

Annual report of the public analyst appointed for the parish of Kensington for the year ended 31st March, 1889.

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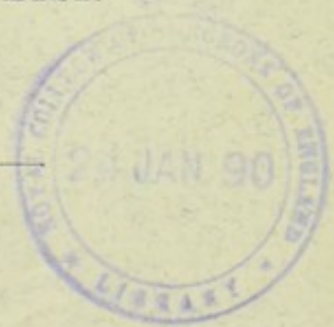
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OF THE
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APPOINTED FOR THE
Parish of Kensington,

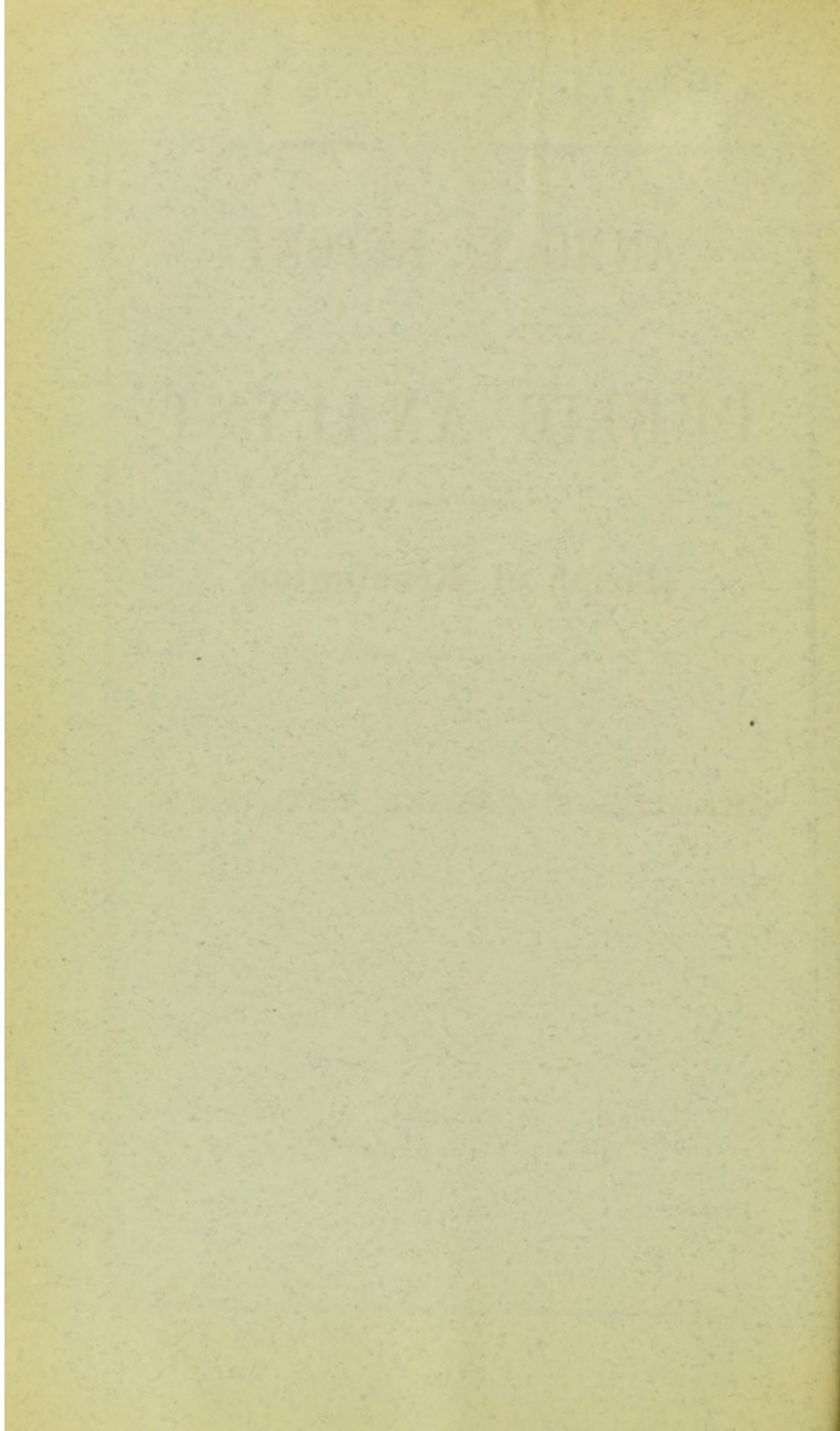
For the Year ended 31st March, 1889,

BY
CHARLES E. CASSAL, F.I.C., F.C.S.,
PUBLIC ANALYST.



PRINTED BY J. W. WAKEHAM, KENSINGTON,
AND 116, UXBRIDGE ROAD, W.

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ANNUAL REPORT

FOR THE YEAR 1884

OF THE

STATE OF

NEW YORK

AND

OF THE

CONTENTS.



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ANNUAL REPORT
OF
THE PUBLIC ANALYST,

APPOINTED FOR THE
PARISH OF KENSINGTON,

For the Year ended 31st March, 1889.

DEPARTMENT OF PUBLIC ANALYST,
TOWN HALL, KENSINGTON, W.

June, 1889.

To the Vestry of the Parish of St. Mary Abbots, Kensington.

GENTLEMEN,

During the year ended on March 31st, 1889, four hundred and ninety-seven samples of foods and drugs have been submitted to me for analysis by the Inspectors appointed under the Acts. The number of samples analysed during each of the previous three years is shown in Table IV., page 194.

Table I. shows the names and numbers of the samples taken in each quarter with the totals for the year.

The extent to which the Acts have been applied in regard to the various articles mentioned is shown by this Table. In accordance with your Vestry's existing orders, the number of

samples of Milk taken for analysis continues to be very large as compared with other substances.

Taking the population of Kensington (in 1881) as 163,153, the number of samples of all kinds taken in the year is equal to one for every 328 persons. The nature of the samples submitted, and the general procedure in taking samples, is not in any way within the control of the Public Analyst.

TABLE I.

QUARTER.	1st.	2nd.	3rd	4th.	Total.
Milk	80	44	48	44	216
Butter	6	8	16	18	48
Mustard	7	10	5	10	32
Vinegar	4	14	5	8	31
Coffee	6	6	5	6	23
Lard ... ..	...	2	10	10	22
Black Pepper	3	9	7	3	22
Flour	2	6	6	4	18
Tea	2	2	2	7	13
Sugar	3	3	2	3	11
White Pepper	1	1	2	5	9
Bread	1	3	3	1	8
Oatmeal	2	2	2	2	8
Cheese	3	3	1	...	7
Gin	1	1	2	2	6
Rum	1	1	2	2	6
Sweets ... ..	...	1	2	1	4
Brandy	1	1	...	...	2
Whisky	1	1	...	...	2
Cocoa	2	...	...	...	2
Curry Powder ... ..	...	1	...	1	2
Cream of Tartar	1	...	...	...	1
Citrate of Magnesia ... ..	...	1	...	...	1
Sago ... ..	...	1	...	...	1
Ground Rice ... ..	...	...	1	...	1
Port Wine	1	...	...	...	1
Total	128	121	121	127	497

In Table II. the various articles examined are classified, and the totals of each class of Food, etc., dealt with, are shown.

TABLE II.

CLASS.	ARTICLE.	TOTALS.
Milk Foods	Milk, Butter, Cheese. 216, 48, 7	271
Condiments	Mustard, Vinegar, Black Pepper, White Pepper, Curry Powder 32, 31, 22, 9, 2	96
Tea, etc.	Coffee, Tea, Cocoa 23, 13 2	38
Cereal and Starchy Foods	Flour, Bread, Oatmeal, Sago, Rice 18, 8, 8 1 1	36
Spirits	Gin, Rum, Brandy, Whisky 6, 6, 2, 2	16
Drugs	Cream of Tartar, Citrate of Magnesia 1, 1	2
Wine.	Port Wine 1	1
Various	Lard, Sugar, Sweets 22, 11, 4	37
Total		497

The percentages given by the figures in Table III. are compared with those obtained in the years ended 25th March, 1886, 25th March, 1887, and 25th March, 1888, in the following Table, (IV.) :—

TABLE IV.—Percentages.

Year.	1885-86.	1886-87.	1887-88.	1888-89.
Genuine	48·7	53·0	72·2	73·44
Adulterated	34·5	28·0	15·3	13·89
Inferior	11·1	17·0	11·1	10·06
Abnormal	5·7	2·0	1·4	2·61
Number of Samples Taken	524	499	503	497

MILK.

216 SAMPLES.

The percentages obtained from the data in Table III. are stated below, together with those obtained in 1885-86, 1886-87, and 1887-88.

The comparatively large number of samples of Milk taken makes it important to compare these percentages with those of previous years

TABLE V.

Percentages—Milk.

Year.	1885-86.	1886-87.	1887-88.	1888-89.
Genuine	29·0	37·86	55·46	58·33
Adulterated ...	46·3	39·92	27·07	20·84
Inferior	11·0	18·10	14·41	14·81
Abnormal ...	13·7	4·12	3·06	6·02
Number of Samples ...	218	243	229	216

It will be seen from this Table that of Milk of bad quality, including Adulterated and Inferior samples, there were

35·65 per cent. in 1888-89, as against
 41·48 „ 1887-88,
 58·02 „ 1886-87, and
 57·3 „ 1885-86,

And that the samples other than genuine normal Milk amounted to,

41·67 per cent. in 1888-89, as against
 44·54 „ in 1887-88,
 62·14 „ 1886-87, and
 71·0 „ 1885-86.

The percentages obtained in each quarter of the year are stated in the following Table (VI.)

TABLE VI.

Quarter.	Genuine	Adulterated.	Inferior	Abnormal.	Adulterated and Inferior.	Number of Samples
March 25 to June 24, 1888.	55.0	20.0	21.25	3.75	41.25	80
June 24 to September 29, 1888.	65.9	25.0	4.5	4.5	29.5	44
September 29 to December 31, 1888.	64.6	14.6	10.4	10.4	25.0	48
December 31, 1888, to March 31, 1889.	50.0	25.0	18.2	6.8	43.2	44

ADULTERATED MILK.—The 45 samples returned as adulterated in Table III. had been tampered with at least to the extent indicated below :—

TABLE VII.

Percentage of Extraneous Water.	Percentage of Fat Abstracted.	Number of Samples.	Quarter taken.
45	50	1	3rd
25	...	1	2nd
20	...	1	3rd
14	...	1	4th
13	...	1	1st
12	...	1	4th
10	...	1	3rd
9	...	1	1st
8	12	1	1st
8	...	1	4th
7	...	1	3rd
5	...	14	1st(6), 2nd(4), 4th (4)
4	...	2	1st and 2nd
3	...	9	1st(2), 2nd(5), 3rd(2)
...	40	1	4th
...	30	2	3rd and 4th
...	20	1	4th
...	16	1	1st
...	15	1	1st
...	12	2	1st and 4th
...	7	1	1st

Analytical Results.—In considering the results recorded in Table VII., it should be borne in mind that they were calculated upon the lowest limits which were consistent with the analytical data obtained. This fact adds considerably to the significance of the figures. In view of the variability in the composition of milk, and in the absence of any legal limits below which the percentages of Total Solid Matter, of Milk Fat, and of other “proximate” constituents, should not be allowed to fall, it becomes a matter of necessity to calculate upon low standards of quality, and to certify to minimum percentages when dealing with such adulterations as the admixture of Water or the abstraction of Milk Fat. The fixing of statutory limits for natural products liable to vary somewhat widely in composition, presents many difficulties, but these are not to be looked upon as insuperable. Such limits have been fixed by some Governments abroad, apparently with much benefit: in this country they would, of course, involve certain modifications of, and additions to, the existing Law, and would, no doubt, cast further duties upon Inspectors.

The first mentioned case of adulteration (Table VII.) is the worst that has been detected in the parish in my experience.

Profits of Milk Adulteration.—In the last Report of the Local Government Board (1887) the following remarks are made upon the subject of Milk:—“The ease and the profit of milk adulteration are so considerable that the practice will not be easily suppressed. Assuming that the retailer buys milk at 1s. a gallon and retails it at 4d. a quart, his legitimate profit is 4d. a gallon; but by adding one-eighth of water he makes nine pints out of every gallon, and thus his profit of 4d. is increased to 6d., a clear gain of 50 per cent. He can thus afford to pay fines, and go on adulterating.” The fallacy of drawing conclusions as to the seriousness of adulteration from what appear to be small percentages has been pointed out in previous Reports to your Vestry. The Board’s very apt and simple illustration renders this fallacy still more obvious.

“*Abnormal Milk.*”—With respect to the samples reported as “abnormal,” of which there were 13, they were all Milks containing large proportions of Fat, in amounts varying from 6·17 to 12·46 per cent. The following percentages of Fat were yielded by these thirteen samples :—12·46, 8·84, 8·43, 8·1, 8·0, 7·6, 7·5, 7·5, 7·43, 6·58, 6·5, 6·4, and 6·17. Explanatory remarks upon the presence of abnormal amounts of Fat in Milk have been made in previous Reports.

“*Inferior Milk.*”—The 32 samples returned as “Inferior and probably Adulterated” were all of very bad quality ; all of them being exceedingly poor in Fat. In these cases the Milks had most probably been purposely deprived of some proportion of their Fat, but the amounts left did not admit of the samples being reported as adulterated, having regard to the existing necessity for calculating results upon low standards of quality which has been alluded to above ; but it is altogether misleading to report Milks of this description as “Genuine,” and it is important to ascertain, for administrative purposes, where and under what circumstances they were sold. A permanent record of these sales is of much value in the working of the Acts. It is remarkable that fully 17 samples of “Inferior” Milk were taken during a single quarter.

“*Genuine Milk.*”—Of the 126 samples of Milk reported as “genuine,” 42 were of good quality, 69 were of fair average quality, and 15 were poor Milks.

The percentages obtained from the data in Table III. relating to the other principal articles of Food dealt with, are given in the following Table (VIII.), and are compared with those obtained during the three preceding years.

TABLE VIII.

Year	Genuine.				Adulterated.				Inferior.				Number of Samples.			
	1885-86	1886-87	1887-88	1888-89	1885-86	1886-87	1887-88	1888-89	1885-86	1886-87	1887-88	1888-89	1885-86	1886-87	1887-88	1888-89
Butter	57.8	47.8	78.7	87.5	8.9	17.4	6.38	6.25	33.3	34.8	14.9	6.25	45	46	47	48
Vinegar	53.8	76.9	90.48	87.1	23.1	7.7	4.76	3.2	23.1	15.4	4.76	9.7	15	13	21	31
White Pepper	92.8	75.0	45.4	33.3	7.2	...	9.1	44.4	...	25.0	45.4	22.2	14	8	11	9
Black Pepper	22.2	23.5	40.0	54.5	77.7	53.0	20.0	36.3	...	23.5	40.0	9.1	27	17	10	22
Lard	...	...	40.0	81.8	...	...	60.0	18.2	...	...	...	...	...	...	5	22

The still smaller number of the samples not included in the Table, or their freedom from adulteration, renders the calculation of percentages in regard to them unnecessary.

It will be noticed that the per centages recorded in this Table present considerable variations, which, considering the number of samples of each kind taken, is what might reasonably have been expected.

BUTTER.

The three adulterated samples (Table III.) respectively contained

At least 93 per cent. of Foreign Fat.

„	90	„	„	„
„	40	„	„	„

The first and second samples contained practically no Butter. The term "Foreign Fat" means any fat other than the fat of Butter.

The second sample was taken under the "Margarine Act, 1887," and was certified as being "Margarine." The word "Margarine" means all substances, whether compound or otherwise, prepared in imitation of Butter, and whether mixed with butter or not. So that a sample containing any proportion of foreign fat is "Margarine."

The three samples returned as "Inferior" were certified to be "inferior, and probably adulterated." After making allowance for certain possible changes in the samples, and calculating on the limits most favourable to the vendor, it was found to be unadvisable to certify to adulteration.

From the Local Government Board's returns for 1887 it would appear that the adulteration of Butter and the sale of Butter substitutes as Butter are still very extensively practised.

CHEESE.

All seven samples contained a proper proportion of fat, and were free from mineral and organic adulterants.

VINEGAR.

The adulterated sample (taken during the 2nd quarter) contained five per cent. of extraneous water, taking as the basis for calculation the weakest Vinegar which should be sold, namely, that containing the lowest permissible per centage of Acetic Acid.

The Inferior samples were all weak in Acetic Acid, each containing about the lowest percentage admissible.

BLACK PEPPER.

The eight adulterated samples contained the percentages of Total Mineral Matter and of Sand as understated :—

Total Mineral Matter per cent.	Silica and Sand per cent.	Quarter taken.
18.25	13.2	2nd
11.54	7.3	3rd
10.0	5.5	2nd
9.2	4.5	1st
8.78	4.89	1st
8.28	3.6	3rd
8.02	3.78	1st
*7.5	3.0	4th

The samples all contained large proportions of husk. The percentage of Total Mineral Matter in the Genuine Black Pepper of commerce amounts to about 5 or 5.5 per cent ; 7 per cent. is taken as the extreme limit. An allowance of 1.5 to 2 per cent. is therefore made over the amount known to be contained by Genuine Black Peppers. The first-named case is now an unusually bad one for this Parish.

The two samples reported as "Inferior" contained undue proportions of Mineral Matter, from half to two-thirds of which was sandy. In these cases the amounts of total Mineral Matter barely exceeded the limit of 7 per cent.

WHITE PEPPER.

The particulars relating to the four adulterated samples are as follows :—

One (4th quarter) contained at least 25 per cent. of added Starches, and an unduly high proportion of Total Mineral Matter for White Pepper, namely, 2.86 per cent.

One (3rd quarter) contained at least 10 per cent. of added Starches, and an unduly high percentage of total Mineral Matter,

* Contained a small percentage of Starch foreign to Pepper.

namely, 3·26 per cent., of which nearly half was silica and sand, namely, 1·5 per cent. These were cases in which White Pepper containing high percentages of Mineral Matter had been diluted with Starch, the addition of the latter lowering the mineral percentage.

The other two samples (4th quarter) reported as adulterated contained improper proportions of mineral matter, but were free from added Starches, as follows :—

Total Mineral Matter per cent.	Silica and Sand per cent.	Quarter taken.
3·7	1·7	4th
3·56	1·66	4th

TEA.

The two samples reported as “Inferior” were so designated on account of the weakness of the infusions obtained from them, a fact probably due to the presence of some exhausted leaves, other analytical data pointing to the same conclusion. Actual adulteration, however, could not be certified upon the low limits which it is necessary to adopt.

COCOA.

The adulterated sample (taken in 1st Quarter) contained

At least 25 per cent. added Starches.

At least 20 „ Cane Sugar.

The genuine sample was a “Cocoa Essence.” It contained a proper proportion of fat, and was of excellent quality.

SPIRITS.

The three samples reported as Adulterated, were lowered below the legal strength by admixture with water as follows :—

Gin	...	...	40·0 Under Proof.
Rum	...	...	27·6 Under Proof.
Rum	...	...	27·5 Under Proof.

The limit imposed by the Act for Gin is 35 degrees Under Proof, and for Rum 25 Under Proof.

"*Genuine*" *Spirits*. The use of the term "Genuine" is again very liable to mislead here. The word bears no reference to the methods which may have been employed to produce the particular sample of spirituous liquor under examination. The composition of the samples so described was in accordance with the definitions which can at present be scientifically given to them; and they were of the full strength in Alcohol required by law.

The samples of Gin, Brandy and Whisky which were reported as of inferior quality were slightly adulterated with water, the strength in each case being a little below the limits imposed by the "Sale of Food and Drugs Amendment Act," of 1879. No adulterants other than the water used to lower the strengths referred to above were detected in any of the samples.

The report of the Local Government Board for 1887, previously quoted, points out that notwithstanding the lowness of the strengths for spirits fixed by the Act of 1879, spirits and water are extensively sold as spirits, and this article shows a larger proportion of Adulterated samples than any other.

DRUGS.

Of the two samples of "Drugs" submitted for analysis, the Cream of Tartar, which was returned as Genuine, contained 9.46 per cent. of Tartrate of Calcium. The presence of a certain amount of this impurity is incidental to the manufacture of Cream of Tartar, and the amount found is below the extreme limit which can be allowed. The "*Citrate of Magnesia*" was the so-called "*Effervescent Citrate of Magnesia*." This is a mixture of a variety of substances, and is not an official preparation. The meanings applied to the substance when bought as a drug, and when bought as a definite chemical preparation, are different. The sample was found to be in accordance with the usual composition of the so-called "*Effervescent Citrate*" and was therefore returned as "Genuine." It was free from impurities likely to prove injurious.

LARD.

Of the four adulterated samples :

No. of Samples.	Cotton Seed Oil.	Beef Fat.	Membranous and Gelatinous Matter.	Water.
1	20 per cent.	Considerable amount	...	1.5
1	...	30 per cent.	...	...
1	...	20 "	...	...
1	...	...	1.5 per cent by weight.	...

"*Adulterated Lard.*"—These cases are of considerable importance and interest, and when the large amount of Lard imported into the country is taken into consideration, their significance must be apparent. The case of Lard adulterated with Cotton Seed Oil is the first of the kind which has been detected in the Parish. This sample also contained some Beef Fat. The latter adulterant is probably added in the form of so-called "Beef Stearine," which is the residue of another industry. The exposure which has resulted in consequence of the detection of these adulterants has undoubtedly had a very considerable effect in checking the practice.

The sample containing membrane when melted was opaque, in consequence of the fragments of light membranous matter distributed through it. The proportion by weight is apparently small, but its presence, while it cannot, perhaps, in the strict sense of the word be called an Adulteration, is indicative of gross carelessness in manufacture, a portion of the membrane of the animal, which ought to have been removed, having been left. This view of the matter was taken by the Bench when the case came before them—proceedings against the vendors having been ordered by your Vestry—and the case was dismissed. The defendant's costs were disallowed. More care will no doubt be taken by the manufacturers concerned in future.

LEGAL PROCEEDINGS.

Proceedings were instituted in all the more serious cases reported.

Table IX. shows the action which has been taken in each case of adulteration, and the result of such action. These particulars have been compiled from books kept in the Clerk's Department for the purpose of recording the result of proceedings ordered; for the sake of convenience I have requested to be furnished with them at the end of each quarter, and they have recently been included in my quarterly reports to your Vestry. The Local Government Board have lately requested Local Authorities to inform them of the results of any proceedings that may have been taken under the Acts, when forwarding the quarterly reports of their Public Analysts to the Board. The importance of obtaining statistics which will show the manner in which the Acts against adulteration are being administered is sufficiently obvious.

Fines.—In dealing with the fines inflicted, the Board concludes that in over 80 per cent. of the cases taken into Court the average fine was only about £1, and goes on to state that “With magistrates thus lenient, it is not surprising that “adulteration continues to a large extent unchecked.”

The attention of your Vestry has been frequently called to the inadequacy of the fines inflicted in cases of adulteration. A more severe administration of the law would possibly result if the seriousness of the practice of adulteration was more clearly appreciated.

Striking instances of what may certainly be termed merely nominal fines are shown in Table IX. The very bad Black Pepper case, where over 18 per cent. of total mineral matter was certified, and where the fine was 5s., and the cases of White Pepper, Lard, and Butter may be specially cited; but the whole of the cases, with perhaps one exception, afford ample justification for the above-quoted remarks of the Board.

Cautions.—Where, for various reasons, it was not deemed advisable to institute proceedings, cautionary letters were addressed by your Vestry to the vendors of the adulterated articles, a course of action which cannot have failed to produce

a salutary effect. This action is, however, not to be taken to mean that the Vestry will decline to prosecute in all future cases which are similar as regards nature and extent of adulteration.

The cases in Table IX., upon which some further comment is needed, are marked with letters.

TABLE IX

NAME OF SAMPLE.	ADULTERATION.		ACTION TAKEN.	RESULT.	REMARKS.
Milk	45 per cent.	Water & 50 per cent. Fat abstracted	Vendor summoned	Nil.	No Service.
"	25	"	"	Fined £1 and costs	Absconded. "A"
"	20	"	"	Fined 5s. and costs	Previously convicted. "B"
"	14	"	"	Fined £1 10s. and costs	Previously convicted & cautioned. "C"
"	13	"	"	Fined £1 and costs	
"	12	"	"	Fined £1 and costs	
"	10	"	"	Fined 10s. and costs	
"	9	"	"	Fined £1 and costs	
"	8	12 per cent. Fat abstracted	"	Fined 5s. and costs	
"	8	"	"	Fined 10s. and costs	
"	7	"	"	Fined £5 and costs	Vendor previously convicted & cautioned. "D"
14 Milks	5	"	Vendors cautioned		
2 Milks	4	"	"		
9 Milks	3	"	Vendor summoned	Fined £3 and costs	Vendor previously convicted. "E"
Milk		40 per cent. Fat abstracted			Vendor previously convicted. "F"
"	30	"	"	Fined £3 and costs	
"	80	"	"	Fined 10s. and costs	
"	20	"	"	Fined 10s. and costs	
"	16	"	"	Fined £1 and costs	
"	15	"	"	Dismissed*	
"	12	"	"	Fined 5s.	
"	12	"	"	Fined £1 and costs	
"	7	"	Vendor cautioned		

* Sample decomposed when submitted for analysis.

TABLE IX. (Continued).

NAME OF SAMPLE.	ADULTERATION.	ACTION TAKEN.	RESULT.	ARKS.
Butter	93 per cent. Foreign Fat	Vendor summoned	Fined 5s. and costs	Margarine. 'G'
"	90 " " "	Nil	Fined £1 and costs	
"	40 " " " Extraneous Water	Vendor cautioned	Fined 5s. and costs	
Vinegar	5 " " " Mineral Matter, &c.	Vendor summoned	Fined 5s. and costs	
Black Pepper	18.25 per cent. Mineral Matter, &c.	"	Fined 2s. 6d. and costs	
"	11.54 " " " "	"	Fined 10s. and costs	
"	10 " " " "	"	Fined 10s. and costs	
"	9.2 " " " "	"		
"	8.78 " " " "	Vendor cautioned		
"	8.28 " " " "	"		
"	8.20 " " " "	"		
"	7.5 " " " "	"		
White Pepper	10 per cent. added Starches, 3.26 Mineral Matter, &c.	Vendor summoned	Fined 5s. and costs	Legal technicality. "H"
"	25 per cent. added Starch	"	Fined 10s. and costs	
"	3.7 per cent. Mineral Matter, &c.	Vendor cautioned		
"	3.5 " " " "	"		
Cocoa	25 per cent. added Starches, 20 per cent. cane Sugar	Vendor summoned	Fined 10s. and costs	
Gin	40.0 Under Proof	"	Dismissed	
Rum	27.6 " " " "	"	Fined 5s. and costs	
"	27.5 " " " "	Cautioned		
Lard	20 per cent. Cotton-seed Oil, Beef Fat and 1.5 per cent. Water	"	Fined £1 and costs	
"	30 per cent. Beef Fat	"	Fined 10s. and costs	
"	20 " " " "	"	Fined 20s. and costs	
"	1.5 Membranous Matter	"	Dismissed	
				Defendants costs disallowed.

Case A. The sample was sold by an itinerant vendor who lived outside the parish, but who had disappeared from his lodgings when the summons was taken there.

Case B. This case presented several points of interest. The milk had been certified to contain *at least* 25 per cent. of extraneous water. A portion of the sample submitted at the time of the analysis was forwarded by me, with all due precautions, to the Public Analyst for another Parish. The result of the analysis made by him was entirely confirmatory, and the presence of at least 25 per cent. of extraneous water was thus doubly certified to. The Defendant, through his solicitor, applied to have "the Sample" sent to Somerset House, for analysis. It appears that the sample left in accordance with the Act by the Inspector with the *Defendant* was then handed by the Defendant's solicitor to the authorities of the Court for transmission to Somerset House. This was not disallowed at the time, although it is perfectly clear that the Act requires the *Inspector's* reserve sample to be the one upon which the Somerset House analysis should be made. The Inspector's sample was, however, also forwarded to Somerset House on the same day, as soon as the above facts became apparent.

The Somerset House Certificate, which was put in at the second hearing of the case, stated that the milk "contained *not less* than 22 per cent. of added water," and was, in fact, a *practical* confirmation of the results previously recorded. It was therefore pointed out to the Bench,

1st. That the adulteration was at least 25 per cent. as certified by two Public Analysts from analyses of the milk as sold.

2nd. That while the Somerset House Certificate was practically confirmatory, the difference in the figures was no doubt due to the time which had necessarily elapsed before this latter analysis could be made.

3rd. That the sending of the Defendant's instead of the Inspector's sample to Somerset House was irregular.

Under the circumstances the defendant pleaded for mitigation of penalties, and although he had been previously cautioned by your Vestry for selling adulterated Milk, the Bench, "taking into consideration the length of time during which he had been in business," namely about 20 years, inflicted a fine of £1 and costs. It was admitted in the course of this case that the Public Analyst can be called by the Vestry in support of his certificate, apart from any desire on the part of the defendant to call him, and that additional expert evidence can be called by the Vestry, if they think fit. The taking of such steps, however, ought to be very rarely necessary.

Case C. The vendor of this sample having been previously both cautioned and convicted, the infliction of a fine of £1 10s. hardly appears adequate.

Case D. Although the percentage of adulteration in this case was apparently comparatively small, the fine inflicted can hardly be regarded as too high, in view of the fact that the vendor had been previously summoned three times for Milk Adulteration, had been convicted once, and had also been cautioned.

Cases E and F. Similar remarks will apply to these cases where the vendors had also been previously convicted.

Case G. In this case it was considered that there were certain informalities in the seizing of the sample (under the Margarine Act), and therefore no proceedings were taken.

Case H. It was contended in this case that the Bench were not in possession of evidence to prove that the vendor had been informed that the sample was taken "to be analysed by the Public Analyst." This was regarded as a fatal objection, and the case was dismissed.

Adulterated Pepper.—With respect to the prosecution of persons for selling Adulterated Pepper, the admixture of what appears to be a small percentage of refuse with Genuine Pepper may seem to be a trivial offence from the point of view of a single small purchaser. It should be remembered, however, that the *Sale of Food and Drugs Act* is the only existing check

upon those who, through the channels afforded by certain retail dealers, succeed in disposing of large quantities of valueless material, to their own profit and to the detriment of the public generally.

GENERAL REMARKS.

Samples examined in England and Wales.—During the year 1887—the last for which the returns have hitherto been received—the total number of samples of all kinds examined by the Public Analysts of England and Wales was 24,440, an increase of 844 upon 1886. The data in the following table (X.) have been obtained from the Reports for 1886 and 1887, and show the number of samples of each kind which were examined, and the number reported as adulterated in those years, with a comparison of percentages. The table also contains the percentages of adulteration for the five years 1877-81 and 1882-86.

TABLE X.

ARTICLES.	No. of Samples in 1886.		No. of Samples in 1887.		Percentage adulterated in			
	Exam-ined.	Adul-terated.	Exam-ined.	Adul-terated.	1886.	1887.	Quinquenniad.	
							877-81.	1882-86.
Milk	9,819	1,275	10,333	1,539	13.0	14.9	21.1	16.7
Bread	991	32	872	17	3.2	1.9	6.6	3.4
Flour	398	2	400	—	0.5	—	2.5	0.5
Butter	2,322	401	2,411	423	17.3	17.5	13.9	17.9
Coffee	1,596	241	1,269	169	15.1	13.3	18.6	17.8
Sugar	222	—	158	—	—	—	1.2	—
Mustard	817	104	803	86	12.7	10.7	17.4	14.5
Confectionery & Jam	236	1	286	19	0.4	6.6	2.8	2.7
Pepper	1,250	163	1,836	202	13.0	11.0	*	*
Tea	511	1	423	1	0.2	0.2	*	*
Lard	440	25	427	25	5.7	5.9	*	*
Wine	44	3	32	2	6.8	6.3	14.2	4.4
Beer	602	17	803	18	2.8	2.2	5.4	3.0
Spirits	2,297	410	2,400	435	17.8	18.1	34.9	22.3
Drugs	435	47	441	48	10.8	10.9	22.0	13.6
Other Articles ..	1,616	91	1,546	150	5.6	9.7	*	*
Totals	23,596	2,813	24,440	3,134	11.9	12.8	16.2	13.9

Other Articles.—Among the articles not specially enumerated in this table, the chief subjects of Analysis were Arrowroot,

Oatmeal, Vinegar, Ginger, Cocoa, Aërated Waters, and Yeast. Among the *first four* little adulteration was found, but this was not the case with the remainder.

Lowest Percentage.—The lowest percentage of adulteration yet attained is that of 11·9 in 1886. The improvement has been generally progressive. In 1877, when the results of the Analyses made under the Act of 1875 were for the first time tabulated, the percentage of adulterated samples was 19·2. This was of course a very high percentage, and it must be remembered that at that time the Act was very inadequately applied as compared with the present.

Metropolis.—The total number of samples of all kinds taken in the Metropolis in 1887 was 6,402, an increase of 231 upon 1886. Of these 894 were adulterated, as against 813 in 1886, giving a percentage of 14·0 for 1887, against 13·2 for 1886. “In London generally about twice as many samples are obtained in proportion to the population (Census of 1881) as in the provinces, namely, one for every 596 persons, as against one for every 1,228 persons.”

Milk and other Articles.—Although milk is the chief article dealt with, the high percentage of adulteration in other articles is very striking, and would certainly appear to justify the conclusion that these are at least as liable to the practice as milk; and, it may be added, that the extra profit to those concerned is probably at least as large as in the case of milk, although not so obvious, and not so easy to illustrate.

“Private Purchasers.”—Under the provisions of the *Sale of Food and Drugs Act, 1875*, private purchasers in any district have the privilege of submitting samples of food or drugs for analysis to the Public Analyst for that district if they have complied with the 12th and 14th sections of the Act, and upon payment of a nominal sum of 10s. 6d. The intention of the framers of the Act was to place the services of Public Analysts, appointed by the local authorities and receiving a salary from

them, in consideration of such salary, within the reach of any private purchasers, and thus to encourage the public to assist the authorities in checking adulteration—one of the principles of the old Adulteration Act (1860) having been to leave to private purchasers the duty of taking samples. The public have, however, availed themselves but very little of the provisions of the Act, a fact which is largely due, no doubt, to the unnecessarily cumbrous machinery provided. “Of the 24,440 samples analysed during 1887 all but 287 were obtained by officers of Local Authorities, and, as usual, a much larger proportion of the private than of the official samples were found adulterated.” The larger proportion of adulteration detected among “private” samples results probably from the fact that unless a purchaser has strong grounds to suspect a vendor, he will not take the trouble to obtain an analysis.

During the year no samples were submitted by “private purchasers” who had complied with the provisions of the Act, in Kensington.

Extension of Public Analysis.—The extension of Public Analysis to other articles besides foods and drugs—although these afford, as it is, a very wide field of work—is urgently necessary. That necessity has of late years been very generally recognised in foreign countries, in some of which the laws against sophistication, using the word in an extended sense, are far more comprehensive and effective than in England. The Select Committee of 1874, upon whose report the Act of 1875 was based, stated, in effect, that the mere existence of the Acts of 1860 and 1872 had done much good, and that (in 1874) the public were, upon the whole, “cheated rather than poisoned” by adulterators. It is not too much to say, from the experience of Analysts in their private capacities, that at the present time, in regard to numerous articles untouched by public analysis, the public are liable to be poisoned as well as cheated, not of course “poisoned” in the violent sense of the term,

except in comparatively rare instances, but injured in health by the habitual use of materials and preparations containing improper and sometimes absolutely dangerous ingredients; and it appears to me to be the duty of those to whom these facts are known to take every opportunity of impressing them upon public authorities, as well as upon the public at large, with the view of ultimately obtaining satisfactory legislation on the subject.

I have the honour to be,

Gentlemen,

Your obedient servant,

CHARLES E. CASSAL,

Public Analyst.

