Annual report of the public analyst appointed for the Parish of Kensington : upon the articles analysed during the year ended 31st March, 1888.

THE ANNUAL REPORT

OF THE

PUBLIC ANALYST

APPOINTED FOR THE

Parish of Kensington,

Upon the Articles analysed during the Year ended 31st March, 1888,

BY

CHARLES E. CASSAL, F.I.C., F.C.S.,

PUBLIC ANALYST.

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DEPARTMENT OF PUBLIC ANALYST,

TOWN HALL, KENSINGTON, W.

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

GENTLEMEN,

During the year ended March 31st, 1888, a total of five hundred and three samples of foods and drugs have been submitted to me for analysis by the Inspectors appointed under the Act. The number of samples taken in each quarter in the four districts of the Parish was as follows :—

TABLE I.

Quarter ended	C.	S.	N.E.	N.W.	TOTAL.
June 24th, 1887 ...	28	32	30	24	114
Sept. 29th, 1887 ...	33	32	32	31	128
Dec. 31st, 1887 ...	33	32	32	32	129
March 31st, 1888 ...	31	30	31	40	132
Total ...	125	126	125	127	503

Table II. gives the names and numbers of the Samples taken in each quarter with the Totals for the year :—

TABLE II.

Quarter.	1st.	2nd.	3rd.	4th.	Total.
Milk	58	54	54	63	229
Butter	12	1	18	16	47
Coffee	6	11	8	3	28
Flour	5	7	5	8	25
Vinegar	1	5	6	9	21
Mustard	3	5	4	5	17
Bread	4	5	3	3	15
White Pepper	0	6	4	1	11
Black Pepper	3	2	3	2	10
Cheese	4	2	3	1	10
Tea	2	2	3	3	10
Sugar	1	4	2	2	9
Oatmeal	0	4	2	2	8
Gin	2	2	1	2	7
Rum	2	2	1	1	6
Arrowroot	0	2	2	1	5
Tapioca	1	2	1	1	5
Lard	1	0	2	2	5
"Mixed Sweets" ...	0	0	2	2	4
Sago	0	3	1	0	4
Cream of Tartar ...	2	2	0	0	4
Citrate of Magnesia ...	0	1	0	2	3
Brandy	0	1	2	0	3
Irish Whisky	1	1	1	0	3
Cocoa	0	1	1	1	3
Cayenne Pepper ...	0	1	0	0	1
Ginger	0	1	0	0	1
Castor Oil	0	0	0	1	1
Glycerine	0	0	0	1	1
Magnesia	1	0	0	0	1
Tartaric Acid ...	1	0	0	0	1
Tincture of Laudanum...	1	0	0	0	1
Tincture of Quinine ...	1	0	0	0	1
Tincture of Rhubarb ...	1	0	0	0	1
Sweet Spirits of Nitre ...	1	0	0	0	1
Ground Rice	0	1	0	0	1
Total	114	128	129	132	503

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

TABLE III.

Class.	Article.	Totals.
Milk Foods	Milk, Butter, Cheese. 229, 47, 10	286
Cereal. and Starchy Foods	Flour, Bread, Oatmeal, Arrowroot, Tapioca, 25, 15, 8, 5, 5, Sago, Rice, 4, 1	63
Condiments	Vinegar, Mustard, White Pepper, Black Pepper, Cayenne Pepper 21, 17, 11, 10, 1 ...	60
Tea, etc.	Coffee, Tea, Cocoa 28, 10, 3	41
Spirits	Gin, Rum, Brandy, Irish Whisky 7, 6, 3, 3	19
Drugs	Cream of Tartar, Citrate of Magnesia Castor Oil, 4, 3, 1, Glycerine, Magnesia, Tartaric Acid, 1, 1, 1, Tinct. Laud, Tinct. Quin., Tinct. Rhu., Sp. Nitre 1, 1, 1, 1	15
Sundries	Sugar, Lard, Mixed Sweets, Ginger 9, 5, 4, 1	19
	Total	503

Table IV. shows the Total number of Genuine, Adulterated, Inferior, and Abnormal samples taken in each quarter and during the year :—

TABLE IV.

Quarter.	1st	2nd.	3rd.	4th.	Total.
Genuine	71	96	92	104	363
Adulterated	26	15	20	16	77
Inferior	17	12	16	11	56
Abnormal	0	5	1	1	7
Total	114	128	129	132	503

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

TABLE V.—Percentages.

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

In Table VI. the names of the Genuine, Adulterated, Inferior, and Abnormal samples taken during each quarter are given, and the total number of each kind.

Table VI.

Glass.	Quarter	Genuine.					Adulterated.					Inferior, and Probably Adulterated.					Abnormal.	Total Samples.
		1st.	2nd.	3rd.	4th.	Total Genuine.	1st.	2nd.	3rd.	4th.	Total Adulterated.	1st.	2nd.	3rd.	4th.	Total Inferior.	Total Abnormal.	
Milk Foods.	Milk	25	31	31	40	127	23	11	17	11	62	10	7	5	11	33	7*	229
	Butter	10	1	12	14	37	...	...	1	2	3	2	...	5	...	7	...	47
	Cheese	4	2	3	1	10	...	...	...	...	...	...	...	...	...	...	...	10
Cereal and Starchy Foods.	Flour	5	7	5	8	25	...	...	...	...	...	...	...	...	...	...	...	25
	Bread	4	5	3	3	15	...	...	...	...	...	...	...	...	...	...	...	15
	Oatmeal	...	4	2	2	8	...	...	...	...	...	...	...	..	...	...	...	8
	Arrowroot	...	2	2	1	5	...	..	...	...	...	...	...	...	...	...	...	5
	Tapioca	1	2	1	1	5	...	...	...	...	...	...	...	...	...	...	...	5
	Sago	...	3	1	...	4	...	..	...	...	...	...	...	...	...	...	...	4
	Rice	...	1	...	...	1	...	...	...	...	...	...	...	...	..	...	...	1
Condiments.	Vinegar	...	4	6	9	19	...	1	...	...	1	1	...	...	...	1	...	21
	Mustard	2	3	4	5	14	1	1	...	...	2	...	1	..	...	1	..	17
	White Pepper ...	...	2	2	1	5	...	1	...	...	1	...	3	2	...	5	...	11
	Black Pepper ...	...	2	1	1	4	...	...	1	1	2	3	...	1	...	4	...	10
	Cayenne Pepper ...	..	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1

Tea, etc.	Coffee	5	9	8	3	25	1	1	...	...	2	...	1	...	...	1	...	28
	Tea...	1	2	1	3	7	...	...	...	...	...	1	...	2	...	3	...	10
	Cocoa	...	1	1	...	2	...	...	...	1	1	...	...	...	...	...	...	3
Spirits.	Gin	2	2	1	2	7	...	...	...	...	...	...	...	...	...	...	...	7
	Rum	2	2	...	1	5	...		...	...	...	...	...	1	..	1	...	6
	Brandy	...	1	2	...	3	...	...	...	...	...	...	...	...	...	...	...	3
	Irish Whisky ...	1	1	1	...	3	..	...	...	...	...	...	...	...	...	...	...	3
Drugs.	Cream Tartar ...	2	2	...	..	4	...	...	...	...	...	...	...	...	...	...	.	4
	Citrate Magnesia	...	1	...	2	3	...	...	...	...	...	...	...	...	...	...	...	3
	Castor Oil	...	...	..	1	1	...	...	...	...	...	...	..	..	...	..	...	1
	Glycerine	...	...	.	1	1	...	...	...	...	...	...	...	..	...	...	...	1
	Magnesia	1	...	...	..	1	...	...	...	...	...	...	...	...	...	...	...	1
	Tartaric Acid ...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1
	Tinct. Laudanum	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1
	Tinct. Quinine ...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1
	Tinct. Rhubarb ...	1	..	...	...	1	..	...	...	...	...	..	...	...	...	...	...	1
	Spirits Nitre ...	1	...	...	...	1	...	...	...	...	...	...	...	..	...	...	..	1
Sundries.	Sugar	1	4	2	2	9	...	...	...	...	...	...	...	...	...	...	...	9
	Lard	...	...	1	1	2	1	...	1	1	3	...	...	...	...	..	...	5
	Mixed Sweets ...	...	...	2	2	4	...	...	..	...	...	...	...	...	...	...	...	4
	Ginger	...	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1
Total		71	96	92	104	363	26	15	20	16	77	17	12	16	11	56	7	503

* 2nd Qr. 5, 3rd Qr. 1, 4th Qr. 1.

MILK.

229 Samples.

The percentages obtained from the data in Table VI. are stated below, and are compared with those obtained in 1885-86 and in 1886-87.

Table VII.

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

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

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

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

44·54 per cent., as against
62·14 ,, in 1886-87, and
71·0 ,, 1885-86.

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

TABLE VIII.

Quarter.	Genuine	Adulterated.	Inferior	Abnormal.	Adulterated and Inferior.	Number of Samples
March 25 to June 24, 1887.	43.1	39.65	17.24	...	56.89	58
June 24 to September 29 1887.	57.4	20.4	13.0	9.2	33.4	54
September 29 to December 31 1887.	57.4	31.5	9.25	1.85	40.7	54
December 31 1887, to March 31, 1888.	63.49	17.46	17.46	1.59	34.92	63

ADULTERATED MILK.—The 62 samples marked as adulterated in Table VI. had been tampered with at least to the extent indicated below :—

TABLE IX.

Percentage of Extraneous Water.	Percentage of Fat Abstracted.	Number of Samples.
*33	...	1
*25	...	1
*17	...	2
*15	...	1
*12	...	1
*10	95	1
*10	...	1
*8	20	1
*8	10	1
*8	...	3
*7	...	1
6	...	2
5	...	13
4	...	7
3	...	21
...	*90	1
...	*25	2
...	*15	1
...	*12	1
Total		62

REMARKS ON THE MILK RETURNS.

It must be understood that the above results have been calculated on the lowest admissible limits consistent with the Analytical data. It may therefore be said, that out of 62 adulterated samples there were *at least* 19 cases of considerable and of very marked adulteration ; those cases, namely, which are marked with an asterisk (*) in the above Table It should be borne in mind that, although, for example, 3 per cent. of extraneous water, may appear to be a small amount, the extra profit to the dealer, and corresponding loss to the public is well-known to be by no means small,

quite apart from the fact that the figures in the above table represent *minimum* percentages.

Abnormal Milk.—With respect to the samples reported as "abnormal," of which there were 7, they were all Milks containing large proportions of Fat, in amounts varying from 5·14 to 7·97 per cent. No evidence of the presence of Disease-products in any of them was obtained. The following percentages of fat were yielded by these seven samples :—7·97, 7·02, 6·77, 6·13, 5·56, 5·3, 5·14.

With the exception of one sample, these milks had probably not been tampered with by watering. In certain cases the presence of abnormal amounts of Fat in milk furnishes ground for suspicion against the vendor. It is not uncommon for Inspectors to be served with milk to which Cream has been purposely added.

Colouring Matter.—The sample containing at least 33 per cent. of extraneous water was found to have been artificially coloured, as were also *five* of the milks reported as "inferior." The colouring matter employed was no doubt a preparation of "Annatto."

Skim Milk.—The sample containing 25 per cent. of Extraneous Water was sold as "Skim Milk," which is an article differing altogether in composition from Milk diluted with Water. This sample had been both skimmed and watered.

"*Inferior Milk.*"—The 33 samples returned as "Inferior and probably Adulterated" were all of very bad quality, 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, every allowance being made in favour of the vendor.

Microscopic Examination.—There is no doubt that proper care is not always exercised in the collection and storage of Milk, and that thorough cleanliness is far from being insisted upon as it should be. The microscopic examination of the

samples of milk submitted for analysis during the year has shown that there were at least seven cases of this, *vegetable débris* and *mineral matter* having been detected in marked amount in four samples, and in *two* of the latter numerous scales of Epithelium having also been found. *One* sample contained mineral débris and fragments of *cotton fibre*, and *one* contained numerous "Casts" and scales of Epithelium. All such samples may properly be described as "*Dirty Milk.*" Previous reports will show that attention has already been called, on the strength of similar results, to the pollution of Milk through carelessness or ignorance, and the importance of the steps which your Vestry have taken in warning the vendors must be self-evident.

Preservatives.—*Boracic Acid* was detected in small amount in *seven* samples. Remarks upon this subject will be found in my Report for 1886-87.

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

TABLE X.

Year ...	Genuine			Adulterated			Inferior			Number of Samples		
	1885-86	1886-87	1887 88	1885-86	886-87	1887-88	1885-86	1886-87	1887-88	1885-86	1886-87	1887-88
Butter ...	57·8	47·8	78·7	8·9	17·4	6·38	33·3	34·8	14·9	45	46	47
Coffee ...	75·0	68·75	89·3	25·0	28·12	7·1	...	3·12	3·6	44	32	28
Vinegar ...	53·8	76·9	90·48	23·1	7·7	4·76	23·1	15·4	4·76	13	13	21
Mustard ...	12·5	57·0	82·3	87·5	43·0	11·8	...	...	5·9	24	21	17
White Pepper	92·8	75·0	45·4	7·2	...	9·1	...	25·0	45·4	14	8	11
Black Pepper	22·2	23·5	40·0	77·7	53·0	20·0	...	23·5	40·0	27	17	10

The small number of the samples not included in the above Table renders the calculation of percentages in regard to them unnecessary.

BUTTER.

The *three* adulterated samples (Table VI.) respectively contained *at least*

90 per cent. of Foreign Fat,(" Margarine ") 2 samples.

30 per cent. of Foreign Fat.

The first two were taken under the "Margarine Act, 1887," and were certified as being "Margarine."

The *seven* 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.

CHEESE.

All four samples contained a proper proportion of fat, and were free from mineral and organic adulterants. The samples were specially examined for the presence of foreign fat, and for metallic impurities, with negative results.

VINEGAR.

The sample reported as adulterated had been diluted with water. The Vinegar, on being received, was found to have undergone partial decomposition, in which state it had been exposed for sale. The strength of the sample had been so reduced as to be *equivalent* to a mixture of ordinary Vinegar and water, containing 70 per cent. of the latter. No mineral acid had been added to the sample. The other Vinegars were all of fair strength and quality, with one exception, the sample reported as "Inferior," which contained the lowest amount of Acetic acid admissible.

MUSTARD.

The *two* adulterated samples each contained at least 5 per per cent. of Wheat Flour.

WHITE PEPPER.

The adulterated sample contained at least 5 per cent. added Starchy matter. The foreign starches consisted of Potato-starch and Wheat flour.

The five samples marked "Inferior" contained unduly high proportions of mineral matter for White Pepper, but not in sufficient amount to constitute actual adulteration.

BLACK PEPPER.

The *two* adulterated samples contained:—

Total Mineral Matter per cent.	Silica and Sand per cent.	Remarks.
9·38	3·8	Much husk and dirt.
9·0	3·06	" " "

Samples of genuine commercial Black Pepper should not yield more than 5 to 5·5 per cent. of Total Mineral Matter. Any sample yielding more than 7 per cent. must be considered as adulterated within the meaning of the Act. An allowance of 1·5 per cent. is therefore made over and above the limit mentioned.

The *four* reported as of inferior quality, were dirty, and no doubt contained some "sweepings." The proportion of Total Mineral Matter present was unduly high, varying from 7 to 8 per cent., and in each case about half the mineral matter consisted of Sand.

COFFEE.

The *two* adulterated samples each contained Chicory to the extent of at least 5 per cent.

TEA.

Three were inferior. They contained exhausted leaves, and consisted largely of dust and stalk. They could not, however, be reported as adulterated.

COCOA.

The adulterated sample contained:—

At least 25 per cent. added Starches.

At least 25 „ „ Cane Sugar.

The added Starches consisted chiefly of Arrowroot.

SPIRITS.

These samples were all within the limits of strength prescribed by the Act, and no adulterant was detected in them. One sample (of Rum) was reported as "very inferior." It should be understood that the word "*Genuine*" applied to these samples does not imply more than that the composition is in accordance with the definition which can at present be scientifically given to them; and bears no reference to the processes of manufacture by which they may have been obtained.

DRUGS.

Tinctures.—Having regard to the official methods of preparation, the three samples of Tinctures were all of proper strength and good quality.

Citrate of Magnesia.—Some confusion exists with respect to this substance. "*Effervescent Citrate of Magnesia*" 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 here referred to 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 injurious impurities.

LARD.

Of the *three* adulterated samples

2 contained at least 3 per cent. of water

1 „ „ 1·5 „ „

Properly manufactured Lard should contain, practically, no water whatever, and it is well known that the incorporation of even a very small proportion of water is a source of considerable profit to the manufacturer.

"MIXED SWEETS."

These samples each consisted of several varieties of "Sweets." They were treated as single samples, and as such were found to be free from *Poisonous colouring matters*, *Mineral adulterants*, and from objectionable *flavouring materials* in sufficient quantity to be injurious. They were reported as "Genuine."

The samples in which no adulteration or impurities were detected and which have not been specially referred to in the foregoing summary, are as follows :—Arrowroot, Bread, Flour, Oatmeal, Rice, Sago, Tapioca, Sugar, Ginger, Cayenne Pepper, Cream of Tartar, Castor Oil, Glycerine, Magnesia, and Tartaric Acid. They were all of good quality. The eight first-named foods are at present but little liable to adulteration.

LEGAL PROCEEDINGS, &c.

Proceedings were instituted in the more serious cases of Adulteration. In the other cases your Vestry directed that cautions should be addressed to the Vendors. Table XI. shows the action taken in the 71 cases of Adulteration reported, with the results of those cases which were taken before the Magistrates, and the amounts of the fines inflicted. The cautions addressed to the Vendors of "dirty milk" (see page 219) are not included in this table, which bears reference only to certificated cases of Adulteration. I understand that cautionary letters were sent also in regard to some of the samples reported as "Inferior and probably adulterated."

During the previous year (1886-87) prosecutions were instituted in 44 cases; 31 convictions were obtained and fines amounting to £38 7s. were inflicted on offenders.

TABLE XI.

Name of sample.	Adulteration.	Action taken.	Result.	Remarks.
Milk	33 per cent. Water	Vendor summoned	Fined £2 and costs	
,,	25 ,, ,, ...	,, ,,	Fined £1 and costs	
,,	17 ,, ,, ...	,, ,,	Fined £2 and costs	
,,	17 ,, ,, ...	,, ,,	Fined £1 and costs	
,,	15 ,, ,, ...	,, ,,	Fined 10s. and costs	
,,	12 ,, ,, ...	,, ,,	Fined 10s. and costs	
,,	10 ,, ,, 95 per cent. Fat abstracted	,, ,,	Dismissed	Summons "irregular"
,,	10 ,, ,, ...	,, ,,	Fined £1 and costs	(1)
,,	8 ,, ,, 20 per cent. Fat abstracted	,, ,,	Fined £1 and costs	
,,	8 ,, ,, 10 ,, ,, ,,	,, ,,	Fined £1 10s. and costs	
,,	8 ,, ,, ...	,, ,,	Fined £1 and costs	
,,	8 ,, ,, ...	,, ,,	Fined 5s. and costs	See below (3)
,,	8 ,, ,, ...	,, ,,	Fined 5s. and costs	
,,	7 ,, ,, ...	,, ,,	Fined 5s. and costs	
,,	6 ,, ,, ...	,, ,,	Dismissed.	See below (2)
,,	6 ,, ,, ...	,, ,,	Withdrawn	Vendors 'in liquidation.'
13 Milks	5 ,, ,, ...	Vendors cautioned		
7 Milks	4 ,, ,, ...	,, ,,		
21 Milks	3 ,, ,, ...	,, ,,		
Milk	90 per cent. Fat abstracted	Vendor summoned	Dismissed	"Skim milk." See below (4)
,,	25 ,, ,, ,,	,, ,,	No service	Vendors left.
,,	25 ,, ,, ,,	,, ,,	Fined 10s. and costs	
,,	15 ,, ,, ,,	,, ,,	Fined 10s. and costs	
,,	12 ,, ,, ,,	,, ,,	Fined £2 & 12s. 6d. costs	See below (5)
Butter	90 per cent. Foreign Fat (Margarine)	Vendor cautioned		
,,	90 ,, ,, ,, (Margarine)	,, ,,		
,,	30 ,, ,, ,,	Vendor summoned	Fined £2 and costs	
Vinegar	Decomposed. Water equal to 70 per cent.	Vendor cautioned		
2 Mustards	5 per cent. Wheat Flour	,, ,,		
White Pepper	5 per cent. added Starches	,, ,,		
Black Pepper	9·38 per cent. Minera Matter, 3·8 per cent. Sand	Vendor summoned	Fined 10s. and costs	
,,	9·0 per cent. ,, ,, 3·06 ,, ,,	Vendor cautioned		
2 Coffees	5 per cent. Chicory	Vendors cautioned		
Cocoa	25 per cent. added Starch, 25 per cent. Sugar	Vendor summoned	Fined 10s. and costs	
Lard	3 per cent. Water	Vendor cautioned		
,,	3 per cent. Water	,, ,,		
,	1·5 per cent. Water	,, ,,		

Case (1) 10 *per cent. Extraneous Water*, 95 *Fat abstracted.* In this case the summons was served on the Vendor by Registered letter as he lived out of the district. The Magistrates decided, on an objection by defendant's solicitor, that this was not "good service," and on this technical ground the summons was dismissed.

Case 2.- ·6 *per cent Extraneous Water.*—It was proved in this case that the Inspector had difficulty in obtaining the sample, as the defendant (an itinerant vendor) "ran away from him." The Bench considered that there was some doubt in the case, and gave the defendant the benefit of it by dismissing the summons.

Case 4. - 90 *per cent. Fat Abstracted.*—In this case the Inspector was served from a can upon which the words "Skim Milk" were inscribed.

Cases 3 and 5.—In one of the cases of Milk adulteration, with 8 per cent Extraneous Water (4) it appears that an application for a fortnight's adjournment was granted to the defendant on the ground that his solicitor could not attend. Such applications should be resisted by your Vestry in all cases where, as with Milk, the sample is a perishable one, whose composition must alter on keeping, and especially where the amount of adulteration is comparatively small. Additional delay is often caused in such cases by the application of the defendant to have the sample analysed at Somerset House, when the adjourned case comes on ; with the final result that the Certificates will most likely differ sufficiently, after such a lapse of time to allow of doubt being thrown into the case. In the matter of certain vendors who had been summoned for selling Milk with at least 12 per cent. of original Fat abstracted (5), the summons was twice adjourned. A report was obtained from Somerset House. After long legal

arguments, and after hearing all available evidence in the defendants' behalf, the case ultimately ended by the defendants (a Company) being fined £2.

The Margarine Act.

The "Margarine Act, 1887," having become law, came into operation on the 1st of January, 1888. The Act defines "Butter" to mean "the substance usually known as butter, "made exclusively from milk or cream, or both, with or without "salt *or other preservative*, and with or without *the addition of* "*colouring matter*."

The word "Margarine" is to mean "all substances, whether "compounds or otherwise, prepared in imitation of Butter, and "whether mixed with Butter or not, and no such substance "shall be lawfully sold, *except under the name of 'Margarine,'* "and under the conditions set forth in the Act."

Every person dealing in "Margarine" is to have this word branded or "durably marked" on the top, bottom, and sides of every package thereof, and every parcel exposed for sale or actually sold by retail is to bear the same word in letters "clearly visible to the purchaser."

By Sections 8 and 10 of the Act, it is provided that all "Margarine" imported, or "forwarded by any public conveyance" shall be consigned as such: that all officers authorized under Section 13 of the Sale of Food and Drugs Act, 1875, *may* procure samples for analysis, and that such officers, without going through the form of purchase provided by the Sale of Food and Drugs Act, but otherwise acting in all respects in accordance with the provisions of that Act as to dealing with samples, may take portions for analysis of any substance pur-

porting to be butter and exposed for sale and not marked "Margarine," any such substance not being so marked being presumed to be sold as Butter.

By Section 12 it is enacted that all proceedings, except as varied by the Margarine Act, shall be the same as prescribed by Sections 12 to 28 inclusive of the Sale of Food and Drugs Act, 1875, and Public Analysts and all other officers employed under that Act are "empowered and required to carry out the provisions of this Act." Offences under the Act, are punishable by fines not exceeding £20, £50, and £100 for first, second, and third convictions, respectively.

The passing of this Act will no doubt do much towards further preventing the Sale of Adulterated Butter and of Butter substitutes as Butter, if adequate steps are taken to have samples seized and analysed, and if guilty persons are adequately punished. It is, I think, greatly to be regretted that the new Act allows of the addition to Butter of "other preservatives" besides salt, and of "colouring matters," without stating what these are to be, and what limits, if any, are to be allowed.

General Remarks.

The Parish may be congratulated on the steady decrease of adulteration which is shown by the results of this year's work, as compared with those of previous years. The deterrent and generally salutary effects of the Acts are now well known, but their value to the community can only be fully appreciated by those who are acquainted with the condition of things which existed 20, 15, or even 10 years ago. The startling results obtained by the Lancet Sanitary Commission during 1854 to 1856, led to the passing of the Adulteration Act of 1860; but this Act, which was entirely permissive, and left the initia-

tion of proceedings to private purchasers only, remained practically a dead letter, and, apart from the Act of 1872, which provided for the taking of samples by Official Inspectors, very little was done until the passing of the Sale of Food and Drugs Act of 1875, and it is from this time forward only that reliable statistics have been compiled.

It is satisfactory to note that the number of samples examined in England and Wales, including the Metropolis, steadily increases every year. The Report of the Local Government Board on the working of the Acts for 1887 has not yet been received. The number of analyses made in 1886 was 23,596, an increase of nearly 400 on those made in 1885, and of 5,773 on those made in the year 1881. 2,813 samples out of the total of 23,596 were returned as adulterated in 1886, giving a percentage of 11·9, the lowest yet attained. The percentage of adulteration in 1885 was 13·2. During the quinquenniads 1877-81 and 1882-86, the percentages were respectively 16·2 and 13·9.

The total number of samples of all kinds taken in the Metropolis in 886 was 6,171, of which 813 were adulterated, giving a per centage of 13·2 as against 14·8 in 1885.

While the decrease of Adulteration in general has been marked, it must be admitted that the practice of adulteration has become much more scientific, and that new adulterants are introduced from time to time. As instances may be taken the common custom of partial adulteration of milk, *i.e.*, the watering or skimming of rich milk down to the limit which the vendors believe will just pass the test of the Public Analyst, and the introduction of such adulterants as ground Olive Stones for Pepper, and Cotton Seed Oil for Lard.

The public generally have certainly no conception of the great profits attaching to the practice of adulteration, and of the enormous injury done to the honest trader as well as to the

public by this practice. It was calculated by the Local Government Board, not long ago, that "Londoners were paying from £60,000 to £70,000 a year for water sold under the name of milk;" and as much as £8,00 per annum has been shown to have been received by the milkmen of a *single district* for water, while the fines inflicted in that district had only amounted to £100 during the year.

I have the honour to be, Gentlemen,

Your obedient servant,

CHARLES E. CASSAL,

Public Analyst.