

THE FORTY-FOURTH REPORT ON
FOOD PRODUCTS
AND THE THIRTY-SECOND REPORT ON
DRUG PRODUCTS

1939

E. M. BAILEY, Chemist in Charge



Connecticut
Agricultural Experiment Station
New Haven

CONTENTS AND SUMMARY

Material	Page	Sampled by or submitted to		Total	Adulterated, below standard or questionable
		The Station	The Dairy and Food Commissioner		
FOODS					
Beverages:					
Soda water type.....	458	13	85	98	....
Fruit-ade type.....	458	4	2	6	....
Fruit juices.....	458	5	0	5	....
Cereal breakfast foods, etc.....	458	71	0	71	....
Eggs, iron content.....	463	1	0	1	....
Fats and Oils:					
Olive oil.....	463	13	4	17	2
Butter.....	463	2	2	4	2
Flavoring extracts.....	463	1	12	13	1
Maple syrup.....	463	0	9	9	1
Meat products:					
Frankfurt sausage.....	466	23	23	46	7
Other meat products.....	466	9	15	24	12
Milk and milk products:					
Fluid milk.....	467	433	17	450	8
Cream.....	467	26	6	32	....
Vitamin D milk.....	467	0	84	84	11
Spray residue.....	468	14	108	122	3
Miscellaneous.....	468	100	0	100	....
Total for foods.....		715	367	1,082	47
DRUGS					
Calcium gluconate.....	469	0	8	8	....
Compound effervescent powders.....	469	0	17	17	1
Iodine, mild tincture of.....	473	0	6	6	3
Magnesium citrate, solution of.....	473	0	41	41	8
Mercurial ointment, mild.....	478	0	26	26	1
Sedatives, etc.....	479	0	28	28	....
Turpentine.....	483	0	15	15	2
Miscellaneous.....	485	36	0	36	....
Total for drugs.....		36	141	177	15
COLLABORATIVE					
Samples from other departments.....	485	161	0	161	....
Total for all samples.....		912	508	1,420	62
Babcock glassware, etc.....	485	3,189	0	3,189	2

The Forty-Fourth Report on Food Products and the Thirty-Second Report on Drugs

E. M. BAILEY, Chemist in Charge

THE LEGISLATURE of 1939 passed a Food, Drug and Cosmetic Act superseding the Food and Drugs Act which had been in force since 1907. The new statute in its essential provisions is identical with the federal act of the same name which was approved by the Congress of 1938. It became effective on the first of January, 1940.

After the passage of the federal act the Association of Dairy, Food and Drug Officials of the United States, anticipating a general revision of state statutes, appointed a committee to draft a model uniform bill to serve as a guide for states seeking to revise the statutes then in effect within their jurisdictions. The Dairy and Food Commissioner of Connecticut, E. G. Woodward, was a member of that committee and Connecticut was among the first to adopt the measure as approved by this committee. Thus we have a new chapter added to the record of food and drug control in this State.

In 1886 the General Assembly passed an act "To Prevent and Punish Fraud" (in foods) and created the office of "Dairy Commissioner", charged with collection and examination of samples suspected of being "imitation butter". The act provided that the Commissioner might have the samples analyzed by the Connecticut Agricultural Experiment Station or by a state chemist; but the samples were in practice submitted to the Station for examination. Thereafter the Dairy Commissioner's duties were extended to include examinations of vinegar and molasses. The Station performed the analytical work required gratuitously, as a matter of cooperation, and furnished expert testimony in court whenever desired.

In 1895 a general food law was passed. It required the Experiment Station to collect and examine samples and to publish an annual report thereon. It required also that in the event violations of the law were discovered the Station should transmit the facts to local grand jurors or prosecutors. Enforcement rested with the prosecuting authorities. The Station was not required to prosecute violations beyond acquainting the proper authorities with the results of analysis indicating the violations.

This law did not supersede the duties placed upon the Dairy Commissioner and he continued to exercise control over the items charged to his jurisdiction. The Station continued to do the analytical work required by him.

In 1907, after passage of the Federal Food and Drugs Act, the state law of 1895 was revised to conform to the federal act and accordingly its scope extended to include drugs. This act empowered the Dairy and Food Commissioner and the Connecticut Agricultural Experiment Station to take samples for inspection purposes but the Commissioner was charged with enforcement. It differed from the preceding act in that it designated

a definite enforcing authority. The Station, however, continued to perform the analytical work necessary to establish the evidence of adulteration or misbranding, making reports of violations to the Commissioner.

The scope of the new statute is broader than the old in that it includes cosmetics, drugs that are used in the diagnosis of disease as well as those used in treatment, drugs that are recognized in the Homeopathic Pharmacopoeia of the United States, "slenderizing" or weight-reducing preparations, and mechanical devices or contrivances that are intended to affect the structure of any function of the body. It also contains provisions relating to new drugs and to advertising¹.

The provisions of the old law relating to adulteration have been amplified to safeguard the consumer against poisonous or deleterious substances that may be of natural occurrence in certain foods as well as those that may be added incidentally or unavoidably in the course of production or manufacture. The use of coal-tar colors is prohibited unless such are certified under government regulations as suitable for use. There are provisions against the use of containers that may cause poisonous or deleterious contamination of products packed therein.

The misbranding provisions contemplate more informative labelling of products. Under the old law the declaration of net quantity of contents of packaged foods was practically the only requirement in the way of positive information; other requirements were in the nature of prohibitions against any statements or claims that would deceive or mislead the purchaser, or otherwise be open to criticism. Consequently, in order to avoid possible violations, manufacturers reduced label statements to a minimum and often omitted that information that would be of consumer interest and importance.

Now, however, the label must afford a reasonably good picture of character, quantity and quality of the article offered for sale. In general this includes the name of the article; name and address of the manufacturer, packer or distributor; statement of net contents; and declaration of ingredients. In the case of foods artificial colors, flavors and chemical preservatives must be declared. In the case of drugs adequate directions for use, suitable warnings against unsafe dosage, and cautions in administration to children or to persons suffering from disease are required.

The statute makes the Dairy and Food Commissioner responsible for the enforcement of the act and largely also for its administrative features. He is responsible jointly with the Director of this Station for rules and regulations for carrying out the provisions of the act, and for the granting of exemptions that may be requested under the conditions provided therein. The sampling of products is under the authority of the Commissioner, and for the scientific and technical service required in the examination of samples he is authorized to call upon this Station and the laboratories of the State Department of Health.

Rules and regulations have been prepared but publication has been delayed pending conferences with control officials or other states having laws similar to our own in order to secure as much uniformity as possible

between federal regulations and those of the several states. Several such conferences have been held at the call of Commissioner Woodward, as president of the Association of Food and Drug Officials of the United States. The meetings have been attended by representatives of the Food and Drug Administration and substantial progress has been made toward uniformity of interpretation and procedure.

The present report summarizes examinations of food, drugs and miscellaneous materials for the calendar year 1939, during which time the old law was in effect.

Analyses and other examinations have been made by the department staff and their efficient cooperation is gratefully acknowledged. We have collaborated with the Dairy and Food Commissioner in the preparation of rules and regulations required under the new law, and in other administrative matters as required.

¹ Under federal law, control of advertising is allocated to the Federal Trade Commission.

FOODS BEVERAGES

Soda Water Type

Eighty-five samples were examined for the Dairy and Food Commissioner. There was no indication that any contained less than the minimum of 5 per cent sugar required by the carbonated beverage law; and no undeclared preservative or saccharin was found.

Thirteen samples of orange soda and ginger ale were examined for the Connecticut State Park and Forest Commission.

Fruit-ade Beverages

Orangeade should contain at least 15 per cent of orange juice according to regulation in this State. No minimum has been fixed for other juice beverages of this type. Cruess (Exp. Sta. Rec. 80,444, April 1939) has suggested the following proportions of juice for several fruits: orange 20 per cent; apple 25 per cent; California grape 25 per cent; Concord grape 20 per cent; berry beverages 20 per cent.

Two samples of orangeade submitted by the Dairy and Food Commissioner, Holloway Bros., Avon, manufacturers, contained 22.5 and 25.3 per cent of orange juice judged on the basis of the ash.

Four unofficial samples of fruitades were examined. Three were orangeades containing 16.6, 16.6, and 21.5 per cent of juice, respectively. One was grapeade having a juice content of 11.5 per cent estimated on the basis of 0.33 gm./100 cc of ash in Concord grape juice (U.S.D.A. Circ. 50).

Fruit Juices

Five samples of canned juice packed by Bruce's Juices, Tampa, Fla., were examined for ascorbic acid content (vitamin C), by the titration method of Bessey and King (J. Biol. Chem., 103, 689-693, 1933). The results are as follows:

No.	Product	Ascorbic acid mgm./cc.
2840	Orange juice unsweetened.....	0.51
2841	"sweetened.....	0.50
2842	Grapefruit juice unsweetened.....	0.35
2843	"sweetened.....	0.36
2844	Orange and grapefruit juices, sweetened.....	0.44

CEREAL BREAKFAST FOODS, ETC.

In Bulletin 373 (August, 1935) of this Station analyses of breakfast foods and similar preparations were given. Most of those analyses were of an earlier date and since that time many of the products have disappeared from the market or, at least, they are not available under names then used.

During the year 71 products¹ of this group of foods have been analyzed and the results are given in Table 1.

¹ Samples were furnished by courtesy of the S. S. Pierce Co., Boston.

The cereal grains constitute an important part of our food supply. Carbohydrate is the preponderant nutrient in this group of foods, but protein is also present in significant amounts. Meat foods, on the other hand, are preponderantly sources of protein and fat and are practically devoid of carbohydrate.

Breakfast foods are made from the various cereals or fractions thereof, singly or combined. In addition to foods of this type, cereals are the basis of other important products. Corn, for example, is a commercial source of corn starch, dextrose and corn oil.

The most conspicuous product of wheat is wheat flour, derived from the endosperm of the grain, and especially adapted to bread making because of the peculiar property of its protein to yield gluten. The germ has lately become of importance as a foodstuff by reason of its high content of vitamin B.

The rice grain is enveloped by a coarse hull which is too harsh for use as a food, even for cattle. This hull or palet adheres very closely to the seed and when it is removed some of the bran is removed also. The hulled grain is brown rice. When the bran is completely removed by a process of scouring and rubbing we have the white, polished grain which is the commercial article that we commonly know as "rice".

Rye is closely related to wheat in both structure and composition. There is marked distinction however in the character of rye protein as compared with the protein of wheat in that the former yields no gluten. Rye bread in which the flour ingredient is all rye flour lacks the light, spongy texture that characterizes the loaf of wheat bread. Such a loaf is commonly known as "pumpernickel". The flour ingredient of rye bread as usually made is a mixture of rye and wheat flours in varying proportions, but with the latter predominating.

The oat with its coarse hull is suitable for animal feeding, but the hull must be removed in preparing oat products for human consumption. Oatmeal and rolled oats are the chief oat food products and are among the most nutritious of cereal breakfast foods.

Miscellaneous preparations of the breakfast food type are numerous. They generally consist of a cereal base supplemented with fruit, vegetable gum or bran to produce laxative effects. In the last 20 years much attention has been given to the dietetic uses and effects of bran. Its laxative value is recognized and its judicious use is no doubt beneficial. The Council on Foods of the American Medical Association has appraised its benefits and disadvantages and concludes that constipation due to insufficient roughage in the diet should yield to bran or other roughage foods eaten regularly; and that cases not corrected by such simple treatment should receive medical attention. Constipation may arise from causes other than those of diet and such cases may not yield to roughage feeding or may be aggravated by such diets. Bran is, however, rich in calcium, iron, phosphorus and the food factor B₁.

TABLE 1. ANALYSES OF CEREAL BREAKFAST FOODS, ETC.

Station No.	Material	Moisture %	Ash %	Protein %	Fiber %	Carbohydrate other than fiber %	Fat %	Calories per 100 gms.
	Corn Preparations							
3643	Collins' Golden Purify Hulled Corn.....	12.2	1.2	7.9	0.6	76.1	2.0	354
3648	Corn Kix.....	7.6	3.2	8.0	0.5	78.8	1.9	365
3594	Kellogg's Corn Flakes.....	4.3	3.1	8.0	0.4	83.9	0.3	370
3623	Post Toasties Corn Flakes.....	6.3	3.0	8.0	0.4	82.1	0.2	362
3613	Quaker Hominy Grits.....	13.0	0.6	7.7	0.4	77.5	0.8	348
3675	Sun Seal Sunnycorn.....	12.1	0.4	8.4	0.4	78.2	0.5	351
	Oat Preparations							
3681	Coarse American Oatmeal.....	10.4	2.0	15.8	1.0	65.2	5.6	375
3673	H-O Hornsby's Oats.....	10.5	2.0	16.0	1.2	64.3	6.0	365
3655	Irish Oatmeal.....	6.7	1.9	15.3	1.1	67.8	7.2	398
3656	Irish Oat Meal.....	9.3	2.0	15.3	0.9	65.5	7.0	387
3614	Quaker Rolled White Oats.....	10.7	2.1	16.6	1.4	63.2	6.0	374
3683	Rolled Oats.....	10.5	1.8	17.4	1.2	62.8	6.3	378
3680	Scotch Oatmeal.....	10.7	2.2	11.6	1.6	67.5	6.4	374
3684	Tremont Brand Regular Rolled Oats.....	10.5	1.9	15.1	1.1	64.9	6.5	379
	Rice Preparations							
3626	B. C. Rice Flakes.....	9.5	3.3	6.3	0.5	80.1	0.3	349
3678	Cream of Rice.....	11.8	0.5	7.4	0.3	79.6	0.4	352
3620	Heinz Rice Flakes.....	6.8	3.0	7.5	4.2	78.1	0.4	346
3617	Quaker Brand Puffed Rice.....	9.0	0.4	6.0	0.4	83.9	0.3	363
3595	Rice Krispies.....	5.4	3.3	6.8	0.3	83.9	0.3	366
	Rye Preparations							
3652	Cream of Rye.....	11.3	1.8	11.1	1.3	72.4	2.1	353

Station No.	Material	Moisture %	Ash %	Protein %	Fiber %	Carbohydrate other than fiber %	Fat %	Calories per 100 gms.
	Wheat Preparations							
3642	B-C Vita Wheat.....	8.8	1.0	10.9	0.7	76.7	1.9	368
3686	Cooked Wheat.....	3.4	4.3	10.5	2.6	76.8	2.4 ¹	371
3682	Cracked Wheat.....	12.7	1.7	9.6	1.9	72.1	2.0	345
3671	Cream of Wheat.....	11.6	0.4	12.6	0.2	74.5	0.7	355
3650	Enright's All O' The Wheat Old Fashioned Cereal.....	12.0	1.5	15.0	2.4	66.7	2.4	349
3644	Force-Toasted Whole Wheat Flakes.....	5.7	3.2	9.3	1.1	78.5	2.2 ¹	371
3665	Hecker's Cream Farina.....	11.3	0.4	12.3	0.2	74.9	0.9	357
3624	Huskies Whole Wheat Flakes.....	9.1	3.4	9.6	1.7	75.1	1.1	349
3593	Kellogg's Whole Wheat Biscuit.....	9.7	2.1	10.3	2.5	73.7	1.7 ¹	351
3592	Kellogg's Wheat Krispies.....	6.5	4.3	8.8	1.8	77.4	1.2	356
3599	Kellogg's Whole Wheat Krumbies.....	4.8	3.3	9.4	2.4	78.0	2.1 ¹	369
3661	Muffets—Whole Wheat Biscuit.....	10.4	1.6	10.3	1.7	74.7	1.3	352
3662	National Biscuit Shredded Biscuit.....	10.4	1.6	10.3	1.7	74.7	1.3	352
3679	Overland Wheat Cereal.....	11.8	0.4	12.0	0.3	74.8	0.7	354
3615	Pettijohn's Rolled Wheat, with all the bran.....	12.3	1.7	9.9	2.2	72.0	1.9	354
3651	Pillsbury's Farina.....	11.7	0.4	11.8	0.2	75.2	0.7	354
3677	Post-O The New Wheat Cereal.....	10.9	3.8	11.6	2.0	70.5	1.2	339
3616	Quaker Brand Puffed Wheat.....	7.9	1.6	15.5	2.0	71.3	1.7	363
3600	Quaker Farina.....	10.9	0.5	11.8	0.3	76.1	0.8	357
3601	Quaker Wheat Crackels.....	5.8	5.5	11.8	0.7	75.0	1.2 ¹	358
3676	Ralston Wheat Cereal.....	10.8	1.7	16.6	1.1	67.6	2.2	357
3685	Shredded Ralston Toasted Whole Wheat.....	6.0	4.1	9.9	2.0	75.7	2.3 ¹	364
3674	Sunshine Rippled Wheat Cereal Biscuit.....	11.1	3.9	9.5	2.0	71.8	1.7 ¹	341
3658	Wheatena.....	1.9	1.5	11.8	1.5	73.7	2.4	346
3647	Wheaties.....	7.1	4.7	13.2	1.4	72.5	1.1	353
3664	Wheatsworth Whole Wheat Cereal.....	9.1	1.7	14.0	2.4	70.8	2.0	357

Station No.	Material	Moisture %	Ash %	Protein %	Fiber %	Carbohydrate other than fiber %	Fat %	Calories per 100 gms. %
	Miscellaneous Preparations							
3627	B-C Battle Creek "ZO"	7.0	3.3	15.6	1.6	71.7	0.8	356
3630	B-C Cooked Bran	7.9	6.9	16.4	9.3	54.8	4.71	328
3631	B-C Fig and Bran Flakes	8.4	4.2	9.5	2.4	73.7	1.8	349
3641	B-C Fig and Bran	6.6	7.6	11.5	6.7	65.1	2.5	329
3628	B-C Krusty Bran	7.1	6.1	11.4	6.5	66.4	2.51	334
3629	B-C Lima Bean-Rice Flakes	10.9	3.2	13.0	2.5	68.9	1.5	341
3632	B-C Toasted Gluten Bran Flakes	9.5	3.2	48.8	6.9	25.4	6.21	353
3633	B-C Washed Bran	9.4	5.4	16.9	13.4	51.9	3.0	303
3663	Cellu Breakfast Crisp	7.4	4.1	4.5	21.5	40.1	22.4 ²	179 ⁸
3654	Ceremel—A Laxative Food	8.7	5.3	18.3	6.4	54.8	6.5	351
3660	Cerevim	10.0	3.4	19.3	1.7	63.4	2.2	425
3621	Grape Nuts Bran Flakes	6.5	3.0	10.5	2.0	75.3	2.71	368
3622	Grape Nuts	5.1	2.6	11.3	1.7	77.1	2.21	374
3619	Jackson Meal	10.8	2.5	15.3	3.3	65.6	2.5	347
3598	Kellogg's All-Bran	4.3	8.8	13.0	8.7	62.7	2.5	326
3596	Kellogg's 40% Bran Flakes	5.6	4.9	10.4	3.8	73.5	1.8	352
3659	Lister's Starchless Breakfast Food	10.7	2.3	5.9	6.8	72.9	1.4	328
3646	Maltex Cereal	9.6	1.5	15.3	1.2	70.9	1.5	358
3657	Maypl Cereal	9.3	1.9	15.6	0.9	67.9	4.4	374
3597	Pep	4.0	4.4	10.6	3.1	76.5	1.8	365
3625	Post's 40% Bran Flakes	7.5	4.4	12.3	3.5	70.5	1.8	348
3618	Roman Meal	10.7	5.3	15.1	4.4	61.8	2.7	332
3649	Uncle Sam Laxative Breakfast Food	7.8	2.8	18.5	2.8	56.7	11.4	403
3645	Weetabix	8.6	2.4	9.4	2.2	75.0	2.41	356
3672	Wheat Oata—Wheat and Oat Porridge	10.7	1.9	15.6	1.4	65.9	4.5	369

¹ Baked Product Method.

² Largely mineral oil.

³ "Fat" not included.

EGGS

A sample of eggs was examined for iron content. Four separate eggs in the sample contained from 0.002% to 0.0025% of iron (Fe). This is an iron content of about the usual magnitude. Sherman (Food Products) gives 0.0027% Fe; from König we calculate a value of 0.0020%.

FATS AND OILS

Olive Oil

Four official samples of olive oil were examined for the Dairy and Food Commissioner. Two were not found to be adulterated. Two others were apparently olive oil but were colored with a coal tar dye.

Thirteen samples were tested for purchasers or for investigational purposes.

Butter

Two official samples of butter were examined. One contained 79.8% of fat which is slightly less than the required minimum of 80 per cent. The other contained the required amount of fat but the sample was rancid.

Two samples were examined for the State Commodity Distribution Service. No evidence of adulterants was found although one sample was of poor quality as judged by odor and taste.

FLAVORING EXTRACTS

Analyses of nine samples of vanilla extracts are given in Table 2.

Sample S-712 was adulterated by reason of added color (caramel). The manufacturer explained that this was a brand taken over from another firm and that the use of added color has now been discontinued. The proportion of color insoluble in amyl alcohol was somewhat high in S-710 as compared with analyses of authentic vanilla extracts as given by Leach (Food Inspection and Analysis).

Two samples of raspberry extract, S-813 and S-814 and one of grape extract, S-815, were examined. These were claimed to be true fruit products. No artificial color was found and the odor and taste of the articles appeared to be that of true fruit. The products were distributed by Polak and Schwarz, Inc., New York, and the raspberry extracts were said to be manufactured in Holland.

One unofficial sample, 2196, was labelled "imitation vanilla flavor" and the ingredients vanillin, coumarin, glycerine, caramel color and sugar were declared. It was made by the Purity Products Co., Chicago, and was of the composition claimed.

MAPLE SYRUP

Nine official samples of maple syrup were submitted by the Dairy and Food Commissioner. None of the samples contained any excess of moisture, i.e., not over 35 per cent; and there was no indication of contamination with lead except in one sample which showed 2 parts per million. Tests for lead were negative in all other cases. Two p.p.m. is

TABLE 2. ANALYSES OF FLAVORING EXTRACTS, VANILLA

D. C. No.	Manufacturer	Dealer	Vanillin gm./100 cc	Coumarin gm./100 cc	Lead No. (Winton)	Ash, gm./100 cc			Alkalinity of Ash cc N/10 HCl/100 cc sample			Color insol. in amy alcohol, %
						Total	Soluble	Insoluble	Total	Soluble	Insoluble	
S-712	Delano, Potter & Co., Inc., Boston.....	Robert Hand, Rocky Hill.....	0.16	none	0.64	0.362	0.311	0.051	50	36	14	68
S-706	Great Atlantic & Pacific Tea Co., New York....	A & P Tea Co., Windsor	0.18	none	0.70	0.330	0.274	0.056	49	31	18	18
S-726	Hallock-Denton Co., New- ark, N. J.....	Rockville Consumers Co-op., Inc., Rockville	0.21	none	0.70	0.360	0.298	0.062	58	42	16	22
S-705	Millbrook Products Co., Somerville, Mass.....	First National Stores, Windsor.....	0.25	none	0.61	0.301	0.255	0.046	47	33	14	20
S-708	National Grocers, Inc., Distributors, Chicago..	Vinings Market, Ware- house Point.....	0.37	none	0.70	0.326	0.264	0.062	49	33	16	23
S-710	A. H. Phillips, Inc., Dis- tributors, Springfield, Mass.....	A. H. Phillips, Inc., Thompsonville.....	0.17	none	0.52	0.317	0.270	0.047	44	32	12	40
S-713	The C. F. Sauer Co., Rich- mond, Va.....	Starkey & Coster, Deep River.....	0.19	none	0.60	0.356	0.309	0.047	47	34	13	27
S-704	Schlottbeck & Foss Co., Portland, Me.....	Dillon's Market, Wind- sor.....	0.22	none	0.61	0.324	0.271	0.053	47	33	14	17
S-707	Seaman Bros., Distribu- tors, New York.....	T. J. Balf, Warehouse Point.....	0.20	none	0.68	0.351	0.274	0.077	49	26	23	26

TABLE 3. MAPLE SYRUP

D. C. No.	Manufacturer	Dealer	Moisture %	Ash %	Lead No. (Winton)	Lead p.p.m.
S-694	Cary Maple Sugar Co., Inc., St. Johnsbury, Vt.	The Hartford Market Co., Hartford	33.0	0.59	1.37	none
S-725	Fairfield Farms Maple Co., St. Albans, Vt.....	Rockville Consumers' Co-op. Inc., Rockville.....	31.7	0.58	1.22	none or trace
S-709	Green Mountain Packing Co., St. Albans, Vt..	A. H. Phillips, Inc., Thompsonville.....	33.1	0.50	1.34	none
S-695	The Loomis & Wilson Co., Distributors, Hart- ford, Conn.....	Van Dyk Grocery, Hartford.....	32.8	0.49	1.10	none
S-698	G. L. Nichols & Sons, Enosburg Falls, Vt.....	I. Davidson, Hartford.....	32.5	0.49	1.07	none
S-692	Vermont Maple Co-op., Inc., Essex Junction, Vt.	The Great Atlantic & Pacific Tea Co., Hartford.....	31.0	0.64	1.50	none
S-690	Vermont Maple Orchards, Essex Junction, Vt..	Community Market, Hartford.....	34.0	0.56	1.28	none
S-693	R. C. Williams & Co. Inc., Distributors, New York, N. Y.....	A. Wortman & Sons, Hartford.....	32.4	0.57	1.28	none

not in excess of the tolerance for lead in spray residue on fruits, but it is more than should be in a product which can be produced lead free, or with only negligible traces of lead.

There is no considerable production of maple syrup in this State but one unofficial sample of local production was examined.

Analyses are given in Table 3.

MEAT PRODUCTS

Frankfurt Sausage

In some grades of frankfurt sausage cereal, skim milk powder or vegetable flour are used to increase the moisture-absorbing capacity of the meat mix. Within reasonable limits the practice is not objectionable. Regulations limit such additions to not more than 3.5 per cent. Added cereal is estimated from the starch content of the frankfurts; not more than 0.5 per cent of starch will be derived from the seasoning used. Dextrose in the amount of about 0.3 per cent may be found in meat normally; larger amounts may come from curing agents or direct additions. Lactose will be present if skim milk powder has been incorporated in the meat mix. A sharp separation of lactose and dextrose can be effected by the yeast method given in previous bulletins of this laboratory, Conn. Exp. Station Buls. 401 (1937) and 426 (1939). Soybean flour may be identified by the urease test and microscopically; microscopic examination should be made in all cases because the urease test may fail. The presence of soybean flour does not appear to interfere with the determination of lactose by the procedure mentioned above, since, as noted in our report last year, samples have been tested in which no dextrose or lactose was found, yet the presence of soybean was demonstrated microscopically. Recently, methods for the quantitative determination of soybean meal or flour have been proposed but we have not tried them sufficiently to use them in routine practice.

In the past year 23 official samples were examined. In 2 no evidence of fillers was found. In samples cereal and/or skim milk powder were present but not in excessive amounts, and their presence was declared. In 6 cases soybean products were present but the amount was not determined. In 7 samples excessive (over 3.5 per cent) amounts of skim milk powder were indicated.

Twenty-three unofficial samples of frankfurts and bologna were examined for excess moisture. Total moisture should not exceed four times the protein content of the sample by more than 10 per cent. For example, a frankfurt sample containing 57.95 per cent of moisture (determined by drying) and a protein content of 12.88 per cent ($N. \times 6.25$) shows added water in the amount of 6.43 per cent which is not regarded as excessive in good commercial practice.

Other Meat Products

Six official samples of chopped meat (hamburg) were submitted by the Committee and all found to contain sulphites.

Nine samples of chopped meat were submitted by the health departments of New Haven and Bridgeport. Sulphites were present in 6 samples.

MILK AND MILK PRODUCTS

Fluid Milk

Seventeen official samples of fluid milk were examined for the Dairy and Food Commissioner. Of these 1 was watered, 2 were skimmed and 5 were below standard.

Four hundred and thirty-three samples were tested for producers for herd improvement or other purposes.

Cream

Six official samples of cream were tested for the Dairy and Food Commissioner and 26 samples for producers.

Vitamin D Milk¹

Significant quantities of vitamin D are lacking in most common foods. This factor is essential for the proper utilization of dietary calcium and phosphorus. Exposure of the skin to sunlight provides us with a natural source of supply of vitamin D, and it may be secured artificially by similar exposure to lamps providing rays of suitable wave lengths. A natural supply is available in certain fish liver oils with which we may supplement our daily diets; and common foods may be "fortified" with vitamin D if they are appropriate vehicles for this factor. Milk is especially appropriate for such fortification because of its composition, and because it is consumed regularly and in quantities that insure a significant intake of this added vitamin.

The fortification of milk with vitamin D is accomplished in several ways. Concentrates of this vitamin prepared from cod liver oil may be added directly to milk. Examples of such concentrates are "Vitex" prepared by the Zucker process and "Clo-Dee" made by the Barthen process.

Milk may be irradiated by means of apparatus especially designed for the purpose, this process being under the control of the Wisconsin Alumni Research Foundation. Producers using this process are licensed to do so by the Foundation.

Fortification may be accomplished also by the addition to milk of activated ergosterol. This concentrate is an irradiated plant sterol and for the production of it for food uses Standard Brands, Inc., is licensed by the Foundation above mentioned.

Another concentrate used for this purpose is viosterol A.R.P.I. process, which is ergosterol activated by a process controlled by E. I. DuPont de Nemours and Co. This article is made by American Research Products, Inc., a subsidiary of General Mills, Inc.

Vitamin D may be imparted to milk by feeding cows irradiated yeast mixed in suitable proportions in their feed. Milk so fortified is often called metabolized "vitamin D milk". Its production is under the joint control of General Mills and the Wisconsin Alumni Research Foundation.

¹ For a more complete discussion of this subject see "Accepted Foods", Council on Foods, American Medical Association, Chicago.

Vitamin D milk produced by irradiation usually contains 135 U.S.P. units of vitamin D per quart, but irradiators capable of producing 400 units per quart have been devised and are in use. Metabolized vitamin D milk contains not less than 400 units; and milk fortified with vitamin D concentrates are standardized at that minimum also. Milk containing 135 units per quart will usually prevent clinical rickets when fed to normal infants in the customary quantities. Milk containing 400 units is regarded as providing a margin of safety above the usual needs.

Dairies in this State produce about 16,000 quarts of vitamin D milk daily. In the calendar year 1939, covered by this report, 84 official samples, taken from the market supply were examined. Of that number 63 were found to equal or exceed the unitage claimed; 10 were passed as substantially equal to the claims; and 11 were below the unitage declared.

A summary of inspection experience for the past 5 years is given below. The summary is not a basis for judging the relative merits of the several types of processes represented. In this 5-year period 90 per cent of all samples examined have fully or substantially met the vitamin D unitage claimed.

	Irradiation	C.L.O. Concentrate	Irradiated Ergosterol	Yeast Feeding
1935				
Satisfactory	4	2	...	4
Passed .....	...	2	...	...
Below standard	1	1	...	...
1936				
Satisfactory	9	20	...	20
Passed .....	...	2	...	4
Below standard .....	...	...	...	7
1937				
Satisfactory	9	32	...	24
Passed	1	5	...	...
Below standard .....	...	5	...	2
1938				
Satisfactory	10	44	3	22
Passed	1	2	...	...
Below standard .....	...	5	...	...
1939				
Satisfactory	4	34	7	18
Passed	1	7	2	...
Below standard	2	6	1	2

SPRAY RESIDUE

During the harvest season (August to October) 108 official samples of apples were tested for spray residue. Many of these samples were tested for lead only, because if lead is not excessive the arsenic is not likely to exceed the tolerance.

The tolerance for arsenic is .01 grain and that for lead is .025 grain, per pound of fruit. Only three samples exceeded the tolerances, and in these the excesses were negligible.

Fourteen samples of miscellaneous fruits and vegetables were tested for purchasers or growers.

MISCELLANEOUS FOODS, ETC.

One hundred samples of miscellaneous foods and other materials have been examined for local health officers and others.

These samples were examined for the information of officials submitting them and are not for discussion here.

DRUGS

CALCIUM GLUCONATE

Calcium gluconate should contain not less than 12.4 per cent and not more than 12.8 per cent of calcium oxide according to U.S.P. specifications.

Eight samples were submitted by the Dairy and Food Commissioner. All were passed although S-931 was passed with the reservation noted. The sample was not in the original package. Analyses are given in Table 4.

COMPOUND EFFERVESCENT POWDERS

This preparation is the familiar Seidlitz powders. The blue paper contains a mixture of sodium bicarbonate and sodium-potassium tartrate; the white paper contains tartaric acid.

Seventeen samples were examined and all conformed to the specifications laid down in the U.S.P., except S-952 which was below standard.

The analyses, with the specifications for the standard article are given in Table 5.

TABLE 4. ANALYSES OF CALCIUM GLUCONATE

D. C. No.	Pharmacist	Manufacturer	Calcium oxide %	Equivalent calcium gluconate per tablet
S-850 (powder)	Glastonbury Franklin Pharmacy.....	.....	12.99	.....
S-859 (powder)	Middletown Park View Pharmacy.....	Merck & Co.....	12.97	.....
S-897 (tablets)	New Haven Bezner's Pharmacy.....	Eli Lilly & Co.....	5.32	1.02 grains ¹
S-880 (powder)	Eld Pharmacy.....	Squibb & Co.....	12.52	.....
S-898 (powder)	Freedman's Pharmacy.....	Eli Lilly & Co.....	12.58	.....
S-908 (tablets)	Yeager's Drug Store.....	Malthie Chemical Co.....	11.94	10.32 grains ²
S-951 (tablets)	Thomaston Lemmon Pharmacy.....	McNeil Laboratories.....	7.15	14.52 grains ³
S-902 (tablets)	Torrington Webb & Sieger.....	S. E. Massengill Co.....	9.96	15.88 grains ⁴

¹ Claimed 1 grain/tablet.² Claimed 10 grains/tablet.³ Dosage not stated on sample. Assumed 15 grains.⁴ Claimed 15.5 grains/tablet.

TABLE 5. ANALYSES OF SEIDLITZ POWDERS

D. C. No.	Pharmacist	Manufacturer or Distributor	Blue Paper		White Paper		
			Weight gms.	Sodium bicarbonate %	Sodium potassium tartrate %	Weight gms.	Tartaric acid %
U.S.P.			9.5-10.5	23-27	73-78	2.0-2.4	99.5 (not less than)
S-890	Bristol Whelan Drug Co., Inc.....	Whelan Laboratories, Inc.....	9.79	25.10	75.30	2.10	99.93
S-888	Forestville Procter's Pharmacy.....	Schieffelin & Co.....	9.93	24.75	75.40	2.07	99.80
S-867	Hartford Ideal Drug Co.....	New England Seidlitz Powder Corp.	9.97	28.20	71.90	1.98	99.68
S-847	Weaver Drug Co.....	American Druggist Syndicate.....	9.88	25.05	75.00	2.11	99.80
S-854	Middletown John J. Cronin.....	Royal Mfr. Co.....	9.89	25.60	73.70	2.17	99.80
S-877	New Britain Stanley Pharmacy.....	Charles R. Doane.....	9.73	26.25	74.30	2.11	99.80
S-878	Monroe Pharmacy.....	United Drug Co.....	9.50	26.40	74.85	2.12	99.75

D. C. No.	Pharmacist	Manufacturer or Distributor	Blue Paper			White Paper	
			Weight gms.	Sodium bicarbonate %	Sodium potassium tartrate %	Weight gms.	Tartaric acid %
U.S.P.			9.5-10.5	23-27	73-78	2.0-2.4	99.5 (not less than)
S-826	New Haven	McKesson & Robbins, Inc.	9.85	25.45	75.00	2.11	99.80
S-827	Joseph Deegan	Exeller Chemical Co.	9.75	26.00	74.00	2.23	99.80
S-906	M. Epstein's Pharmacy	Charles Green Sales Co.	9.38	26.25	74.00	1.88	99.80
S-907	Washington Pharmacy	Bedesee Pharmacal Co.	9.77	27.60	73.60	2.18	99.88
S-932	Putnam	Geo. L. Clafin Co.	9.79	24.90	75.50	2.09	99.88
S-939	Riverside	Superior Drug Co., Inc.	10.27	26.55	74.00	2.01	99.93
S-940	Stamford	Ketcham & Co., Inc.	9.66	26.00	74.60	2.26	100.00
S-952	Thompsonville	New England Seidlitz Powder Co.	10.00	31.60	68.15	2.09	99.80
S-905	Torrington	H. E. Shaw Co.	10.12	27.75	74.75	2.14	99.80
S-832	Wallingford	Garfield & Co., Inc.	9.74	25.05	75.00	2.09	99.80

TINCTURE OF IODINE, MILD

Mild tincture of iodine should contain in each 100 cc not less than 1.8 gms. nor more than 2.2 gms. of iodine, and not less than 2.1 gms. nor more than 2.5 gms. of sodium iodide.

Six official samples were examined three of which met the specifications of the U.S.P. in the above respects.

Sample S-895 was too strong in iodine for its labelled declaration (3%) as well as too strong for the U.S.P. article. It also exceeds the U.S.P. specification for sodium iodide.

Sample S-938 was labelled Tincture Iodides, S & D. It contained no free iodine but did contain potassium iodide and ammonia indicating it to be the N.F. article as labelled rather than mild tincture of iodine called for.

Sample S-849 was too strong in iodine for the U.S.P. article.

Analyses are given in Table 6.

TABLE 6. ANALYSES OF MILD TINCTURE OF IODINE.

D. C. No.	Pharmacist	Manufacturer	Iodine gms./100 cc	Sodium iodide gms./100 cc
S-938	Greenwich Veaudrey Drug Co.	Sharp & Dohme	none	2.50 ¹
S-849	Hartford Liggett Drug Store	United Drug Co.	3.02	2.42
S-895	Sisson Drug Co.	Own make	4.37	3.02
S-894	New Britain Peter Glassman	Own make	2.01	2.22
S-896	New Haven The Garden Drug Co.	Own make	2.01	2.58
S-956	New London Starr Bros., Inc.	Own make	1.94	2.21

¹ Potassium iodide.

SOLUTION OF MAGNESIUM CITRATE

The U.S.P. requires that this preparation contain in 100 cc not less than 1.6 gms. and not more than 1.9 gms. of magnesium oxide. According to the official formula the solution should contain not less than 9.11 gms. of citric acid; and it should be free from sulphate.

Forty-one samples were submitted by the Dairy and Food Commissioner of which eight were below the specifications for magnesium oxide or citric acid or both.

The results are given in Table 7.

One unofficial sample was submitted by the State Board of Health. Another sample, S-689, distributed by the Accuracy Products Co., New York was labelled "Citrated Effervescent Solution of Magnesium Citrate and Magnesium Sulphate". It contained in 100 cc, 3.14 gms. of magnesium sulphate, 1.76 gms of magnesium carbonate and 3.21 gms. of citric acid. Benzoic acid, stated to be present, was not determined.

TABLE 7. ANALYSES OF SOLUTION OF MAGNESIUM CITRATE

D. C. No.	Pharmacist	Manufacturer	Magnesium oxide gms./100 cc	Total Citric acid gms./100 cc	Sulphate	Remarks
S-951	Ansonia McQuade's Corner Drug Store.	Own make.	1.76	9.54	none	O.K.
S-935	Bridgeport The J. E. F. Jones Drug Store.	Own make.	1.72	9.21	none	O.K.
S-891	Bristol Allen's Cut Rate Store.	Johnson Products Co., New Haven	1.67	8.83	trace	Pass
S-889	Boulevard Pharmacy.	Leete & Co., New Haven.	1.62	9.29	trace	Pass
S-893	Noveck's Pharmacy.	Own make.	1.07	6.53	none	Low in mag- nesium oxide and total citric acid
S-949	Derby The Harding Drug Store.	Own make.	1.87	10.04	none	O.K. for U.S.P. IX, as labelled
S-840	Essex Hyde Drug Co.	C-O-M. Laboratories, New York, N. Y.	1.67	9.63	none	O.K.
S-875	Fairfield Carroll Cut Rate Store.	Viviny Laboratories, New Haven.	1.70	9.45	trace	Pass
S-917	Guilford Frank F. Douden.	Own make.	1.57	9.68	none	Pass
S-868	Hartford The Bliss Pharmacy, Inc.	Own make.	1.71	9.15	trace	Pass
S-886	Buck's Pharmacy.	Own make.	1.70	9.52	none	O.K.
S-885	The College Pharmacy.	Own make.	1.06	5.66	none	Low in mag- nesium oxide and total citric acid

S-884	Meriden The Graeber Pharmacy, Inc.	Own make.	1.52	7.91	trace	Low in total citric acid
S-856	Middletown Carroll's Cut Rate Store.	Del Mar's Laboratories, New Haven.	1.71	9.36	trace	Pass
S-857	Liggett Drug Store.	National Magnesia Co., Inc., Brooklyn, N. Y.	1.60	9.88	faint trace	Pass
S-852	Misenti's Drug Store.	Klawron Magnesia Co., Norwalk.	1.67	8.93	trace	Pass
S-914	Milford John L. House Drug Store.	Own make.	1.62	8.67	trace	Pass
S-933	Moosup Moosup Pharmacy.	Own make.	1.29	8.40	trace	Low in mag- nesium oxide
S-1044	New Britain Allen's Cut Rate Store.	Johnson's Products Co., New Haven.	1.57	8.96	trace	Pass
S-1043	Allen's Cut Rate Store.	Mearl Laboratories, Hamden.	1.60	8.75	trace	Pass
S-1045	Allen's Cut Rate Store.	Capitol Products Co., Boston, Mass.	1.45	8.38	trace	Pass
S-882	Axelrod's Pharmacy.	Own make.	1.60	8.46	faint trace	Pass
S-879	Besco Drug Co.	S.D.C. Laboratories, Inc., Buffalo, N. Y.	1.65	10.30	faint trace	Pass
S-1042	Bond Cut Rate Store.	The Sterling Magnesia Co., Inc., New York, N. Y.	1.64	8.99	faint trace	Pass
S-876	East St. Pharmacy.	Own make.	1.57	7.52	none	Low in total citric acid
S-829	New Haven Eld Pharmacy.	Stover Drug Co., Inc., Buffalo, N. Y.	1.71	10.95	none	O.K.
S-828	Humphrey Pharmacy.	Own make.	1.53	8.83	none	Pass

TABLE 7. ANALYSES OF SOLUTION OF MAGNESIUM CITRATE—Concluded

D. C. No.	Pharmacist	Manufacturer	Magnesium oxide	Total Citric acid	Sulphate	Remarks
S-836	Newington Newington Pharmacy, Inc.....	United States Pharmaceutical Co., Newark, N. J.....	1.70	8.94	trace	Pass
S-942	Norwich Pitcher & Service.....	Own make.....	0.86	5.42	none	Pass ¹
S-838	Old Saybrook James Pharmacy.....	Regal Drug Co., New Haven.....	1.64	8.69	trace	Pass
S-925	Rockville M. R. Metcalf.....	Apothecaries Hall Co., Waterbury.	1.62	8.83	trace	Pass
S-950	Shelton Barden Pharmacy.....	Own make.....	1.81	10.16	faint trace	O.K.
S-865	Southington Oxley's Drug Store.....	Own make.....	1.47	7.76	none	Low in total citric acid
S-866	So. Manchester Arthur Drug Store.....	Sterling Magnesia Co., Inc., New York, N. Y.....	1.62	9.18	none	O.K.
S-871	So. Norwalk Allen Feldman.....	Stamford Drug Co., Stamford.....	1.41	8.60	none	Low in mag- nesium oxide
S-926	Stafford Springs McCormick Drug Co.....	Own make.....	1.37	8.10	none	Low in mag- nesium oxide and total citric acid

S-904	Torrington North End Drug Store.....	Own make.....	1.81	10.05	faint trace	Pass
S-831	Wallingford F. N. Marx Pharmacy.....	Own make.....	1.68	8.87	trace	Pass
S-899	West Haven Myers Drug Store.....	Own make.....	1.57	8.24	none	Pass
S-841	Wilson Wilson Drug Co.....	Sisson Drug Co., Hartford.....	1.67	9.25	faint trace	Pass
S-947	Winsted The City Pharmacy.....	Own make.....	1.55	8.34	none	Pass

¹ Analysis corresponds to formula on label.

MILD MERCURIAL OINTMENT

This preparation, also known as blue ointment, should contain not less than 29 per cent and not more than 31 per cent of mercury according to U.S.P. specifications.

Twenty-six official samples were submitted by the Dairy and Food Commissioner and only one, S-955, varied substantially from the limits for mercury content above cited.

The results are given in Table 8.

TABLE 8. ANALYSES OF MILD MERCURIAL OINTMENT (BLUE OINTMENT)

D. C. No.	Pharmacist	Manufacturer	Mercury (Hg)
	Bristol		
S-892	North End Pharmacy.....	Sharp & Dohme, Philadelphia, Pa. . .	31.20
	Hamden		
S-863	Centerville Drug Shop.....	Park-Davis & Co., Detroit, Michigan	30.50
	Hartford		
S-845	Arsenal Pharmacy.....	Roberts Laboratories, Inc., New York, N. Y.....	29.45
S-848	Colonial Pharmacy, Inc.....	Nyal Co., Detroit, Michigan.....	30.00
S-887	Dougherty Drug Co.....	Dougherty Drug Stores.....	28.20
S-846	Highland Court Pharmacy.....	Frederick Stearns & Co., Detroit, Mich.....	30.10
S-869	The Rialto Drug Co.....	Eli Lilly & Co., Detroit, Mich.....	30.15
	Meriden		
S-834	Luden's Drug Store.....	Premo Pharmaceutical Laboratory, New York, N. Y.....	29.95
	Middletown		
S-851	Murphy's Drug Store.....	Brewer & Co., Inc., Worcester, Mass.	30.50
S-858	Pelton's Pharmacy.....	Mallinckrodt Chemical Co.....	30.90
S-860	Pelton's Pharmacy.....	John Wyeth & Bro., Philadelphia, Pa.	29.90
S-853	Whelan Drug Co., Inc.....	Whelan Laboratories, Inc., New York, N. Y.....	28.55
S-855	Woodward Drug Co.....	Eli Lilly Co., Indianapolis, Ind.....	30.10
	New Britain		
S-883B	Belvedere Drug Store.....	United Drug Co., Boston, Mass.....	29.30
S-881	The Brooks Drug Co.....	Reese Laboratories, New York, N. Y.	29.85
	New Haven		
S-825	Joseph P. Deegan.....	The Norwich Pharmacal Co., Norwich, N. Y.....	29.30
	Newington		
S-835	Town Hall Pharmacy.....	Saxon Laboratories, Duquesne, Pa...	28.00
	New London		
S-955	Taylor's Drug Store.....	Reese Laboratories, Inc., New York, N. Y.....	25.80
	Old Saybrook		
S-839	Central Pharmacy.....	American Pharmacal Co., Inc., New York, N. Y.....	30.40

TABLE 8—Concluded

D. C. No.	Pharmacist	Manufacturer	Mercury (Hg)
	South Norwalk		
S-870	F. G. Collins.....	Sharp & Dohme, Philadelphia, Pa. . .	29.85
	Torrington		
S-903	Opperman's Drug Store.....	Schieffelin & Co., New York, N. Y. . .	29.90
S-901	Park Pharmacy.....	The Penslar Co., Detroit, Mich. . . .	29.70
	Wallingford		
S-833	Modern Drug Store.....	McKesson & Robbins, Bridgeport. . .	30.30
	Westport		
S-872	Gray's Drug Store.....	Petrolene Laboratories, New York, N. Y.....	29.50
	Windsor		
S-842	Prouty's Pharmacy.....	The Upjohn Co., Kalamazoo, Mich. . .	28.90
	Windsor Locks		
S-954	The Bridge Pharmacy.....	Petrolene Laboratories, New York, N. Y.....	29.15

SEDATIVES, ETC.

Twenty-eight samples of drug preparations intended to produce sedative or analgesic effects, or both, have been analyzed. These samples were taken before the effective date of the new law, but many of the products were found to be labelled to meet the requirements of the federal act and were already essentially in accord with the law about to become effective in this State.

Section 17(k) of the Connecticut law limits retail sales of certain drugs to prescriptions. Among the drugs so restricted are amidopyrine, cinchophen, barbituric acid, and derivatives of any of these substances. These drugs are quite commonly present in preparations for the relief of pain or to induce sleep. While there is no section in the federal act corresponding to 17(k) of our state act, section 502(j) of the federal act is intended to accomplish the same purpose in the case of any drug that is too dangerous for use except under medical supervision, and that section of the federal law has already been interpreted to bar unrestricted sales of amidopyrine and cinchophen to the public.

The barbiturates are valuable medicaments, but they are hypnotics and are regarded as habit-forming, though perhaps not so dangerously so as some of the narcotic drugs. For this reason many physicians, druggists and others concerned with public welfare have long deplored the indiscriminate use of these drugs in self medication. However, by what is held to be an ambiguity in the Connecticut act the Attorney General has given an opinion that these drugs may be sold without prescription if labelled with the warning statement "may be habit-forming" as provided in section 17(d) of the law.

The law requires that drugs, except those recognized in the United

States Pharmacopoeia, the National Formulary, the Homeopathic Pharmacopoeia and supplements to any of these texts, composed of two or more ingredients, shall bear on the label the name of the active ingredients; but the quantity or proportion of the ingredients is required to be stated only in case certain drugs listed in the law are present.

In dispensing drug preparations on prescription, the pharmacist is not required to name the ingredients on the label or to observe any of the other labelling requirements set forth in the act, except to affix his name and address, the number and date of the prescription and the name of the physician. The manufacturer, packer or distributor, however, should observe all of the labelling requirements laid down in the act regardless of how the article may ultimately be sold, unless in certain details exemptions have been granted as provided for in the act.

S-1123. *Allonal Tablets*. J. A. Johnson, New Haven. Hoffman-LaRoche, Inc., Nutley, N. J. Declared grains per tablet, acetophenetidin 3, found 2.92; declared allyl isopropyl barbituric acid 1, found 0.98. (Under the new law if sold without prescription this article should be marked "Warning—may be habit-forming" because of the barbituric acid derivative present according to the interpretation of Sec. 17(d) and (k), by the Attorney General).

S-1144. *Amido-Neonal*. Campfield Pharmacy, Hartford. Abbott Laboratories, North Chicago, Ill. Not in original package. Declared, grains per tablet, Neonal 1.5, found 1.42; declared amidopyrine 4.0, found 4.18. Should be retailed only on prescription, Sec. 17(k).

S-1132. *Amidophen capsules*. The Rexall Store, Mystic. Eli Lilly & Co., Indianapolis. Declared grains per capsule, amidopyrine 3.5, found 3.29; declared acetophenetidin 1.0, found 1.0; declared caffeine 0.5, found 0.47; declared total alkaloids of hyoscyamus 1/2600, not tested for. Label states "Caution: To be used only by or on the prescription of a physician. Indiscriminate use may be dangerous". Article can be retailed only on prescription as provided under Sec. 17(k).

S-1130. *Amidopyrine*. F. J. Connors, Stonington. Schieffelin & Co., New York. Identified as the pure drug. Can now be retailed only on prescription, Sec. 17(k).

S-1147. *Amidos Comp. No. 2*. Pelton's Pharmacy, Middletown. National Drug Co., Philadelphia. Not original package. Declared, grains per tablet, amidopyrine 5.0, found 4.95; declared phenobarbital 0.5, found 0.55. Extr. hyoscyamus declared 5/6 grain, not tested for. Should be retailed only on prescription.

S-1124. *Amytal Compound*. J. A. Johnson, New Haven. Eli Lilly & Co., Indianapolis. Declared, grains per capsule, amytal 1.5, found 1.47; declared amidopyrine 3.5 found 3.42. Contains amidopyrine and should not be retailed except on prescription, Sec. 17(k).

S-1091. *Anacin Tablets*. Prospect Pharmacy, E. Hartford. The Anacin Co., Jersey City. Ingredients declared, grains per tablet, acetphenetidid 3.0, found 2.7; aspirin, caffeine and quinine sulphate, presence but not quantity declared. Aspirin found 3.05, caffeine 0.26 and quinine sulphate 0.21. Sec. 17(e) requires the names of active ingredients but not

the quantity or proportion thereof, except of certain drugs therein listed, of which acetphenetidid is one. This product is labelled in accord with requirements of the section cited.

S-1093. *Anatab tablets*. Modern Drug Store, Wallingford. Hance Bros. and White, Philadelphia. Ingredients not declared. Found, grains per tablet, aspirin 5.12, caffeine 0.13. Other ingredients, if present, not detected. This product would now require declaration of active ingredients under Sec. 17(e).

S-1135. *Cibalgin*. Starr Bros. Inc., New London. Ciba Pharmaceutical Products, Inc., Summit, N. J. Declared, grains per tablet, amidopyrine 3.5, found 3.40; declared diallylbarbituric acid 0.5, found 0.55. Should be retailed only on prescription, Sec. 17(k).

S-1140. *Cinchopyrine*. Vincent Pharmacy, Rockville. Abbott Laboratories, North Chicago. Not in original package. Declared, grains per tablet, cinchophen 2.5, found 2.29; declared amidopyrine 1.5, found 1.33; declared calcium carbonate 2.5, found (calc. from CO₂) 2.06; declared colchicine 1/500 grain, not tested for. Because of presence of cinchophen and amidopyrine should be retailed only on prescription, Sec. 17(k).

S-1166. *Elixir Phenamidal*. Hamilton's Pharmacy, Stratford. The Upjohn Co., Kalamazoo, Mich. Declared, grains per fl. oz., amidopyrine 12, found 11.35; declared phenobarbital 1.2, found 2.05; declared extract hyoscyamus 0.8, not tested for. Declared alcohol 20%, not determined. Phenobarbital in excess of claim. Because of presence of amidopyrine should be retailed only on prescription, Sec. 17(k).

S-1092. *Headache Powders*, tablet form. Thomas and Hammer, E. Hartford. United Drug Co., Boston. Declared grains per tablet, acetanilid 1.5, found 1.18; other ingredients not declared, found aspirin 2.82, caffeine 0.47. Other ingredients if present not detected. Under Sec. 17(e) all active ingredients should be declared.

S-1111. *Hicks' Capudine Liquid*. Kay Drug Co., Windsor Locks. Capudine Chem. Co., Raleigh, N. C. Ingredients not declared. Brown liquid, aromatic odor, alkaline to litmus. Qualitatively caffeine, salicylic acid, bromide, carbonate and sugar present. No amidopyrine, antipyrine, acetanilide, acetphenetidid or alkaloids (other than caffeine). Alcohol not tested for. Found, grains per fl. oz., caffeine 4.0, salicylate (calc. as sodium salt) 16.50, bromide (calc. as sodium salt) 34.11, sugars 111.6. Ingredients should be declared (Sec. 17(e)). Formerly contained antipyrine and chloride. (See Jour. A.M.A., Oct. 17, 1908, p. 1347).

S-1152. *Ipral-Amidopyrine*. Wise, Smith and Co., Hartford. E. R. Squibb and Sons, New York. Not in original package. Declared, grains per tablet, ipral 2.0, found 2.02; declared amidopyrine 2.33, found 2.36. Should be retailed only on prescription, Sec. 17(k).

S-1134. *Kalms*. Nichols and Harris Co., New London. Johnson and Johnson, New Brunswick, N. J. Declared, grains per tablet, antipyrin 2.0, found 1.62; declared amidopyrine 3.0, found 2.62; declared caffeine 0.5, found 0.63. Article should be retailed only on prescription because of presence of amidopyrine, Sec. 17(k).

S-1141. *Lumodrin tablets*. Vincents Pharmacy, Rockville. Winthrop Chemical Co., Inc., New York. Declared, grains per tablet, ephedrin hydrochloride 0.37, found 0.29; declared luminal 0.25, found 0.25; declared pyramidon 2.0, found 1.87. Since preparation contains pyramidon (brand amidopyrine) should be retailed only on prescription, Sec. 17(k).

S-1095. *Midol tablets*. Liggetts' Drug Store, Meriden. General Drug Co., New York. Ingredients not declared. Ingredients found, grains per tablet, aspirin 7.43; alkaloids calc. as cinnamyl ephedrine 0.04. No caffeine or amidopyrine found. Active ingredients should be declared to conform to present law, Sec. 17(e).

S-1125. *Midol tablets*. J. A. Johnson, New Haven. Same manufacturer as S-1095 above. Ingredients declared aspirin, cinnamyl ephedrin and caffeine. Ingredients found, grains per tablet, aspirin 7.44, cinnamyl ephedrine 0.10, caffeine 0.79. Values for cinnamyl ephedrin are given with the reservation that the method for ephedrin, A.O.A.C. Methods of Analysis, p. 558, Sec. 44, was employed, calculating results as cinnamyl ephedrin. The same comment applies to S-1095. No pure cinnamyl ephedrin was available to check the accuracy of the method as applied to this ingredient.

None of the ingredients declared require quantitative declaration. Like sample S-1095, this sample contains no amidopyrine.

S-1159. *Neonal*. Holley Pharmacy, Bristol. Abbott Laboratories, North Chicago. Declared, grains per tablet, neonal 1.5, found 1.58. Can be sold at retail with warning label "may be habit-forming", see comment S-1123. Was so labelled.

S-1162. *Neonal Compound*. D. G. Stoughton Co., Hartford. Abbott Laboratories, North Chicago. Package bears label "Warning—may be habit-forming". Declared, grains per tablet, neonal 0.5, found 0.47; declared amidopyrine 2.5, found 2.46. Should not be retailed except on prescription, Sec. 17(k).

S-1163. *Optalidon*. W. H. Jones Drug Store, Stamford. Sandoz Chem. Works, Inc., New York. Declared, grams per tablet, isobutyl-allylmalonylurea 0.05, found 0.048; declared dimethylamino-antipyrine 0.125, found 0.119; declared trimethyl xanthine 0.025, found 0.025. Contains amidopyrine and should be retailed only on prescription, Sec. 17(k). Active ingredients should be called by common names, Sec. 17(e).

S-686. *Ortal sodium*. The Sisson Drug Co., Hartford. Park, Davis & Co., Detroit. Declared, grains per capsule, 3.0, found 2.84. S-687. *Neonal*. The Sisson Drug Co., Hartford. Abbott Laboratories, North Chicago. Declared, grains per tablet, 1.5, found 1.61. S-688. *Pentobarbital sodium*. G. Fox & Co., Hartford. Lilly & Co., Indianapolis. Declared, grains per tablet, 1.5, found 1.48. These are all derivatives of barbituric acid and, if sold without prescription, require the statement "Warning—may be habit-forming", as noted under S-1123.

S-1126. *Peralga tablets*. J. A. Johnson, New Haven, Schering and Glatz, Inc., New York—St. Louis. Label states "To be dispensed only on prescription and used under the continuous supervision of physician or dentist since the occurrence of granulocytopenia in susceptible individuals

has been reported from the use of aminopyrine, a component of Peralga". Declared, grains per tablet, amidopyrine 4.25, found 4.19; declared barbital 1.75, found 1.68. Should be retailed only on prescription, Sec. 17(k).

S-1128. *Pyramidon tablets*. J. A. Johnson, New Haven. Winthrop Chemical Co., Inc., New York. Declared, grains per tablet, pyramidon 5.0, found 4.95. Label states "Warning, may be dangerous to health unless used only by or on prescription of a physician, dentist or veterinarian". Under Sec. 17(k) of the Connecticut law this article may be retailed only on prescription because of the presence of pyramidon, a brand of amidopyrine.

S-1127. *Pyraminal*. J. A. Johnson, New Haven. Metz Laboratories, Inc., New York. Declared, grains per tablet, pyramidon 2.5, found 2.20; declared luminal 0.125, found 0.16. Contains pyramidon (brand of amidopyrine), and should be retailed only on prescription, Sec. 17(k).

S-1094. *Salicon*. Carroll's Cut Rate Store, Wallingford, K. A. Hughes Co., Boston. Ingredients not declared. Qualitatively acetyl salicylic acid, fatty material and carbonate indicated. Acetylsalicylic acid found 3.8 grains per tablet. Other medicaments, if present, not detected. Under Sec. 17(e) of present law ingredients should be declared.

TURPENTINE

Section 2461 of the General Statutes forbids the sale of adulterated turpentine. The genuine article is presumed to be "distilled wholly from rosin, turpentine gum or scrapings from pine trees, and to be unmixed with oil, benzine or other substances".

Gum turpentine is made by distilling the gum or oleoresin that exudes from the chipped or scarified trunks of living pine trees. Wood turpentine is made by steam distillation or destructive distillation of resinous stumps of dead or fallen pine timber.

Adulteration of turpentine may be due to admixtures of cheaper oils derived from petroleum that resemble turpentine in physical character, such as benzine, kerosene, "painters' naphtha", and "mineral spirits". Products of coal tar origin such as benzol (or benzene, not the same as benzine), xylol or coal-tar naphtha are also sometimes used as adulterants.

The statutes provide no numerical specifications for turpentine and the samples submitted were judged by specifications given in Bulletin 898 of the U.S. Department of Agriculture, which are as follows:

	Maximum	Minimum
Specific gravity at 15.5° C.....	0.875	0.862
Refractive index at 20° C.....	1.478	1.468 ¹
Unpolymerized residue,		
gum turpentine.....	2.0	.....
wood turpentine.....	2.5	.....
Initial B.P., ° C.....	16.0	150.0
Distilling below 170° C, per cent.....	.....	90.0

On storage for a year or more, particularly if held in partially filled containers, turpentine thickens due to oxidation, and its specific gravity becomes higher and the proportion distilling below 170° C may be less than 90 per cent.

¹ 1.465 according to A.S.T.M. specifications.

No material variations from the specifications cited were found in the samples, 15 in number, submitted by the Dairy and Food Commissioner. Two samples showed slightly less than 90 per cent distilling below 170° C which may be due to the conditions of storage just noted. All samples were water-white or nearly so, excepting S-943 which was yellowish due probably to oxidation; and S-945 and S-946 which were pinkish orange. The explanation of the latter color is not apparent unless due to accidental contamination in handling.

Analyses are given in Table 9.

TABLE 9. ANALYSES OF TURPENTINE, SPIRITS OF

D. C. No.	Dealer	Sp. Gr. at 15.5° C	Ref. Index at 20° C	Un-polym. residue	Initial B. P. ° C	Distilled below 170°
	Bridgeport			%		%
S-936	M. J. Ford Co. ....	.863	1.467	2.2	154	96.3
S-937	Yurden's Hardware Store. . .	.868	1.470	1.0	151	92.6
	Cheshire					
S-864	Cheshire Pharmacy . . . . .	.878	1.473	0.4	158	90.0
	Fairfield					
S-874	Fairfield Pharmacy . . . . .	.864	1.466	1.6	155	97.4
	Hamden					
S-862	The Hamden Pharmacy . . . . .	.875	1.473	0.4	157	92.7
	New Britain					
S-880	The John Boyle Co. . . . .	.869	1.472	0.4	158	96.5
S-883A	Rulkowski Paint Co. . . . .	.871	1.472	0.4	158	94.0
	New Haven					
S-861	Shelton Pharmacy . . . . .	.864	1.466	2.0	156	97.2
	Simsbury					
S-946	Patterson & Co., Inc. . . . .	.877	1.474	0.4	154	88.0
S-945	W. B. Welden. . . . .	.876	1.474	0.8	154	91.5
	Southport					
S-873	L. B. Suelzter, Inc. . . . .	.871	1.472	0.4	157	96.0
	Thompsonville					
S-953	Thompsonville Hardware Co. .	.875	1.473	0.4	157	90.0
	Windsor					
S-843	Windsor Drug Co. . . . .	.871	1.472	0.8	157	94.5
S-844	The Windsor Hardware Co., Inc. . . . .	.872	1.472	0.4	158	94.9
	Winsted					
S-943	Merwin & Brown Co. . . . .	.878	1.473	0.4	153	88.8

MISCELLANEOUS DRUGS, ETC.

Thirty-six samples of drugs and related materials have been examined. These have come to us for the most part from health officers and other public officials, and a few from physicians and others. The results have been reported to the departments or others interested and need no special comment here.

In 1937 (our Bul. 445, 1938), several salt substitutes, were examined, among them one called "Curtasal" submitted by a purchaser. It consisted essentially of salts of organic rather than mineral acids, gluconates being indicated from the melting point of the p-bromphenacyl ester and from the melting point of that ester mixed with known p-bromphenacyl gluconate. The sample, not in an original package, was insufficient for a determination of optical activity. In the past year two other samples of this product, one of them authentic, were examined and the article found to be chiefly a formate salt rather than gluconate. In the Journal of the American Medical Association, Apr. 22, 1939, the composition of this product is stated to be 98 per cent sodium formate, 1 per cent magnesium citrate and 1 per cent calcium formate. The manufacturers advise that more recently 2.5 per cent of magnesium oxide has been added and the sodium formate correspondingly reduced. Our original sample was not available for retest. However, the melting points of the p-bromphenacyl esters of formic and gluconic acids are very nearly alike and it is probable that this sample was essentially a formate, and that it had the composition as given in the reference cited above.

COLLABORATION WITH OTHER DEPARTMENTS

Analytical work done for other State or Station departments during the year is summarized as follows:

Agency	No. of samples
State Supervisor of Purchases (foods)	17
State Department of Health (narcotics)	7
State Departments:	
Entomology (apple leaf discs for spray residue)	51
soils (for arsenic)	7
Soils (lysimeter samples tobacco investigation)	47
Tobacco Sub-station	32
Total	161

Babcock Glassware, etc.

Sec. 2463 requires this Station to test and certify test bottles and pipettes used in testing milk and cream by the Babcock method. Sec. 2488 (n) requires that the Station check the accuracy of thermometers used in pasteurizing plants to check recording thermometers.

This work for the year is summarized as follows:

		Inaccurate
Babcock glassware, pieces	3,037	2
Thermometers	152	0
Total	3,189	2

I N D E X

Allonal tablets.....	480	Kalms.....	481
Amido-Neonal.....	480		
Amidophen capsules.....	480	Lumodrin tablets.....	482
Amidopyrine.....	480		
Amidos compound No. 2.....	480	Magnesium citrate, solution of..	473-477
Amytal compound.....	480	Maple syrup.....	463, 465
Anacin tablets.....	480	Meat products, etc.....	466
Anatab tablets.....	481	Mercurial ointment, mild.....	478, 479
		Midol tablets.....	482
Babcock glassware.....	485	Milk and milk products:	
Beverages, etc.....	458	vitamin D milk.....	467, 468
Bruce's juices (see beverages)		plain milk.....	467
		cream.....	467
Calcium gluconate.....	469, 470	Miscellaneous drugs, etc.....	485
Cereal breakfast foods.....	458-462	Miscellaneous foods, etc.....	468
Cibalgin.....	481		
Cinchopyrine.....	481	Neonal.....	482
Collaborative work.....	485	Neonal compound.....	482
Compound effervescent powders (Seidlitz powders).....	469, 471, 472		
Curtasal.....	485	Optalidon.....	482
		Ortal sodium.....	482
Eggs.....	463		
Elixer Phenamidal.....	481	Peralga tablets.....	482
		Pyramidon tablets.....	483
Fats and oils:		Pyraminal.....	483
butter.....	463		
olive oil.....	463	Salicon.....	483
Flavoring extracts.....	463, 464	Sedatives, etc.....	479-483
		Seidlitz powders.....	469, 471, 472
Headache powders, tablet form..	481		
Hick's Capudin Liquid.....	481	Turpentine.....	483, 484
Iodine, mild, tincture of.....	473		
Ipral-Amidopyrine.....	481		