per cent. The term "evaporated" applied to a product containing only 25 per cent of fat is, at least, disappointing.

TABLE VIII. ADULTERATED MILK.

No.	Dealer	Solids	Fat	No.	Dealer	Solids	Fat
	Containing Added Water.				Containing Added Water—Concluded.		
	<i>Bethel.</i>				<i>Northford.</i>		
30307	Mary Tesch	10.31	3.3	29882	Mrs. F. J. Buck	10.94	3.8
30308	Mary Tesch	10.06	2.8				
	<i>Bloomfield.</i>				<i>Portland.</i>		
30390	Louis Cardellico	11.29	3.5	31157	C. J. Bengstan	9.16	2.8
30391	Louis Cardellico	10.64	3.2	31160	Wm. Smoleski	11.48	4.0
30392	Louis Cardellico	10.66	3.3	31161	Wm. Smoleski	12.00	4.3
	<i>Bridgeport.</i>				<i>Southbury.</i>		
30331	City Dairy Co. ¹	10.08	3.5	29878	Geo. Kuhne	10.65	3.0
31561	City Dairy Co. ¹	10.86	3.3	29879	Geo. Kuhne	11.14	3.3
31573	City Dairy Co. ¹	10.16	2.8	29880	Raymond Oberstedt ..	8.93	3.0
31657	John Turner	10.94	3.8	29881	Raymond Oberstedt ..	6.64	2.0
31658	John Turner	10.52	3.7				
	<i>Fairfield.</i>				<i>Sterling.</i>		
29711	John Lucas	10.67	3.2	31313	Mrs. Frances Kasputas	10.10	3.0
29709	Joseph Sleszak	10.17	3.1		<i>Terryville.</i>		
	<i>Greenwich.</i>				Frank Perkins	8.15	2.5
29733	Stony Wyld Farm ...	9.42	2.6				
29734	Stony Wyld Farm ...	9.89	2.7	30464	<i>Wallingford.</i>		
				30465	Wm. Quigley	10.12	3.1
					Wm. Quigley	10.58	2.9
	<i>Lebanon.</i>				<i>West Haven</i>		
31353	L. P. Smith	7.68	2.4	26948	S. J. Sorensen	10.72	3.6
	<i>Leonard's Bridge.</i>			26949	S. J. Sorensen	10.87	3.6
31239	S. Hermowitz	10.07	3.2		<i>Westport.</i>		
	<i>Mansfield Center.</i>				Wm. S. Daskam	9.05	2.6
31336 ²	C. H. Kendall .....	.....	..	29729	Wm. S. Daskam	10.24	3.2
31337	C. H. Kendall	7.92	2.4	29730	Wm. S. Daskam	10.15	3.0
	<i>New Britain.</i>			29731			
30684	Joseph Scheidler	9.99	3.2		Skimmed Milk.		
	<i>New Hartford.</i>				<i>Berlin.</i>		
31219	John Bullak	11.12	3.7	30685	Aziz Milco	10.75	2.5
	<i>New Milford.</i>				<i>Canaan.</i>		
30322	Ed. Mitchell	11.44	3.9	30745	Max Serlin	11.21	2.8
30323	Ed. Mitchell	10.85	3.1		<i>Eagleville.</i>		
30327	A. Thompson	9.73	2.4	30063	Stanley Trostofsky ..	11.77	2.8
	<i>Norfolk.</i>				<i>Fairfield.</i>		
31208	James Tarrant	11.41	4.3	29712	C. L. & W. A. Jennings	11.24	2.8
31209	James Tarrant	11.36	3.6				

¹ Sampled from deliveries to the dairy.² Added water indicated. Sample sour.

No.	Dealer	Solids	Fat	No.	Dealer	Solids	Fat
	Skimmed Milk— Continued.				Skimmed Milk— Concluded.		
	<i>Leonard's Bridge.</i>				<i>Shelton.</i>		
31247	Louis Himilstein	10.71	2.3	31222	J. H. Loverin	9.20	2.0
31248	Sam Lebetsky	11.14	2.4				
31249	I. Lubin	10.50	2.1		Watered and Skimmed.		
	<i>Norwich.</i>				<i>Bridgeport.</i>		
30092	Joseph Lobe	10.51	2.4	31559	City Dairy Co. ¹	9.93	2.5
	<i>Plymouth.</i>				<i>Stepney.</i>		
27187	Carl Schrager	10.34	1.8	31470	Steve Gusko	10.19	2.7

¹ Sampled from delivery to dairy.

COLOSTRUM.

Collaborating with the Department of Dairy Husbandry at Storrs, Mr. Fisher has determined the nitrogen distribution in thirty samples of milk and colostrum. Total nitrogen and casein nitrogen were determined by the official methods of the A.O.A.C.; globulin nitrogen and non-protein nitrogen were determined substantially by the procedure suggested by Howe;¹ and albumin nitrogen was obtained by difference. No attempt was made to differentiate between the several globulins cited by Howe. The results are for study in connection with investigations being conducted by the department mentioned.

MALTED MILK.

2463. *Tiffy Malted Milk* made by the Niana Pure Food Co., Waukesha, Wis., was analyzed as follows:

Moisture 3.10 per cent; ash 3.45 per cent; nitrogen 1.35 per cent; equivalent to protein 8.44 per cent (factor 6.25); fiber 0.27 per cent; nitrogen-free extract 77.34 per cent; fat 7.4 per cent. The sample contained no free starch as shown by the iodine test.

¹ Jour. Biol. Chem., 52, 51 et seq. 1922.

HUMAN MILK.

Two samples of human milk were examined for physicians.
Analyses:

	1431.	1441
	%	%
Solids	10.38	12.55
Ash	0.23	....
Protein	1.31	....
Sugar	6.64	....
Fat	2.20	3.88

TEA.

Analyses of a number of typical teas and representative commercial brands of tea together with descriptions of their "cupping" qualities as judged by expert tasters, were reported in a previous bulletin.¹ Similar data on five other samples have been obtained during the past year and the combined results summarized and discussed in an article published elsewhere.² Credit for the analytical work involved is due to Messrs. Shepard and Mathis.

VINEGAR.

Two samples of vinegar were submitted by the Dairy and Food Commissioner and thirteen were examined for individuals. Of the two official samples, one was slightly deficient in acidity and the other was below the state standard for solids. According to the revised definition and standard³ for cider vinegar, however, no numerical limit for solids is recognized.

Two samples were analyzed by Mr. Fisher in collaboration with A. O. A. C. referee on vinegar.

MISCELLANEOUS FOODS TESTED FOR POISONS, ETC.

The following articles, five in number, were submitted through the office of the Dairy and Food Commissioner or otherwise to be examined for poisonous or deleterious substances.

31292. *Tomatoes*, canned. Chemical tests showed no evidence of arsenic and a feeding test on a small animal resulted in no unfavorable symptoms.

32374. *Pie Filler*. No evidence of poisons was found after tests similar to those described in the preceding paragraph.

¹ Conn. Exp. Sta., Bull. 267, p. 458, 1924.

² Tea and Coffee Trade Journal, January, 1926.

³ Food Inspection Decision 193. August, 1924.

1188. *Chili Sauce*. The sample was examined for metals only. Iron was present and insignificant traces of zinc and copper were found.

2745. *Water*. The sample contained a considerable amount of sediment consisting largely of iron. No symptoms of poison resulted on feeding the sample to a small animal.

1739. *Caramel*. The sample yielded about 0.9 per cent of ash in which iron was conspicuous.

II. DRUGS.

The year's work on drugs includes about twenty-five samples left over from the inspection of 1924 and not included in our report for that year. Many of the drugs examined during the past year were purchased on prescriptions.

The samples may be classified as follows:

Tablets, etc., from physicians' stocks	15
Tincture of iodine	1
Lime water	12
Essence of peppermint	9
Prescriptions:	
Potassium iodide	56
Arsenous acid	22
Spirits of ammonia, aromatic	46
Silver preparations, colloidal	92
Proprietary remedies	4
Toilet preparations	4
Turpentine	20
Miscellaneous	22
Total	303

TABLETS, ETC. FROM PHYSICIANS' STOCKS.

The examination of tablets was the feature of last year's work and most of the samples taken have been reported in a previous bulletin.¹

Many of the products held over from the previous inspection and reported here are complex mixtures in which it is difficult or impossible to detect or determine all of the medicaments claimed because of inadequate methods of analysis. While it was intended to limit the inspection to such products as could be assayed by recognized methods, nevertheless a number of preparations were accepted by the inspector at the request of the

¹ Conn. Exp. Sta. Bull. 267, 1924.

physicians visited for such examination as could be made. Some of these products, therefore, have been "passed" for lack of evidence upon which to base reasonable criticism.

29220. *Cold Laxative.* Stock of Dr. T. F. Rockwell. Manufacturer not stated.

Weights of tablets 6.9 to 7.5, avg. 7.1 grs.

Claimed. Acetanilid 2 gr.; quinine sulphate $\frac{1}{2}$ gr.; camphor $\frac{1}{4}$ gr.; aloin $\frac{1}{16}$ gr.; podophyllin $\frac{1}{40}$ gr.; aconite ext. $\frac{1}{20}$ gr.; capsicum $\frac{1}{4}$ gr.; atrophine sulphate $\frac{1}{2000}$ gr.

Found. Acetanilid 1.83 gr.; total alkaloids 0.46 gr.; camphor 0.3 gr.; quinine, aloin and capsicum present; podophyllin indicated.

Tablets passed.

29227. *Nephritic Pills.* Chicago Pharmacal Co., Chicago. Stock of Dr. A. S. Brackett, Bristol.

Weights of tablets 11.5 to 13.2, avg. 12.4 grs.

Claimed. Extr. asparagus seed $\frac{1}{2}$ gr.; potassium nitrate 1 gr.; uva-ursi 1 gr.; apocynum 1 gr.; digitalis 1 gr.; fl. ext. cactus $\frac{1}{4}$ min.

Found. Potassium nitrate 0.91 gr. Glucosides were indicated, but specific color tests for digitalis and apocynum glucosides and for arbutin (uva-ursi) were not obtained owing to interfering color reactions. Alkaloids were not determined. The only official variety of cactus (*Cactus grandiflorus* N. F. IV) is alkaloid-free.

Tablets passed.

30204. *Infantile Colic Tablets.* Direct Sales Co. Stock of Dr. J. L. Pons, Devon.

Weights of tablets 1.3 to 2.0, avg. 1.8 gr.

Claimed. Paregoric 2 min.; sodium bicarbonate 1 gr.; oil of fennel $\frac{1}{10}$ min.

Found. Total alkaloids 0.065 per cent, (morphine from 2 min. paregoric = approx. 0.04 per cent); sodium bicarbonate 1.1 gr., benzoic acid present; anise and fennel indicated.

Tablets passed.

29231. *Cascarine Compound Tablets No. 2.* The Harvey Co. Stock of Dr. A. J. Barker, Torrington.

Weights of tablets 2.0 to 2.4, avg. 2.1 grs.

Claimed. Cascarine, aloin, podophyllin, belladonna extr., strychnine and ginger.

Found. Aloin, ginger, strychnine identified; cascara indicated. Total alkaloids 0.47 per cent.

The principal constituents claimed were identified qualitatively. "Cascarine" is the name given to an alleged constituent of cascara but later investigation¹ has disproved the existence of such a constituent.

¹J. Ind. Eng. Chem., 9, 518.

29977. *Rhubarb and Ipecac Comp. Tablets.* Tailby-Nason Co. Stock of Dr. J. A. Coogan, Windsor Locks.

Weights of tablets 6.9 to 7.3, avg. 7.0 grs.

Claimed. Rhubarb powder 1 gr.; sodium bicarbonate 5 grs.; ipecac powder $\frac{1}{8}$ gr.; oil peppermint q. s.

Found. Rhubarb, peppermint and ipecac alkaloids indicated; sodium bicarbonate 4.8 grs.; total alkaloids 0.004 gr.

Tablets passed.

30213. *Rhubarb and Ipecac Comp. Tablets.* Stock of Dr. R. Howland, Stratford.

Weights of tablets 8.6 to 9.2, avg. 8.9 grs.

Claimed. Rhubarb powder 2 grs.; sodium bicarbonate 5 grs.; ipecac powder $\frac{1}{4}$ gr.; tinctr. nux vomica 5 mins.; oil peppermint q. s.

Found. Rhubarb, ipecac alkaloids and strychnine indicated; peppermint?; sodium bicarbonate 4.6 grs.; total alkaloids 0.007 gr.

Tablets passed.

30205. *Cathartic Compound Tablets.* Direct Sales Co. Stock of Dr. J. L. Pons, Devon.

Weights of tablets 2.1 to 2.6, avg. 2.3 grs.

Claimed. Aloin, extr. colocynth comp., extr. nux vomica, podophyllin, capsicum.

Found. Aloin, capsicum and strychnine. Total alkaloids 0.007 gr.

Tablets passed.

29925. *Strophanthus Comp. Tablets.* Standard Laboratories. Stock of Dr. C. T. Baldwin, Derby.

Weights of tablets 3.1 to 3.5, avg. 3.3 grs.

Claimed. Strychnine nitrate $\frac{1}{100}$ gr.; tinctr. digitalis $4\frac{1}{2}$ mins.; tinctr. strophanthus 1 min.

Found. Strychnine nitrate 0.011 gr.; digitalis and strophanthus not identified.

Tablets passed.

29909. *Kara Kara Comp. Tablets.* Daggett and Miller. Stock of Dr. E. R. Kelsey.

Weights of tablets 10.4 to 10.9, avg. 10.6 grs.

Claimed. Kara Kara extr. henbane, extr. cubeb, oil of sandalwood and potassium bicarbonate.

Found. Sandalwood and cubeb indicated. Potassium bicarbonate 66.9%; total alkaloids 0.025 gr.; test for atropine not conclusive.

Tablets passed.

29913. *Tono Effervescent Tablets.* National Drug Co. Stock of Dr. G. W. Eddy, Collinsville.

Weights of tablets 11.9 to 12.9, avg. 12.5 grs.

Claimed. Sodium bicarbonate 10 grs.; papain, pancreatin, ginger and oil of peppermint.

Found. Tablets effervesce in water solution; small amount of phosphate and tartaric acid present, odor of peppermint; sodium bicarbonate 10.2 grs. No action on starch was detected, but protein-digesting power was demonstrated by the methods of Rippetoe¹ indicating the presence of papain.

29976. *Tablets Blaud's Mass.* Tailby-Nason Co. Stock of Dr. J. A. Coogan, Windsor Locks.

Weight of tablets 10.0 to 10.8, avg. 10.5 grs.

Claimed. Blaud's mass 5 grs.

Found. Five grains of Blaud's mass should contain 1 grain of ferrous carbonate. Duplicate assays of these tablets showed averages of 0.20 and 0.28 grain of ferrous carbonate. Total iron calculated as ferrous carbonate 0.45 and 0.46 grain.

Tablets deficient in ferrous carbonate.

30215. *Blaud's Compound Tablets.* G. F. Harvey Co. Stock of Dr. R. Howland, Stratford.

Weights of tablets 7.0 to 7.6, avg. 7.3 grs.

Claimed. Blaud's mass 5 grs.; strychnine sulphate 1/60 gr.; corrosive sublimate 1/80 gr.; arsenous acid 1/50 gr.; capsicum; gentian extr.

Found. Ferrous carbonate 0.9 gr. (Five grains of Blaud's mass should contain 1 gr. of ferrous carbonate); total iron calculated as ferrous carbonate 0.91 gr.; arsenous acid 0.02 gr.; strychnine and mercury present.

Tablets satisfactory so far as tested.

29990. *Aspirin.* Tailby-Nason Co. Stock of Dr. W. E. Hills, Naugatuck.

Weights of tablets 5.4 to 5.8, avg. 5.6 grs.

Claimed. Aspirin 5 grs.

Found. 5.2 to 5.5, avg. 5.4 grs.

Tablets passed.

29232. *Morphine Sulphate Tablets.* Direct Sales Co. Stock of Dr. C. G. Rankin, Glastonbury.

Weights of tablets 0.57 to 0.67, avg. 0.62 gr.

Claimed. Morphine sulphate 1/4 gr.

Found. Morphine sulphate 0.28 to 0.34, avg. 0.31 gr.

Tablets high in morphine sulphate.

29958. *Elixir Peptenzyme.* Reed and Carnrick. Stock of Dr. J. F. Dowling, Hartford.

Claimed. Mixture of salivary, intestinal, peptic and splenic enzymes. Alcohol 16 per cent by volume.

Found. Alcohol 16.6 per cent. Proteolytic activity was demonstrated, but no action upon starch was detected.

¹J. Ind. Eng. Chem., 4, 517.

TINCTURE OF IODINE.

30575. Sampled from stock of T. F. Bannon, Winsted.

This preparation should contain from 6.5 to 7.5 grams of iodine and from 4.5 to 5.5 grams of potassium iodide, per 100 cc.

The sample contained 3.78 grams of iodine and 2.97 grams of potassium iodide, per 100 cc.

Sample was below standard.

LIME WATER.

Lime water should contain not less than 0.14 per cent of calcium hydroxide $\text{Ca}(\text{OH})_2$ at 25° C.

The samples examined are listed in Table IX.

TABLE IX. ANALYSES OF LIME WATER.

D. C. No.	City or Town	Druggist	Calcium hydroxide found %
30438	Bethel	English Drug Store	0.17
30430	Branford	The Spalding Co.	0.16
30505	Fairfield	The Boyle Pharmacy	0.17
30550	New Haven	T. P. Gillespie & Co.	0.39 ¹
30551		Wood's Drug Store	0.15
30538	New London	Starr Bros., Inc.	0.17
30443	Milford	J. H. Barnes	0.18
30579	New Milford	Albert Evitts	0.18
30566	Unionville	Paul F. Flynn	0.04
30448	Waterbury	Apothecaries Hall Co.	0.05
31138		Apothecaries Hall Co.	0.16
30571	Willimantic	The Wilson Drug Co.	0.16

Samples 30566 and 30448 are below standard.

ESSENCE OF PEPPERMINT.

Essence of peppermint should contain not less than 10 per cent by volume of peppermint oil.

The samples examined are listed in Table X.

TABLE X. ANALYSES OF ESSENCE OF PEPPERMINT.

D. C. No.	City or Town	Druggist	Peppermint oil found %
30553	Bristol	The Madden Drug Store	9.67
30437	Danbury	Doran's Drug Store	9.87
30435		Kinner & Benjamin	10.50
30433		Simon's Pharmacy	10.40
30444	Fairfield	The Boyle Pharmacy	10.40
30560	Guilford	F. F. Douden	11.24
32321	Putnam	J. A. P. Gagne	2.52
32616	Union City	E. J. Sodoslosky	10.92
32457	Winsted	The City Pharmacy	7.60

Samples 32321 and 32457 are distinctly below standard.

¹ Solution not clear.

POTASSIUM IODIDE.

The samples of potassium iodide were purchased on a prescription calling for 3.5 drachms of potassium iodide and sufficient distilled water to make 1 fluid ounce. Such a preparation should contain 45.5 grams of potassium iodide per 100 cc of solution, assuming the U. S. P. standard of purity for potassium iodide, viz. 99 per cent.

The results of the inspection are summarized in Table XI.

The data show that of the 56 samples examined, 27 were within 5 per cent of the strength demanded; 15 were within 10 per cent of that strength and were passed; 14 varied from that strength by more than 10 per cent. In all samples of the last named group the variations were deficiencies except in **32773** which contained an excess of medicament. In sample **32485** the two separate portions of the sample were not alike in concentration; one contained 37.83 per cent of potassium iodide and the other 41.55 per cent, the average being 39.69. This sample was improperly mixed before dispensing. In case of sample **32322**, through a misunderstanding at the time of sale, the druggist explained that the preparation was $\frac{1}{3}$ strength which analysis showed it to be.

On the basis of a liberal tolerance, only 75 per cent of the samples examined can be regarded as satisfactory or passable.

TABLE XI. ANALYSES OF POTASSIUM IODIDE.

No.	City or Town	Druggist	Potassium iodide, KI, gms. per 100 cc.	Remarks
32606	Ansonia	The Bristol Drug Co. . .	48.15	Pass
32605		McQuade's Drug Store..	34.88	Low
32886	Bethel	English Drug Store . . .	41.69	Pass
32855	Branford	Williams Drug Store . . .	45.25	O. K.
32950	Bridgeport	European Pharmacy	47.12	O. K.
32756	Bristol	Bristol Pharmacy	45.43	O. K.
32759		Boulevard Pharmacy . .	36.54	Low
32751		Holley's Drug Store . . .	42.70	Pass
32896	Canaan	Farnum's Drug Store . .	40.62	Low
32897		Freeman Dempsey	42.96	Pass
32451	Central Village	Lewis Pharmacy	38.07	Low
32887	Danbury	Burn's Drug Store	42.14	Pass
32611	Derby	The Purdy Drug Co. . . .	46.73	O. K.
32306	East Hartford	W. B. Noble	45.98	O. K.
32853	East Haven	Metcalf's Drug Store . .	47.71	O. K.
32868	Fairfield	Clampett's Pharmacy . . .	48.27	Pass
32470	Greenwich	The Boswell Drug Co. . .	45.29	O. K.
32340	Hartford	G. Fox & Co.	48.78	Pass
32309		Griswold Drug Co.	45.64	O. K.
32766		Richard L. Jeffers	34.03	Low
32336		Lamagreas Pharmacy . .	33.42	Low
32767		H. F. Ruby	44.97	O. K.
32452	Jewett City	Chas. R. Carey	49.31	Pass
32977	Manchester	E. J. Murphy	37.60	Low

No.	City or Town	Druggist	Potassium iodide, KI, gms. per 100 cc.	Remarks
32974	<i>So. Manchester</i>	Miner's Pharmacy	37.35	Low
32602	<i>Milford</i>	John T. Howes	45.14	O. K.
32773	<i>New Britain</i>	Apothecaries Hall	51.84	Excess
32774		City Drug Store	44.42	O. K.
32477	<i>New Canaan</i>	Runyon's Pharmacy	44.22	O. K.
32874	<i>New London</i>	James Drug Store	45.53	O. K.
32873		Moon Pharmacy	9.65	Low
32784	<i>Norwalk</i>	The Bogardus Drug Store	45.36	O. K.
32787		H. Glendenning & Co. ..	46.07	O. K.
32485	<i>So. Norwalk</i>	Plaisted's Drug Store ..	39.69	Low
32328	<i>Norwich</i>	Brodway Pharmacy	47.64	O. K.
32325		Rachbon's Drug Store ..	49.56	Pass
32319	<i>Putnam</i>	Edward H. Bust	42.15	Pass
32322		Farley's Pharmacy	15.66	Pass ¹
32978	<i>Rockville</i>	Vincent's Pharmacy	46.27	O. K.
32614	<i>Seymour</i>	Geo. Smith & Son	44.24	O. K.
32866	<i>Southport</i>	Luin B. Switzer	44.16	O. K.
32995	<i>Southington</i>	Chaffee's Drug Store ...	44.92	O. K.
32996		Oxley's Drug Store	40.58	Low
32474	<i>Stamford</i>	Chas. S. Finch	49.95	Pass
32498	<i>Stratford</i>	W. H. St. John & Co. ...	45.61	O. K.
32453	<i>Taftville</i>	Benoit's Pharmacy	41.78	Pass
32964	<i>Thomaston</i>	Doyle's Drug Store	44.11	O. K.
32963		G. A. Lemmon	32.42	Low
32315	<i>Thompsonville</i>	Steel's Corner Drug Store	49.76	Pass
32622	<i>Waterbury</i>	W. J. Dunphy	46.31	O. K.
32617	<i>Watertown</i>	D. Y. Sullivan	44.86	O. K.
32790	<i>Westport</i>	The Westport Drug Co.	38.99	Low
32490	<i>Willimantic</i>	The J. J. Hickey Drug Co.	46.18	O. K.
32316	<i>Windsor Locks</i>	R. J. Keef	49.61	Pass
32460	<i>Winsted</i>	Bannon's Drug Store ...	46.53	O. K.
32455		The Case Drug Store...	44.85	O. K.

¹Explanation made at time of sale.

SOLUTION OF ARSENOUS ACID.

Fowler's solution, which is a solution of potassium arsenite, is sometimes dispensed, intentionally or otherwise, for this article. Both contain the same amount of arsenic trioxide (As_2O_3), 0.975 to 1.025 per cent, but they are different substances and the one should not be substituted for the other.

The samples examined are listed in Table XII.

Of the 22 samples obtained 10 were satisfactory, or were passed as substantially of the quality and strength demanded. Two, **32888** and **32783**, were not the article called for; one, **32324**, was twice the strength specified in the prescription; and 9 varied from the required strength by more than 10 per cent. Sample **32461** was not properly mixed, one portion containing 0.44 per cent of arsenic trioxide and the duplicate portion 1.27 per cent.

On the basis of a liberal tolerance, only about one-half of the preparations obtained on this prescription were satisfactory or passable.

TABLE XII. ANALYSES OF ARSENOUS ACID.

No.	City or Town	Dealer	As ₂ O ₃ %	Remarks
32862	<i>Branford</i>	The Spalding Co.	0.85	Low
32757	<i>Bristol</i>	Leroy P. Tucker	0.55	Low
32889	<i>Danbury</i>	Kinner & Benjamin	0.97	O. K.
32888		Simon's Pharmacy	0.97	Fowler's solution
32472	<i>Greenwich</i>	Finche's Pharmacy	0.90	Pass
32768	<i>Hartford</i>	Snyder's Drug Store	0.91	Pass
32346	<i>Middletown</i>	Murphey's Drug Store	0.85	Low
32990	<i>Mystic</i>	Wheeler's Drug Store	0.91	Pass
32775	<i>New Britain</i>	The Dickenson Drug Co.	0.02	Low
32776		Liggett's Drug Store	0.64	Low
32880	<i>New London</i>	The Nichols & Harris Co.....	1.00	O. K.
32876		Starr Bros., Inc.	0.98	O. K.
32783	<i>Norwalk</i>	McNichols Drug Co., Inc.	0.94	Fowler's solution
32327	<i>Norwich</i>	The Lee & Osgood Co.	0.96	Pass
32332		James C. Mara	0.89	Pass
32324	<i>Putnam</i>	George E. Dresser	2.05	Excess arsenic
32976	<i>So. Manchester</i>	J. H. Quinn & Co.	0.72	Low
32618	<i>Watertown</i>	Post Office Drug Store	0.87	Pass
32791	<i>Westport</i>	The Bridge Pharmacy	0.52	Low
32494	<i>Willimantic</i>	Bay State Drug Co.	0.70	Low
32313	<i>Windsor</i>	Robert H. Barnes	0.87	Pass
32461	<i>Winsted</i>	Albert Decsi	0.86	Low

AROMATIC SPIRITS OF AMMONIA.

Forty-three samples of this preparation were purchased, largely on prescriptions.

Limits for ammonia and oil contents are not stated in the Pharmacopoeia, but calculated from the formula there given, ammonia (NH₃), should be not less than 1.84 gms. per 100 cc and oils should constitute 1.2 per cent by volume. Ammonia is the essential ingredient, oils of lemon, lavender and nutmeg being added to impart the aromatic character and make the preparation palatable.

A sample prepared in the laboratory according to the directions given in the Pharmacopoeia showed the following composition:

Sp. Grav. at 25° C.	0.8935
Ammonia (NH ₃), gms/100 cc.	1.87
Oils, per cent by volume	1.16
Alcohol, per cent by volume	66.08

Results of the inspection are given in Table XIII. It appears that 25 samples are deficient in ammonia by amounts greater than 10 per cent. There are deficiencies in oil also, but only three of these are considerable.

TABLE XIII. ANALYSES OF AROMATIC SPIRITS OF AMMONIA.

No.	Town	Dealer	Manufacturer	Sp. Gr. at 25° C.	Ammonia gms./100 cc.	Oil % by volume	Alcohol % by volume	Remarks
32858	<i>Branford</i>	Branford Pharmacy	Sharp & Dohme	0.8925	1.82	0.96	65.36	Pass
32752	<i>Bristol</i>	B. L. Bennett	Eastern Drug Co.	0.8970	1.66	1.08	64.56	Pass
32758		The Madden Drug Stores	The Madden Drug Stores.	0.8980	1.32	0.76	63.20	Low in ammonia
32760		Rickman's Drug Store	.....	0.9030	1.08	1.08	61.60	Low in ammonia
32993	<i>Cheshire</i>	Edson N. Sperry	.....	0.8820	1.58	0.92	69.60	Low in ammonia
32473	<i>Cos Cob</i>	Mead's Pharmacy	C. W. Whittlesey Co.	0.8930	1.92	1.08	65.75	Pass
32885	<i>Danbury</i>	Doran's Drug Store	.....	0.8785	1.41	0.84	70.72	Low in ammonia
32601	<i>Devon</i>	J. L. Maillard Drug Co.	.....	0.8845	0.95	1.00	69.36	Low in ammonia
32307	<i>East Hartford</i>	W. B. Noble	Lehn & Fink	0.8970	1.68	1.08	65.20	Pass
32869	<i>Fairfield</i>	The Boyle Pharmacy	L. Eisen & Co., Inc.	0.8980	1.73	1.04	63.20	Pass
32867		Randall's Pharmacy	.....	0.8890	1.43	1.00	67.36	Low in ammonia
32998	<i>Guilford</i>	Frank J. Douden	.....	0.9110	1.62	0.84	60.80	Low in ammonia
32310	<i>Hartford</i>	G. Fox & Co.	The Belmont Co.	0.8990	1.39	0.92	64.80	Low in ammonia
32311		The Sage-Allen Co.	Brewer & Co.	0.8977	1.62	0.68	66.08	Low in ammonia
32312		Albert Steiger, Inc.	The Sisson Drug Co.	0.8866	1.34	1.08	69.92	Low in ammonia
32997	<i>Madison</i>	J. Harrison Monroe	.....	0.8930	1.08	0.92	66.00	Low in ammonia
32345	<i>Middletown</i>	Lincoln's Drug Store	.....	0.8980	1.76	0.92	63.60	Pass
32604	<i>Milford</i>	J. H. Barnes	.....	0.8930	1.92	1.08	66.80	Pass
32987	<i>Mystic</i>	Mystic Pharmacy	.....	0.8950	1.55	1.08	65.20	Low in ammonia
31135	<i>Naugatuck</i>	Leary's Drug Store	.....	0.8960	1.53	0.92	66.40	Low in ammonia
32478	<i>New Canaan</i>	Windt Pharmacy	.....	0.8920	1.60	1.00	66.80	Low in ammonia
32872	<i>New London</i>	Downey's Pharmacy	.....	0.9085	2.06	0.96	59.68	Pass
32333	<i>Norwich</i>	P. F. Bray	Brewer & Co.	0.8980	1.85	1.24	65.20	Pass
32320		The Lee & Osgood Co.	.....	0.9037	1.39	1.08	63.60	Low in ammonia
32621	<i>Oakville</i>	Oakville Drug Co.	Bedeser Pharmaceutical Co.	0.9020	1.48	1.00	64.00	Low in ammonia

TABLE XIII. ANALYSES OF AROMATIC SPIRITS OF AMMONIA—Concluded.

No.	Town	Dealer	Manufacturer	Sp. Gr. at 25° C.	Ammonia gms./100 cc.	Oil % by volume	Alcohol % by volume	Remarks
32953	Plainville	Thrall's Drug Store	.....	0.8710	1.19	1.00	73.60	Low in ammonia
32994	Plainville	W. E. Simpson	.....	0.8870	1.64	1.00	68.32	Low in ammonia
32979	Rockville	Crosby's Pharmacy	Brewer & Co.	0.8935	1.73	1.08	65.20	Pass
32608	Seymour	E. J. Barden	.....	0.8900	1.48	0.92	64.40	Low in ammonia
32613	Seymour	Seymour Pharmacy	.....	0.8985	1.39	0.92	64.00	Low in ammonia
32609	Shelton	Mahoney's Corner Drug Store	.....	0.8870	1.70	0.92	68.40	Pass
32975	So Manchester	Magnell Drug Co.	Eastern Drug Co.	0.8968	1.88	1.00	64.80	Pass
32482	So. Norwalk	Clifford Pharmacy	.....	0.8920	1.93	0.92	65.76	Pass
32496	Stafford Springs	D. H. McCormack	.....	0.8625	1.64	0.92	75.60	Low in ammonia
32495	Stafford Springs	E. A. Wick's Pharmacy	.....	0.8990	1.60	0.52	63.20	Low in ammonia
32689	Stonington	Burtch Drug Store	Nichols & Harris	0.8960	1.68	1.00	64.56	Pass
32988	Stonington	J. F. Connors	.....	0.9000	1.63	1.00	62.80	Low in ammonia
32499	Stratford	Onkey Drug Store, Inc.	.....	0.8810	2.11	0.84	65.20	Pass
32317	Thompsonville	Thompsonville Drug Co.	Gibson-Honen, Inc.	0.8933	1.35	1.16	67.20	Low in ammonia
32462	Torrington	Charles D. Goodale	C. W. Whittlesey Co.	0.8905	1.90	0.92	65.92	Pass
32624	Waterbury	Liggett's Drug Store	.....	0.8980	1.79	1.00	64.80	Pass
31134	Waterbury	South End Drug Store	.....	0.8962	1.45	1.00	66.40	Low in ammonia
32314	Windsor	Edward Prouty	United Drug Co.	0.8978	1.70	0.68	65.36	Pass

COLLOIDAL SILVER PREPARATIONS.¹

Colloidal silver preparations are used in medicine to produce germicidal and antiseptic effects when it is desired to avoid astringency and irritation so far as possible. In general, commercial articles of this class are mixtures of silver, silver oxide and silver-protein, all in colloidal form. The products are classified in several fairly well-defined groups, only two of which need be mentioned here, viz., Protargin Mild or the Argyrol type, and Protargin Strong or Protargol type. Each of these groups is represented by a number of commercial products many of which are patented or otherwise protected. So far as experimental or clinical evidence is concerned, there appear to be no significant differences in the therapeutic effects produced by the various preparations of the respective groups. There are, however, considerable differences in the prices charged for these products; thus argyrol, which is perhaps the best known, costs \$1.50 per ounce while some of the silver preparations of the same type cost only one-half as much. It has been alleged among druggists that substitution of the cheaper articles for those of higher price is prevalent in retail practice, and the analytical evidence hereinafter given shows that such is the case. There is, however, some reason to believe that the name argyrol has acquired a generic sense; in other words, that the name is associated with, and used to designate, a type of silver preparation rather than a particular brand thereof. Nevertheless, if a physician prescribes argyrol it must be presumed that he wants that particular article; and if protargin mild of some other make and of lower price is supplied, as, and at the price of, the article demanded, the substitute article is technically misbranded and the retailer has profited unduly at the expense of his customer.

As a preliminary to the examination of argyrol and protargol solutions as retailed by druggists, a number of the commercial brands of each type were purchased and examined in 10 per cent and 2 per cent solutions respectively. The results are given in the following tabulation. (Table XIV.)

¹For fuller discussion of these preparations see *New and Non-official Remedies*, 1924, p. 337. *Jour. Am. Med. Assoc.*; also *Jour. Am. Pharm. Assoc.*, 7, 677. 1918.

TABLE XIV. PRELIMINARY ANALYSES OF SILVER-PROTEIN PREPARATIONS.

No.	Brand and Manufacturer	Solids, gms. per 100 cc.	Ash, gms. per 100 cc.	Silver, gms. per 100 cc.	Nitrogen, gms. per 100 cc.	Ratios	
						Ash Silver	Nitrogen Silver
	Prepared in Laboratory.						
	<i>Protargin Mild, 10% solution.</i>						
2651	Argyrol (Barnes)	9.26	3.43	1.97	0.82	1.74	0.42
3208	Argyn (Abbott)	9.21	3.15	2.41	1.02	1.31	0.42
3211	Cargentos (Munford)	9.10	3.51	2.09	0.84	1.67	0.40
3209	Solargentum (Squibb)	9.63	2.82	1.96	1.21	1.44	0.62
3210	Vargol (Heyden)	9.38	2.72	1.93	1.19	1.40	0.62
	<i>Protargin Strong, 2% solution.</i>						
2634	Protargol (Winthrop)	1.79	0.22	0.15	0.24	1.47	1.60
3207	Protargentum (Squibb)	1.84	0.26	0.16	0.28	1.62	1.75
3206	Proganol (Heyden)	1.84	0.44	0.17	0.19	2.60	1.12
	Purchased from Druggists.						
2632	Argyrol 10% solution	10.47	3.98	2.19	0.92	1.81	0.42
2633	" "	6.59	2.44	1.38	0.58	1.77	0.42
2652	" "	8.95	3.36	1.92	0.78	1.75	0.41
2653	" "	9.38	3.55	1.98	0.84	1.79	0.42
2654	" "	10.87	3.01	2.36	1.48	1.28	0.63
2655	" "	8.43	3.15	1.75	0.77	1.80	0.44
2656	" "	6.43	2.42	1.21	0.57	2.00	0.47
2657	" "	8.53	3.23	1.83	0.75	1.77	0.41

Protargin mild should contain from 19 to 25 per cent of silver (metallic); and protargin strong should contain from 7.0 to 8.5 per cent of silver (metallic).¹ A ten per cent solution (10 grams in sufficient water to make 100 cc) of protargin mild should contain not less than 1.90 gms. of silver per 100cc and a two per cent solution of protargin strong should contain not less than 0.14 gm. of silver per 100 cc.

From the data given in Table XIV it appears that the silver content of samples of both types of silver-proteins are within the requirements for the respective groups; and that some of the commercial solutions of argyrol were deficient in this respect. Moreover, while the experimental results are based upon only one sample of each of the commercial brands cited, nevertheless the ratios of ash : silver and of nitrogen : silver suggest a basis for some conclusions as to the identity of products within the respective groups. Thus, considering these ratios jointly, Argyn is differentiated from the other four. In the instances of Solar-gentum and Vargol, the values of these ratios are very different from those of Cargentos and Argyrol; but as between the individuals of either pair, however, the ratios show no conspicuous distinction. Similarly in the protargol group there are certain differences which are significant. It is evident that these ratios depend chiefly upon the character of the protein material used in the manufacture of the several products. Gelatin, albumin, casein and so-called "denatured" proteins are employed.

ARGYROL.

In Table XV are given the analyses of the official samples collected by the Dairy and Food Commissioner, the inspector calling for a 10% solution of argyrol. From these data the following summary can be made.

Of 59 official samples given in Table XV, 46 show ratios for ash : silver and nitrogen : silver which are closely in accord with those found for argyrol, and these samples are, therefore, presumed to be the article called for, or a silver-protein having similar constants.

In thirteen samples the ratios mentioned are widely different in magnitude from those determined for argyrol. The following summaries show the data upon which these conclusions are based.

¹Limits as given in New and Non-official Remedies. The U. S. P. gives for protargin-strong 7.5 to 8.5 per cent of silver (metallic).

	Ash	Silver	Nitrogen	Ash Silver	Nitrogen Silver	Retail price of article, cents per oz.
<i>Passed as argyrol.</i>						
Maximum	4.52	2.57	1.10	1.84	0.45	45
Minimum	2.14	1.19	0.51	1.68	0.39	25
Average	3.40	1.92	0.81	1.77	0.42	31
<i>Not argyrol.</i>						
Maximum	3.16	2.33	1.40	1.64	0.68	63
Minimum	1.27	1.02	0.62	1.25	0.52	23
Average	2.50	1.85	1.11	1.35	0.60	34
<i>Known Solution.</i>						
Argyrol	3.43	1.97	0.82	1.74	0.42	..

It will be noted that the retail price per ounce for the argyrol and non-argyrol samples averages about the same. If two samples are excluded from the non-argyrol group the price range is 23 to 45 cents which would make the range and the averages practically identical for the two groups.

PROTARGOL.

Of the 17 samples collected on request for a 2% solution of protargol, analyses of which are given in Table XV, the ash : silver and nitrogen : silver ratios in five cases vary widely from the values obtained on the experimental sample of protargol in 2% solution. Whether the others are protargol or some product having similar constants, protargentum for example, is not satisfactorily shown. The basis for these conclusions is found in the following data.

	Ash	Silver	Nitrogen	Ash Silver	Nitrogen Silver	Retail price of solution, cents per oz.
<i>Passed as Protargol.</i>						
Maximum	0.34	0.20	0.33	1.70	1.80	33
Minimum	0.18	0.13	0.22	1.40	1.41	14
Average	0.26	0.16	0.27	1.59	1.64	21
<i>Not Protargol, or doubtful.</i>						
Maximum	0.37	0.17	0.28	2.64	2.00	38
Minimum	0.06	0.04	0.05	1.10	1.25	23
Average	0.22	0.12	0.20	1.82	1.59	29
<i>Known Solution.</i>						
Protargol	0.22	0.15	0.24	1.47	1.60	..

SUMMARY.

The entire inspection of silver-protein preparations may be summarized as follows:

ARGYROL.

Number of official samples sold as argyrol	59
Number of samples below standard	9
Number of samples below standard and technically misbranded	3
Number of samples technically misbranded	10
Number of samples passed	37

The samples which are below standard in silver are as follows:

		Silver, gms./100 cc.
31147	G. Fox & Co., Hartford	1.64
31149	Apothecaries Hall, New Haven	1.31
32302	W. H. Wood, New Haven	1.66
32304	York Pharmacy, New Haven	1.31
32458	Apothecaries Hall, Winsted	1.64
32476	Jas. J. Cody, New Canaan	1.49
32480	W. H. Jones Drug Store, Stamford	1.49
32488	T. P. Gillespie & Co., New Haven	1.19
32620	Picarrelli Pharmacy, Inc., Waterbury	1.60

The samples which are below standard and technically misbranded are as follows:

	Silver found gms./100 cc.	Ash Silver	Nitrogen Silver
31137	1.02	1.25	0.61
32303	1.61	1.34	0.52
32808	1.26	1.33	0.61

The samples which are technically misbranded are as follows:

	Ash Silver	Nitrogen Silver
31133	1.41	0.57
32301	1.29	0.61
32331	1.27	0.65
32338	1.26	0.68
32341	1.39	0.57
32479	1.28	0.58
32347	1.64	0.54
32600	1.44	0.62
32619	1.31	0.61
32881	1.35	0.60

PROTARGOL.

Number of official samples sold as protargol	17
Number of samples below standard in silver and technically misbranded	2
Number of samples technically misbranded or doubtful	3
Number of samples passed	12

The two samples which are below standard and also technically misbranded are as follows:

	Silver, gms./100 cc.	Ash Silver	Nitrogen Silver
31136	0.04	1.50	1.25
32475	0.09	2.00	2.00

The samples which are technically misbranded or doubtful are as follows:

	Ash Silver	Nitrogen Silver
32469	2.64	1.64
31132	1.10	1.65
32497	1.88	1.41

TABLE XV. ANALYSES OF SILVER-PROTEIN SOLUTIONS.

No.	Town	Name	Total solids Gms./100 cc.	Ash Gms./100 cc.	Silver Gms./100 cc.	Nitrogen Gms./100 cc.	Ash Silver	Nitrogen Silver	Retail price, cents per oz.
32349	Danielson	<i>Argyrol, 10% solution.</i>	9.13	3.37	1.95	0.79	1.73	0.41	30
32450		Borough's Drug Store	11.13	4.14	2.33	0.96	1.78	0.41	25
32512	Derby	Woodward's Drug Store	10.06	3.72	2.09	0.91	1.78	0.44	38
32471	Greenwich	The Harding Drug Store	9.31	3.53	1.92	0.83	1.84	0.43	33
32339	Hartford	Greenwich Drug Store, Inc.	10.62	3.93	2.19	0.94	1.79	0.43	33
31147		Eddie's Pharmacy	7.83	2.96	1.64	0.66	1.80	0.40	30
32338		G. Fox & Co.	10.04	2.50	1.90	1.35	1.26	0.68	23
31145		Lamagreas Pharmacy	8.25	3.10	1.72	0.72	1.80	0.42	30
31146		Lester's Pharmacy	9.33	3.44	1.97	0.80	1.75	0.41	33
32308		Louis K. Liggett Co.	9.22	3.48	2.00	0.79	1.74	0.40	25
32318		O'Connell Drug Co.	11.41	3.57	2.01	0.91	1.77	0.45	35
32348	Meriden	Wise Smith & Co.	9.90	3.64	2.04	0.87	1.78	0.43	30
32347	Middletown	Victor W. Schmelzer	8.98	3.30	1.86	0.79	1.77	0.42	45
32341		John J. Cronin	9.08	3.16	1.93	1.05	1.64	0.54	45
32341		The Hartman Drug Co.	8.45	2.55	1.83	1.04	1.39	0.57	25
32808		Misentis Drug Store	5.95	1.68	1.26	0.77	1.33	0.61	38
32342		Park Pharmacy	8.80	3.26	1.83	0.77	1.78	0.42	33
32600		C. A. Felton	9.34	2.73	1.90	1.17	1.44	0.62	63
32603	Milford	Botsford's Drug Store	10.16	3.78	2.14	0.89	1.77	0.42	35
32777	New Britain	Milford Pharmacy	9.74	3.62	2.08	0.87	1.74	0.42	43
32476	New Canaan	The Brooks Drug Co.	7.06	2.61	1.49	0.63	1.75	0.42	45
31149	New Haven	James J. Cody	6.22	2.30	1.31	0.55	1.76	0.42	33
31130		Apothecaries Hall	9.64	3.60	2.00	0.85	1.80	0.43	25
32301		De Vita Pharmacy	8.82	2.67	2.07	1.27	1.29	0.61	50
32488		T. P. Gillespie & Co.	5.98	2.14	1.19	0.54	1.80	0.45	30
32305		The Hall-Benedict Co.	8.59	3.26	1.82	0.73	1.79	0.40	33

TABLE XV. ANALYSES OF SILVER-PROTEIN SOLUTIONS—Continued.

No.	Town	Name	Total solids gms./100 cc.	Ash gms./100 cc.	Silver gms./100 cc.	Nitrogen gms./100 cc.	Ash Silver	Nitrogen Silver	Retail price, cents per oz.
<i>Argyrol, 10% solution—Con.</i>									
32303	New Haven	Chas. T. Hull	7.01	2.17	1.61	0.84	1.34	0.52	30
32981		Chas. T. Hull	12.43	4.69	2.66	1.12	1.77	0.42	45
32300		Liggett's Drug Store	9.23	3.32	1.91	0.83	1.74	0.43	33
31131		Volpes Pharmacy	8.93	3.37	1.86	0.78	1.81	0.42	25
31148		Wood's Drug Store	9.44	3.52	1.99	0.81	1.77	0.41	40
32302		W. H. Wood	7.79	2.92	1.66	0.67	1.76	0.40	33
32304		York Pharmacy	6.01	2.25	1.31	0.51	1.72	0.39	25
32329		Broadway Pharmacy	8.88	3.16	1.76	0.80	1.80	0.45	25
32331		H. M. Lerow	11.34	2.93	2.30	1.50	1.27	0.65	25
32320		W. B. Carroll	9.46	3.53	1.98	0.83	1.78	0.42	33
32323	J. A. P. Gagne	9.80	3.63	2.03	0.86	1.79	0.42	38	
32610	Shelton Pharmacy	9.92	3.68	2.06	0.90	1.79	0.44	25	
32483	Stilton-Powell Corp.	11.06	4.05	2.34	0.99	1.73	0.42	30	
32479	A. L. Embree	9.23	2.62	2.05	1.19	1.28	0.58	25	
32480	The W. L. Jones Drug Store	7.52	2.80	1.49	0.65	1.88	0.44	25	
32454	Taftville Pharmacy	10.07	3.79	2.10	0.87	1.80	0.41	33	
32465	Claxton's Pharmacy	10.25	3.80	2.10	0.90	1.81	0.43	33	
32463	Opperman's Drug Store	9.07	3.36	1.88	0.81	1.79	0.43	30	
32468	Park Pharmacy	9.12	3.42	1.90	0.78	1.80	0.41	38	
32467	South End Pharmacy	9.23	3.38	1.96	0.81	1.72	0.41	43	
31137	E. J. Sodalosky	4.80	1.27	1.02	0.62	1.25	0.61	33	
32881	E. J. Sodalosky	9.58	2.76	2.05	1.22	1.35	0.60	23	
32486	Moran's Drug Store	9.55	3.49	1.96	0.85	1.78	0.43	30	
32619	Apothecaries Hall Co.	10.98	3.06	2.33	1.41	1.31	0.61	33	
32623	E. H. Georgia	9.78	3.67	2.18	0.92	1.68	0.42	33	
31133	Picarelli Pharmacy, Inc.	8.10	2.44	1.73	0.98	1.41	0.57	30	
32620	Picarelli Pharmacy, Inc.	7.80	2.87	1.60	0.70	1.79	0.44	21	
<i>Union City</i>									
<i>Waterbury</i>									
<i>Wallingford</i>									

TABLE XV. ANALYSES OF SILVER-PROTEIN SOLUTIONS—Concluded.

No.	Town	Name	Total solids gms./100 cc.	Ash gms./100 cc.	Silver gms./100 cc.	Nitrogen gms./100 cc.	Ash Silver	Nitrogen Silver	Retail price, cents per oz.
<i>Argyrol, 10% solution—Concluded.</i>									
31141	Whitneyville	Country Club Pharmacy	8.44	3.12	1.81	0.73	1.72	0.40	25
32492	Willmantic	Curran & Flynn	9.20	3.39	1.96	0.80	1.73	0.41	38
32489		The Vigeard Pharmacy	9.66	3.62	2.06	0.84	1.70	0.41	33
32458	Winsted	Apothecaries Hall Co.	7.70	2.87	1.64	0.67	1.75	0.41	35
32459		Frank L. Bunnell	12.33	4.52	2.57	1.10	1.76	0.43	25
32456		The City Pharmacy	9.00	3.36	1.89	0.82	1.78	0.43	25
<i>Protargol, 2% solution.</i>									
32607	Ansonia	Buckley's Pharmacy	1.69	0.22	0.13	0.22	1.70	1.70	20
32469	E. Port Chester	D. H. McHugh	1.78	0.37	0.14	0.23	2.64	1.64	23
32337	Hartford	Lamagreas Pharmacy	1.88	0.30	0.18	0.28	1.67	1.56	33
32344	Middletown	United Chemists	1.55	0.18	0.13	0.22	1.40	1.70	25
32330	Norwich	Smith's Drug Store	1.88	0.26	0.16	0.27	1.62	1.70	15
32484	So. Norwalk	H. A. Mead	1.58	0.22	0.13	0.22	1.70	1.70	20
32481	Stamford	Ferguson's Pharmacy	1.95	0.27	0.17	0.27	1.59	1.59	25
32475		McMahon's Pharmacy	1.26	0.18	0.09	0.18	2.00	2.00	25
31130	Union City	E. J. Sodoslosky	0.42	0.06	0.04	0.05	1.50	1.25	18
32615		E. J. Sodoslosky	1.76	0.22	0.15	0.25	1.47	1.67	14
32464	Torrington	Collins & Collins	2.24	0.34	0.20	0.33	1.70	1.65	15
32466		Thurlough's Pharmacy	2.29	0.30	0.19	0.30	1.58	1.58	15
32487	Wallingford	F. W. Marx	2.36	0.29	0.19	0.28	1.53	1.47	18
31132	Waterbury	Buckingham Pharmacy	1.80	0.19	0.17	0.28	1.10	1.65	38
32493	Willmantic	Chas. deVillers	1.79	0.24	0.15	0.27	1.60	1.80	30
32491		The Wilson Drug Co.	1.97	0.26	0.17	0.27	1.53	1.60	25
32497		Windham Pharmacy	1.78	0.32	0.17	0.24	1.88	1.41	25

PROPRIETARY REMEDIES, ETC.

GADUOL.¹

Modifications of cod liver oil, purporting to contain the therapeutic constituents of the oil, have long been offered as proprietary medicines. Some of these have been discussed in a previous report² of this laboratory. Because of the demonstrated worth of cod liver oil as a preventative and curative agent for certain nutritional disorders a new interest attaches to preparations of this oil which express or imply vitamine A potency.

Recently a product called "Gaduol" has been subjected to actual feeding tests in comparison with cod liver oil, of ordinary commercial grade; and the biological tests were supplemented with partial chemical analysis of the product. Gaduol is made by, or prepared for, Merck and Co., and is labeled merely as an "alcohol-soluble extract of cod liver oil." Its chief use is apparently as a basis for Wine of Gaduol, but it may have other uses, such, for example, as an ingredient of cod liver oil pills or tablets. No claims are made as to the relative potency of the extract as compared with cod liver oil, but such a comparison at once suggests itself as a matter of interest.

Gaduol is a dark brown, semisolid preparation with a strong fishy odor. Partial analyses of the two samples³ examined are as follows:

	No. 2547 %	No. 2677 %
Moisture (in vacuum over H ₂ SO ₄ room temp.)	4.73	3.09
Ash	0.92	2.02
Nitrogen	1.38	2.69
Fat (petroleum ether extract)	89.90	77.20

The second sample, **2677**, contains twice as much mineral matter and nitrogeous material as the first, and distinctly less ether-soluble substances. Recently Epstein and Harris⁴ have analyzed an alcohol extract which is typical of gaduol and found 3.18 per cent of total nitrogen with about 65 per cent of free fatty acids and saponifiable fat, and 30 per cent unsaponifiable matter.

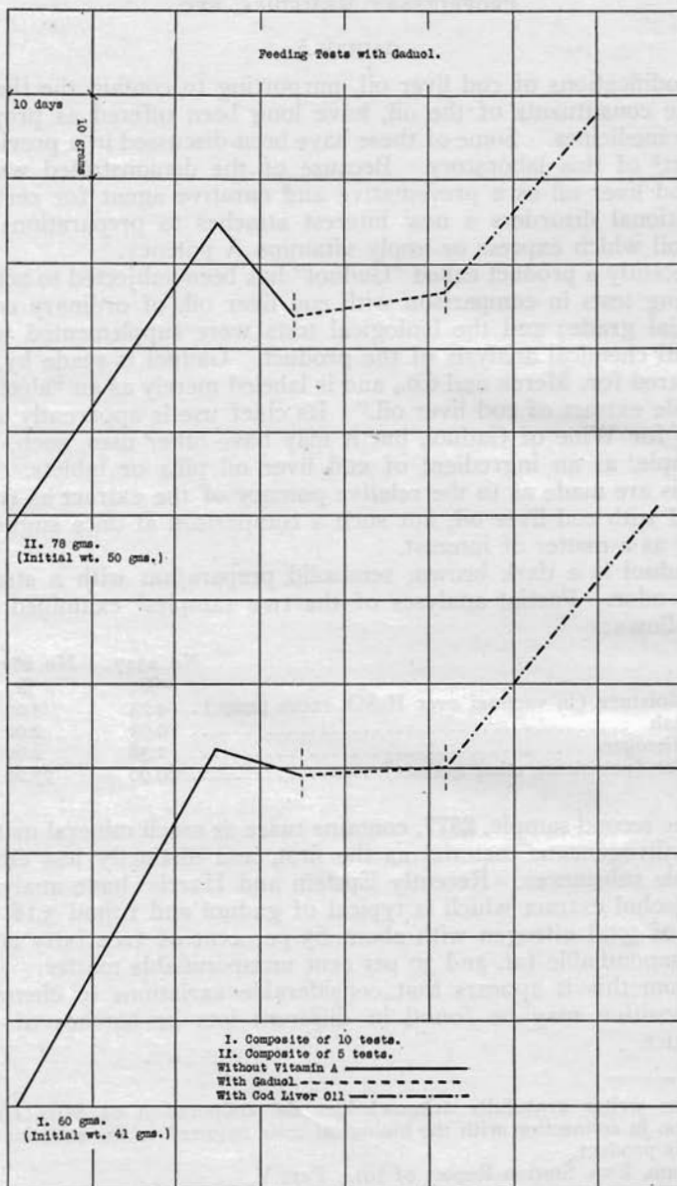
From this it appears that considerable variations in chemical composition may be found in different lots or batches of the product.

¹The writer gratefully acknowledges the coöperation of Miss Helen Cannon in connection with the biological tests required in the examination of this product.

²Conn. Exp. Station Report of 1914, Part V.

³One sample was furnished by courtesy of the Bureau of Chemistry, U. S. Dept. of Agriculture. The other was purchased by the Station locally.

⁴J. Am. Pharm. Assoc., 14, 7, 590.



For feeding purposes the well-mixed sample was triturated with starch or yeast powder and the mass rolled into pills. Each pill contained 100 mgms. of gaduol and 200 mgms. of starch or yeast powder. Batches of pills were made at frequent intervals to insure freshness. When the gaduol-yeast mixture was fed, separate yeast rations were unnecessary as each pill contained the daily dosage of yeast ordinarily fed, viz., 200 mgms. The amounts of cod liver oil fed in the recovery (control) period were from one to five drops unmixed. Since the weight of 1 drop of oil was determined to be about 16 mgms., the comparisons are between 100 mgms. of gaduol and from 16 to 80 mgms. of cod liver oil.

The trials were made in two series, ten animals being fed with sample 2547 and five with 2677. The individual growth curves are not shown, but for each series a resultant curve has been constructed which represents the average of results obtained in the feeding tests. These two curves are shown in the accompanying chart. The curves have been constructed on the basis of the following information:

- 1 Average of initial weights of animals.
- 2 Average duration of foreperiod.
- 3 Average duration of decline preceding foreperiod.
- 4 Average decline in weight during this period (3).
- 5 Average weight at beginning of experimental period.
- 6 Average duration of experimental (gaduol), period.
- 7 Average gain or loss during experimental period.
- 8 Average duration of recovery (cod liver oil), period.
- 9 Average gain during recovery period.

The balancing of gains against losses during the experimental periods results in each series in a slight net increase in weight. The true significance of this is that in some instances considerable gains in weight were made during the early part of the gaduol feeding period, but these gains were not sustained and cod liver oil was substituted for gaduol because of the serious rate of decline, or of other unfavorable symptoms, although body weights were not necessarily below these found at the beginning of the experimental feeding.

Experimental periods were made as long as possible, but in many cases, although body weights did not decline, the animals became so weakened, or the eye conditions became so aggravated, that changes were made to cod liver oil to avoid permanent injury or death of the animals.

During the periods of gaduol feeding the hemorrhagic condition of the eyes became aggravated in some cases and in others temporary improvement was noted. What appeared to be a permanent clearing of the eyes was noted in only one case but in this instance the symptoms were not very marked at any time. During the

recovery period normal eye conditions were restored except in two cases where the injury (plaques) sustained during gaduol feeding was of a permanent character.

The tests on the whole show that, from the standpoint of Vitamine A potency, gaduol is distinctly inferior to the straight cod-liver oil used as a control.

1545 and D. C. **30590**. *Chief Two Moon Bitter Oil*. The Chief Two Moon Herb Co., Waterbury, Conn. This preparation is described as "the wonder laxative tonic." No curative claims are made for the product; but in accompanying literature it is stated that the medicine, by keeping the organs of the body in good condition, defends against rheumatism, pneumonia, tuberculosis, and a number of other ailments. This language is fairly conservative, but the mention of specific diseases, especially tuberculosis, is objectionable.

The preparation was found to consist of about 95 per cent of mineral oil and 5 per cent of dilute alcoholic solution of vegetable bitters, chiefly aloes. On the basis of the entire mixture the amount of alcohol present was about 1 per cent. The medicine is essentially a laxative with probably some tonic properties due to the bitters.

TOILET PREPARATIONS.

Four samples of alcohol for massage purposes were examined. They were all specially denatured products and passed. The denaturants found were those approved for this type of products and were diethylphthalate, isopropyl alcohol, benzol, acetone, salicylates, and zinc, the latter presumably being present as zinc sulfocarbolate. No wood alcohol was found.

TURPENTINE.

Section 2501 of the General Statutes provides that no article shall be sold as "turpentine" or "spirits of turpentine" which is not wholly distilled from rosin, turpentine gum or scrapings from pine trees, and unmixed and unadulterated with oil, benzine or any other substance, unless the package containing the same shall be labelled "adulterated spirits of turpentine."

Twenty-two samples were examined for the Dairy and Food Commissioner. In the examination and judgment of the samples the specifications suggested by the U. S. government¹ have been followed.

Among these specifications are the following:

Specific gravity at 15.5° C.	0.875-0.862
Refractive index at 20° C.	1.478-1.468
Unpolymerized residue, per cent by volume, not over..	2.5
Distilling below 170° C., per cent not less than	90.00

¹ U. S. Dept. Agr. Bull. 898, Nov. 1920.

The product must be clear and free from suspended matter and water; and the color shall not exceed the shade known as "standard" as measured by the Lovibond colorimeter.

The samples examined were in all cases clear, excepting 33094, which was turbid. They were also colorless or nearly colorless. The intensity of color was not exactly measured. The specific gravities were within the limits of the specifications given except in three cases which were explained by the probability of exposure of the samples before this determination was made. (Samples which had shown normal specific gravities were found to have increased appreciably on later examination.) The unpolymerized residues, which indicate mineral oil adulterants, were negligible, or within the limit set by the specifications, except in 33089 and 33225 where the amounts found were 6.8 and 8.4 per cent; and in 33094 and 33224 which samples were largely mineral oil. In the two last named samples only about 20 per cent distilled below 170° C. In all other samples substantially 90 per cent or more distilled below 170° C.

Of the twenty-two samples, therefore, only four failed to conform to the essential requirements for pure turpentine. These four are as follows:

No.	Dealer	Manufacturer
33094	Bristol	M. H. Herbert ?
33224		
33089	New Britain	O'Connor Drug Store D. A. Rosan, Hartford
33225		

A summary of the data on samples which were passed is as follows:

	Maximum	Minimum
Specific gravity ¹ at 20° C.	0.8787	0.8644
Refractive index at 20° C.	1.4770	1.4700
Unpolymerized residue, per cent	1.2	none
Distillation, 90 per cent at	168.9° C.	151.3° C.

¹ Excluding three results probably unreliable for the reason stated in the discussion.

MISCELLANEOUS.

Miscellaneous materials, twenty-two in number, including samples examined for poisons, have been submitted by health officers or other public officials. The examinations made are summarized in Table XVI.

TABLE XVI. MISCELLANEOUS DRUGS, ETC.

No.	Name of material	Remarks
2490	Cakes and candy	Examined for concealed drugs. No chemical analysis was made, but careful inspection revealed nothing suspicious.
2093	Liver of cow	No poison found.

- 3203 *Medicine* Said to be a preparation of seaweed. Total iodine found 0.69%, practically all soluble in water and liberated completely from acid solution by ferric alum. The iodine is, therefore, probably all in inorganic combination.
- 32397 *Ointment* Dark brown ointment with odor of creosote. Found to consist of a petrolatum base with zinc oxide as the chief medication determined. Creosote and other vegetable principles were indicated. No salicylates, benzoates or resins were found.
- 942 *Poisoned bait* Meat, apparently liver, showed an incision in which was found fragments of a wax ampule. No characteristic odor was noted in the meat as received. Cyanide was detected by reliable tests.
- 1439 *Prescription* Powders, each supposed to contain codeine sulphate 12/100 grain, sodium salicylate 19.3 grains, ammonium bromide 19.3 grains. Found codeine sulphate 15/100 grain, sodium salicylate 19.9 grains, ammonium bromide 21.5 grains. Free salicylic acid 29/100 grain. Powders substantially as claimed.
- 2864 *Stomach contents (calf)* Arsenic found. No lead or other heavy metals detected.
- 2523 *Stomach contents (cow)* Both copper and arsenic were found, suggesting Paris green as the cause of death.
- 1205 *Toilet lotion* Alleged to have been used for drinking purposes. Contained approximately 7% alcohol. No cocaine or opiates present.
- 2756 *Unknown liquid* Found to be a 28% solution of calcium chloride.
- 1412 *Unknown powder* Found to be citric acid, partly effloresced.
- 1206 *Viscera of fox* Stomach contained a small amount of grain and much of what appeared to be rabbit hair. Strychnine was found in small amount. Evidence suggested use of poisoned rabbits for bait.
- 2621 *Viscera of pigeon* No mineral poison found.
- 2491 *Water* To identify sediment. Found to be largely or entirely iron.
- 2451 *Water* Water from melting ice in fish carts. Examined for salt and found to contain only a trace, 0.02%.
- 2338 *Wall paper* Tested for arsenic. None was found. (The laws of some States limit arsenic [As] to 0.1 grain per sq. yd.)

Five samples of oils and one of gasoline were examined upon which no particular comment is required.

WHISKEY.

About 20 years ago one of the vexed questions arising in connection with the enforcement of the Food and Drugs Act was "What is Whiskey?" After much debate and controversy a very simple official conclusion was reached which was, in effect, that the commodity which was then, and which has been for many years, commonly known and accepted in the trade and among consumers as whiskey, was whiskey. This interpretation did not limit the name to that product aged in wood whereby the aroma and flavor for which whiskey is prized are acquired; nor did it make the natural color developed by the aging process an essential. Thus, factitious whiskeys made largely, or in part, from mixtures of grain alcohol, caramel, beading oil and artificial flavor were widely sold as, and for, whiskey long before prohibition became operative.

Presumably under the influence of the Volstead Act, whiskey and brandy, which had hitherto been recognized as medicinal agents and included in the United States Pharmacopoeia, were omitted in the ninth revision of that text. But, in view of the fact that both of these commodities are legitimately obtainable under proper restrictions, it would be unfortunate if there were no official specifications for their substance and quality, and in the present (tenth) revision of the Pharmacopoeia these two products are again recognized.

The dangerous character of present day liquors in general, and of whiskey in particular, is a widely accepted opinion based, for the most part, upon frequent comment and criticism in the press and periodicals of the country. The serious symptoms which accompany intoxication, or the deaths which follow it, are generally alleged to be due to "poisoned rum," but seldom are the allegations supported by adequate, acceptable evidence as to what is the poisonous principle or constituent. Those who have had the most experience in the examination of bootleg liquor are more conservative in their conclusions. Thus, as one state chemist of wide experience says, "the most poisonous constituent of alcoholic liquors is the alcohol which they contain." In our own experience, aside from a series of samples in which wood alcohol has been substituted for grain alcohol and all of which were traced to one source, we have identified no foreign substance in bootleg liquor of the types ordinarily used as beverages, which in kind or amount could be regarded as a probable cause of death. There is substantial analytical and other evidence to show that much of the alcohol used in preparation of present day liquors is obtained by the rectification

of denatured alcohol, particularly the specially denatured type. Such alcohol generally shows on analysis traces of denaturants which have carried over in the process of purification. What the physiological effects, cumulative or otherwise, of these small amounts of denaturants may be is speculative, but we are aware of no authoritative opinion that traces of such substances as diethylphthalate, isopropyl alcohol, benzol and acetone are likely to produce measurable effects of a dangerous character. However, with the evidence that much of the alcohol found in intoxicating liquors is derived from the denatured article, there is always the possibility of inefficient purification and hence such liquors constitute a potential source of danger.

Whiskey has never been entirely free from suspicion as to its quality. It was, indeed, upon representations of its dangerous character that bar whiskey of the cheaper sorts was examined in this laboratory about ten years ago. The following comment may be quoted from our report of 1915.

"It has been suggested that the sudden evil effect of certain bar whiskies on the users indicated that some harmful ingredient other than alcohol might be present, such as wood alcohol, ether or chloral hydrate. The present examination was undertaken, therefore, to determine the alcoholic content of bar whiskey, and the presence or absence of these foreign poisons. In the present state of official opinion it appeared futile to indulge in the niceties of a real whiskey analysis.

One hundred and twenty-three samples were analyzed, in most cases representing the cheapest grades of whiskey sold in our larger cities. In 15 of the samples wood alcohol was suspected from the differences between the actual and theoretical readings of the distillates as shown by the immersion refractometer. The most careful tests, however, failed to demonstrate the presence of wood alcohol in any case, other than possibly mere traces. Likewise neither ether nor chloral was found in any of the samples."

The samples which represent the period 1920-25¹ are such as have been submitted by police or prohibition enforcement officials in connection with the enforcement of our State liquor laws and include also a few submitted by Federal agents. A comparison of some of the essential features of "whiskey" as obtained in these two periods is of interest in connection with some of the comments which have appeared from time to time upon the character of the present day article.

ALCOHOLIC CONTENT.

The alleged pernicious effects of present day liquor have been explained as in part due to a greater alcoholic content than was formerly the case. The following summary throws light upon this point.

¹ Practically all of these samples were examined by Mr. Andrew who also has made, from time to time, critical studies of methods for the detection of denaturants.

	1915	6 yr. period 1920-25
Number of samples	123	274
Samples containing less than 30% alcohol ..	3	9
Maximum alcohol content	52.85%	59.60%
Minimum alcohol content	21.91%	16.40%
Average alcohol content	42.19%	42.40%

So far as whiskey is concerned, it does not appear that the bootlegger is any more generous with his alcohol than was the saloonkeeper of old.

SOLIDS.

According to official specifications, whiskey, when evaporated and the residue dried at 100° C., should not contain more than 0.5 gram of solids per 100cc.

In 1915 the range of solids in the 123 samples examined was 0.08 to 0.99 excluding two samples which contained 12 and 20 per cent of sugar respectively. The samples in the 6 year period already mentioned showed from 0.01 to 2.48 gms. per 100 cc excluding one sample which contained about 20 per cent of sugar. The average content of solids in 1915 was 0.53 as compared with an average of 0.38 for the later period.

COLOR.

The color of official whiskey should be that derived from the charred casks in which it is stored. Such color is largely or entirely soluble in amyl alcohol acidified with phosphoric acid (Marsh reagent). If the color is insoluble in this reagent, artificial color is indicated.

In 1915 only 13 of the 123 samples examined were regarded as being probably genuine with respect to color. In the remaining samples from 10 to 98 per cent of the color was insoluble in acidified amyl alcohol.

So far as whiskey of the later period has been examined in this particular, of 90 samples only 7 appeared to be of natural color. In the remaining samples caramel was found and in one case a coal tar color also. The proportion of naturally colored products found in the two periods is only about 10 per cent of the total in each case. In other words, artificially colored whiskey was about as prevalent before prohibition as it is now.

ODOR AND TASTE OF RESIDUE ON EVAPORATION.

The residue left after evaporating whiskey has a characteristic aromatic odor, a slightly astringent taste but is not distinctly sweet or bitter.

Of 78 samples recently tested only 6 appeared to be of a genuine character.

DENATURANTS.

Sixty samples were examined for traces of denaturants and in 26 samples positive tests for diethylphthalate were obtained and in one isopropyl alcohol was detected. Thus in nearly one-half of the samples tested the alcohol appears to have been derived wholly, or in part, from denatured alcohol. In no case was wood alcohol found.

CONCLUSIONS.

Insofar as the analytical data which forms the basis of this discussion can reflect the quality of whiskey for the two periods noted, it appears that the only significant difference between them is the presence of denaturants in the present day product, due to the source from which the alcohol is derived. As already pointed out, the possibility of clumsy manipulation of denatured alcohol in order to make it fit for beverage purposes constitutes a menace to health which cannot be ignored. This applies not only to whiskey but to similar liquors, e. g. gin, brandy, and cordials, of high alcoholic content, all of which may be produced factitiously.

III. BABCOCK GLASSWARE.

Three thousand, eight hundred and twenty-six pieces of Babcock glassware were examined in the calendar year of 1925, of which number only four pieces were rejected as inaccurate.

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