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THE FORTY-NINTH REPORT ON

FOOD PRODUCTS

AND THE THIRTY-SEVENTH REPORT ON

DRUG PRODUCTS

1944

E. M. Bailey, Chemist in Charge

Connecticut
Agricultural Experiment Station
New Haven

CONTENTS AND SUMMARY

Material	Page	From		Total	Adulterated, misbranded or otherwise questionable
		Dairy and Food Commissioner	Other sources		
FOODS					
Beverages, carbonated, etc.	434	296	2	298	52
Coffee	434	...	8	8	...
Contaminated or decomposed foods	434	104	46	150	79
Deceptive packaging	436	74	...	74	26
Eggs	436	51	...	51	30
Fats and oils:					
Olive oil, etc.	438	77	8	85	60
Butter	438	11	2	13	3
Flavoring extracts, etc.	438	3	...	3	1
Mayonnaise, salad dressings, etc.	440	58	...	58	10
Meat products:					
Hamburg steak	440	36	...	36	...
Frankfurts	441	12	...	12	1
Milk and milk products:					
Fluid milk	443	...	44	44	...
Evaporated milk	443	18	...	18	...
Vitamin D milk	443	108	...	108	4
Spray residues	443	106	2	108	...
Tomato products	444	6	...	6	1
Vinegar	444	4	...	4	...
Miscellaneous	444	36	50	86	15
Totals		1,000	162	1,162	282
DRUGS, etc.					
Hydriodic acid, dilute and syrup	444	12	...	12	2
Iodine, solution of	445	5	...	5	4
Nicotinic acid (Niacin) tablets	445	14	...	14	1
Potassium permanganate, 5% solution	446	62	...	62	17
Silver nitrate, 2% solution	446	48	...	48	10
Silver protein, mild	446	12	...	12	...
Thiamin hydrochloride tablets	447	38	...	38	9
Miscellaneous drugs, etc.	447	30	14	44	6
Totals		221	14	235	49
Collaborative	449	...	1,023	1,023	...
Total for all	449	1,221	1,199	2,420	331
Babcock glassware, etc.		...	3,178	3,178	12

THE FORTY-NINTH REPORT ON FOOD PRODUCTS and the THIRTY-SEVENTH REPORT ON DRUG PRODUCTS

1944

E. M. BAILEY

This report summarizes examinations of official samples of foods and drugs submitted by the Dairy and Food Commissioner during the calendar year 1944. Included are examinations of materials submitted by health officers and others, and also analytical work done as a service to other State and Station departments.

Dr. Harry J. Fisher, as chairman of the Revision Committee for the 6th edition of the A. O. A. C. text "Methods of Analysis", has supervised the preparation of this revised text and given much personal attention to that work.

At the request of the Dairy and Food Commissioner, the writer has prepared revision of rules and regulations relating to the Food, Drug and Cosmetic Act of this State to supersede the issue of June 1, 1940.

Thirteen hundred and ninety-seven samples of foods, drugs and related materials have been examined during the year. Service to other State and Station departments has involved analyses of 1,023 additional samples. Over 3,000 pieces of Babcock glassware, etc. have been checked for accuracy.

In all of this work, as well as in other duties with which the department is charged, the loyal and effective cooperation of the department staff is gratefully acknowledged.

FOODS

CARBONATED BEVERAGES, etc.

Two-hundred and ninety-six samples of carbonated and other beverages and beverage concentrates were submitted by the Dairy and Food Commissioner. Fifty-two were adulterated or misbranded.

All contained the requisite amount of sugar to meet the minimum requirement of 5 per cent specified in the beverage law.

Fifteen samples contained saccharin, a non-nutritive sweetening agent specifically prohibited in the statute relating to non-alcoholic beverages.

The use of saccharin is permissible in foods intended for special dietary purposes when such foods are sold under appropriate label declaration but, in the case of beverages, the special beverage law governs, according to an opinion given by the Attorney General. That law is broad enough to prohibit also the sale of beverage concentrates, such as extracts, syrups and powders, containing saccharin and intended for the preparation of beverages in the home by the addition of water. But there is, of course, no ban on the sale of saccharin, as such, for individual use by those who must restrict their intake of sugar.

Thirty-one samples were misbranded by reason of failure to declare (1) artificial color which was present, or (2) the name and address of the bottler, or (3) the net volume of contents.

Three samples contained less than the declared volume of contents. One sample (orangeade) contained less than one-half of the required amount (15%) of orange juice. The label of one sample (apple cider) bore such an inconspicuous declaration of preservative that it could hardly be read with a reading glass. One sample contained nondescript dirt.

Two samples of orange juice submitted by purchasers were examined and both appeared to be as represented.

COFFEE

Eight samples of ground coffee were examined for a State institution. No evidence of adulteration was found in any of them.

CONTAMINATED OR DECOMPOSED FOODS

Food products are presumed to be clean, sound and fit for consumption. The purpose of food laws is to prevent the merchandising of foods that do not meet these conditions.

Contaminated foods are adulterated but they may or may not be health hazards. Contamination with active poisons is clearly a health

consideration. Contamination with filth, e. g. rodent excreta, since it may spread germs of disease, likewise endangers consumer health. Insect infestation and nondescript dirt or other foreign material may be quite inert and not necessarily a health menace, but such contaminations are repulsive and the consumer will not knowingly purchase foods of that character.

Decomposed food in the usual and proper consumer understanding of that term is food that has undergone such changes in substance and quality that it is no longer fit for consumption. However, this understanding should not be confused with those physical and chemical transformations which many foods normally undergo in the process of manufacture or curing, or storage changes which are deliberately induced and designed to change substance or enhance quality. The simple distinction is that in one case food has become inedible through uncontrolled decomposition; in the other case controlled decomposition is a part of the process by which the food is produced. Cheeses perhaps afford the best example of food delicacies produced by controlled decomposition.

One hundred and four official samples were examined for evidence of filth, contamination or decomposition. Of these, 38 were passed and 66 were definitely unfit for food or of doubtful fitness. The samples included flour, cereal products, bakery products, beverages, nuts, raisins, salad oil, candy, canned meats, canned fish and frozen poultry.

Forty-six samples were examined for local health officers and others. Thirty-three were passed and 13 were classed as unfit for food.

Among the samples submitted were seven of canned meats, beef and hamburger, which, according to markings on the cans, had been packed for about 10 years. Some of the cans were rusted on the outside, and in some cases more or less discolored on the inside, due probably to sulphur naturally present in meat. The meat itself was not discolored, and the vacuum was intact in all samples. No evidence of spoilage was indicated by organoleptic tests. Cooking (boiling) developed no abnormal characters and test animals ate the meat with apparent relish and with no unfavorable effects.

A sample of cooked ham and four of uncooked ham were examined. The cooked ham had a definite and offensive odor near the bone, due probably to bacterial infection resulting in decomposition. One of the uncooked samples was badly infested with maggots.

Several samples of hard candy were examined. The white dusting powder on them was found to be powdered sugar, except in one case. The candy in this sample was covered with calcium hydroxide which had carbonated to some extent. The explanation was that "preservative" had been packed in separate containers with the candy. The "preservative", which was a mixture of calcium hydrate and carbonate when analyzed, but which was largely calcium oxide (quick

lime) when packed, was used to keep the candy from absorbing moisture in transit. The candy had become contaminated with the desiccating powder in subsequent handling, or had been deliberately sprinkled with the powder, which had been mistaken for sugar.

An infant feeding formula that caused the death of several infants in a hospital was found to contain boric acid. By accident the formula had been prepared with boric acid in place of the dextrose ingredient.

A solution said to have been served in a restaurant as ginger ale, or as the ginger ale ingredient of a mixed drink, was found to be a 10 per cent solution of an organic ammonium chloride. This is about the concentration of a commercial preparation now rather widely used for sterilizing purposes, and it responded to tests for dimethyl-benzyl-ammonium chloride which is the active ingredient of "Roccal" according to the label declaration for that article. It is intended to be used only in dilution and as a rinse for drinking glasses and dishes after they have been washed. It is an effective sterilizing agent and safe when properly used. The circumstances in this case indicated that the sterilizing solution had been kept in a ginger ale bottle and served by mistake for ginger ale. Due to its bitter taste only small amounts of the drinks served were consumed, and the gastric disturbances that followed were not serious.

DECEPTIVE PACKAGING

Food packed in containers that are "so made, formed or filled as to be misleading" to the purchaser is misbranded.

Forty-eight samples of macaroni products, 20 of confectionery and six of miscellaneous items were examined. Of the total number, 26 were slack filled and deceptive. The deceptive packages were not necessarily short weight. The purpose of this particular misbranding provision is to stop the practice of packing foods in over-sized containers. The purchaser often visualizes the quantity of his purchase by the size of the container and is deceived when he finds the container only one-half or two-thirds filled.

EGGS

The so-called cold storage egg law in this State provided for appropriate labelling of shell eggs. Cold storage eggs, preserved eggs and incubated eggs, as the case might be, were required to be so marked. Care in the selection and handling of eggs intended for cold storage has so improved the quality of storage eggs as to remove to a large extent consumer prejudice against them. But it is quite evident that eggs labelled "incubated" would have no consumer acceptance and thus the outlet for such eggs, otherwise known as "incubator rejects", appears to have been to bakeries, ultimately reaching the consumer in the form of baked products.

Eggs held in an incubator for a few days, or a week, are not necessarily inedible, and may not be inferior in quality to eggs that are not "incubated" but delayed in market channels without refrigeration. But our information is that "incubator rejects" are not removed from the incubator until the eighteenth day, and that it is not feasible to segregate them at a seven or eight-day interval. Eggs that we have examined after the longer period of incubation have shown marked evidence of deterioration and to such a degree as to render them unfit for food purposes, while eggs incubated for the shorter period may approach the limit of edibility. The characteristics of inedible eggs as determined by candling and on gross examination out of the shell are intermingling of yolk and white ("addling"), adhesion of yolk to shell, encrusted or mottled yolk and embryo development. Ammoniacal nitrogen as determined by aeration will be high, but the offensive odor of decomposition is lacking.

The results of a series of tests, arranged by the Dairy and Food Commissioner and carried out jointly by the Poultry Department of the University of Connecticut, the State Department of Agriculture and ourselves, are of interest in this connection.

Fresh eggs and eggs incubated for periods of one to seven days were examined. The eggs were graded by an expert from the Department of Agriculture on the basis of candling and breaking. The remaining eggs of each lot were brought to this laboratory for determinations of ammoniacal nitrogen. The results are given in Table 1.

TABLE 1. AMMONIA NITROGEN IN INCUBATED EGGS[1]

Our No.	Storrs No.	Graded by Dept. Agr.	Days incubated	Ammoniacal nitrogen (mgms. per 100 gms. egg)
9800	1	AA	0	1.2
9801	2	AA	1	0.9
9802	3	A	2	1.6
9803	4	Low A	3	1.3
9804	5	B	4	2.4
9805	6	Low B	5	2.5
9806	7	B - C	6	3.0
9807	8	C	7	2.6

[1] These determinations of Ammonia N were not made in duplicate and error may be ± 0.2 mgm./100 gms.

These eggs were re-examined by candling and by breaking out as well as for ammonia content. On the basis of all observations, we would classify Nos. 1 and 2 definitely as fresh eggs and would pass 3 and 4 as fresh. Nos. 5 to 8, inclusive, we would classify as not fresh but edible, with perhaps some reservation about No. 7. This conforms with the grading as made by the Department of Agriculture since only grades AA and A are entitled to the designation "fresh".

The ammoniacal nitrogen values are not uniformly progressive but the trend is quite evident. The average of duplicate determina-

tions might have shown more uniform progression. The most marked change in ammonia content occurred at about the 5th day of incubation.

An article by Pucher (Proc. Soc. Experimental Biology and Medicine 25, 72, 1927-8), gives analytical data on incubated non-fertile eggs at 0, 5, 10 and 20-day intervals. His figures for non-protein nitrogen (which would include chiefly ammoniacal nitrogen) parallel our figures quite closely.

Fifty-one samples were submitted by the Dairy and Food Commissioner. Generally there were 12 eggs in each sample.

In addition to the ammoniacal nitrogen determination, the eggs were candled and examined as to condition on breaking.

Twenty-seven of these samples had the characteristics of inedible eggs. Many of them were known to be incubator rejects. The ammoniacal nitrogen ranged from 3.4 to 6.8 mgms./100 gms., the average was 4.9.

Five samples were judged as being on the border line of inedibility. Ammoniacal nitrogen ranged from 2.9 to 3.3 mgms./100 gms., the average being 3.1.

Fourteen samples were judged as not fresh but edible. These could have been incubated for short periods, or held under conditions that produced the same result. Ammoniacal nitrogen ranged from 1.7 to 2.9 mgms./100 gms. and averaged 2.2.

Of the remaining five samples, two had the characteristics of fresh eggs, and the ammoniacal nitrogen was 1.5 mgms./100 gms. in each case. One sample was apparently a mixture of fresh and cold storage eggs; the ammoniacal nitrogen was 1.5 mgms./100 gms. Two samples had very high ammoniacal nitrogen, 10.8 and 23.7 mgms./100 gms., respectively, but these high values were due to the inclusion of one or two definitely rotten eggs in the composite in each case. One of these samples was sold as "cracked eggs"; the other sample could have been incubator rejects.

FATS AND OILS

Olive Oil, etc.

Seventy-seven official samples of olive oil and imitations thereof have been examined for the Dairy and Food Commissioner; and eight samples were submitted by local health officers and others.

Adulteration and misbranding of this article continues to be prevalent, although the proportion of such indicated by this summary is not a true picture of general market conditions because many of the samples were taken from sources where violations were likely to be found.

In summary, the results of the inspection are as follows:

	Official samples	Other sources
Adulterated and misbranded	29	6
Misbranded	25	..
Not found adulterated	23	2
	77	8

Short volume and failure to declare on the label the name and address of the manufacturer, packer or distributor were the chief features of misbranding. Substitution of artificially colored and flavored vegetable oils for olive oil was the usual form of adulteration.

BUTTER

Eleven official samples of butter were examined for the Dairy and Food Commissioner. Two were submitted by purchasers.

One sample being used for butter in a restaurant contained some unidentified fat other than butter, indicated by taste and by low Reichert-Meissl and Polenske values, 18.3 and 1.09, respectively. The other samples were passed, although two were possibly renovated.

FLAVORING EXTRACTS, etc.

KF-169. Klectoner's Quality Vanilla. This was a white crystalline substance identified as vanillin. The observed melting point was 81° C. and no depression in melting point resulted when the sample was mixed with known vanillin.

The characteristic flavor of the vanilla bean is due largely to vanillin, but minor constituents of the bean also contribute. Vanillin may be made synthetically but it lacks the full flavor quality that extracts of the bean supply.

"Vanilla" or "vanilla powder" is not an appropriate designation for this article.

S-360. Dolan's Cakex, Imitation Vanilla. The ingredients are stated to be vanillin, coumarin, pure vanilla extract and caramel color in a vehicle of sherry wine and water.

Analysis showed vanillin, 0.63 gm./100 cc.; coumarin, 0.06 gm./100 cc.; Winton lead No. 0.04, and alcohol by volume, 1.42 per cent.

On the basis of 0.54 as an average lead number for vanilla extract, the vanilla extract in this preparation is about 7 per cent.

Sherry wine, as such, could not be identified, but on the basis of the usual alcoholic content of fortified wine there might be 7 per cent

of wine present. The low alcoholic content of the sample would indicate no considerable amount of vanilla resins in the product.

KF-208. Lemon extract. Gristede Bros., Inc., New York. The sample contained 4.6 per cent by volume of lemon oil, which is a little under the minimum required by the old standard for lemon extract.

MAYONNAISE, SALAD DRESSING, etc.

Mayonnaise is a special type of salad dressing. It is essentially an egg and oil dressing containing not less than 50 per cent of edible vegetable oil. The egg ingredient may be egg yolk or whole egg. A vinegar or lemon juice is commonly added, together with salt, other seasoning and sugar.

Unlike mayonnaise, salad dressings in general have not been officially defined as to ingredients and proportions. They may or may not contain eggs, and they are characterized by lower percentages of food solids and of vegetable oil than is found in mayonnaise.

The substitution of mineral oil for edible vegetable oil in these and other food products constitutes adulteration unless the articles are plainly labelled to show that they are intended for special dietetic uses where calorie intakes must be limited. Because it is not assimilated, mineral oil finds a place in so-called reducing diets, but when incorporated in foods, or when taken for medicinal purposes at mealtime, it may interfere with the utilization of fat-soluble vitamins (carotene and vitamin A), so its usefulness or advisability in special purpose foods is debatable. However, at present no objection is taken if, as stated above, the labelling conforms to the requirements of the law relating to special purpose foods.

Instances have been found where salad dressing containing mineral dressing was served as and for mayonnaise, and considerable stocks in gallon containers have also been found indicating its unrestricted use.

Fifty-eight official samples were examined of which 10 were misbranded in one or more respects, principally in the omission of ingredient statements in the case of salad dressings.

MEAT PRODUCTS

Hamburg Steak

Hamburg steak is comminuted fresh beef, with or without addition of suet and/or seasoning.

A limit of 25 per cent has been suggested as a reasonable limit for fat content, but 20 per cent is regarded by some as liberal enough while others consider 27 per cent as not excessive.

Thirty-six samples were examined. In 18 the fat content was less than 25 per cent or not greatly in excess of that proportion. Eighteen samples were distinctly in excess of 25 per cent and six approached or exceeded 40 per cent. While some consumers may relish hamburg high in fat, in times of strict rationing they should not be forced to give meat points for excessive fat.

Fresh beef normally may contain 60 per cent or more of water but it will not exceed four times the protein. In three samples where protein was determined, there was no indication of added water.

Sulphites are sometimes added to hamburg to enhance the red color and give the product a false appearance of freshness. Incidentally, that preservative kills the odor of stale meat. The use of sulphites as a preservative for meat products is illegal. No evidence of such preservative was found in the samples examined.

Frankfurts

Twelve samples of frankfurts were submitted by the Dairy and Food Commissioner. They were examined chiefly for presence of undeclared or excessive filler. All were passed as to filler, but in one sample the casings bore undeclared artificial color.

TABLE 2. ANALYSES OF HAMBURG STEAK

No.	Moisture Per cent	Fat Per cent	No.	Moisture Per cent	Fat Per cent
F- 245	65.9	9.9	KF- 42	56.3	24.8
246	58.3	21.3	48[1]	40.3	43.9
249	66.7	10.5	49[2]	59.1	18.3
251	64.2	12.8	50	...	...
265	54.7	25.5	51[3]	47.3	32.4
266	56.5	22.4	ES-228	55.3	24.6
269	41.7	39.7	260	59.2	19.4
270	44.1	38.9	264	54.5	27.0
279	41.4	43.0	347	60.6	16.8
282	44.3	38.4	358	66.0	15.1
284	47.7	34.5	Wads- 97	...	31.7
285	49.2	32.6	Wel -280	49.0	33.9
288	49.4	31.0	281	52.9	27.9
294	50.7	32.1	284	52.9	29.0
295	50.4	33.0	285	54.1	25.3
308	41.3	32.8	286	56.7	22.7
N- 327	59.9	19.6	287	61.9	15.2
370	41.3	41.3	288	56.0	23.4
			537	65.5	13.7

[1] Protein 12.8%.
[2] Protein 18.8%.
[3] Protein 15.4%.

TABLE 3. SUMMARY OF ASSAYS OF VITAMIN D MILK

City or town	Dairy	No. of samples tested	Satisfactory	Passed	Below unitage claimed
Avon	Woodford Farm	1	1	...	...
Bloomfield	Chris. Neilson & Sons	2	2	...	...
Bridgeport	Beechmont Dairy	3	3	...	...
	Dewhirst	2	2	...	...
	Marsh	2	2	...	...
	Mitchell	3	3	...	...
	Round Hill	3	2	1	...
Bristol	E. H. Elton	2	2	...	...
	Roberge Dairy	1	1	...	...
Clinton	Burr Dairy	2	2	...	...
Danbury	Rider Dairy	2	2	...	...
Fairfield	Wade's Dairy	3	3	...	...
Forestville	Roberge Dairy	1	1	...	...
Greenwich	Round Hill Farms	1	1	...	...
Hamden	Brock-Hall Dairy	1	1	...	...
Hartford	Bergren's Dairy	2	2	...	...
	Bryant & Chapman	3	3	...	...
	Cloverdale Dairy	2	2	...	...
	Farmers' Cooperative	3	2	...	1
	Highland Dairy	3	3	...	...
	Lincoln Dairy	1	1	...	...
	Peterson, A. C. Dairy	2	2	...	...
Kensington	Ferndale Dairy	3	3	...	...
Litchfield	Toll Gate Farms	2	2	...	...
Manchester	Dart's Dairy	3	3	...	...
	West Side Dairy	3	2	1	...
Milford	Cold Spring Farm	2	2	...	...
New Britain	Bayer Milk Co.	2	2	...	...
	Glendale Creamery	3	2	1	...
	Heslin Dairy Co.	1	1	...	...
New Canaan	Miller Dairy Products Co.	2	2	...	...
New Haven	Brock-Hall Dairy	1	1	...	...
	General Ice Cream Co.	2	2	...	...
	Story's Dairy	2	1	...	1
New London	Radway's Dairy	1	1	...	...
Norwalk	Borden's Dairy	2	2	...	...
	Harrick's Dairy	2	2	...	...
	Strawberry Hill Dairy	3	1	...	2
No. Haven	Knudsen Dairy	3	3	...	...
No. Newington	Spring Brook Farm	2	2	...	...
Oakville	Sanford's Overlook Farms, Inc.	2	2	...	...
Putnam	Deary Bros.	2	2	...	...
Springdale	Clear View Dairy	2	1	1	...
	Maplehurst Dairy	2	2	...	...
Stratford	Deering Dairy	2	2	...	...
Thompsonville	Skipton's Dairy, Inc.	2	1	1	...
Torrington	Torrington Creamery	2	2	...	...
Waterbury	Brock-Hall Dairy	2	2	...	...
	Brookside Dairies, Inc.	2	2	...	...
	Worden's Dairy	2	2	...	...
West Haven	Clark Dairy	2	2	...	...
Westport	Ferris Dairy	2	2	...	...
	Totals	108	99	5	4

MILK AND MILK PRODUCTS

Fluid Milk

Fewer samples of fluid milk have been examined this year than in the past. As usual, they have been submitted largely by producers, and in most cases for determinations of fat only.

Forty-four samples were analyzed.

Evaporated Milk

Eighteen samples were submitted by the Commissioner at the request of schools and State institutions.

They were examined chiefly for gross evidence of spoilage but six were analyzed. These six cans averaged 25.5 per cent solids, 7.7 per cent fat and 33.8 per cent solids plus fat. Except for a slight deficiency in fat, these averages meet the recognized standard for evaporated milk.

Vitamin D Milk

Vitamin D milk is generally 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 1944, 108 samples were examined. Only four were definitely below guaranties. The percentage of samples fully or substantially meeting guaranties is 93.

In the 10 year period 1935-1944, inclusive, 818 samples have been tested and 90.8 per cent of them have contained the unitage claimed for them or were sufficiently close to the guaranties to be passed without question.

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

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. One hundred or more samples have been tested each year. During the season of 1944, 106 samples were examined. None was found to exceed the present tolerances proposed by the U. S. Public Health Service and adopted by the Food and Drug Administration and by the Dairy Food Commission of this State. The limits for lead and arsenic now recognized are .025 grain of arsenic (As_2O_3) and .05 grain of lead (Pb) per pound of fruit. Strictly speaking, these limits apply only to apples and pears.

One sample of rhubarb and a sample of beets were tested. Only negligible traces (.1 to .3 p. p. m.) of lead and arsenic were found.

TOMATO PRODUCTS

Six official samples of tomato purée of local manufacture were examined for the Dairy and Food Commission. Five samples showed a mold count of 26 to 44 per cent and were passed. One sample showed 58 per cent which is excessive.

VINEGAR

Four official samples of vinegar were tested for the Dairy and Food Commissioner and one was examined for a producer. All met the State standard for acidity and were passed.

MISCELLANEOUS

Thirty-six official samples of miscellaneous products were submitted. The questions involved were chiefly matters of labelling. Twenty-one were passed and 15 were unsatisfactory as to labels or in other respects.

Fifty samples of miscellaneous products were examined for health officers and others.

DRUGS, etc.

DILUTE HYDRIODIC ACID AND SYRUP OF HYDRIODIC ACID

Dilute hydriodic acid according to U. S. P. XII contains 9.5-10.5 gms. of hydriodic acid per 100 cc.

Syrup of hydriodic acid contains 1.3-1.5 gms. of hydriodic acid per 100 cc.

The inspection was intended to cover dilute hydriodic acid only, but since there appeared to be some misunderstanding as to article called for, samples were judged on the basis of the article as labelled when delivered.

The summary for 12 samples taken is as follows:

Two samples were labelled "dilute hydriodic acid". One was that article and of correct hydriodic acid content; the other was syrup of hydriodic acid.

Two samples were labelled "dilute *hydrochloric acid*". They were correct for the preparation as labelled and were of correct acid concentration.

Eight samples were labelled "syrup of hydriodic acid". Seven were that article and of correct concentration, or within 10 per cent of it. One was about one-half strength.

SOLUTION OF IODINE

Apparently there is much confusion among pharmacists as to the distinctions between the several iodine solutions now recognized as official.

Two are tinctures, i. e. alcoholic solutions, but they differ in iodine content and in the kind and amount of iodide present.

Two others are water solutions. These also differ in iodine content and in the kind and amount of iodide which they contain.

The distinctions are shown in the following table.

Name	Solvent	Iodine, gms. per 100 cc.	Ingredients, gms. per 100 cc.	
			Potassium Iodide	Sodium Iodide
(1) Tincture of Iodine.....	Alcohol	6.8—7.5	4.7—5.5	.....
(2) Mild Tincture of Iodine....	Alcohol	1.8—2.2	.....	2.1—2.6
(3) Strong Solution of Iodine (Lugol's Sol'n., Compound Sol'n. of Iodine U.S.P. XI)	Water	4.5—5.5	9.5—10.5	.....
(4) Solution of Iodine	Water	1.8—2.2	.....	2.1—2.6

Five samples were examined, Solution of Iodine (4) being called for in each case. None was entirely satisfactory. Three were the article asked for, but two did not contain the proper amounts of ingredients; the third was passed. One sample was labelled "1/10 normal iodine" and another "alcoholic sol'n. iodine, 1%". Both were correct for the articles as labelled but they were not the preparations called for.

NICOTINIC ACID TABLETS

These tablets are an official preparation recognized in U. S. P. XII. The tablets are also known as Niacin tablets. The U. S. P. limits of variation are 95 to 120 per cent of the amount of niacin declared on the label.

Fourteen samples were examined by the U. S. P. procedure. Ten were found to be within the limits of allowable variation, three were 90 per cent or better, and one was distinctly below the amount claimed. This sample was labelled 25 mgms. "nicotinic acid, pure crystalline" per tablet and only 20 mgms. were found.

The manufacturer criticized our findings in this case on the ground that a microbiological method is recognized in a supplement to U. S. P. XII as official for legal control purposes, and further stated that by that method the tablets in question assayed in accord with the amount declared on the label.

The microbiological assay does not distinguish between nicotinic acid and nicotinamide. On further examination of these tablets, we

found them to contain 4.5 mgms. of nicotinamide (equivalent to 4.6 mgms. of nicotinic acid) per tablet by the U. S. P. method for that determination (p. 477). This made a total of 24.5 mgms. of nicotine acid plus nicotinamide per tablet, or a biological equivalent of 24.6 mgms. per tablet of nicotinic acid, which is substantially in accord with the manufacturer's microbiological assay. In view of the label on this sample, however, our finding of 20 mgms. nicotinic acid is not invalidated, but on the contrary appears to be confirmed.

POTASSIUM PERMANGANATE SOLUTION

Sixty-two samples of solution of potassium permanganate were examined. A 5 per cent solution was called for and 59 of the samples were so labelled. Solutions marked "10 per cent" were sold in three cases.

Of the 5 per cent solutions, 25 tested within 0.25 per cent of the concentration called for and were regarded as satisfactory. Twenty samples tested within 0.5 per cent of the correct concentration and were passed. Fourteen varied from the concentration called for by more than 10 per cent.

Needless to say the samples labelled "10 per cent" were low because the limit of solubility of potassium permanganate in water at room temperature, 25° C., is about 6 per cent, weight/volume basis.

The result of this survey shows that 40 per cent of the samples were compounded with a satisfactory degree of accuracy, 32 per cent with fair accuracy, 28 per cent were not reasonably accurate.

SILVER NITRATE SOLUTION

Forty-eight samples of solution of silver nitrate were examined. All were labelled "2 per cent" except one which was labelled "1 per cent".

Thirty-eight were satisfactory. They were within the limits of 1.8-2.2 per cent. Ten varied from the label declaration by more than 10 per cent.

About 80 per cent of these solutions were prepared with a reasonable degree of accuracy while 20 per cent were not.

SILVER PROTEIN, MILD

Mild silver protein is colloidal silver combined with, or in presence of, protein.

A 10 per cent solution prepared with silver protein of U. S. P. XII specifications should contain 1.9 to 2.3 per cent of silver, weight/volume basis.

Silver compounds, notably silver nitrate, are used in medication where caustic and astringent effects are desired as well as antiseptic action. Colloidal silver preparations produce the latter effect with little or no corrosive or irritant action.

Ten samples of 10 per cent and two of 5 per cent solutions were examined.

Eleven were within the limits mentioned above and one was sufficiently close to be passed.

THIAMIN HYDROCHLORIDE TABLETS

Thiamin hydrochloride in tablet form is an official U. S. P. preparation, also known as thiamin chloride tablets and vitamin B_1 tablets. The tablets should contain not less than 95 nor more than 120 per cent of the amount of thiamin hydrochloride declared on the label.

The method used in the assay of the samples submitted was that described in U. S. P. XII. This method was later superseded by a procedure described in an official supplement to the above text.

Of 38 samples examined, 20 were within the limits specified in the U. S. P.; nine did not vary from such limits by more than 10 per cent; and nine were distinctly below the amount claimed. Guaranties varied from 0.1 mgm. to 10 mgms. per tablet.

One sample reported as deficient led to a request from the manufacturer for a portion of our sample for checking. The request was complied with but no report of the results of the manufacturer's assay was communicated to us.

MISCELLANEOUS DRUGS, etc.

Miscellaneous drugs submitted by the Commissioner have been examined as follows:

No.	Drug	Remarks
W-201.	Aspirin tablets, 5 gr.	Dosage correct. Dosage directions illegible. Misbranded.
S-373.	Atabrine dihydrochloride 1.5 (brand of Quinacrine hydrochloride)	Dosage correct.
S-357.	Atropine sulphate, 1/150 gr.	Dosage correct.
S-358.	Biodine, iodine 2%, ammonium iodide 2.4%	Ammonium iodide dosage correct. Low in iodine.
W-231.	Boric acid ointment	Contained mustard oil, oil of wintergreen, synthetic camphor and menthol. No boric acid. Erroneously labelled.

No.	Drug	Remarks
P- 63.	Elixir Phenobarbital, U.S.P. 17-20% alcohol	Misbranded. U.S.P. XII. preparation contains 12-15% alcohol. N. F. preparation formerly contained 17-20%. The U.S.P. XII preparation contains artificial color; this sample was uncolored.
S-375.	Totaquine, 5 gr.	Total crystallizable alkaloids found 3 gr./tab. U. S. P. minimum 3 gr. Passed.
S-350.	Elixir Betaxin	Sugar content found 19.4%. Declaration on carton 15.2%, on bottle 40% wt./vol. basis. Misbranded.
W-200.	Saccharin, 1/4 gr.	Dosage correct.

In addition to these, thirty-five drug and other preparations were examined. Twenty-one of these were submitted by the Commissioner and 14 were from other sources. The following are cited for reference purposes.

Station No. 660. *Iletin* (Insulin Lilly), 40 units/cc. By the method of Alexander and Taylor, Jour. A. O. A. C. *27*, 327 (1944), zinc was found in the amount of 0.2 p. p. m.

Station No. 1880. *Insulin, Squibb*, 80 units/cc. Zinc content by the above procedure was found to be 5.8 p. p. m. This information was required for experimental purposes.

Station No. 9592. *Prescription* supposed to contain 1/1500 grain of atropine sulphate per fluid dram. The actual content found was 0.00384 grain (1/261 grain) in one fluid dram (3.697 cc.), or 5.76 times the concentration prescribed. The method of analysis was the A. O. A. C. procedure, "Methods of Analysis", 1940 edition, p. 582, 68. The analysis was made for authorities investigating a fatality alleged to be due to an overdose of atropine.

S-361. *Renuzit.* A dry-cleaning fluid alleged to have caused serious burns. The fluid fits the distillation specifications for petroleum naptha, 8 per cent distilling at or below 100° C. and 98 per cent at or below 185° C. Gardner, Chem. Abs., *19*, 3604 (1925) remarks that tests made on rabbits with "solvent napththa 160" showed no deleterious effects except slight mucous membrane irritation. Such a fluid would, of course, have a drying effect on the skin and the effects may vary with individual reactions. Very complete instructions with warnings as to its use are given on the label. These could be given more prominence, especially the warning as to its inflammability.

COLLABORATION WITH OTHER DEPARTMENTS

Analytical work required as a service to other State and Station departments has increased substantially in recent years as shown by the following tabulation:

Year	No. of samples
1938	250
1939	161
1940	466
1941	396
1942	703
1943	972
1944	1,023

A summary of such work done during the past year, 1944, and not included in other reports from this laboratory, is as follows:

	Samples
U. S. Geological Survey (water)	258
State Department of Health (narcotics)	9
Station departments:	
Soils	60
Forestry	18
Entomology	577
Botany	101
	1,023

Many of these samples required but a single determination each, but some required more extended analyses; each sample from the soils department required 10 separate determinations. Samples of water submitted by the U. S. Geological Survey were examined for chlorine and/or sulphate.

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	2,947	7
Thermometers	231	5
	3,178	12

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