
The 51st Report on

FOOD PRODUCTS

And the 39th Report on

DRUG PRODUCTS, 1946

Bulletin 510

November, 1947



H. J. FISHER

Chemist in Charge

**CONNECTICUT AGRICULTURAL EXPERIMENT
STATION, NEW HAVEN, CONNECTICUT**

DAVID CONGER WALDEN

David Walden died on September 13, 1946, less than one month after he had retired because of illness. He was 41 years old.

Mr. Walden's entire professional career was spent at this Station. Shortly after his graduation from Wesleyan University in 1927 he joined the Station staff as a chemist in the department of analytical chemistry. Many of the analyses of foods, drugs, feeds and fertilizers reported in bulletins of the Station in the ensuing 19 years were made by him. He was particularly interested in the causes of livestock poisoning, and was co-author of Station Bulletin 470, "Notes on Livestock Poisoning in Connecticut", issued in 1937.

Mr. Walden was an accurate analyst and a chemist who knew how to meet new problems as they arose. Despite the affliction of a rare malady that gave little or no hope of successful treatment, he continued his duties in the laboratory to within a few weeks of his death, impelled by his devotion to his work and his extraordinary courage. His sincerity, cheerfulness and spontaneous good humor pervaded all of his relations with his co-workers, who felt a deep personal loss in his death.

CONTENTS AND SUMMARY

Material	Page	From		Total	Adulterated, misbranded or otherwise questionable
		Dairy and Food Commissioner	Other Sources		
<i>Foods</i>					
Baked products	6	9	.....	9	3
Beverages, carbonated, etc.	6	181	.....	181	19
Cheese	8	70	.....	70	39
Coffee	12	2	1	3	.....
Confectionery	12	15	2	17	7
Contaminated or decomposed foods	12	36	30	66	29
Deceptive packaging	13	68	.....	68	50
Extracts and flavors	13	8	1	9	5
Fats and oils:					
Butter	13	14	6	20	3
Other oils and fats	14	168	47	215	138
Fish and other sea food	15	11	4	15	3
Fruit juices	22	8	.....	8	.....
Honey	22	1	3	4	.....
Meat and meat products	22	11	7	18	6
Milk and milk products:					
Fluid milk and cream	23	5	33	38	5
Ice cream	23	.....	4	4	.....
Vitamin D milk	23	150	.....	150	6
Popcorn	23	21	1	22	8
Preservatives and "sugar extenders"	25	8	.....	8	1
Preserves	26	8	1	9	2
Salad dressings and mayonnaise	26	63	2	65	34
Sauerkraut	28	15	1	16	14
Spaghetti, ravioli, etc., and spaghetti sauce ..	30	30	2	32	19
Spices and condiments	31	23	.....	23	8
Spray residues	31	136	.....	136	20
Sweet potatoes	32	3	.....	3	3
Syrups	32	60	3	63	25
Vinegar	35	89	5	94	55
Water	38	.....	20	20	.....
Miscellaneous	38	34	66	100	15
Totals		1,247	239	1,486	509
<i>Drugs</i>					
Atabrine tablets	40	2	.....	2	.....
Belladonna, tincture	40	2	.....	2	.....
Bile extract tablets	40	2	.....	2	.....
Bromide tablets	40	9	.....	9	.....
Calamine lotion	41	26	.....	26	7
Ephedrine sulfate capsules	41	2	.....	2	.....
Ephedrine sulfate solution	41	18	.....	18	12
Ergonovine maleate tablets	44	3	.....	3	.....
Hydriodic acid, syrup	44	16	.....	16	1
Iodine, mild tincture	44	10	.....	10	7
Mercurial ointment, mild	44	22	.....	22	4
Phosphoric acid, dilute	46	4	.....	4	1
Potassium arsenite solution	46	11	.....	11	.....
Saccharin tablets	46	4	.....	4	1
Strychnine sulfate tablets	46	10	.....	10	.....
Thiamin chloride tablets	46	8	.....	8	1
Vitamin D preparations	47	9	.....	9	1
Miscellaneous	47	26	5	31	3
Prescriptions	48	19	.....	19	11
Totals		203	5	208	49
Cosmetics	50	8	4	12	3
Collaborative	54	.....	1,253	1,253	.....
Total for all		1,458	1,501	2,959	561
Babcock glassware, etc.	54	.....	3,723	3,723	.....

The Fifty-First Report on
FOOD PRODUCTS
and the Thirty-Ninth Report on
DRUG PRODUCTS

1946

H. J. FISHER

This report summarizes examinations of official samples of foods, drugs and cosmetics submitted by the Dairy and Food Commissioner during the calendar year 1946, as well as like materials analyzed for health departments and others. The numbers of samples of all kinds analyzed for other Federal, State and Station departments and not reported in other bulletins are also listed.

Seventeen hundred and six samples of foods, drugs, cosmetics and related materials were examined during the year. This was an increase of 300, or 21 per cent, over the number reported for 1945. Additional food samples submitted by the Dairy and Food Commissioner accounted for all of this increase. Submission of so many samples resulted directly from the fact that more adulteration was found than had been in evidence for many years. Not only was there more adulteration, but grosser forms of adulteration, such as the substitution of mineral oil for vegetable oils and of buckwheat hulls for pepper, became prevalent. This was probably due to the market shortage of some foods such as fats and oils and the great demand for these foods.

There was also a considerable increase in the number of samples examined for other Federal, State and Station departments—from 397 in 1945 to 1,253 in 1946, an increase of 856 samples or 216 per cent. The greater part of this increase represented plant materials analyzed spectrographically for metals. If the Station had not possessed a spectrograph, such a large number of additional samples could not possibly have been analyzed by chemical means without an increase in the department staff.

The total number of samples examined from all sources was 2,959, an increase of 1,156 or 64 per cent over the number reported for 1945.

Two new chemists were added to the department staff, partly replacing losses through death and retirement. Alphonse F. Wickroski, M.S. (Wesleyan University), came to work on February 4 and Lloyd G. Keirstead, B.S. (University of Maine), transferred to this Station from the Maine Agricultural Experiment Station on June 24. For the latter half of 1946 Mrs. Mary Van Camp was employed on a temporary basis as an assistant to Mr. Mathis in making spectrographic readings. The retirement and shortly subsequent death of David Walden is referred to at the beginning of this bulletin.

The writer wishes to express his gratitude to all the members of the staff for their loyal and efficient work, the results of which are reported in these pages. He also wishes to express his appreciation of the invaluable advice he has so freely received whenever it has been requested from the former chemist in charge, Dr. E. M. Bailey.

FOODS

Baked Products

Nine samples of baked products were submitted by the Dairy and Food Commissioner. Three were adulterated or misbranded.

Three samples were examined because of suspected contamination with mineral oil used for greasing the baking pans:

K.F.-718. Rolls, and K.F.-720. Enriched bread dough. No mineral oil was found.

E.S.-1006. Hostess Cupcakes. Continental Baking, Inc., New York, N. Y. 0.53 per cent of mineral oil was found to be present.

Three samples were examined because of claims for the presence of butter:

A.F.-769. Ann Dale Cheese Nips. Rubin & Co., Hartford, Conn. The declared ingredients of these crackers were "flour, shortening, butter, milk, cheese, salt, leavening, spices, color and artificial flavor". They contained 3.87 per cent of fat with a Reichert-Meissl value of 1.6, which indicated 0.21 per cent of butter fat in the crackers.

E.C.-395 and 415. Lenell's Quality Cookies. Maurice Lenell Cookie Co., Chicago, Ill. These cookies were declared to contain "flour, eggs, sugar, shortening, milk, butter, U. S. certified coloring, pure and artificial flavoring, salt and leavening". The fat contents of the two samples were 13.79 and 18.10 per cent respectively; Reichert-Meissl values indicated 0.2 and 0.45 per cent of butter fat.

Three miscellaneous samples were examined:

E.S.-1225. Eclair Filling. Bronx Bakery, New Haven, Conn. This filling contained a large amount of starch and 12.62 per cent of fat. The fat was not butter fat, and as no egg was present this was not a custard filling.

A.F.-824. Hol-Grain Wheat Wafers. Hol Grain Products, Inc., Spokane, Wash. There was no ingredient statement except that the wafers were claimed to be "made of selected, dextrinized whole wheat" and to be "dextrinized-toasted-salted". Analysis, as compared with the composition of whole wheat grain,¹ was as follows:

	A.F.-824	Whole Wheat
Moisture	8.84	10.57
Ash	2.50	1.83
Protein	15.06	12.05
Fiber	2.45	2.08
Carbohydrate other than fiber	69.89	71.54
Fat	1.26	1.93

There was no evidence that any ingredients other than wheat and salt were present.

Carbonated Beverages, etc.

One hundred and seventy samples of carbonated beverages were examined for the Dairy and Food Commissioner. Seventeen were adulterated or misbranded. Seven of these contained monochloroacetic acid, an unpermitted

¹ Winton and Winton, *The Structure and Composition of Foods*, Vol. I, p. 205.

TABLE 1. ADULTERATED OR MISBRANDED SODA TYPE BEVERAGES

D. C. No.	Dealer and type of soda	Solids (Approximate sugar content)	Remarks
K.F.-921	Ansonia	%	
K.F.-922	Ansonia Bottling Works, Orange soda	9.42	Artificial color present, not declared.
	Ansonia Bottling Works, Strawberry soda	9.67	Artificial color present, not declared.
K.C.-319	Bridgeport		
	Jennie's Pizzeria, Orange soda	9.17	Artificial color present, not declared.
K.N.-921	Middletown		
	Russell Package Store, Red Fox ale .....	.....	Contaminated with a fungous growth.
G.S.-562	New Britain		
	Silver Seal Beverage Co., Orange soda	10.62	Artificial color present, not declared.
E.S.-1339	New Haven		
	Star Bottling & Supply Co., Inc., Lynbrook Sun Ripened Orange Soda .....	.....	Claim of "sun ripened" unjustified.
K.C.-328	South Norwalk		
	Roton Point Beach Club, Orange soda	9.90	Sodium benzoate present, not declared.
K.C.-377	Stamford		
K.C.-332	Gold's Cut Rate Store, Orange soda	12.87	Artificial color present, not declared.
	Mallozzi Food Store, "Night Club" extra pale dry ginger ale	4.87	Deficient in sugar; fungous growth present.
K.F.-919	Waterbury		
K.F.-929	Colonial Bottling Works, Orange soda	8.68	Artificial color present, not declared.
K.F.-932	C. Mascola Bottling Works, Pale dry ginger ale		Monochloroacetic acid (6.0 mgm./100 cc.) present.
K.F.-930	C. Mascola Bottling Works, Top Notch birch beer		Monochloroacetic acid (8.0 mgm./100 cc.) present.
K.F.-953	C. Mascola Bottling Works, Top Notch ginger ale		Monochloroacetic acid (5.7 mgm./100 cc.) present.
K.F.-955	C. Mascola Bottling Works, Top Notch ginger ale		Monochloroacetic acid (6.4 mgm./100 cc.) present.
K.F.-956	C. Mascola Bottling Works, Top Notch ginger ale		Monochloroacetic acid (8.6 mgm./100 cc.) present.
K.F.-954	C. Mascola Bottling Works, Top Notch birch beer		Monochloroacetic acid (5.3 mgm./100 cc.) present.

preservative; six contained undeclared color and one undeclared sodium benzoate; two were contaminated with a fungous growth; and one was labelled with an unjustified claim that it was "sun ripened". No saccharin was found in any sample. These samples are listed in Table 1.

Approximate sugar content (solids by refraction) was determined in 151 samples. The carbonated beverage law requires not less than 5 per cent of sugar; only one sample, K.C.-332, "Night Club" Extra Pale Dry Ginger Ale, made by the National Spring Water Co. of Stamford, which contained 4.87 per cent of sugar, was found to be below legal strength. The maximum sugar content found was 13.11 per cent; 14 samples contained less than 8 per cent; 35 between 8 and 9 per cent; 33 between 9 and 10 per cent; 41 between 10 and 11 per cent; 23 between 11 and 12 per cent; and 5 samples contained over 12 per cent.

Five samples were sold as "orange drinks" or "orangeade". Beverages so labelled should contain at least 15 per cent of orange juice. On the basis of the ash content of these samples three were passed; two were deficient in orange juice:

K.C.-373. Trenton Box Lunch Orangeade. W. B. Case Box Lunch Co., Bridgeport, Conn. Estimated per cent orange juice, 10.7.

K.C.-379. Orange Drink. N. L. & Mohegan Dairies, New London, Conn. Estimated per cent orange juice, 9.8.

Six miscellaneous fruit beverages were passed.

Cheese

Seventy samples of cheese were examined for the Dairy and Food Commissioner. Sixty were grated cheese, seven were cottage cheese or creamed cottage cheese and one each was process cheese, cream cheese and "Feta" cheese. Thirty-nine were adulterated.

Grated cheese probably finds its chief use as a seasoning for spaghetti and ravioli and similar Italian dishes. Parmesan cheese, a hard dry Italian cheese, made from partly skimmed milk, is the preferred variety, but Parmesan cheese has been practically unobtainable since the war. All cheeses used for grating are more or less dehydrated, because cheese with a high moisture content cannot be grated satisfactorily. Products have been on the market for some time that contained a certain amount of dry skim milk mixed with the cheese. The presence of dry skim milk was declared, and the products were labelled as "Grated", with the word "Cheese" omitted. This year, however, many samples were encountered that were simply labelled as "grated cheese"; in some cases these were less than half cheese, the balance being dry skim milk or starch. With the scarcity and high price of cheese and the cheapness of dry skim milk this form of sophistication was probably very profitable.

Both cheese and dry skim milk are, of course, derived from fluid milk. Cheese is made by coagulating milk by one process or another and separating the curd, which is then subjected to ripening under various conditions. Because the whey, which contains the lactose in the milk, is pressed out of the curd and does not become part of the cheese, all cheeses are low in lactose. Dry skim milk, on the other hand, is made by dehydrating milk from which only the fat has been removed, and consequently it is high in lactose. This

TABLE 2. ADULTERATED AND MISBRANDED GRATED CHEESE

D. C. No.	Manufacturer and Brand	Water per cent	Casein per cent	Fat per cent	Lactose per cent	Ash per cent	Dry skim milk per cent	Remarks
A.F.-776	Carmela Food Packing Co., Phil., Pa. <i>Carmen</i>	11.41	33.62	19.12	21.83	9.40	42	Adul. with dry skim milk.
K.F.-941	Carmela Grated Cheese Co., Phil., Pa. <i>Carmen</i>	10.22	31.01	18.30	23.00	11.90	44	Adul. with dry skim milk.
K.F.-942	Carmela Grated Cheese Co., Phil., Pa. <i>Carmen</i>	11.72	31.46	19.86	22.00	11.16	43	Adul. with dry skim milk.
E.S.-1149	Carmela Grated Cheese Co., Phil., Pa. <i>Carmen</i>	11.81	31.45	19.60	22.56	9.14	44	Adul. with dry skim milk.
K.F.-820	Carmela Food Packing Co., Phil., Pa. <i>Superfine</i>	6.20	34.55	18.38	16.94	9.31	29	Adul., dry skim milk and slack-filled.
E.S.-1144	Carmela Food Packing Co., Phil., Pa. <i>Superfine</i>	4.74	35.41	20.66	25.33	9.63	46	Adul., dry skim milk and slack-filled.
E.S.-1151	Carmela Food Packing Co., Phil., Pa. <i>Superfine</i>	5.43	34.36	19.80	28.46	9.35	53	Adul., dry skim milk and slack-filled.
E.S.-1152	Chef Rialto Food Products, Phil., Pa. <i>Chef Rialto</i>	7.05	33.82	24.03	22.35	9.52	41	Adul., dry skim milk and short wt.
	<i>Italian Style</i>							
J.W.-694	Chesso Cheese Co., New York, N. Y. <i>Chesso</i>	7.09	34.71	27.22	19.65	9.20	35	Adul. with dry skim milk.
E.S.-1169	Cimino Bros., New Haven, Conn. <i>Amalfi</i>	5.23	35.35	21.08	22.13	8.09	40	Adul. with dry skim milk.
E.S.-1163	J. Colonna Bros., N. Bergen, N. J. <i>The Cook's</i>	36.50	33.91	17.45	1.04	10.91	0	Adul. with starch.
E.S.-1161	J. Colonna Bros., N. Bergen, N. J. <i>Italian Kitchen</i>	21.52	35.73	13.96	7.43	9.44	12	Adul. with dry skim milk.
E.S.-1162	J. Colonna Bros., N. Bergen, N. J. <i>Italian Kitchen</i>	25.49	32.80	26.84	5.88	6.40	9	Adul. with dry skim milk.
E.S.-1167	De Maida Packing Co., Waterbury, Conn. <i>De Maida</i>	11.98	38.38	28.89	0.00	.....	.....	Adul. with starch.
K.C.-358	Ehrat Cheese Co., Chicago, Ill. <i>Circle E</i>	13.35	31.10	21.41	18.28	6.54	0	Adul. with starch.
K.G.-366	Ehrat Cheese Co., Chicago, Ill. <i>Circle E</i>	16.47	30.11	22.53	17.44	10.40	35	Adul., dry skim milk and slack-filled.
K.F.-829	Ehrat Cheese Co., Chicago, Ill. <i>Circle E</i>	21.60	29.32	18.83	15.64	9.85	33	Adul. with dry skim milk.
K.F.-944	Ehrat Cheese Co., Chicago, Ill. <i>La Roma</i>	6.95	32.57	22.50	20.74	10.80	37	Adul., dry skim milk and slack-filled.
E.C.-599	Ehrat Cheese Co., Chicago, Ill. <i>La Roma</i>	6.50	36.30	17.69	21.20	11.43	37	Adul., dry skim milk and slack-filled.
E.C.-606	Ehrat Cheese Co., Chicago, Ill. <i>La Roma</i>	.....	.....	.....	.....	.....	.....	Slack-filled.
K.F.-821	Wm. Faehndrich, Inc., New York, N. Y. <i>Famous</i>	10.00	40.35	21.44	12.76	7.68	21	Adul., dry skim milk and slack-filled.
K.F.-865	Wm. Faehndrich, Inc., New York, N. Y. <i>Famous</i>	.....	.....	.....	.....	.....	.....	Slack-filled.
K.F.-1075	Wm. Faehndrich, Inc., New York, N. Y. <i>Famous</i>	.....	.....	.....	.....	.....	.....	Slack-filled.
K.F.-1139	Wm. Faehndrich, Inc., New York, N. Y. <i>Famous</i>	.....	.....	.....	.....	.....	.....	Slack-filled.
E.C.-613	J.&P. Glaviano Co., Inc., Jersey City, N. J. <i>Roman</i>	11.05	.....	.....	0.00	.....	0	Slack-filled.
K.F.-425	June Dairy Prod., Inc., Jer. City, N. J. <i>June Dairy</i>	5.83	43.40	35.30	5.73	5.59	6	Adul. with dry skim milk.
K.F.-938	June Dairy Prod., Inc., Jer. City, N. J. <i>June Dairy</i>	7.06	39.68	33.18	6.54	6.69	7	Adul. with dry skim milk.
E.C.-603	Magic Chef Food Prod. Co., Bgpt., Pa. <i>Magic Chef</i>	8.48	35.06	19.75	20.12	12.25	37	Adul., dry skim milk and slack-filled.
K.C.-325	Magic Chef Food Prod. Co., Bgpt., Pa. <i>Magic Chef</i>	4.04	33.56	25.94	19.65	9.76	34	Adul. with dry skim milk.
K.C.-397	Magic Chef Food Prod. Co., Bgpt., Pa. <i>Magic Chef</i>	14.02	30.69	19.48	19.65	11.18	34	Adul., dry skim milk and slack-filled.
K.C.-464	Magic Chef Food Prod. Co., Bgpt., Pa. <i>Magic Chef</i>	7.44	.....	.....	23.40	.....	43	Adul., dry skim milk and slack-filled.
K.F.-1024	Magic Chef Food Prod. Co., Bgpt., Pa. <i>Magic Chef</i>	9.94	33.81	20.41	19.91	10.11	37	Adul. with dry skim milk.
K.F.-1025	Magic Chef Food Prod. Co., Bgpt., Pa. <i>Magic Chef</i>	9.40	33.30	20.66	20.22	10.15	37	Adul., dry skim milk and slack-filled.
K.F.-1140	Nemi Packing Co., New York, N. Y. <i>Nemi</i>	.....	.....	.....	0.00	.....	0	Slack-filled.
K.F.-1141	Nemi Packing Co., New York, N. Y. <i>Nemi</i>	.....	.....	.....	0.00	.....	0	Slack-filled.
K.F.-1142	Nemi Packing Co., New York, N. Y. <i>Nemi</i>	.....	.....	.....	0.00	.....	0	Slack-filled.

is shown by the following comparison of the average composition of whole milk cheese¹ and dry skim milk:

	Cheese		Dry skim milk	
	As analyzed	Moisture-free basis	As analyzed	Moisture-free basis
Water	38.60	.....	2.5	.....
Casein	25.35	41.28	36.5	37.4
Fat	30.25	49.26	1.5	1.5
Lactose	2.03	3.31	51.5	52.8
Ash	4.07	6.63	8.0	8.2

It is possible to calculate the percentage of dry skim milk in a mixture of this material with cheese from the above figures and the determined moisture and lactose contents of the mixture. If x equals the percentage of dry skim milk in the mixture and A equals the determined percentage of lactose, both on the dry basis, $0.528x + 0.0331(100-x) = A$. Transposing, we arrive at the following formula:

$$x \text{ (per cent of dry skim milk solids in total solids)} = \frac{A-3.31}{0.495}$$

The actual percentage of dry skim milk in the mixture is slightly less than x because of the presence of some moisture in the dry skim milk. Correcting for the 2.5 per cent of moisture in dry skim milk leads to the following formula:

$$\text{Per cent of dry skim milk in mixture} = 0.975 \frac{A-3.31}{0.495} = 1.97(A-3.31).$$

Lactose was determined in most of the 60 samples of grated cheese submitted by the Dairy and Food Commissioner, and in many cases more extended analyses were made. Thirty-seven samples were found to be adulterated with dry skim milk or starch or to be misbranded because of short weight or slack filling. Analyses of these samples are listed in Table 2.

Three samples of cottage cheese, four creamed cottage cheeses, one sample of Italian cream cheese, one of process cheese and one of "Feta" cheese were analyzed. Federal standards have been established for cream cheese, cottage cheese and creamed cottage cheese.² The language of the standards is somewhat complicated, but essentially it defines all three products as soft uncured cheeses. Cream cheese is made from cream with or without milk or skim milk, cottage cheese is made from sweet skim milk and creamed cottage cheese is made by mixing cottage cheese with cream or a mixture of cream with milk or skim milk. Cream cheese must contain not less than 33 per cent of butter fat and not more than 55 per cent of water, cottage cheese must contain not more than 80 per cent of water and creamed cottage cheese must contain not less than 4 per cent of added butter fat and not more than 80 per cent of water. There is no official standard for process cheese, but under the old advisory standards³ process cheese was defined as follows:

"The modified cheese made by comminuting and mixing one or more lots of cheese into a homogeneous, plastic mass, with the aid of heat, with or without the addition of water, and with the incorporation of not more than 3 per cent of a suitable emulsifying agent. The name 'process cheese' unqualified is understood to mean process Cheddar cheese, and applies to a product which contains not more than 40 per cent of water and, in the water-free substance, not less than 50 per cent of milk fat. Process cheese qualified by a varietal name is made from cheese of the variety indicated by the name, and conforms to the limits for fat and moisture for cheese of that variety."

¹ Leach and Winton, *Food Inspection and Analysis*, 4th ed., p. 197.

² S. R. A., F. D. C. 2 (July 1944).

³ Rules and Regulations Relating to the Food and Drug Law of Connecticut, Revision of July 1, 1937, p. 74.

TABLE 3. ANALYSES OF UNGRATED CHEESES

D. C. No.	Dealer and Brand	Water per cent	Casein per cent	Fat per cent	Lactose per cent	Ash per cent	Remarks
	<i>Cottage cheese</i>						
K.C.-324	First National Stores, Bridgeport	73.23	18.47	5.59	1.26	1.77	Pass.
K.C.-872	I. Chorches Meat Market, Poquonock	70.18	17.16	.....	.....	.....	Pass.
E.S.-1293	Persky & Kavanaugh, New Haven	78.61	18.47	0.31	0.20	1.21	Pass.
	<i>Creamed cottage cheese</i>						
K.C.-323	A. & P. Tea Co., Bridgeport	80.39	16.24	4.74	0.71	1.40	Pass.
K.C.-322	Big Chief Market, Stamford. <i>That good Santé</i>	78.50	12.86	4.91	0.00	1.33	Pass.
K.F.-945	Big Dollar Market, Waterbury. <i>Seatest</i>	73.56	18.79	5.82	0.27	1.27	Pass.
K.F.-937	Everybody's Market, Waterbury. <i>Tuxedo</i>	79.47	13.75	3.89	1.02	0.80	Deficient in fat.
E.S.-1240	Cutriello's Ice Cream Co., Stratford	68.00	10.56	15.25	1.02	1.07	Deficient in fat and high in water.
A.F.-874	Ecco Stop & Shop, West Hartford	37.27	22.46	32.01	0.44	6.34	Pass.
K.C.-386	"Feta" cheese George Morris, Bridgeport.....	45.90	14.74	14.49	0.51	5.36	Pass.

Analyses are given in Table 3. One sample of creamed cottage cheese was deficient in fat and the cream cheese contained too little fat and too much water; the other samples were passed.

Coffee

Two samples of ground coffee were examined, one for the Dairy and Food Commissioner and one for the Mansfield State Training School; neither was adulterated. A cup of coffee from a restaurant did not contain saccharin.

Confectionery

Seventeen samples of candy, etc., were examined, fifteen for the Dairy and Food Commissioner and two for the New Haven City Health Department. Six official samples were misbranded because of deficiencies in labelling and one of the unofficial samples was adulterated; the others were passed. Three samples may be of interest:

A.F.-757. Marlene's Cream of Gold Rich Sweet Cream Caramels. Reibs, Chicago, Ill. These caramels were declared to be "Made with sugar, corn syrup, pure sweet cream, whole condensed milk, hydrogenized shortening, salt and artificial flavoring". They contained 5.13 per cent of fat with a Reichert-Meissl value of 9.9, corresponding to 1.7 per cent of butter fat in the sample.

E.S.1022. Maple Shells. Vermont Apple Orchards, Burlington, Vt. These were claimed to be "made of 100% pure maple sap syrup". The Winton lead number was 2.36 and they were passed.

8000. Halvah. "Halvah" is stated to be a Jewish confection. The declared ingredients of this sample were "sesame seed and peanut butters, sugar, corn syrup, egg albumen, Gypsophila Struthium, natural and artificial flavors". Gypsophila Struthium is a southern European saponin-containing plant known as Egyptian soaproot; the only use for it we can find in the literature is as a soap substitute, and what function it serves in the candy is unknown. The sample contained oil of sesame and artificial color but no peanut oil, so the claim for the presence of peanut butter was false.

Contaminated or Decomposed Foods

Thirty-six samples of miscellaneous foods were submitted by the Dairy and Food Commissioner because of suspected rodent or insect contamination or the presence of foreign matter, or because of complaints that the foods had made people ill. Rat feces, insects or both were found in 18 samples, including nine samples of flour, two of corn meal, two of raisins, three of peanuts and one sample each of shelled pecans and a carbonated beverage. Two samples were moldy, a sample of ale, R.W.-2060, contained most of the body of a mouse, another sample contained pieces of cardboard, and a sample of candy contained sand. One ham was decomposed. In all, 24 samples were found adulterated and 12 were passed.

Thirty samples were examined for State and city health departments and private individuals. One carbonated beverage was moldy and another contained an insect and a spider leg. A sample of milk contained a live black carpet beetle. A sample of strawberry fountain syrup contained 100 parts per million of zinc, and some celery contained a copper spray residue. Some

biscuits from a restaurant, 5870, contained 2.01 per cent of sodium carbonate and 1.00 per cent of sodium bicarbonate; evidently washing soda had been used by mistake for baking soda in preparing these biscuits. In all, five samples were considered adulterated and 25 were passed.

Deceptive Packaging

A food is misbranded "if its container shall be so made, formed or filled as to be misleading". Under this section of the law, foods are considered to be misbranded if they are packed in misleadingly large containers, even though the labels may declare the correct net weight. If the package is transparent, as is the case with some cellophane wrappers, so that the purchaser can readily see how much he is getting, the element of deception is absent. A slack-filled package may therefore be misbranded or not misbranded, depending on whether or not it is opaque or transparent.

Sixty-eight samples were examined for the Dairy and Food Commissioner; 50 of these were deceptively packed. Fourteen were "Van Besta Pudding Mix", made by Van Besta Co., Inc., Brooklyn, N. Y.; nine were "Zipudding & Pie Filler", made by New Way Food Products Co., Columbus, Ohio; eight were "Hixson's Coconut Custard Mix", made by Hixson Products Co., Inc., Chicago, Ill.; eight were spaghetti and macaroni; three were candy, and eight were miscellaneous food products.

Extracts and Flavors

Eight extracts and flavors were examined for the Dairy and Food Commissioner and one sample was analyzed for a dealer. Five "Virginia Dare" extracts, made by Virginia Dare Extract Company, Brooklyn, N. Y., were deceptively packed. Two imitation vanilla flavors, one imitation butter flavor and one sample of "Baste-Flavor" were passed.

Fats and Oils

Butter

Eleven samples of butter as well as one sample each of "butter fat concentrate", "popcorn butter" and popcorn seasoning were submitted by the Dairy and Food Commissioner. Ten were genuine butter. The other four were the following:

J.W.-742. Butter. Burnside Home Bakery, East Hartford. Analysis was as follows: Water, 8.52; casein and salt, 2.13; fat, 89.35 per cent; butyro refraction of fat 52.5 at 40° C.; Reichert-Meissl value of fat, 12.0. The constants definitely indicated that this sample was not pure butter.

J.W.-744. Butter fat concentrate. Burnside Home Bakery, East Hartford. Analysis was as follows: Water, 0.24; casein, 0.28; salt, none; fat, 99.48 per cent; butyro refraction of fat, 44 at 40° C.; Reichert-Meissl value of fat, 30.1. This product was essentially pure butter fat.

K.F.-964. Popcorn butter. Capitol Nut Shop, Danbury. This was not butter but an artificially flavored and colored fat with a butyro refraction at 40° C. of 52.5, a Reichert-Meissl value of 0.3 and a Polenske value of 0.4. The sale of any fat other than ordinary butter as "popcorn butter" is adulteration and misbranding within the meaning of the law, and popcorn to which this material was applied would be adulterated if sold as "buttered popcorn".

K.F.-965. Popsit Plus Popcorn Seasoning. Capitol Coffee Nut Shop, Danbury. This was declared to be "made from choice peanut oil, artificial butter and flavor added". The sample was artificially colored peanut oil.

Six samples of butter were analyzed for Prof. J. Seiberlich of the Engineering Experiment Station of the University of New Hampshire, who wished to study the effect of the feed of cows on the butter made from their milk. Two Holstein and two Guernsey cows were used for the experiment, some cows being fed yeast and others soy beans. Constants determined on the fats separated from the butters showed no great differences; the values found were as follows:

Butyro refraction, 40° C	40.7 — 42.6
Saponification no.	225 — 236
Iodine no.	26.1 — 31.6
Reichert-Meißl value	25.8 — 33.8
Polenske value	3.0 — 4.6

Other Oils and Fats

One hundred and sixty-eight official and 47 unofficial samples of oils and fats were examined. One hundred and twenty-four were sold as mixtures of oils or as "imitation olive oil", "edible oil", etc. The balance were claimed to be individual varieties of oils or fats, as follows: olive oil, 63; soy oil, 9; corn oil, 5; peanut oil, 4; cottonseed oil, 2; linseed oil, 2, and almond, peach kernel, sesame, hydrogenated vegetable and mineral oils, and lard, 1 each.

One hundred and six official and 32 unofficial samples were adulterated or misbranded. Adulterated and misbranded official samples are listed in Table 4; two of these and one passed sample call for particular attention:

K.C.-428. Vitamin Enriched V-E Brand Blendol. Floret Chemical Co., New York, N. Y. This was declared to be "vitaminized vegetable oil with added vitamins A and D", and was labelled "Each fluid ounce supplies 50% of the minimum daily requirements of vitamins A and D—2000 U.S.P. units of A—200 U.S.P. units of D—as derived from the fish liver oil". The vegetable oil was a mixture of cottonseed and peanut oils. An assay by feeding to rats showed that the claim of 200 units of vitamin D per fluid ounce was justified.

A.N.-888. Saladola Brand Pure Mineral Oil. Packer Mercantile Food Products Co., Boston, Mass. This sample was labelled "A non-fattening oil (certified food color added). For the preparation of non-fattening, non-nutritive, and low calories dressings for salads". Products such as this, labelled as special dietary foods and sold in small containers, were formerly passed. Largely as a result of court findings in the Better Taste Popcorn case, the U.S. Food and Drug Administration on April 4, 1946, issued a statement (T C 8-A) whose substance was "that mineral oil salad dressings must be regarded as adulterated under the Federal Food, Drug and Cosmetic Act under any form of labelling employed". The Connecticut Food, Drug and Cosmetic Act specifically states [Sec. 908 (e)] that "The purpose of this act being to promote uniformity of state legislation with the federal act, the commissioner and director, acting jointly, are authorized (1) to adopt, so far as applicable, the regulations from time to time promulgated under the federal act and (2) to make the regulations promulgated under this act conform, so far as practicable, with those promulgated under the federal act." Therefore, shortly after the appearance of T C 8-A, the Dairy and Food Commissioner issued a notice that the use of mineral oil in any food product was unlawful

in Connecticut; consequently, "Saladola Mineral Oil" must be considered adulterated.

J.W.-769. Unlabelled oil. A. De Roberta, East Hartford. Analysis of this oil was as follows: Butyro refraction, 61.0 at 25° C.; iodine no. 94; saponification no. 215; Reichert-Meißl value, 4.4; Polenske value, 4.9; squalene value, 43; artificial flavor present; tests for cottonseed, peanut and tea-seed oils negative. None of the common oils, nor any combination of them, will yield such analytical values. The inspector was informed that the oil was supposed to be cocoanut oil. It obviously was not pure cocoanut oil, because cocoanut oil is a solid fat and not a liquid oil at ordinary temperatures. However, the Polenske value of 4.9 was about 29 per cent of that of cocoanut oil, and a mixture of 29 per cent cocoanut and 71 per cent soy oil will yield constants very closely approaching those of the sample. The evidence appears to indicate that J.W.-769 was a mixture of cocoanut oil with either corn or soy oil.

Fish and Other Sea Food

Eleven sea food products were submitted by the Dairy and Food Commissioner and four by the New Haven health department. One official sample of salmon bore no packer's address and another sample was adulterated:

K.C.-407. Smoked Salmon Finest Fillets Packed with Salad Oil. Brown's Fish Co., Bridgeport. The fish were packed in mineral oil.

All other official samples were passed, but the analysis of one is of interest:

E.C.-1041. Genova Brand Tuna in Pure Olive Oil. West Coast Packing Corp., Long Beach, Cal. Analysis of the oil was as follows: Butyro refraction, 65.0 at 25° C.; iodine no., 101; ether insoluble bromides, 6.92 per cent; estimated per cent fish oil, 22 per cent; iodine no. corrected for 22 per cent fish oil, 96; no peanut or cottonseed oil. Packing oil passed as pure olive oil.¹

Of the four unofficial samples all were passed except one sample of decomposed fresh lobster meat, 6108, packed by Maritime Packers, Pictou, Nova Scotia.

¹ See Conn. Agr. Expt. Sta. Bul. 499, 20-23 (1946).

TABLE 4. ADULTERATED AND MISBRANDED SALAD OILS

D. C. No.	Dealer and Brand	Remarks
	<i>Bridgeport</i>	
K.F.-727	Patsy Angelicola. <i>La Gustosa Extra Fine Oil</i>	Corn or soy oil artificially flavored and colored; short volume; no ingredient declaration; no name or address of packer.
K.F.-728	Patsy Angelicola. <i>Sopraffino Extra Fine Oil</i>	Corn or soy oil artificially flavored and colored; short volume; no ingredient declaration; no name or address of packer.
K.C.-391	Peter Boschetti. <i>Roberta Imitation Olive Oil</i>	Cottonseed oil artificially flavored; short volume; no address of packer.
K.C.-403	Bridgeport City Market. <i>Monaco Pure Peanut Oil</i>	Contained a small amount of cottonseed oil.
K.C.-422	Bridgeport Health Department. <i>Unknown</i>	Vegetable and olive oils declared; cottonseed oil and artificial flavor and color but probably no olive oil present; short volume; no name or address of packer.
K.F.-713	Bridgeport Health Department. <i>Purezza Blended Oil</i>	At least 95 per cent mineral oil, artificially flavored and colored; short volume.
K.C.-390	Browns Smoked Fish Co. <i>Edible oil</i>	At least 96 per cent mineral oil, artificially flavored and colored; short volume.
K.C.-320	Carl Cascella. <i>Puglia Super Fine Pure Oil</i>	Probably corn or soy oil; unlabelled.
K.C.-316	Central Coffee Shop. <i>Edible oil</i>	At least 98 per cent mineral oil, artificially flavored and colored; short volume; no ingredient declaration; no name or address of packer.
K.C.-313	Emil's Apizza. <i>Ciotosa Extra Fine Oil</i>	At least 98 per cent mineral oil, artificially flavored and colored; no ingredient declaration; no name or address of packer.
K.C.-461	Grandma's Cookie Jar. <i>Puglia Super Fine Pure Oil</i>	Probably hydrogenated vegetable oil; unlabelled except for net weight.
K.C.-305	Karmel Korn Shop. <i>Edible oil</i>	Artificially flavored and colored; short volume.
K.C.-384	George Morris. <i>Soya bean oil</i>	Peanut and cottonseed oils and artificial flavor and color present; unlabelled
K.F.-817	Carl Rabinu. <i>Corn oil</i>	except for net weight.
K.C.-405	Triestino Olive Oil Co. <i>Edible oil</i>	Corn or soy oil artificially flavored and colored.
K.F.-725	Venice Importing Co. <i>Roberta Pure Oil</i>	Corn or soy oil artificially flavored and colored; short volume; no ingredient declaration; no name or address of packer.
K.F.-712	Villa Nova Restaurant. <i>Dell' Omo Pure Olive Oil</i>	Adulterated with about 35 per cent of corn or soy oil.
	<i>Danbury</i>	
K.F.-1058	Danbury Tobacco & Candy Co. <i>Bertola Imitation Olive Oil</i>	Cottonseed oil artificially flavored and colored; short volume.
K.F.-1059	Danbury Tobacco & Candy Co. <i>Pure olive oil</i>	Corn or soy oil artificially flavored and colored.
K.F.-1060	Danbury Tobacco & Candy Co. <i>Bertola Oil</i>	Cottonseed oil artificially flavored and colored.
K.F.-1149	Jack Ventura. <i>Paradise Oil</i>	Peanut oil artificially flavored and colored; short volume.
	<i>Derby</i>	
G.S.-598	Gabriel Criscuolo. <i>Roberta Pure Oil</i>	Corn or soy oil artificially flavored and colored; short volume; no ingredient declaration; no name or address of packer.
	<i>East Hampton</i>	
K.N.-888	Elkin's Store. <i>Saladola Pure Mineral Oil</i>	See page 14.
	<i>East Hartford</i>	
J.W.-769	A. De Roberta. <i>Oil</i>	See page 15.
	<i>East Haven</i>	
K.N.-929	Orlando Orefice. <i>Oil</i>	Corn or soy oil artificially flavored and colored.
	<i>Fairfield</i>	
K.C.-424	C. Stassi. <i>Puglia Superfine Pure Edible Oil</i>	Cottonseed oil artificially flavored and colored; no ingredient declaration; no name or address of packer.
	<i>Hartford</i>	
E.S.-1232	Aldo Amprino. <i>Oil</i>	Corn or soy oil artificially flavored and colored.
J.W.-798	Angelicas Foods. <i>Puglia Superfine Pure Oil—Olive Oil</i>	Corn or soy oil artificially flavored and colored; short volume; no address of packer.
	<i>Hartford</i>	
J.W.-759	Barry Square Bakery. <i>Oil</i>	At least 96 per cent mineral oil, artificially flavored and colored.
K.F.-1150	Caivo. <i>Santuzza Oil</i>	Cottonseed and peanut oils; short volume.
J.W.-761	Casa Loma Restaurant. <i>Oil</i>	Cottonseed and peanut oils artificially flavored and colored.
J.W.-762	Casa Loma Restaurant. <i>Oil</i>	Cottonseed and peanut oils artificially flavored and colored.
K.F.-734	Connecticut State Police. <i>Oil</i>	Corn or soy oil with a little peanut oil, artificially flavored and colored.
J.W.-751	Italian Bakery. <i>Oil</i>	Cottonseed and peanut oils artificially flavored and colored.
K.N.-964	Jack Malassa. <i>Oil</i>	Corn or soy oil artificially flavored and colored.
J.W.-748	Pippies Green Bottle. <i>Puglia Super Fine Pure Oil</i>	At least 96 per cent mineral oil, artificially flavored and colored; short volume.
J.W.-765	Providence Lemon Ice. <i>Oil</i>	Corn or soy oil artificially flavored and colored.
J.W.-770	Sams Grinders. <i>Oil</i>	At least 97 per cent mineral oil, artificially flavored and colored.
J.W.-702	Sparveria Bros. <i>Oil</i>	Cottonseed, a little peanut, and corn or soy oils, artificially flavored and colored.
J.W.-1	Dealer unknown. <i>Oil</i>	Corn or soy oil artificially flavored and colored.

TABLE 4. ADULTERATED AND MISBRANDED SALAD OILS—(Continued)

D. C. No.	Dealer and Brand	Remarks
J.W.-2 J.W.-775	Dealer unknown. Oil Victoria Importing Co. Forget-Me-Not Imitation Olive Oil .. Middletown	Corn or soy oil artificially flavored and colored. Corn or soy oil artificially flavored and colored; short volume.
K.N.-984	Diprotto Delicatessen. Pure olive oil .. Milford	Corn or soy oil artificially flavored and colored.
E.S.-1379	Milford Highway Market. Peanut, Corn and 5% Olive Oil .. New Britain	Peanut and cottonseed oils artificially flavored and colored.
K.N.-794	A. Moncini. La Gustosa Extra Fine Oil .. New Haven	Cottonseed oil; no ingredient declaration; no name or address of packer.
E.S.-1031 E.S.-1173 E.S.-1175	Astertie's Market. Pace O Mio Dio Peanut & Pure Olive Oil The Big Apple Restaurant. Pure olive oil .. Bob's Market. Oil ..	Peanut and olive oils as claimed, but short volume. Peanut and cottonseed oil. Peanut oil artificially flavored and colored; short volume; unlabelled except for net contents. Peanut oil artificially flavored and colored; short volume; no ingredient declaration.
E.S.-1176	Bob's Market. Superfine Extra Fine Oil ..	Corn or soy oil; unlabelled except for net contents. Cottonseed and soy (or corn) oil. Cottonseed and possibly 17 per cent olive oil; short volume. Corn or soy oil artificially flavored and colored.
E.S.-1341 E.S.-1040 E.S.-1375 E.S.-1229 E.S.-1230	Corn. Bakers Supply Co. Oil .. Luigi Caso. La Spagnola Oil—Soya Vegetable Oil .. Galvin Fruit Co. San Leo Oil .. Gambrinus Pastry Shop. Pure olive oil .. Gambrinus Pastry Shop. Victory 100% Pure Imported Olive Oil ..	Corn or soy oil artificially flavored and colored; short volume. Corn or soy oil artificially flavored and colored. At least 98 per cent mineral oil, artificially flavored and colored. At least 96 per cent mineral oil, artificially colored. Cottonseed oil artificially flavored and colored; short volume. Cottonseed and peanut oils; short volume. Peanut oil artificially flavored and colored. Peanut oil artificially flavored and colored.
E.S.-1359 E.S.-1377 E.S.-1186 E.S.-1335 E.S.-1466 E.S.-1177 E.S.-1180 E.S.-1057	Alexander Jankowski. Oil .. Kimberly Ave. Open Air Market. Peanut and cottonseed oil .. Mauro Cash Grocery. Imitation olive oil .. Mauro Cash Grocery. Forget-Me-Not Imitation Olive Oil .. Milano Grocery Co. Santuzza Oil .. Rapid Motor Lines. Oil .. Rapid Motor Lines. Oil .. Morris Rosner. California Oil ..	Corn or soy oil artificially flavored and colored; short volume. Cottonseed, a little peanut and corn or soy oils, artificially flavored; short volume; no ingredient declaration; no name or address of packer. Corn, peanut and olive oils declared; cottonseed and peanut oils present.
E.S.-1055	Rosner's Cash Grocery. Amalfi Oil ..	Corn, peanut and olive oils declared; cottonseed and peanut oils present.

E.S.-1336	Rosner's Cash Grocery. Giuseppe Di Lucca Oil ..	Cottonseed, corn, peanut and olive oils declared; no peanut, only a trace of cottonseed and not more than 5% olive oil present; short volume.
E.S.-1374	Shtafman Distributing Co. San Leo Oil ..	Corn, cottonseed, peanut and 10% olive oil declared; cottonseed and probably 10% olive oil but no peanut oil present; short volume.
E.S.-1373 E.S.-1178	Tripoli Importing Co. Bertola Imitation Olive Oil .. A. Valente. Oil ..	Peanut and corn oils declared; peanut and cottonseed oils present. Peanut oil artificially flavored and colored; short volume; unlabelled except for net contents.
E.S.-1179	A. Valente. Superfine Extra Fine Oil ..	Peanut oil artificially flavored and colored; short volume; no ingredient declaration; no name or address of packer.
E.C.-388	Salvatore D'Amico. Calabria Salad Oil .. New London	90% peanut and 10% olive oil declared; found, corn or soy oil with 4.5% peanut oil, artificially flavored and colored; short volume.
E.C.-578 E.C.-391	Fatcne Bros. Cottonseed and soybean oil .. Longo's Market. Calabria Salad Oil ..	Soy oil with a little cottonseed oil, artificially flavored. 90% peanut and 10% olive oil declared; found, corn or soy oil with 4.0% peanut oil; artificially flavored and colored; short volume.
E.C.-389 E.C.-390	Micelli's Market. De Robio's Pure Olive Oil .. Micelli's Market. Calabria Salad Oil ..	Olive oil as claimed but short volume. See E.C.-388 and 391; peanut oil 4.0%; short volume.
E.C.-609	Universal Food Store. Purity Pure Olive Oil .. Noank	Peanut oil, short volume.
E.C.-413	J. De Palo. Roberta Pure Oil .. Norwich	Peanut and cottonseed oils artificially flavored and colored; short volume; no ingredient declaration; no name or address of packer.
E.C.-600	West Side Fruit Store. San Leo Salad & Cooking Oil ..	90% corn, cottonseed and peanut oils and 10% olive oil declared; found, cottonseed and possibly 19% olive oil but no peanut oil; short volume.
E.C.-601	Winer, Store System. San Leo Salad & Cooking Oil ..	See E.C.-600; cottonseed and possibly 15% olive oil but no peanut oil present; short volume.
K.F.-737	John Kocaros. Oil .. Perth Amboy, N. J.	Corn or soy oil artificially flavored and colored; unlabelled except for net contents.

TABLE 4. ADULTERATED AND MISBRANDED SALAD OILS—(Concluded)

D. C. No.	Dealer and Brand	Remarks
	<i>South Norwalk</i>	
K.C.-352	Tony Bruno. <i>Roberta Pure Olive Oil</i>	Corn or soy and peanut oils artificially flavored and colored; short volume; no name or address of packer.
K.C.-353	Tony Bruno. <i>California Oil</i>	Corn or soy oil artificially flavored and colored; short volume; no ingredient declaration; no name or address of packer.
K.F.-846	Tony Bruno. <i>Edible oil</i>	Corn or soy oil artificially flavored and colored; from unlabelled 5 gal. can.
	<i>Stamford</i>	
K.F.-726	Donato Corasso. <i>Salad Oil</i>	Corn or soy oil artificially flavored and colored; short volume; unlabelled except for net contents.
K.C.-357	Transue Coffee House. <i>Popcorn oil or seasoning</i>	Probably hydrogenated vegetable oil; no ingredient declaration.
K.F.-863	Michael Yannelli. <i>Missole Co. Corn & Peanut Salad Oil</i>	Corn or soy oil artificially flavored and colored; no peanut oil; net contents and address of packer not declared.
K.F.-864	Michael Yannelli. <i>Vegetable oil</i>	Corn or soy oil artificially flavored and colored; short volume; unlabelled except for net contents.
	<i>Stratford</i>	
E.S.-1380	Spode's Restaurant. <i>Vegetable and 5% olive oil</i>	A little cottonseed oil present, but mostly some other unidentified oil; artificially flavored and colored.
	<i>Thompsonville</i>	
A.F.-868	Caronna's Market. <i>Oil</i>	Corn or soy oil with a little cottonseed oil, artificially flavored and colored.
A.F.-869	Caronna's Market. <i>Oil</i>	Cottonseed oil artificially flavored and colored.
	<i>Waterbury</i>	
K.F.-1103	Aljim Wholesale Grocery. <i>Labella Oil</i>	Corn (or soy or sunflower) oil with some peanut and a little cottonseed oil; short volume.
K.F.-1104	Aljim Wholesale Grocery. <i>Suzanne Imitation Olive Oil Florida Soy Bean Oil</i>	Soy oil artificially flavored; short volume.
K.F.-1087	Pietro Boccocini. <i>San Leo Edible Oil</i>	90% corn, cottonseed and peanut oils and 10% olive oil declared; found, cottonseed and possibly 17% olive oil but no peanut oil; short volume.
K.F.-1069	Capitol Importing Co. <i>Giulietta Pure Imported Olive Oil</i>	Olive oil as claimed but short volume.
K.F.-1011	Leonard Constantino. <i>Forget-Me-Not Imitation Olive Oil</i>	Corn or soy oil artificially flavored and colored; short volume.
K.F.-1089	D. Cuvo. <i>San Leo Edible Oil</i>	90% peanut, corn and cottonseed oils and 10% olive oil declared; found, cottonseed and possibly 15% olive oil but no peanut oil; short volume.

K.F.-1002	Albert Dance. <i>Forget-Me-Not Imitation Olive Oil</i>	Corn or soy oil artificially flavored and colored; short volume.
K.F.-1003	Albert Dance. <i>Forget-Me-Not Imitation Olive Oil</i>	Corn or soy oil artificially flavored and colored; short volume.
K.F.-1086	A. Duccillo. <i>San Leo Edible Oil</i>	See K.F.-1089; cottonseed and possibly 15% olive oil present but no peanut oil; short volume.
K.F.-1072	Impero Importing Co. <i>Imperico Virgin Superfine Pure Olive Oil</i>	Adulterated with about 40 per cent of corn or soy oil; short volume.
K.F.-1004	International Importing Co. <i>Edible Oil</i>	Corn or soy oil artificially flavored; short volume.
K.F.-1067	Milano Importing Co. <i>Divo Peanut & Pure Olive Oil</i>	90% peanut and 10% olive oil declared; peanut and cottonseed oil and possibly 5% olive oil present; artificially colored; short volume.
K.F.-1088	Roma Importing Co. <i>San Leo Edible Oil</i>	See K.F.-1089; cottonseed and possibly 15% olive oil present, but no peanut oil; short volume.
K.F.-991	Dealer unknown. <i>Bertola Imitation Olive Oil</i>	Peanut and corn oil declared; corn but no peanut oil present; artificially flavored and colored; short volume.
K.F.-1094	John Zuella. <i>San Leo Edible Oil</i>	See K.F.-1089; cottonseed but no peanut oil present; short volume.
	<i>Windsor Locks</i>	
A.F.-900	Depot Restaurant. <i>Roberta Pure Oil</i>	Corn or soy oil artificially flavored and colored; no ingredient declaration; no name or address of packer.
A.F.-898	Italian American Club. <i>Roberta Pure Oil</i>	Corn or soy oil artificially flavored and colored; short volume; no ingredient statement; no name or address of packer.
	<i>Winsted</i>	
A.F.-968	Nero's Tavern. <i>Corn oil</i>	Contained a little cottonseed oil and artificial color.

Fruit Juices

Three samples of grape juice, two of grapefruit juice, two of lemon juice and one of imitation grape juice were examined for the Dairy and Food Commissioner. All were passed.

K.F.-939, Taft's Supreme Quality Grape Juice, made by American Grape Juice Corporation, Fredonia, N. Y., *E.S.-1219, Royal Scarlet Pure Concord Grape Juice*, distributed by R. C. Williams & Co., Inc., New York, N. Y., and *E.S.-1295, Paw Paw Grape Juice*, made by Paw Paw Grape Juice Co., Paw Paw, Mich., were analyzed as follows:

	K.F.-939	E.S.-1219	E.S.-1295
Total solids, gm./100 cc	16.57	18.27	19.01
Total sugars as invert sugar, gm./100 cc	14.37	16.01	16.59
Non-sugar solids, gm./100 cc	2.20	2.26	2.42
Ash, gm./100 cc	0.28	0.27	0.26
Total acidity as tartaric acid gm/100 cc	1.04	1.15	1.22
Tartaric acid, gm./100 cc	0.79	0.37	0.52
Phosphoric acid (P ₂ O ₅),mgm./100 cc	24.9	27.3	24.7

K.F.-801 and 802. Finest Grapefruit Juice, Sugar Added. First National Stores, Inc., Somerville, Mass. A little grapefruit pulp was found in one sample and a few particles of leaf and stem in the other.

E.C.-406 and K.C.-309. Realemon 100% Pure California Lemon Juice. Puritan Fruit Products Co., Chicago, Ill. Ash contents were 0.30 and 0.28 per cent.

Honey

One sample of honey was submitted by the Dairy and Food Commissioner and three by private individuals. The official sample E.S.-1012, Country Blossom 100% Pure Honey, made by Mutual Spice Co., Bridgeport, was passed, as were the unofficial samples.

Meat and Meat Products

Seven samples of hamburger and one each of beef, frankforts, lamb chops and pork sausage, were submitted by the Dairy and Food Commissioner. Six were adulterated or misbranded:

A.F.-961 to 964. Hamburg meat. Dominic Evangelisti, Bantam. Particles of glass were found in two of these samples and sand in all four.

K.C.-476. Hamburger. Samuel Grossman, Bridgeport. Sulphite was present.

A.F.-863. Pork Sausage Links with Natural Juices. Roberts and Oake, Inc., Chicago, Ill. The can contained eight sausages packed with much fat and some watery liquid; there were only 15 ounces of sausages in the total contents of two pounds. Sample was misbranded because it was "so filled as to be misleading".

Three unofficial samples of hamburger, two of salt pork, one of steak and one of Italian sausage were passed, although one of the hamburger samples, 5984, had a garlic odor and probably contained salami.

Milk and Milk Products

Fluid Milk and Cream

Four samples of fluid milk and one of heavy cream were examined for the Dairy and Food Commissioner. The milks, H.B.-1548 to 1551, were all from Dr. D. T. Banks of Sandy Hook; one was definitely watered and the others were substandard. The sample of cream, E.C.-485, from Beebe's Dairy, Norwichtown, consisted of a small amount of residue in the bottom of a quart bottle that had a vanilla-like odor and gave a positive test for gelatine. It was suspected that ice cream mix was substituted for cream by mistake.

Thirty samples of milk, two of sweet cream and one of light sour cream were examined for local boards of health, producers and dealers. Most of these were submitted for fat determinations only; all samples were passed.

6532. Brock-Hall Light Sour Cream. Brock-Hall Dairy Co., Hamden. Analysis was as follows: Protein, 2.49; fat, 25.69; lactose, 2.87, and ash, 0.62 per cent.

Ice Cream

Three samples of ice cream were analyzed for Hasselbach's, New Haven. The fat content ranged from 8.87 to 12.24 per cent. One sample of ice cream mix, 740, analyzed for Brock-Hall Dairy, Hamden, contained 34.56 per cent of solids.

Vitamin D Milk

Vitamin D milk is standardized to contain 400 U.S.P. units of vitamin D per quart. Since 1935 the Dairy and Food Commissioner has checked the guaranties for this product, the bioassays being made in this laboratory.

In the calendar year 1946, 150 samples were examined; this was an increase of 44 per cent over the samples handled the previous year. Results of the assays are shown in Table 5. Only six were definitely below the unitage claimed. The percentage of samples fully or substantially meeting guaranties was 96.

In the 12-year period 1935-1946 inclusive, 1,072 samples have been tested and 92 per cent have contained the unitage claimed for them or have been sufficiently close to the guaranties to be passed.

There are about 50 producers of vitamin D milk in this State at the present time.

Popcorn

Twenty-one samples of popcorn were submitted by the Dairy and Food Commissioner and one sample was received from the New Haven Health Department. Only three were found to contain mineral oil:

G.S.-482 and 483 and E.S.-1027. Tasti-Est Yet Popcorn. Spuds, Chicago, Ill. These samples declared "selected popcorn, shortening, salt added". G.S.-482 and 483 contained only 0.6 per cent of mineral oil, while E.S.-1027 contained 8.6 per cent. Fifteen samples of this brand analyzed in 1945¹ contained an average of 16.9 per cent of mineral oil.

¹ Conn. Agr. Expt. Sta. Bul. 499, 17 (1946).

TABLE 5. SUMMARY OF ASSAYS OF VITAMIN D MILK

City or Town	Dairy	No. of samples tested	Satisfac-tory	Passed	Below unitage claimed
Avon	Woodford Farm	2	2	.....	.....
Berlin	Johnson's Dairy	1	1	.....	.....
Bloomfield	Chris. Neilsen & Sons	2	2	.....	.....
Bridgeport	Beechmont Dairy	3	2	1	.....
	Borden's	1	1	.....	.....
	Dewhurst Dairy	4	2	.....	2
	Marsh Dairy	4	3	1	.....
	Mitchell Dairy	3	3	.....	.....
	Round Hill Dairy	3	3	.....	.....
Bristol	E. H. Elton	3	3	.....	.....
	Roberge Dairy	3	3	.....	.....
Clinton	Burr Dairy	3	2	1	.....
Danbury	Rider's Dairy	3	3	.....	.....
East Hartford	J. A. Bergren Dairy	3	3	.....	.....
Fairfield	Wade's Dairy	2	1	1	.....
Greenwich	Round Hill Farms	3	3	.....	.....
Hamden	Brock-Hall Dairy	2	2	.....	.....
Hartford	Bryant & Chapman Co.	4	4	.....	.....
	Cloverdale Dairy	4	3	1	.....
	Farmers' Co-Operative, Inc.	4	1	3	.....
	Highland Dairy Co.	3	3	.....	.....
	H. P. Hood & Sons	3	3	.....	.....
	Lincoln Dairy	3	3	.....	.....
	R. G. Miller & Son	1	1	.....	.....
	Ferndale Dairy	2	2	.....	.....
	Tollgate Farm	3	3	.....	.....
Manchester	Dart's Dairy	2	2	.....	.....
	West Side Dairy	3	2	1	.....
Meriden	Lawrence Bros.	2	2	.....	.....
Milford	Cold Spring Farm	2	2	.....	.....
New Britain	Bayer Dairy	4	3	.....	1
	Glendale Creamery, Inc.	1	1	.....	.....
	Heslin Dairy	3	3	.....	.....
New Canaan	Miller Farm Dairy	2	1	1	.....
New Haven	General Ice Cream Corp.	2	2	.....	.....
	H. P. Hood & Sons	3	3	.....	.....
New Haven Dairy	1	1	.....	.....
Newington	Eckerts Dairy	1	1	.....	.....
	Spring Brook Farm	2	2	.....	.....
New London	Radway's Dairy	3	3	.....	.....
North Haven	Knudsen Bros.	4	2	2	.....
Norwalk	Horrick's Dairy	3	3	.....	.....
	Strawberry Hill Dairy	4	2	2	.....
Oakville	Sanford's Overlook Farms, Inc.	4	4	.....	.....
Putnam	Deary Bros.	1	1	.....	.....
Springdale	Maplehurst Dairy	3	1	.....	2
Stratford	Deering Dairy	4	2	1	1
Thompsonville	Skipton's Dairy	3	2	1	.....
Torrington	Torrington Creamery	3	3	.....	.....
Waterbury	Brookside Dairies, Inc.	4	3	1	.....
	R. F. Worden and Sons	4	4	.....	.....
Webster, Mass.	Deary Bros.	1	1	.....	.....
West Hartford	A. C. Petersen	3	3	.....	.....
West Haven	Clark Dairy	2	2	.....	.....
Westport	Ferris Dairy	3	3	.....	.....
Willimantic	Butler Dairy	1	1	.....	.....
Totals		150	127	17	6

Five others were adulterated or misbranded:

K.F.-990. Manley's Jumbo Popcorn. Manley, Inc., Kansas City, Mo. This sample contained salt and 20.46 per cent of oil; no mineral oil was present, but the sample was misbranded because the ingredients were not declared.

K.N.-1019 and E.S.-1448. Sunny's Caramel Buttered Popcorn. Declared ingredients were "A blend of corn syrup, butter, salt, molasses, baking soda, vegetable oil and maple flavor". Only one sample was analyzed; it contained 1.94 per cent of fat but not over 0.19 per cent of butter fat. No popcorn can properly be labelled "buttered" when any other fat than straight butter is used to coat it. These samples were also misbranded because their labels did not bear the manufacturer's name.

E.S.-1449. Sunny's Buttered Seasoned Popcorn. Declared ingredients were "Popcorn, hardened vegetable oil, salt, butter, certified color added". Total fat content was 28.12 per cent, but not over 10.3 per cent of butter fat was present. The same remarks apply to this product as to the "Caramel Buttered Popcorn".

7205. Saratoga French Fried Popcorn. Saratoga Pop Corn Co., Beverly, Mass. This sample was rancid.

Twelve other samples were passed.

Preservatives and "Sugar Extenders"

One preservative, K.F.-952, Effecto, was submitted by the Dairy and Food Commissioner, not in the original container. It contained 10.87 per cent of monochloroacetic acid. Monochloroacetic acid is a poisonous substance whose use in foods as a preservative is not permitted in any concentration.

Seven so-called "sugar extenders" were examined. These preparations are sold to carbonated beverage bottlers with claims that if they are added to their syrups less sugar need be used. So far as they do produce increased sweetness, this effect is due to their converting cane sugar to the sweeter invert sugar. Cane sugar can be "inverted" by either acids or the enzyme invertase; some of these preparations contain hydrochloric or other acids and some contain invertase.

A.F.-799 and K.F.-976, New Improved Ingredient X-120. General Laboratories, Inc., St. Louis, Mo. This preparation contained invertase and glycerine as claimed.

E.S.-1123 and J.W.-687. Plymouth Stretcher. Plymouth Extract Co., New York, N. Y. Declared ingredients were "phosphoric and other edible acids, sodium sulfate and other natural salts, glycerine, propylene glycol and water". One of these samples contained sodium sulphate and chloride and probably glycerine or propylene glycol or both but no phosphoric or other acid; the other (which was diluted when received) probably originally contained about 0.6 per cent of phosphoric acid.

K.N.-906. Sugar Extender No. 23. James Robbins, Cleveland, O. Estimated composition was: Citric and tartaric acids, 44.32; sodium citrate, 4.87; invert sugar, 0.36, and hydrochloric acid, 3.31 per cent.

K.F.-979. Sweetenz. Plymouth Extract Co., New York, N. Y. Declared ingredients were "phosphoric and other edible acids, sodium sulfate and other natural salts, glycerine, propylene glycol and water". Chloride, sulphate, phosphate and propylene glycol were present; glycerine was not identified. On the basis of a partial analysis the sample contained 10.23 per cent of sodium chloride, 1.57 per cent of phosphoric acid and about 46 per cent of other non-volatile material, including propylene glycol.

K.F.-917. Uniformer. Manufacturer unknown. This was a 3.09 per cent solution of hydrochloric acid.

Preserves

Eight samples of jelly, jam, marmalade and other preserves were submitted by the Dairy and Food Commissioner. Three were tested only for saccharin and artificial color and were passed. Two made claims that they were "home made"; they were passed for lack of inspectional evidence that they were not actually made in a home.

E.S.-1048. Crystal Pure Plum Jam. Baumer Food Products Co., New Orleans, La. Analysis was as follows: Total solids, 67.48; ash, 0.35; sucrose, 11.73; invert sugar, 50.22; potash (K₂O), 0.13, and phosphoric acid (P₂O₅), 0.024 per cent. Federal standards¹ require that jams contain not less than 45 pounds of fruit to each 55 pounds of sugar. From our potash figure we would estimate that this sample contained only 40 pounds of fruit to 55 pounds of sugar, but the sample was passed.

Two samples were adulterated or misbranded:

K.F.-710. Acme Brand Pure Raspberry Preserves. Senn Products Corporation, Brooklyn, N. Y. These preserves contained a piece of plant material identified as *Bideus vulgata*, commonly known as "beggar ticks" or "beggar lice", as well as two human hairs.

K.N.-980. Spencer Farms Pure Mint Jelly. Palmer Fruit Products Co., Long Island City, N. Y. There was no declaration of ingredients beyond "artificial color and flavor added". "Pure" mint jelly, which would mean a jelly made from mint and sugar only, is an impossibility; under the Federal regulations² this product, if it is a mint-flavored apply jelly, should be labelled "Apple jelly, mint flavoring and artificial coloring added". If it contains no fruit, it is simply "imitation jelly".

One sample of elderberry jelly was examined for a private individual for possible contamination with DDT; none was found.

Salad Dressings and Mayonnaise

Sixty-three official samples of mayonnaise, French dressing and other salad dressings and two unofficial samples of mayonnaise were examined. Thirty-four were adulterated or misbranded.

¹ S. R. A., F. D. C. 2, Sec. 29.0 (July 1944).
² S. R. A., F. D. C. 2, Sec. 29.5(a) (6) (July 1944).

Mayonnaise

There is no standard for mayonnaise under the new law, but the old advisory standard¹ required that mayonnaise contain not less than 50 per cent of edible vegetable oil. An examination of market samples of mayonnaise in 1937² showed an average oil content of 77.53 per cent. Three brands in which oil was determined in 1946 contained between 77.88 and 80.66 per cent of oil. Four others were examined only for identification of the oil; no mineral oil was found.

4638, *E.C.-392, A.F.-873 and K.F.-711, Mrs. Boardman's Vitaminise Mayonnaise.* Mrs. Boardman's Food Products, Boston, Mass. This product bore a statement that "For persons whose age is twelve or more, a serving of 1/2 ounce (1 tspn.) of this Vitamin fortified mayonnaise furnishes 10% of the minimum adult daily requirement for Vitamins A and D". The recommended daily dietary allowance for vitamin D of the National Research Council (1945 revision) is 400 international units for "children" from 1 to 20. On this basis each half ounce of "Mrs. Boardman's Vitaminise" should contain 40 U.S.P. units of vitamin D. Rat assays on two of these samples showed that one contained definitely less than this amount; the other was passed.

French Dressing

Fifteen official samples sold as "French dressing" were examined; seven were adulterated or misbranded.

There is no standard for French dressing, but all cook books and common understanding agree that the essential ingredients of French dressing are oil and vinegar or lemon juice. Preparations consisting chiefly of diluted vinegar thickened with gum with little or no oil are not French dressing nor "French style" dressing.

Five samples were examined only for identification of the oil; no mineral oil was found. Three samples in which oil was determined and substantial amounts were found were also passed:

D. C. No.	Brand	Oil per cent
K.C.-420	Colonial Kitchen	39.52
K.C.-419	Gold'N	10.41
K.F.-1132	Susan Baker	35.00

Seven samples were adulterated and misbranded because they contained little or no oil:

D. C. No.	Brand	Oil per cent
E.C.-602	Chef's French Style	0.72
K.F.-946	Chef's French Style	0.10
K.F.-1012	Chef's French Style	0.15
E.C.-615	Collins French Style	0.93
E.S.-1361	French Lady	0.09
K.F.-1096	Virginia Dare	1.39
A.F.-960	Virginia Dare	1.76

Other Salad Dressings

Thirty-nine other salad dressings were submitted by the Dairy and Food

¹ Rules and Regulations Relating to the Food and Drug Law of Connecticut, Revision of July 1, 1937, p. 101.
² Conn. Agr. Expt. Sta. Bul. 415, 692-693 (1938).

Commissioner. Eight were examined only to identify the oil; no mineral oil was found. Ten were submitted on complaints that they were decomposed; two were passed; seven samples of Old Dutch Salad Dressing, manufactured by Old Dutch Mustard Co., Brooklyn, N. Y., and one sample of Field's Best Salad Dressing, packed by H. M. Field, Inc., Brooklyn, N. Y., were found to be decomposed. Three samples examined chiefly because of labelling claims were passed. Eighteen others were adulterated or misbranded:

K.F.-818 and 819. Hollywood Slimmaise. Jay Food Products Co., Boston, Mass. This preparation declared "high grade mineral oil, U.S.P." and was labelled as a special food for low calorie diets. Previous to 1946 these samples would have been passed, but the sale of any food containing mineral oil is no longer allowed under any form of labelling.

Gold Crest Melomaise. Spare-Way Food Products, Brooklyn, N. Y. Seven samples.

Salanaise. Ivanhoe Foods, Inc., Auburn, N. Y. Three samples.

Salad dressings with coined names ending in "-aise" prominently displayed on the labels have been mistaken by purchasers for mayonnaise and are therefore considered to be misbranded because their labels are misleading.

K.N.-927 and J.W.-749. Chef's Special Salad Dressing. Industrial Development Co., East Haven, Conn. Declared ingredients were "Edible vegetable oils, distilled vinegar, corn syrup, starch, salt, flavors, certified color, and water added". Analysis indicated 51 per cent vinegar, 44 per cent added water and 1.32 to 1.61 per cent of oil, the balance being starch, flavors, etc.

This preparation was definitely misbranded because edible oil was listed as the major ingredient, but even aside from this point the product known as "salad dressing" has always contained a substantial amount of oil. A market survey in 1937 of salad dressings not sold as mayonnaise¹ showed that they contained from 16.61 to 49.32 per cent of oil, averaging 35.42 per cent.

K.C.-415. Hamilton's Tangy Salad Dressing. Hon-E Products Co., Cambridge, Mass. Total fat content was only 2.87 per cent.

K.N.-1021, G.S.-591 and E.S.-1354. Ruth Lovell's Old Fashioned Salad Dressing. American National Corporation, Randolph, Mass. The list of ingredients and the name and address of the manufacturer were almost undecipherable.

Sauerkraut

Fifteen official samples of sauerkraut and pickled cabbage and one unofficial sample were examined.

There was a discussion of the composition of sauerkraut in the 1945 Report.² Vinegar is not a normal constituent of sauerkraut, but its use as a preservative was permitted during the war if it was declared because sauerkraut was not allowed to be packed in tin cans and sterilized, but had to be sold in glass. The statement of the U.S. Food and Drug Administration permitting the use of vinegar (T.C.-405) added, however, that "It is, of course, understood that the kraut is a fully fermented product, containing after re-packing at least 1% of lactic acid, derived from such fermentation".

¹ Conn. Agr. Expt. Sta. Bul. 415, 693-694 (1938).
² Conn. Agr. Expt. Sta. Bul. 499, 27-28 (1946).

TABLE 6. ANALYSES OF SAUERKRAUT

D. C. No.	Manufacturer and Brand	Total acidity as lactic acid per cent	Volatile acidity as acetic acid per cent	Non-volatile acidity as lactic acid per cent	Ratio of volatile to total acidity	Salt per cent	Sugars as invert sugar per cent	Remarks
K.C.-310	Blue Ribbon Foods, Newark, N. J. <i>Chef's Best Sweet Sour Red Kraut</i>	.....	.....	.....	.....	.....	.....	Pickled red cabbage; pass. Examined only for drained solids;
K.N.-782	Champion-Goldsmith Dist. Co., Chicago, Ill. <i>The Original Harvest Brand</i>	.....	.....	.....	.....	.....	.....	.....
E.S.-1115	Mrs. Warner's Preserving Co., Elizabeth, N. J. <i>Mother May's Pickled Cabbage</i>	1.33	0.66	0.34	1.94	3.58	0.03	Deficient in drained solids.
E.S.-1132	Mrs. Warner's Preserving Co., Elizabeth, N. J. <i>Mother May's Pickled Cabbage</i>	1.27	0.55	0.45	1.22	2.48	0.02	Deficient in drained solids.
G.S.-494	Mrs. Warner's Preserving Co., Elizabeth, N. J. <i>Mother May's Pickled Cabbage</i>	1.33	0.62	0.39	1.59	3.59	0.02	Deficient in drained solids. Vinegar declared; deficient in lactic acid and drained solids.
E.S.-974	Mrs. Warner's Preserving Co., Elizabeth, N. J. <i>Mother May's Pickled Cabbage</i>	1.46	0.71	0.40	1.78	3.69	0.00	Vinegar declared; deficient in lactic acid and drained solids.
E.S.-1114	Mrs. Warner's Preserving Co., Elizabeth, N. J. <i>Mother May's Sauerkraut</i>	1.33	0.60	0.44	1.36	3.10	0.24	Vinegar declared; deficient in lactic acid and drained solids.
E.S.-1116	Mrs. Warner's Preserving Co., Elizabeth, N. J. <i>Mother May's Sauerkraut</i>	1.25	0.45	0.58	0.77	2.69	0.06	Deficient in drained solids.
E.S.-1205	Mrs. Warner's Preserving Co., Elizabeth, N. J. <i>Mother May's Sauerkraut</i>	.....	.....	.....	.....	.....	.....	.....
G.S.-491	Mrs. Warner's Preserving Co., Elizabeth, N. J. <i>Mother May's Sauerkraut</i>	1.22	0.48	0.50	0.96	2.98	0.01	Vinegar declared; deficient in lactic acid and drained solids.
G.S.-492	Mrs. Warner's Preserving Co., Elizabeth, N. J. <i>Mother May's Sauerkraut</i>	1.36	0.58	0.49	1.18	3.72	0.00	Vinegar declared; deficient in lactic acid and drained solids.
G.S.-493	Mrs. Warner's Preserving Co., Elizabeth, N. J. <i>Mother May's Sauerkraut</i>	1.29	0.60	0.38	1.58	3.21	0.03	Vinegar declared; deficient in lactic acid and drained solids.
J.W.-686	Mrs. Warner's Preserving Co., Elizabeth, N. J. <i>Mother May's Sauerkraut</i>	1.29	0.63	0.35	1.80	3.42	0.18	Vinegar declared; deficient in lactic acid and drained solids.
K.F.-798	Mrs. Warner's Preserving Co., Elizabeth, N. J. <i>Mother May's Sauerkraut</i>	1.36	0.70	0.30	2.33	4.53	0.50	Incompletely fermented cabbage; deficient in lactic acid and drained solids.
K.F.-841	Mrs. Warner's Preserving Co., Elizabeth, N. J. <i>Mother May's Sauerkraut</i>	.....	.....	.....	.....	.....	.....	.....
5205	Union County Pickle Co., Inc., Elizabethton, N. J. <i>Livingson</i>	1.30	0.67	0.29	2.31	4.21	0.03	Deficient in drained solids. Deficient in lactic acid and drained solids.

Analyses are listed in Table 6. Fourteen samples were adulterated or misbranded.

Spaghetti, Ravioli, etc., and Spaghetti Sauce

Ten samples of canned spaghetti, 15 of spaghetti sauce, two of canned ravioli, two of egg noodles and one of macaroni were examined for the Dairy and Food Commissioner. Eleven were passed.

All 10 samples of canned spaghetti were adulterated, mostly because of false or misleading claims for the presence of olive oil:

E.S.-1028 and 1050. Chef Marino's Home Style Ready to Serve Spaghetti. M. Marino's Packing Co., Inc., Brooklyn, N. Y. This preparation was labelled to contain "olive oil, salt, pepper, tomatoes, tomato paste, onions, carrots and condiments". Actually E.S.-1028 contained more water than anything else and neither sample contained any olive oil.

A.F.-814, K.N.-968 and 1012 and E.S.-1120. Gateway Club Cooked Spaghetti. Gateway Packing Co., Malden, Mass. Vegetable and olive oils were declared but the total oil content did not exceed 0.007 per cent in any sample.

A.F.-767 and K.N.-790. Maples Brand Spaghetti and Tomato Sauce. G. Capaldi & Sons, Inc., Watertown, Mass. Olive oil was declared; total oil content was 0.14 per cent, probably corn or soy oil.

K.N.-886. Royal Dutch Spaghetti with Mushroom Sauce. Royal Dutch Products Co., New York, N. Y. Olive oil was declared; total oil content was only 0.006 per cent.

K.N.-755. Zucca Egg Spaghetti, Acierno Bros., Inc., Brooklyn, N. Y. This preparation was declared to be made with egg yolks, but the lipoid P_2O_5 in the spaghetti (0.05 per cent) indicated that no egg was present.

Seven of the spaghetti sauces were adulterated:

E.S.-1049. Chef Marino Home Style Meat Sauce. M. Marino's Packing Co., Inc., Brooklyn, N. Y. Olive oil was declared but none was found.

A.F.-766. Kurtz Mushroom Spaghetti Sauce. Kurtz Bros., Bridgeport, Pa. Olive oil was declared; total oil content was 0.016 per cent.

K.N.-962 and E.S.-1044. Progresso Brand Prepared Spaghetti Sauce. Uddo & Taormina Co., Vineland, N. J. K.N.-962 declared "vegetable and olive oil"; peanut oil and not more than 0.06 per cent of olive oil was present. E.S.-1044 declared "pure virgin olive oil"; the oil contained peanut oil.

E.S.-1014 and 1042. Ronzoni Spaghetti Sauce. Ronzoni Macaroni Co., Inc., Long Island City, N. Y. "Pure imported olive oil" was declared; the oil was mostly if not wholly corn or soy oil.

E.S.-1056. San Giorgio Brand Prepared Spaghetti Sauce. Keystone Macaroni Mfg. Co., Lebanon, Pa. Olive oil was declared, but the oil was corn or soy oil.

One sample of egg noodles was passed; the other, K.N.-751, Del Monico Pure Egg Noodles, manufactured by Kentucky Macaroni Company, Inc., Louisville, Ky., contained 0.12 per cent of lipoid phosphoric acid and 7.07

per cent of moisture, equivalent to 4.14 per cent of egg yolk solids on the dry basis. The old standard for egg noodles¹ required not less than 5.5 per cent of egg solids on the dry basis.

The sample of canned ravioli, E.S.-1059, Chef Marino's Ravioli, made by M. Marino Packing Co., Inc., Brooklyn, N. Y., claimed the presence of olive oil; the total oil content was only 0.007 per cent.

Two samples of "carrot gluten macaroni" were analyzed for the manufacturer.

Spices and Condiments

Twenty-three spices and other condiments, including 17 samples of black pepper, three of prepared horseradish and one of imitation horseradish, were submitted by the Dairy and Food Commissioner. Eight were adulterated or misbranded.

One sample was labelled as "imitation black pepper" and was passed.

Twelve of the others appeared to be straight pepper; four were adulterated:

D. C. No.	Brand	Remarks
K.C.-410	Unlabelled	Contained salt
K.C.-411	Unlabelled	Contained salt
K.F.-1083	Emsco	Salt (22 per cent) plus cottonseed hulls and a very small amount of pepper
G.S.-617	Unger	Large amount of cottonseed hulls

Two samples of horseradish were found not to be adulterated with turpentine; another, *E.S.-1419, Sun-Spot Creamed Style Horseradish*, made by Sun-Ra Products Co., St. Joseph, Mo., contained cereal starches, oil, eggs and sugar. Prepared horseradish should contain only horseradish and vinegar. The imitation horseradish, K.C.-340, bore no packer's name and address.

Two miscellaneous samples were misbranded:

A.F.-802. Bell's Seasoning, Wm. G. Bell Co., Boston, Mass. The ingredient declaration stated only "A blend of ground sage, marjoram and spices". The law permits the declaration of spices simply as "spices" without naming the individual ingredients except when the spices are "sold as such"; in our interpretation "Bell's Seasoning" is "spices sold as such", and all the ingredients must be named.

A.F.-800. Herb Flavored Prepared Mustard Sauce. House of Herbs, Inc., Canaan, Conn. One of the ingredients was declared only as "broth", which is not a specific name.

Spray Residues

Since 1931 apples grown in the orchards of this State have been sampled by agents of the Dairy and Food Commission and tested in this laboratory for spray residue. During the season of 1946, 136 samples were examined. Twenty of these were found to exceed the present tolerances of 0.025 grain of arsenic trioxide (As_2O_3) and 0.050 grain of lead per pound of fruit. Four samples were analyzed only for DDT; the amounts found varied between 3.3 and 5.2 parts per million, all less than the tolerance of 7 parts per million.

¹ Rules and Regulations Relating to the Food and Drug Law of Connecticut, Revision of July 1, 1937, p. 79.

This year the procedure followed in testing for lead and arsenic was to wash all samples with a nitric acid-ammonium nitrate solution and determine lead spectrographically in the washings. For those samples showing excessive lead spectrographically the amount of lead was checked by the dithizone method and arsenic was determined by the Gutzeit method.

Samples showing excessive spray residue are listed in Table 7.

Sweet Potatoes

Three samples of canned sweet potatoes labelled as being packed in syrup were submitted by the Dairy and Food Commissioner. To justify a claim for syrup packing the liquid portion should contain not less than 14 per cent of sugar. Analyses were as follows:

D. C. No.	Manufacturer and Brand	Sugar, per cent
K.C.-326	Skomette Sea Food Co., New Orleans, La. <i>Our Best</i>	8.79
K.N.-789	Ozark Packing Co., Ozark, Ark. <i>Pride of Ozark</i>	8.80
K.F.-714	Princeville Canning Co., Princeville, Ill. <i>Royal Prince</i>	10.43

Syrups

Sixty samples of syrups were submitted by the Dairy and Food Commissioner and three were examined for private individuals. Eight were sold as pure maple syrup, 10 were chocolate flavored syrups, 11 were fountain syrups or fruit flavored syrups for preparing beverages in the home, and 34 were pancake syrups not sold as maple syrup.

Maple Syrup

Three of the official samples were passed; the other three official samples and two samples submitted by Yale University were adulterated:

No.	Manufacturer	Remarks
E.C.-484	J. R. Betit & Sons, Whitingham, Vt.	Moldy
J.W.-745	Hill Farm—Harlie C. Tobin, Cambridge, Vt.	Contaminated; objectionable odor
K.F.-873	Unknown—bulk sample	Moldy
6382	Unknown	Not pure maple syrup
6383	Unknown	Not pure maple syrup

Chocolate Syrup

The 10 chocolate flavored syrups were examined chiefly because of claims that they did not contain enough chocolate or cocoa to give a chocolate flavor. Seven were passed; two, E.C.-404 and 405, Mary Lou Chocolate Flavored Syrup, made by J. & R. Syrup Co., New York, N. Y., had practically no chocolate flavor; and one, Bopp's Chocolate Flavored Syrup, made by William J. Bopp & Son, Springfield, Mass., was misbranded because the "Chocolate" was in much more prominent type than the "Flavored".

Fountain Syrups

Four of these were tested only for saccharin; none was found. The other official samples were adulterated or misbranded:

E.C.-586. *Blackman's Vanilla Flavored Syrup*. M. R. Blackman & Co., Philadelphia, Pa. Declared ingredients were "Sugar syrup, pure vanilla fla-

TABLE 7. APPLES CONTAINING EXCESSIVE SPRAY RESIDUE

D. C. No.	Orchard	Lead, grains/lb.	Arsenic trioxide grains/lb.
K.F.-1035	<i>Bethlehem</i>		
	Walter Bloss	0.067	0.026
	<i>Danbury</i>		
K.F.-1043	H. A. Brundage	0.068	0.039
K.F.-1045	A. H. Waterbury	0.043	0.034
K.F.-1046	A. H. Waterbury	0.086	0.033
K.F.-1048	A. H. Waterbury	0.071	0.016
K.F.-1049	A. H. Waterbury	0.096	0.037
K.F.-1050	A. H. Waterbury	0.083	0.048
K.F.-1051	William Waterbury	0.133	0.041
	<i>East Hampton</i>		
K.N.-953	Gardners Nurseries	0.063	0.044
	<i>Glastonbury</i>		
K.N.-935	G. Palaieri	0.060	0.064
K.N.-941	Louis Varni	0.059	0.034
K.N.-942	Louis Varni	0.107	0.068
K.N.-943	Louis Varni	0.044	0.068
K.N.-944	F. Zeppa	0.102	0.034
	<i>Haddam</i>		
K.N.-957	Hazenhurst Farm	0.065	0.035
	<i>New Canaan</i>		
K.C.-396	Fairty's Orchard	0.057	0.021
	<i>Wallingford</i>		
G.S.-586	R. W. Young & Son	0.081	0.012
	<i>Washington Depot</i>		
K.F.-1029	N. Hallock	0.060	0.035
	<i>Woodbridge</i>		
E.S.-1329	Woodbury Orchards	0.069	0.048
E.S.-1331	Woodbury Orchards	0.011	0.038

vor, caramel color, preserved with less than 1/10 of 1% benzoate of soda". The sample had a strong molasses-like flavor; it contained either cane syrup or refiners' syrup instead of cane sugar syrup as declared.

E.S.-1106 and K.N.-783. Imitation Cherry Frute-Ade; E.S.-1127 Imitation Raspberry Frute-Ade. Atlantic Food Packing Co., Trenton, N. J. These three samples were fermented.

K.C.-356. Imitation Vanilla Flavored Syrup. This sample contained dirt and its label bore no packer's name.

K.N.-883. Reco Imitation Orange Syrup. Reco Sales Co., New York, N. Y. Net weight declaration was illegible.

One sample of syrup, 7759, was examined for a bottler to see if corn syrup was present; it contained only sucrose (26.82 per cent) and invert sugar (46.24 per cent).

Pancake Syrups

Most of these syrups were examined either for excessive water or because of claims that they contained maple syrup. There is no standard for the water content of pancake syrups as such, but since they are intended to be used in the same manner as maple syrup, and are in fact maple syrup substitutes, their water content should not exceed the limit allowed for maple syrup, namely, 35 per cent.

Twenty-three samples were passed; eleven were adulterated or misbranded:

K.C.-459. Big Maple Brand Pure Maple Pancake Syrup. Big Maple Products, New York, N. Y. The declared ingredients were "pure cane sugar syrup, pure maple syrup", but the main title was "Pure Maple Pancake Syrup", which means the same as "pure maple syrup". Labelling was grossly misleading.

E.S.-1367 and 1370. Carole Brand Pancake Syrup. Gladdy Sales Co., New York, N. Y. Water contents were 56.16 and 60.17 per cent respectively.

K.F.-800, E.S.-1053 and E.S.-1103. Maplewood Pancake Syrup. Chain Store Syrup Co., Inc., New York, N. Y. Water contents varied between 51.79 and 53.69 per cent. Two of these samples claimed "pure maple extract" as an ingredient, although the lead numbers (0.00 and 0.07) showed that no maple was present; one was labelled "imitation maple extract".

E.S.-1058. New England Brand Syrup. Fred Fear & Co., Brooklyn, N. Y. This syrup was labelled as containing 15 per cent of "pure maple sugar syrup". The lead number of zero showed that no maple syrup was present.

E.S.-1052. Polar Bear Pan-Cake Syrup. Highland Importing Co., Boston, Mass. Declared ingredients were "wheat sugar syrup, cane sugar, water, concentrated maple flavor". We understand that during the war a certain amount of wheat starch was hydrolyzed to glucose syrup in the same manner that corn starch is treated with acid to form the so-called "corn syrup". No doubt this was what was meant by the name "wheat sugar syrup", but such a product is not wheat sugar syrup but glucose. The sample contained 13.4 per cent of glucose; water content was 39.16 per cent.

E.S.-1029. Reco Imitation Maple Flavored Pancake Syrup. Reco Sales Co., New York, N. Y. Water content was 47.09 per cent.

K.F.-874. Uncle Johns's Cane and Maple Sugar Syrup. New England Maple Syrup Co., Boston, Mass. No maple sugar was present (lead number was only 0.08).

K.C.-427. Van De Wart Pancake Syrup. Mark Van De Wart Co., Inc., Newark, N. Y. Sample was fermenting.

Vinegar

All true vinegar is made by causing some alcoholic liquid to undergo acetic fermentation so that the alcohol is converted to acetic acid. The product made by merely diluting acetic acid with water is not vinegar. The original vinegar was made by allowing wine to sour; the French words "vin aigre" mean "sour wine". In each country vinegar has been made chiefly from the alcoholic liquid most readily available; thus vinegar is most commonly made from cider in this country, malt vinegar made from beer is the usual vinegar in Great Britain, and wine vinegar is the common variety in continental Europe. At present probably only four varieties of vinegar exist on the market—cider, wine, malt and distilled vinegars. The last is made by the fermentation of alcohol.

Laws regulating the sale of vinegar and defining impure vinegar were passed in this State years before the adoption of a general pure food law, and are still in force (G.S.2456 and 2457). Under these statutes vinegar must have an acetic acid strength of at least four per cent and may not contain "any drug, or any hurtful or foreign substance, or any coloring matter, or any (added) acid". These provisions are more restrictive than is the general Food, Drug and Cosmetic Act, since they prohibit the sale of vinegar containing any added coloring matter regardless of whether the color is or is not declared on the label. Because there is a legitimate demand for distilled vinegar colored with caramel for use in pickling, and because the law does not permit such a product to be called "vinegar", the term "red pickling compound" has been recognized. One sample submitted by the Dairy and Food Commission, K.N.-971, Cosmo's Pickling Compound for Pickling, packed by Cosmo's Food Products of New Haven, was of this sort.

Wine Vinegar

In past years inspectional attention has been directed mostly to the examination of cider vinegar, because the great bulk of vinegar sold in this State is of that variety. There is considerable commerce, however, in wine vinegar, since this variety is largely used by persons of Italian descent. Investigation of the quality of wine vinegars on the market therefore seemed warranted, and in 1946 the Dairy and Food Commissioner procured 78 samples and submitted them to this Station for examination. Four other samples were obtained from other sources.

There are not many detailed analyses of wine vinegar in the literature. The most complete ones we found were in an old confidential communication of the Bureau of Chemistry of the U.S. Department of Agriculture. Because grapes contain tartaric acid while apples and, of course, distilled vinegar and acetic acid, do not, a low value for tartaric acid or its complete ab-

sence from a product sold as wine vinegar should indicate adulteration. However, because some of the samples we examined, although they contained little or no tartaric acid, showed reasonably high solid and ash figures and were naturally colored, we were reluctant to condemn samples on the basis of tartaric acid determinations alone. Only in those cases in which solids, ash and tartaric acid were all low were samples definitely classed as adulterated. Since undiluted vinegars produced by the complete acetic fermentation of wine probably rarely contain less than 6 per cent of acetic acid and usually contain eight, and since none of the samples we examined possessed an acidity much exceeding 5 per cent, it was obvious that all the market wine vinegars were diluted with water. Under the law they should all have borne label statements that they were "reduced with water to legal strength", but few of them did. In order not to remove almost the total wine vinegar supply from the market, it seemed wisest to pass for the time being those vinegars that were diluted to 5 per cent acidity but were not otherwise adulterated, and to condemn only those samples that were adulterated with distilled vinegar or acetic acid or were artificially colored. Even on this basis 55 samples were adulterated and only 23 were passed.

At the start of the investigation we had no authentic samples of undiluted wine vinegar. Later two samples of sour wine, E.S.-1211 and Station No. 5970, and one of incompletely fermented wine vinegar, Station No. 5971, were procured. Analyses were as follows:

	E.S.-1211	5970	5971
Total solids, gm./100 cc	2.13	3.01	2.48
Ash	0.26	0.38	0.40
Total acidity as acetic acid	0.46	1.14	5.72
Tartaric acid	0.124	0.145	0.186

It is not possible because of lack of space to reproduce our analytical figures on all 78 official samples. The brands found to be adulterated or misbranded are listed in Table 8.

Other Vinegars

Eight official samples of cider vinegar were examined; all were passed. A sample of Crosse & Blackwell's Pure Malt Vinegar, E.S.-1164, was analyzed as follows: Total solids, 3.10; ash, 0.18; soluble ash, 0.10, and total acidity, 5.49 per cent; alkalinity of soluble ash equivalent to 5.9 cc of tenth-normal acid; total phosphoric acid (P₂O₅), 50.6; phosphoric acid in soluble ash, 13.0, and phosphoric acid in insoluble ash, 37.6 milligrams per 100 cc.

E.S.-1369. Barra's Distilled Hawaiian Pineapple Vinegar. The Barra Co., Los Angeles, Cal. This product was labelled "This special salad vinegar is made from the crushed juice of ripe Hawaiian pineapples, fermented and distilled in Hawaii and made into vinegar in California. Enriched with true fruit and artificial flavor. Water added for uniform acetic strength. Aged in wood". Analysis showed 1.84 per cent solids, 0.09 per cent ash and 4.57 per cent acidity. From the label declaration this sample obviously was not pineapple vinegar but a flavored distilled vinegar made from pineapple brandy; it was technically misbranded, and probably adulterated under the vinegar laws, but because of the very complete label statement of its composition it was passed.

Acetic acid strength was determined on one sample of distilled vinegar, 4927, for a private individual.

TABLE 8. ADULTERATED OR MISBRANDED RED WINE VINEGARS

Manufacturer and Brand	No. of samples examined	No. found adulterated	Remarks
Bellows & Co., New York, N. Y. <i>Bellows</i>	1	1	Adulterated with distilled vinegar or acetic acid and water.
Chicago Macaroni Co., Chicago, Ill. <i>Cyrilla</i>	3	3	Adulterated with distilled vinegar or acetic acid and water; some samples artificially colored.
Gragnano Company, Boston, Mass. <i>Gragnano</i>	1	1	Adulterated with distilled vinegar or acetic acid and water; artificially colored.
Grocer's Wholesale Outlet, Inc., New Haven, Conn. <i>Rose Garden</i>	1	1	Adulterated with distilled vinegar or acetic acid and water.
Grocer's Wholesale Outlet, Inc., New Haven, Conn. <i>Salvatore</i>	4	4	Adulterated with distilled vinegar or acetic acid and water.
House of Herbs, Inc., Canaan, Conn. <i>Juniper Hills Herb Salad Flavored</i>	1	1	Ingredients not declared.
Lion Brand Products Co., Boston, Mass. <i>San Martin</i>	1	1	Adulterated with distilled vinegar or acetic acid and water.
Meyer and Lange, New York, N. Y. <i>Au Gourmet</i>	1	1	Adulterated with distilled vinegar or acetic acid and water; artificially colored.
J. Ossola Co., New York, N. Y. <i>Torino</i>	1	1	Adulterated with distilled vinegar or acetic acid and water.
Paramount Vinegar Sales Co., New York, N. Y. <i>Paramount</i>	16	13	Adulterated with distilled vinegar or acetic acid and water.
Pastene & Co., Inc., New York, N. Y. <i>Pastene</i>	2	1	Adulterated with distilled vinegar or acetic acid and water.
Pepe-Maisano Co., New Haven, Conn. <i>Maisano</i>	2	2	Adulterated with distilled vinegar or acetic acid and water.
Perrilli Bros., New Haven, Conn. <i>Perrilli</i>	1	1	Adulterated with distilled vinegar or acetic acid and water.
Rosemarie Products Co., New York, N. Y. <i>Rosemarie</i>	5	2	Artificially colored.
Gus Sclafani, Stamford, Conn. <i>Lina</i>	4	4	Some artificially colored; some low in acidity.
Joseph L. Sclafani, Inc., Brooklyn, N. Y. <i>Sclafani</i>	2	2	Artificially colored.
Shepatin & Snyder, New Haven, Conn. <i>Red Star</i>	2	2	Adulterated with distilled vinegar or acetic acid and water; artificially colored.
Trieste Importing Co., New York, N. Y. <i>Triestella</i>	1	1	Adulterated with distilled vinegar or acetic acid and water.
Uddo & Taormina Co., Brooklyn, N. Y. <i>Progresso</i>	1	1	Adulterated with distilled vinegar or acetic acid and water.
Unita Packing Co., Providence, R. I. <i>Barbera</i>	11	11	Adulterated with distilled vinegar or acetic acid and water; artificially colored.
R. C. Williams & Co., Inc., New York, N. Y. <i>Royal Scarlet</i>	1	1	Five per cent acidity declared; 4.83 per cent found.

Water

Twenty samples of water were examined for private individuals, chiefly for hardness and acidity.

Miscellaneous

Thirty-four miscellaneous food samples were submitted by the Dairy and Food Commissioner; 14 were adulterated or misbranded. Nine samples were misbranded only because of labelling deficiencies; the other five were the following:

E.C.-608. Butterich Cream Chocolate Flavor Fudge Pudding. Butterich Cream Products Corp., Boston, Mass. This preparation was not a pudding but a pudding mix. Besides the "Butterich Cream" in the main title, the label emphasized the "liberal butterfat content". Actually the sample did not contain more than 1.44 per cent of butter fat. The package was only three-fifths full; inside, buried in the mix, was a slip saying "Notice—Due to paper shortage we are using this oversized container until our regular size is available", but this of course could not be read without opening the carton.

A.F.-1012. Butterich Cream Saladaid. Butterich Cream Products Corp., Boston, Mass. The label emphasized "butter" and "cream" in a manner unjustified for a product containing only 5.20 per cent of butter fat.

J.W.-811. McGrath's Champion Brand Mixed Vegetables. H. J. McGrath Co., Baltimore, Md. Declared ingredients were "carrots, green beans, potatoes, dried lima beans, dried peas, red beans, cabbage, celery, onions". Actually the contents were almost wholly chopped carrots; there were a little potato, two pieces of green beans, a little onion and cabbage and a trace of celery. No dried lima beans, dried peas or kidney beans were present.

K.F.-989. Pomodoro Al Naturale Typo Italiano. A. Sorrentino, New York, N. Y. In English this sample was labelled to contain "plum tomatoes, large tomatoes, salt added"; the contents were mostly large tomatoes. Because the main label in Italian called for Italian type tomatoes only, sample was misbranded.

E.S.-1054. Progresso Egg Plant Appetizer. Uddo & Taormina Co., Brooklyn, N. Y. Olive oil was declared; the oil was largely peanut oil.

Sixty-six miscellaneous samples were examined for State police, city boards of health and private individuals. Samples of interest were the following:

5852. Cotton seed flour. Analysis was as follows: Water, 6.71; ash, 6.46; protein, 53.69; fiber, 2.18; carbohydrates, 21.92, and fat, 9.04 per cent.

6764 and 6901. Security Compound. Hudson Chemical Co., Sheridan, Mich. This preparation was being sold with claims that if it were mixed with hay it would prevent heating or molding even though the hay was not dry when placed in the barn. Average analysis was as follows: Sodium bicarbonate, 79.73; sodium carbonate, 5.05; calcium carbonate, 11.92; magnesium carbonate, 0.36; sand, 0.17, and moisture, 2.77 per cent.

4692. Unknown material. This material was sent for identification by Connecticut Dried Grains of Colchester. It looked like black hair, but was

identified by Mr. Stoddard of our Botany Department as a mold of the genus *Phycomyces*.

5590. Marca Petri California Mellow Red Table Wine (Vino Rosso Pastoso). Petri Wine Company, Escalon, Cal. Analysis was as follows: Alcohol, 12.47; extract, 2.82; reducing sugars, 0.74; non-sugar solids, 2.08, and acidity (as tartaric acid), 0.64 per cent. According to Ash¹ red wines containing less than 16 per cent of alcohol and less than 2.3 per cent of non-sugar solids may be suspected of being watered.

7081. Diamond Soap Powder. Ronarle, Inc., New Haven, Conn.

8037. Quick Soap Suds. Package Associates, New York, N. Y.

7204. Spic and Span. Procter & Gamble.

5869. Washing Powder.

These four washing powders were analyzed with the following results:

	7081 per cent	8037 per cent	7204 per cent	5869 per cent
Soap	9.10	15.84	0.00	0.00
Sodium carbonate monohydrate	34.10	18.06	39.50	29.39
Sodium bicarbonate	42.72	35.66	0.00	0.00
Trisodium phosphate	0.00	12.46	26.77	65.20
Casein	0.00	0.00	22.97	0.00
Excess water and undetermined	14.17	17.98	10.76	5.41

¹ *8th Int. Cong. App. Chem.*, 18, 1912, p. 17.

DRUGS

Atabrine Tablets

These tablets are officially known as quinacrine hydrochloride tablets. The U.S.P. requires that they contain not less than 95 nor more than 110 per cent of the labelled amount of quinacrine hydrochloride. Two official samples, both manufactured by the Winthrop Chemical Co., Inc., New York, N. Y., were examined. One was labelled to contain 1.50 and the other 0.75 grains of quinacrine hydrochloride per tablet. Our analyses showed 1.46 and 0.73 grains respectively.

Belladonna Tincture

The U.S.P. requires that tincture of belladonna contain not less than 0.027 nor more than 0.033 gram of belladonna leaf alkaloids in each 100 cc. Two official samples, both made by Eli Lilly & Co., Indianapolis, Ind., contained 0.028 and 0.031 gram per 100 cc.

Bile Extract Tablets

Extract of ox bile tablets are required to contain an amount of the extract corresponding, in their content of ox bile acids, determined as cholic acid, to not less than 40 per cent of the labelled amount of the extract, including all tolerances. Two official samples were examined as follows:

P.S.-827. Eli Lilly & Co., Indianapolis, Ind. Ox bile extract declared, 5 grains per tablet; cholic acid found, 2.55 grains per tablet or 51.0 per cent of the declared amount of extract.

R.W.-296. Burroughs Wellcome & Co., U.S.A., Inc., New York, N. Y. Ox bile extract declared, 4 grains per tablet; cholic acid found, 1.70 grains per tablet or 42.5 per cent of the declared amount of extract.

Bromide Tablets

Tablets of three bromides are official in the National Formulary VII. These tablets are supposed to contain ammonium, potassium and sodium bromides in equal amounts. The National Formulary requirements are that the total amount of bromine be between 70 and 80 per cent, and the amount of ammonium bromide between 30.8 and 35.8 per cent, of the labelled amount of total bromides. The official assay calls for determining total bromine and ammonium bromide only. We analyzed nine official samples, but determined the individual amounts of sodium, potassium and ammonium bromides by the more detailed method of assay of the Association of Official Agricultural Chemists.¹ All samples were of the declared composition so far as this was stated; two were not labelled with the amounts of bromides they contained. Six samples were manufactured by Eli Lilly & Co., Indianapolis, Ind.; five contained 2.5 grains and one 5 grains of each bromide per tablet. The other three were: 2.5 grain tablets manufactured by G. F. Harvey Co., Saratoga Springs, N. Y.; 5 grain tablets manufactured by Parke, Davis & Co., Detroit, Mich.; and 2.5 grain tablets manufactured by United Drug Co., Boston, Mass.

¹ *Official and Tentative Methods of Analysis of the Association of Official Agricultural Chemists*, 6th Ed., p. 686 (1945).

Calamine Lotion

Calamine lotion is official in the National Formulary, but no assay is provided. Wilson and Sperling¹ have recently proposed a method for assaying this preparation, and it was this method that we used in analyzing the 26 samples submitted by the Dairy and Food Commissioner. Wilson and Sperling found that calamine lotion prepared strictly according to the directions of the National Formulary contained 14.39 per cent of zinc oxide and 1.63 per cent of bentonite plus ferric oxide. A 10 per cent tolerance below and above these figures would result in passing samples containing between 13.0 and 15.8 per cent of zinc oxide; it was on this basis that we judged our samples. Straight calamine lotion does not contain any phenol; there is a phenolated calamine lotion, but this was not requested by the inspectors and should not have been supplied, as it was in two cases.

Results are given in Table 9; 19 samples were passed.

Ephedrine Sulfate Capsules

Two samples of ephedrine sulfate capsules were examined. Both were made by the American Pharmaceutical Co., Inc., New York, N. Y. One was declared to contain 0.375 grain per capsule; 0.357 grain was found. The other sample was labelled as containing 0.75 grain of ephedrine sulfate per capsule; our analysis showed 0.749 grain per capsule. Both were passed.

Ephedrine Sulfate Solution

The National Formulary requires that solution of ephedrine sulfate contain not less than 2.1 nor more than 2.4 grams of anhydrous ephedrine in each 100 cc. Two and thirty-one hundredths grams of anhydrous ephedrine is equivalent to 3 grams of ephedrine sulfate. Eighteen samples were submitted by the Dairy and Food Commissioner; in each case the inspector requested simply "solution of ephedrine sulfate". Only six of the samples were of the official strength; of the other 12, 10 were labelled as 1 per cent ephedrine sulfate solution and one each as 2 and 5 per cent ephedrine sulfate solution. Most of them were of the declared strength, but they were not the article called for.

Under the law a drug is adulterated if it is sold under a name "recognized in an official compendium, and its strength shall differ from..... the standard set forth in such compendium", unless "its difference in strength..... shall be plainly stated on its label". A regulation requires that "A statement that a drug defined in an official compendium differs in strength, quality, or purity from the standard of strength, quality, or purity set forth for such drug in an official compendium shall show all the respects in which such a drug so differs and the extent of such difference". This requirement is not a purely technical one. The whole purpose of having official standards for drugs is to ensure that when a physician prescribes an official drug he can be certain that the drug that is dispensed is always the same and will not now be of one strength and now of another. If a patient is told to get "solution of ephedrine sulfate", which should contain 3 per cent of this compound, and he is furnished with a bottle labelled "ephedrine sulfate 1 per cent", he cannot reasonably be expected to know that what he has received is only one-third as

¹ *J. Am. Pharm. Assoc.*, 35, 174 (1946).

TABLE 9. CALAMINE LOTION

D. C. No.	Pharmacy	Manufacturer	Zinc oxide per cent	Bentonite plus ferric oxide per cent	Remarks
R.W.-303	<i>Colchester</i> Gurian's Drug Store	Walgreen Co., Chicago, Ill.	14.36	1.55	Pass.
R.W.-301			Supremacy Products, Inc., New York, N. Y.	12.97	1.17	Pass.
R.W.-288	<i>Groton</i> Bridge Plaza Drug	Royal Mfg. Co., Duquesne, Pa.	13.42	1.48	Pass.
P.S.-848	<i>Hartford</i> Capen Pharmacy	Own make	15.15	1.97	Pass.
P.S.-824			Purepac Corporation, New York, N. Y.	14.43	1.79
P.S.-801	Northwest Pharmacy	Own make	13.67	1.26	Pass.
P.S.-834	Professional Pharmacy	Schieffelin & Co., New York, N. Y.	14.27	2.23	Pass.
P.S.-820	Roma Pharmacy	Boston Drug & Chemical Co., Boston, Mass.	13.32	1.39	Phenol present; not straight calamine lotion.
P.S.-833	Soharr Pharmacy	Royal Mfg. Co., Duquesne, Pa.	13.30	1.72	Pass.
R.W.-314	<i>Jewett City</i> Trinity Drug Co.	Purepac Corporation, New York, N. Y.	14.84	1.90	Pass.
P.S.-810	<i>Manchester</i> Chas. R. Carey	De Vore Manufacturing Co., New York, N. Y.	14.26	1.71	Pass.
P.S.-818			Own make	15.93	2.04
P.S.-812	Edward J. Murphy	Own make	15.76	1.07	Pass.
R.W.-331	<i>New London</i> Cordellis Pharmacy	Ormont Drug & Chemical Co., Inc., Long Island City, N. Y.	14.40	1.52	Pass.
R.W.-330			Own make	13.88	1.48	Pass.
R.W.-325	James Drug Store	Royal Mfg. Co., Duquesne, Pa.	13.05	1.40	Pass.
R.W.-336	<i>Niantic</i> Read's Pharmacy	Royal Mfg. Co., Duquesne, Pa.	12.86	1.46	Pass.
R.W.-320	<i>Norwich</i> Central Pharmacy	Own make	20.57	2.03	Too strong.
R.W.-318	<i>Taftville</i> M. D. Ricker Pharmacy	Purepac Corporation, New York, N. Y.	14.84	1.90	Pass.
P.S.-846	<i>Waterbury</i> Benoit's Pharmacy	Retort Pharmacal Co., Long Island City, N. Y.	21.68	2.10	Too strong.
P.S.-847			Fairlawn Pharmacy	13.74	2.52
P.S.-842	Fleming's Pharmacy	Own make	15.77	1.38	Pass.
P.S.-843	Hanrahan's Pharmacy	Own make	16.97	1.70	Too strong.
P.S.-863	<i>Waterville</i> Martin's Drug Store	United Drug Co., Boston, Mass.	11.93	1.19	Too weak.
R.W.-298	<i>Westerly, R. I.</i> T. B. Carney & Co.	Own make	6.66	1.08	Too weak.
P.S.-855	<i>Wethersfield</i> Higgins Pharmacy	Own make	6.90	0.52	Too weak.
P.S.-855	<i>Wethersfield</i> Wethersfield Pharmacy	Own make			

TABLE 10. SOLUTION OF EPHEDRINE SULFATE

D. C. No.	Pharmacy	Manufacturer	Ephedrine per cent	Remarks
P.S.-647	<i>Bristol</i> Central Drug Co.	Own make	2.49	Pass.
P.S.-654		Modern Drug Store	0.84	Labelled "Sol. Ephedrine Sulfate 1%"; not article called for.
P.S.-646		Tucker's Drug Store	3.82	Labelled "5% Sol. Ephedrine Sulfate"; not article called for.
P.S.-693	<i>Danbury</i> Burns Drug Store	Own make	2.37	O.K.
P.S.-688		Culhane's Drug Store	0.74	Labelled "1% Sol. Ephedrine Sulfate"; not article called for.
P.S.-689		Pershing Pharmacy	2.53	Pass.
P.S.-641	<i>Hartford</i> Arthur Drug Store	Own make	0.85	Labelled "1% Sol. Ephedrine Sulfate"; not article called for.
P.S.-676	<i>Middletown</i> Maron's Drug Store	Own make	0.83	Labelled "1% Sol. Ephedrine Sulfate"; not article called for.
P.S.-672		Parkview Pharmacy	1.57	Labelled "2% Sol. Ephedrine Sulfate"; not article called for.
P.S.-678		Pelton's Prescription Pharmacy	1.08	Labelled "1% Sol. Ephedrine Sulfate"; not article called for. and contained more ephedrine than declared.
P.S.-669	<i>New Britain</i> Whelan Drug Store	Own make	0.83	Labelled "1% Sol. Ephedrine Sulfate"; not article called for.
P.S.-705	<i>New Britain</i> Crowell's Professional Pharmacy	Own make	2.26	O.K.
P.S.-701		Lincoln Pharmacy	1.10	Labelled "1% Ephedrine Sulphate Sol."; not article called for and contained more ephedrine than declared.
R.W.-278	<i>Norwich</i> Lee & Osgood	Eli Lilly & Co., Indianapolis, Ind.	0.81	Labelled "Solution Ephedrine Sulph. 1%"; not article called for.
R.W.-246	<i>Plainfield</i> Mercier's Pharmacy	Unknown	2.49	Pass.
P.S.-589	<i>Torrington</i> Doyle's Drug Store	Own make	0.90	Labelled "Sol. Ephedrine Sulfate (1%)"; not article called for.
P.S.-588	<i>Waterbury</i> Opperman's Drug Store	Own make	0.76	Labelled "Sol. Ephedrine Sulfate 1%"; not article called for.
P.S.-595		Samuel Siegel	2.26	O.K.

strong as the preparation his doctor expected him to use. Therefore, the regulation requires that if a drug sold under an official name is only half the usual strength it must be plainly labelled "half strength".

Samples are listed in Table 10.

Ergonovine Maleate Tablets

The U.S.P. requires that ergonovine maleate tablets contain not less than 90 nor more than 110 per cent of the labelled amount of ergonovine maleate. Three samples were examined for the Dairy and Food Commissioner; all were manufactured by Eli Lilly & Co., Indianapolis, Ind., and were sold under the trade name of that company as "Ergotrate tablets". All were of the declared strength of 1/320 grain.

Hydriodic Acid Syrup

Syrup of hydriodic acid U.S.P. should contain between 1.3 and 1.5 grams of hydriodic acid in each 100 cc. Sixteen official samples were examined; all were passed except one, P.S.-865, obtained from Besco Drug Co., New Britain, which contained 1.90 gm./100 cc of hydriodic acid and was too strong.

Iodine, Mild Tincture

Mild tincture of iodine should contain between 1.8 and 2.2 grams of iodine, and between 2.1 and 2.6 grams of sodium iodide, in each 100 cc. There is apparently considerable confusion among pharmacists in regard to this preparation, probably due to the fact that there are several tinctures and solutions of varying strengths in iodine, some containing potassium iodide and some sodium iodide. The composition of the various official preparations is as follows:

Name	Iodine, gm./100 cc	Other component, gm./100 cc
Mild tincture of iodine U.S.P.XI	2	Sodium iodide 2.3
Mild tincture of iodine U.S.P.XII	2	Sodium iodide 2.4
Tincture of iodine U.S.P. XI and XII	7	Potassium iodide 5
Stronger tincture of iodine N.F.VII	16.5	Potassium iodide 3.5
Compound solution of iodine U.S.P.XI	5	Potassium iodide 10
Solution of iodine U.S.P.XII	2	Sodium iodide 2.4

Ten samples were examined for the Dairy and Food Commissioner; in each case "mild tincture of iodine" was called for. Only three samples were of the correct composition. Analyses are listed in Table 11.

Mercurial Ointment, Mild

Mild mercurial ointment U.S.P.XII, also known as "blue ointment", contains between 9 and 11 per cent of mercury. The strength of this preparation has been reduced; U.S.P.XI mild mercurial ointment contained 30 per cent of mercury.

Twenty-two official samples were examined, and 18 were passed. Four were not of the correct strength for U.S.P.XII mild mercurial ointment or were not the article called for:

R.W.-315. Labelled "Ammoniated Mercury Ointment 5% U.S.P." Manu-

TABLE 11. MILD TINCTURE OF IODINE

D. C. No.	Pharmacy	Manufacturer	Iodine, gm./100 cc	Sodium iodide, gm./100 cc	Remarks
P.S.-837	Hartford Capitol Pharmacy	Own make	2.21	2.13	Pass.
R.W.-293	Mystic Rexall Store	United Drug Co., Boston, Mass.	1.46	2.67	Too weak in iodine.
R.W.-321	Norwich Julius S. Cooper	Own make	2.03	2.34	O.K.
R.W.-319	W. D. Ricker Pharmacy	McKesson & Robbins, Bridgeport, Conn.	1.01	2.95	Too weak in iodine and too strong in sodium iodide.
R.W.-317	Taftville Benoit's Pharmacy	McKesson & Robbins, Bridgeport, Conn.	7.13	.....	Potassium iodide 4.96 gm./100 cc; labelled "Tincture of Iodine U.S.P."; not article called for.
R.W.-316	Taftville Pharmacy	United Drug Co., Boston, Mass.	1.44	2.81	Too weak in iodine.
P.S.-860	Waterbury Bendler's Drug Store	Saxon Laboratories, Duquesne, Pa.	1.55	3.02	Too weak in iodine and too strong in sodium iodide.
P.S.-857	Jones Drug Co.	McKesson & Robbins, Bridgeport, Conn.	0.75	3.04	Too weak in iodine and too strong in sodium iodide.
P.S.-840	Walnut Pharmacy	Penslar Co., Inc., Detroit, Mich.	1.30	3.03	Too weak in iodine and too strong in sodium iodide.
R.W.-311	Willimantic Bay State Drug	United Drug Co., Boston, Mass.	1.95	2.43	O.K.

factured by United Drug Co., Boston, Mass; purchased at Taftville Pharmacy, Taftville. Mercury 3.93 per cent; correctly labelled but not article called for.

P.W.-323. Blue Ointment U.S.P. Norwich Pharmacal Co., Norwich, N. Y., manufacturer; purchased at State Drug Store, Uncasville. Mercury 29.77 per cent; too strong.

P.S.-851. Blue Ointment U.S.P. Schieffelin & Co., New York, N. Y., manufacturer; purchased at Kenausis Drug Store, Waterbury. Mercury 29.27 per cent; labelled "Contains 30% mercury", but too strong for U.S.P.XII blue ointment.

P.S.-852. Blue Ointment U.S.P. Norwich Pharmacal Co., Norwich, N. Y., manufacturer; purchased at Kenausis Drug Store, Waterbury. Mercury 29.82 per cent; too strong.

Phosphoric Acid, Dilute

Four samples of diluted phosphoric acid were submitted by the Dairy and Food Commissioner. The U.S.P. requires that this preparation contain between 9.5 and 10.5 grams of phosphoric acid in each 100 cc. Three samples were passed; one, P.S.-798, manufactured by Merck & Co., Rahway, N. J., and purchased at the Netherlands Pharmacy, Hartford, contained 13.94 per cent of phosphoric acid and was too strong.

Potassium Arsenite Solution

Solution of potassium arsenite is more commonly known as Fowler's solution. It must contain between 0.95 and 1.05 grams of arsenic trioxide in each 100 cc. Eleven samples were submitted by the Dairy and Food Commissioner; all met the U.S.P. requirements. Arsenic trioxide content was between 0.96 and 1.03 grams per 100 cc.

Saccharin Tablets

Saccharin sodium tablets, soluble saccharin tablets, must contain between 95 and 110 per cent of the labelled amounts of soluble saccharin. Four official samples were examined; three met the U.S.P. requirements. One, P.S.-763, manufactured by Petrolina Laboratories, New York, N. Y., and purchased from Vera E. Santoro of Hartford, was labelled to contain one-half grain of soluble saccharin per tablet but actually contained 0.64 grain per tablet.

Strychnine Sulfate Tablets

The U.S.P. requires that strychnine sulfate tablets contain between 93 and 107 per cent of the labelled amounts of strychnine sulfate for tablets containing 20 milligrams or more, and between 90 and 110 per cent of the labelled amounts for smaller tablets. Ten official samples were examined and all were found to meet the U.S.P. requirements. Three were thirtieth-grain, two were fortieth-grain, three were sixtieth-grain and two were hundredth-grain tablets.

Thiamine Tablets

Thiamine hydrochloride tablets or vitamin B₁ tablets are required to contain between 95 and 120 per cent of the labelled amounts of thiamine hydro-

chloride. Eight official samples were examined; three were labelled as one milligram, two each as 3 and 3.3 milligram and one as 5 milligram tablets. All except one were passed; P.S.-805, manufactured by Park Laboratories and purchased at the Arthur Drug Store, Hartford, was labelled to contain 3.3 mgm, but actually contained 15.6 mgm. per tablet.

Vitamin D Preparations

Nine miscellaneous preparations that bore various claims of vitamin D potency were assayed by feeding to rats:

P.S.-795. Cod Liver Oil Concentrate. White Laboratories, Inc., Newark, N. J. This oil was passed on its claim of 312 units of vitamin D in two drops.

P.S.-899. Davitin Capsules. International Vitamin Division, American Home Products Corporation, New York, N. Y. Assay satisfactory for claim of 50,000 U.S.P. units of vitamin D per capsule.

P.S.-902. Drisdol. Winthrop Chemical Co., Inc., New York, N. Y. Assay substantiated the claim of 10,000 U.S.P. units of vitamin D per gram.

P.S.-796. Halibut Liver Oil with Viosterol. E. R. Squibb & Sons, New York, N. Y. Assay substantiated the claim of 10,000 units of vitamin D per gram.

P.S.-793. Navitol with Viosterol. E. R. Squibb & Sons, New York, N. Y. Assay substantiated the claim of 13,000 units of vitamin D per gram.

P.S.-794. Oleum Percomorphum. Mead Johnson & Co., Evansville, Ind. Assay substantiated the claim of 8,500 units of vitamin D per gram.

P.S.-900. Viosterol in Oil. Whelan Drug Co., Inc., New York, N. Y. Assay satisfactory for claim of 10,000 units of vitamin D per gram.

P.S.-901. Vitamin D Capsules. Abbott Laboratories, North Chicago, Ill. Assay satisfactory for claim of 50,000 units of vitamin D per capsule.

P.S.-866. Watkins Vitamins A-B-D-G. The J. R. Watkins Co., Winona, Minn. Each of these tablets was declared to contain 200 U.S.P. units of vitamin D. Three rat assays showed that the tablets did not possess the potency claimed.

Miscellaneous Drugs

Twenty-six miscellaneous drugs were submitted by the Dairy and Food Commissioner and eight were examined for health departments, drug manufacturers, etc. Analyses of eight of these may be of interest:

P.S.-876. Alcohol Extract Sumac. This preparation was stated to be a whiskey extract of red sumac berries. It was a red liquid with an odor of rye whiskey. Analysis showed total solids 2.22 and ash 0.18 gm. per 100 cc; the alcohol content was 41.25 per cent by volume.

7017. Aromatic Spirits of Ammonia U.S.P. Johnson & Johnson, New Brunswick, N. J. This sample was in glass ampoules containing 2.5 cc. The U.S.P. requires that aromatic spirits of ammonia contain 1.7-2.1 grams of total ammonia and 3.5-4.5 grams of ammonium carbonate in each 100 cc.

Analysis showed 1.53 gm./100 cc of ammonia and 4.42 gm./100 cc of ammonium carbonate.

P.S.-832. Ascorbic Acid Tablets. Trinity Drug Co., Hartford, Conn. Ascorbic acid per tablet: declared, 100 mgm.; found, 102 mgm.

7016. Bacon's C-K-Tea Laxative. S. C. Wells & Co., Toronto, Ont., Canada. This preparation was declared to contain "senna leaves and mandrake root, combined with aromatic herbs". Microscopic examination showed the presence of senna leaves, mandrake root, uva ursi leaves and caraway and coriander seeds.

P.S.-862. C.D.S. Toothache Drops. City Drug Store, New Britain, Conn. The carton contained a vial of the medicine and a piece of cotton. Together these only half filled the carton; the preparation was therefore deceptively packed.

R.W.-286. Certified Brand Aspirin Tablets. Certified Aspirin Co., Inc., New York, N. Y. Aspirin per tablet: declared, 5 grains; found, 4.99 grains.

7044. Johnson Products Co. Syrup White Pine, Wild Cherry Compound with Chloroform and Tar. Johnson Products Co., New Haven, Conn. This product was labelled to contain one minim of chloroform per fluid ounce. We found 67 minims per fluid ounce in this sample, but four other samples did not show an excess of chloroform.

5977. Prescription No. 32220. Maxwell Drug Store, East Hartford, Conn. The ingredients called for in the prescription, and the amounts found by analysis, were as follows:

	Called for, grains/capsule	Found, grains/capsule
Codeine	0.50	0.29
Phenacetin	1.50	1.58
Aspirin	2.50	2.34
Caffeine citrate	0.50	0.67

The sample was deficient in codeine.

Prescriptions

Both the Dairy and Food Commission and this Station have always been aware that there has been no inspectional control over the class of drugs that probably most needs control—namely, prescriptions. Most official drugs are now made by large drug manufacturers and are only rarely compounded by retail pharmacists. Drug manufacturers regularly analyze their finished products and have elaborate control systems. It is only when something goes wrong with these systems or in the rare case of deliberate sophistication that substandard drugs reach the market from such sources. On the other hand, when a prescription is filled it must usually be compounded by a retail pharmacist, who does not submit the result of his compounding to chemical analysis before supplying it to the patient. An error in compounding a prescription is much more likely to be serious than is an inaccuracy in the manufacture of a drug that is sold over the counter without a prescription, both because the very fact that a prescription is filled indicates that the purchaser was ill enough to consult a physician and because prescriptions may call for much more potent drugs than are present in medicines that are sold indiscriminately. The reason that prescriptions have not been examined before except in

a few cases, where particular preparations have been analyzed because of complaints that they produced abnormal symptoms, was because of the difficulty in obtaining representative samples. For a survey to accomplish its purpose, it is necessary that the pharmacists who fill the prescriptions be unaware that their preparations are to be submitted to analysis. The prescriptions must therefore be written and signed by licensed physicians and presented by persons not known by the pharmacists to be inspectors.

In 1946, due to the cooperation as a public service of the State Department of Health and a number of physicians, it became possible to surmount these obstacles and collect 55 samples representing the compounding by 55 druggists of eight different prescriptions. First of all a list of typical prescriptions such as are commonly prescribed was obtained from the Department of Health. A selection was made from this list of those preparations whose composition could be checked by analysis. These prescriptions were then copied by a number of physicians throughout the state on their own blanks and were submitted to the pharmacists for filling by food inspectors who, because their normal duties did not take them to drugstores, were unknown to the druggists. The samples so obtained were analyzed in this laboratory.

Each prescription was compounded in the laboratory and the analytical methods to be used were tested on this preparation. When it was shown that the methods would correctly determine the amounts of the ingredients in our own mixture, the official samples were analyzed by these methods. Some research was necessary to find methods that were satisfactory for the analysis of some of the prescriptions, and some analyses involved the expenditure of a considerable amount of time. As a result the examination of most of the samples was not finished until well into 1947, and these samples will not be reported at this time. Work on two of the prescriptions was completed in 1946 and is reported here. Credit for the preliminary work in devising methods and for analyzing the samples is due to Mr. R. T. Merwin, assisted in part by Miss Helen Kocaba.

All samples were passed in which the amounts of the ingredients that were analyzed for came within plus or minus ten per cent of the amounts called for. It should be understood that, except in those cases where an ingredient was omitted altogether, we do not believe that there was any intent on the part of any pharmacist not to compound a prescription properly. The fact that a sample was not of the proper composition was probably due to carelessness in compounding or perhaps in some cases to the use of inaccurate weights. Since this survey was completed, the Pharmacy Commission has been checking the accuracy of the weights in use by the druggists throughout the state. The factor of carelessness is not so easily controlled. The average pharmacist is a very busy man who must do many things in a drugstore besides compound prescriptions. All analytical chemists know that they must periodically check their results to guard against gradually falling into habits of work that lead to inaccuracy. Perhaps it would be a good thing if the druggists of the state were to set up voluntarily a cooperative system under which—perhaps once a year—they would all compound the same prescription and have all their preparations analyzed by the same laboratory. The results could be reported in code so that each druggist could have a check on his own work and could compare his own accuracy with the average of all the druggists but no individual druggist would know the results on the preparation of any other druggist. Certainly it is important to the welfare of

the sick person that his prescription should always be compounded with the highest attainable accuracy. Even though for some drugs comparatively wide variations in the amounts taken may not produce significant differences in results on the patients, it is necessary that habits of accuracy in compounding be maintained, for only in this way can there be assurance that really potent mixtures will always be properly dispensed.

Prescription No. 1 was as follows:

Ammonium chloride	grains 50
Ephedrine sulphate	grains 3
Syrup of cocillana	q/s. ad oz. 4

M. et sig. A teaspoonful every 4 hours.

Nine official samples of this prescription were obtained. These were analyzed for their contents of ammonium chloride and ephedrine sulfate. Ammonium chloride was determined by distilling 5 cc samples from magnesium oxide, collecting the evolved ammonia in standard acid and titrating. Ephedrine was determined on 25 cc samples by the official A.O.A.C. method (39.83). Some syrups of cocillana contain ethylmorphine, but it was proved by analysis of our own preparation, which was made with Parke, Davis's "Cosanyl" containing 0.25 grain of ethylmorphine per ounce, that this alkaloid does not interfere in the determination of ephedrine by the A.O.A.C. method. Analysis of the sample of Prescription No. 1 compounded by us showed 49.8 grains of ammonium chloride and 2.97 grains of ephedrine sulphate in 4 fluid ounces.

Results of the analyses of the nine official samples are given in Table 12. Three samples were passed; six were deficient in some respect.

Prescription No. 2 was as follows:

Amidopyrine	grains 5
Phenacetin	grains 5
Atropine sulphate	grains 1/100

M.ft. talis—Caps. #12.

Translated into plain English, this prescription calls for 12 capsules each containing 5 grains of amidopyrine, 5 grains of phenacetin and 1/100 grain of atropine sulphate. Ten official samples were analyzed for amidopyrine and phenacetin; the amount of atropine present was too small for analysis for this ingredient to be possible. No attempt was made to analyze individual capsules to determine the variation between capsules in the same lot; the average weight of the contents of one capsule was determined, the contents of all the capsules were combined and analyzed and the results were calculated to the basis of the average weight of each ingredient per capsule. Amidopyrine was determined on a 0.5 gm. sample by A.O.A.C. Method 39.44, the chloroform extract from acid solution obtained in the above determination being evaporated and weighed as phenacetin.

Cosmetics

Eight official and four unofficial samples of cosmetics were examined. Five were lipsticks and face creams regarding which complaint had been made that they caused irritation or the development of a rash. No harmful ingredients were found in any of these samples; the irritations were probably due to personal sensitivities to dye or perfume components. Analyses of the other 7 samples may be of interest:

TABLE 12. ANALYSES OF PRESCRIPTION NO. 1
(Should contain 50 grains of ammonium chloride and 3 grains of ephedrine sulfate in 4 fluid ounces.)

D. C. No.	Pharmacy	Ammonium chloride, grains/4 fl. oz.	Ephedrine sulphate, grains/4 fl. oz.	Remarks
K.C.-442 K.C.-457	Bridgeport Carlson's Pharmacy Freeman Pharmacy	45.7	2.21	Low in ephedrine sulphate. Pass.
		47.6	3.12	
K.F.-1101	Danbury Whelan's Drug Store	47.3	2.17	Low in ephedrine sulphate.
A.F.-986	Hartford Merkin's Pharmacy	31.9	3.03	Low in ammonium chloride.
E.S.-1385	New Haven Courtesy Drug Store	50.7	5.96	Double strength in ephedrine sulphate.
K.D.-437	Norwalk Dewey Pharmacy	48.0	3.03	Pass.
K.D.-430 K.C.-431	Stamford Pacific Pharmacy West Hill Drug Co.	49.3	1.39	Ephedrine sulphate less than half strength. Pass.
		47.1	3.00	
	Wallingford Modern Drug Store	49.3	2.37	Low in ephedrine sulphate; one and one-half strength in ammonium chloride.

TABLE 13. ANALYSES OF PRESCRIPTION NO. 2
(Each capsule should contain 5 grains each of amidopyrine and phenacetin.)

D. C. No.	Pharmacy	Amidopyrine, grains/capsule	Phenacetin, grains/capsule	Remarks
K.C.-439	<i>Bridgeport</i> European Pharmacy, Inc.	4.34	4.39	Low in amidopyrine and phenacetin.
K.F.-1098	<i>Danbury</i> Culhane Pharmacy	3.70	3.50	Low in amidopyrine and phenacetin.
K.C.-436	<i>Fairfield</i> Clampett's Pharmacy	4.55	5.23	Pass.
K.C.-432	<i>Greenwich</i> Veaudrey & Co., Inc.	4.61	4.51	Pass.
A.F.-983 A.F.-987	<i>Hartford</i> Governor Pharmacy Abraham Laschever	4.69 4.25	4.23 4.88	Low in phenacetin. Low in amidopyrine.
E.S.-1384 E.S.-1411	<i>New Haven</i> Howe Pharmacy Parkway Pharmacy	4.78 4.16	4.61 4.23	Pass. Low in amidopyrine and phenacetin.
K.C.-433	<i>Norwalk</i> Main Pharmacy	4.88	4.69	Pass.
K.C.-434	<i>Westport</i> Colgan's Pharmacy	4.65	4.54	Pass.

6185. *Ambergris*. This material, picked up on the seashore, was not ambergris; it was probably a petroleum wax.

P.S.-781. I Do, The Eye Do of the Stars. Wallace & Associates, Butler, Ky. This preparation contained animal charcoal or bone black in a vehicle of petrolatum and some wax. It was accompanied by a circular which stated among other things that it would produce "long, thick dark eyelashes" and that after application "Natural darkening will soon be evident". Because there were claims that it would affect the structure of the body, it was a drug, as well as a cosmetic, within the meaning of the law, and was therefore misbranded because the active ingredients were not declared as well as because the claims were false.

P.S.-789. Locanum. Locanum Products, Inc., Scarsdale, N. Y. This preparation was labelled as "A doctor's formula for relieving pain of eyebrow plucking". It was a brownish yellow perfumed solution of ethyl para-aminobenzoate and benzyl alcohol in acetone. Both ethyl p-aminobenzoate (also known as anesthesin and benzocaine) and benzyl alcohol are recognized local anaesthetics. This preparation was clearly a drug within the meaning of the law, and its label should have declared the active ingredients.

P.S.-791. Mercolized Wax Cream. Dearborn Supply Co., Chicago, Ill. One and one-half per cent of ammoniated mercury and an unspecified amount of zinc oxide were declared. Analysis showed 1.55 per cent of ammoniated mercury.

P.S.-783. Nadinola Bleaching Cream. National Toilet Co., Paris, Tenn. Active ingredients were declared to be 1.5 per cent of ammoniated mercury, bismuth subnitrate and zinc oxide. Analysis showed 1.50 per cent of ammoniated mercury and 1.55 per cent of bismuth subnitrate; zinc oxide was not determined. Because the sale of mercury bleach creams containing less than 5 per cent of ammoniated mercury has been permitted by the U. S. Food and Drug Administration, this sample was passed.

P.S.-792. Stillman's Freckle Cream. The Stillman Co., Aurora, Ill. This cream was declared to contain 2 per cent of ammoniated mercury and an unspecified amount of bismuth subnitrate. Analysis showed 2.05 per cent of ammoniated mercury and 7.63 per cent of bismuth subnitrate.

P.S.-868. Vitacreme (Special Formula No. 446). Sample was labelled "This cream is guaranteed to contain 1,000 units of vitamin 'D' per ounce". Assay by rat feeding substantiated this claim, but the product was misbranded because it bore no manufacturer's name and address and no net weight.

COLLABORATION WITH OTHER DEPARTMENTS

One thousand, two hundred and fifty-three samples, not included in other reports from this laboratory, were analyzed for other Federal, State and Station departments. Many of the analyses were made spectrographically. Distribution was as follows:

	Samples
U. S. Geological Survey (water)	32
U. S. Bureau of Plant Industry	3
State Department of Health (narcotics)	6
Storrs Agricultural Experiment Station	4
Station departments:	
Director's office	3
Biochemistry	22
Botany	951
Entomology	137
Soils	42
Tobacco Substation	53
	1,253

BABCOCK GLASSWARE, ETC.

As required by Sections 2463 and 2488 of the General Statutes, milk and cream test bottles and milk pipettes, and check thermometers used in milk pasteurizing plants, have been examined as follows:

	Pieces	Imperfect or inaccurate
Babcock glassware	3,484	14
Thermometers	239	21
	3,723	35

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