

Annual report of the public analyst appointed for the parish of Kensington for the year ended 31st March, 1890 : with a summary of the reports for the five years, March, 1885, to March, 1890.

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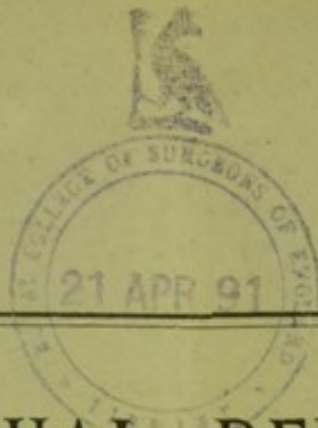
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ANNUAL REPORT

OF THE

PUBLIC ANALYST

APPOINTED FOR THE

PARISH OF KENSINGTON,

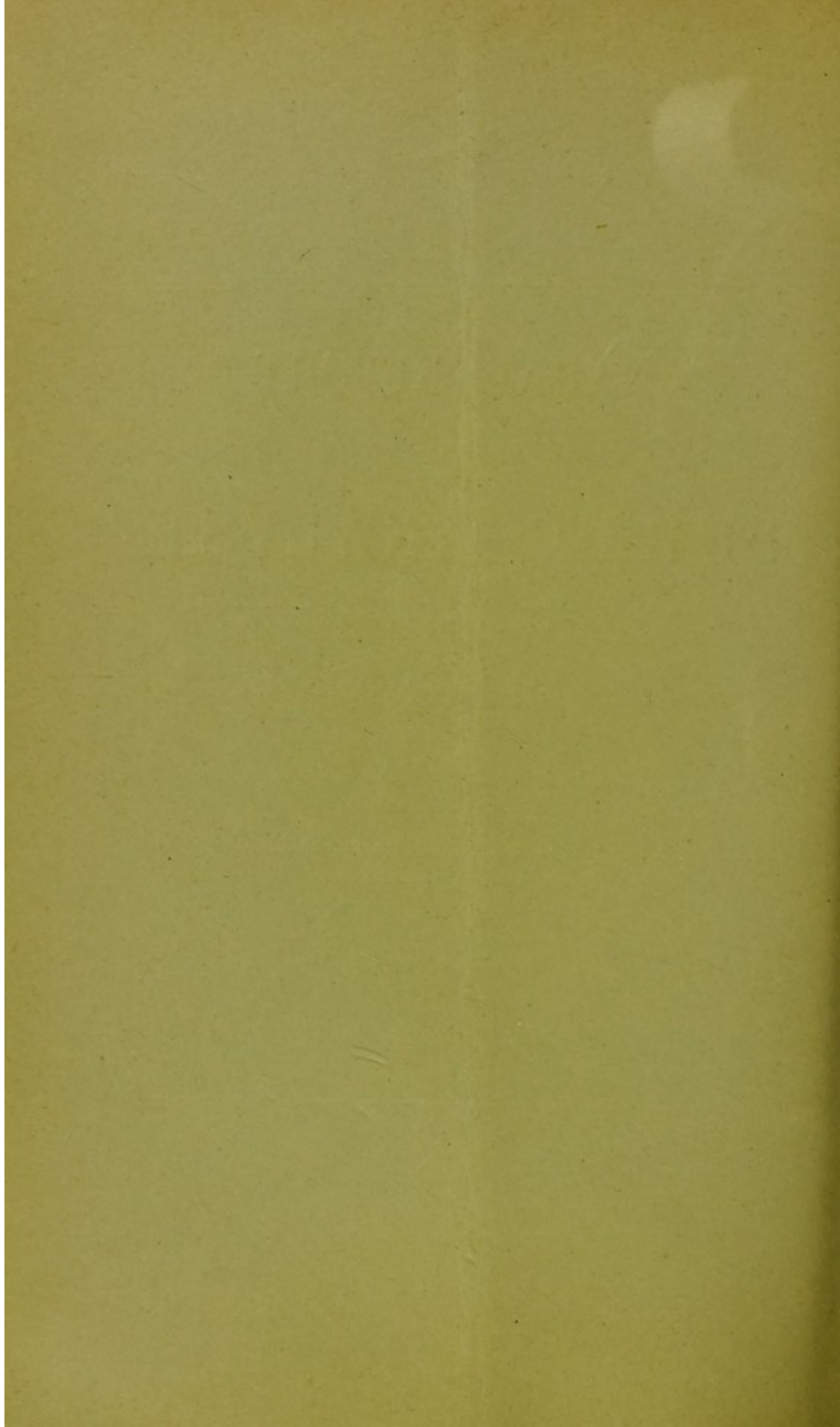
For the Year ended 31st March, 1890,

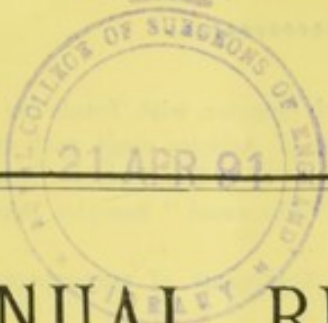
WITH A SUMMARY OF THE REPORTS FOR THE FIVE YEARS,
MARCH, 1885, TO MARCH, 1890.

BY

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

PUBLIC ANALYST.





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CONTENTS.



ANNUAL REPORT :—

TABLE I.—Samples in each Quarter, with Totals for Year ...	4
TABLE II.—Classified List of Articles dealt with during Year	5
TABLE III. — Statement of “Genuine,” “Adulterated,” “Inferior,” and “Abnormal” Samples taken in each Quarter	6
TABLE IV.—Comparative Statement of percentages for past Five Years	8
TABLE V.—Milk—Comparative Statement of percentages for past Five Years	8
TABLE VI.—Milk—Percentages obtained in each Quarter of the Year	9
TABLE VII.—Extent of Adulteration of Samples of Milk ...	10
“Adulterated” Milk, Analytical results	10
“Inferior” Milk	11
“Genuine” Milk	11
“Abnormal” Milk	11
“Skim” Milk	11
TABLE VIII.—Percentages of Adulteration for past five years in other principal Articles of Food	12
Butter	13
Cheese	13
Vinegar	14
Black Pepper	14
White Pepper	14
Spirits	15
Coffee	15
Sugar	16
Mustard	17
Confectionery	17
Lard	18
Remarks on unadulterated samples	18
Legal Proceedings, &c.	18
Fines	19
Cautions	19
TABLE IX.—Action taken in the cases of Adulteration ...	19

General Remarks :—

Samples examined in England and Wales	23
Local Government Board's Table (Table X.)	24
Lowest Percentage	24
Metropolis... ..	24
“Private” samples	25
Extension of Public Analysis	25

QUINQUENNIAL REPORT :—

TABLE A.—Genuine, Adulterated, and Inferior samples in last five years, with percentages	26
Details of Adulteration during the five years	27
Fines received	32

ANNUAL REPORT
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THE PUBLIC ANALYST,
APPOINTED FOR THE
PARISH OF KENSINGTON.

For the Year ended 31st March, 1890.

DEPARTMENT OF PUBLIC ANALYST

TOWN HALL, KENSINGTON, W.

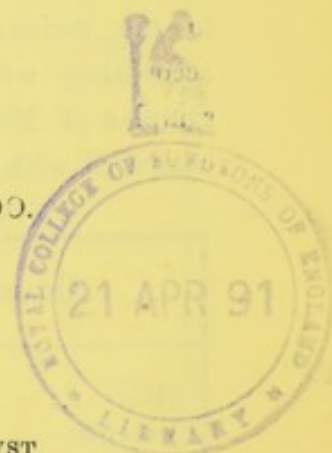
June, 1890.

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

GENTLEMEN,

1. During the year ended on March 31st, 1890, four hundred and seventy-seven samples of food have been submitted to me for analysis by the Inspectors appointed under the Acts. The number of samples analysed during each of the previous four years is shown in Table IV., page 8.

2. The foods consisted of 214 samples of Milk, 47 of Vinegar, 44 of Coffee, 30 of Butter, 20 of Sugar, 18 of Oatmeal, 17 of Mustard, 15 of Flour, 14 of Whisky, 10 of Black Pepper, 7 each of White Pepper and Lard, 6 of Tea, 5 of Sweets, 4 each of Arrowroot, Bread, and Rum, 3 each of Gin and Cheese, 2 of Brandy, and 1 each of Cayenne Pepper, Curry Powder and Tapioca.



3. 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 342 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.

4. 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.

TABLE I.

QUARTER.	1st.	2nd.	3rd.	4th.	Total.
Milk	58	37	65	54	214
Vinegar	4	15	...	28	47
Coffee	6	11	10	17	44
Butter	12	4	14	...	30
Sugar	2	7	...	11	20
Oatmeal ... ..	...	1	14	3	18
Mustard	5	9	2	1	17
Flour	3	9	3	...	15
Whisky	1	1	12	...	14
Black Pepper	8	2	...	...	10
White Pepper	4	3	...	...	7
Lard	4	3	...	...	7
Tea	2	4	...	...	6
Sweets	4	1	...	...	5
Arrowroot	3	1	...	...	4
Bread	1	3	...	...	4
Rum	1	1	2	...	4
Gin	2	1	...	...	3
Cheese	1	2	...	...	3
Brandy	1	1	...	...	2
Cayenne Pepper	1	...	...	...	1
Curry Powder ... ..	...	1	...	...	1
Tapioca ... ..	...	1	...	...	1
Totals	123	118	122	114	477

5. The various articles examined may be conveniently classified, and the totals of each class of Food, etc., dealt with, shown, as in Table II.

TABLE II.

CLASS.	ARTICLE.	TOTALS.
Milk Foods	Milk, Butter, Cheese. 214, 30, 3	247
Condiments	Vinegar, Mustard, Black Pepper, White Pepper, Curry Powder, Cayenne Pepper, 47, 17, 10, 7, 1, 1	83
Tea, etc.	Coffee, Tea 44, 6	50
Cereal and Starchy Foods	Oatmeal, Flour, Arrowroot, Bread, Tapioca 18, 15, 4, 4, 1 ...	42
Confectionery and Sugar	Sugar, Sweets 20, 5	25
Spirits	Whisky, Rum, Gin, Brandy 14, 4, 3, 2	23
Various	Lard 7	7
	Total	477

6. Table III. shows the number of Genuine, Adulterated, and Inferior samples taken during each quarter, with the totals for the year, and the number and names of those of each kind.

Cereal and Star-chy Foods.	Oatmeal	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	18
	Flour	3	14	3	18	15	...	...	...	...	...	...	...	...	...	...	...	...	...	15
	Arrowroot	3	...	...	4	4	...	...	...	...	...	...	...	...	...	...	...	...	...	4
	Bread	1	...	...	4	4	...	...	...	...	...	...	...	...	...	...	...	...	...	4
	Tapioco	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Spirits, etc.,	Whisky	1	1	9	11	3	...	3	...	3	...	...	...	...	...	3	...	...	...	14
	Rum	1	1	1	3	1	...	1	...	1	...	...	...	...	...	1	...	...	...	4
	Gin	2	1	...	3	3	...	...	...	...	...	...	...	...	...	...	...	...	...	3
	Brandy	1	...	...	1	1	...	...	1	...	...	...	...	...	...	1	...	...	...	2
Confectionery and Sweets.	Sugar	2	7	...	4	13	...	...	...	7	...	...	...	...	7	...	...	...	...	20
	Sweets	4	1	...	5	5	...	...	...	...	...	...	...	...	...	...	...	...	...	5
Various.	Lard	4	3	...	7	7	...	...	...	...	...	...	...	...	...	...	...	...	...	7
	Totals	92	106	101	72	371	18	7	15	31	31	71	11	4	3	11	29	6	477	

7. The percentages given by the figures in Table III. are compared with those obtained in the previous four years, ended 25th March, 1886, 25th March, 1887, 25th March, 1888, and 31st March, 1889, in the following Table (IV.) :—

TABLE IV.—PERCENTAGES.

YEAR.	1885-86.	1886-87.	1887-88.	1888-89.	1889-90.
Genuine	48·7	53·0	72·2	73·44	77·78
Adulterated	34·5	28·0	15·3	13·89	14·88
Inferior	11·1	17·0	11·1	10·06	6·08
Abnormal	5·7	2·0	1·4	2·61	1·26
Number of Samples Submitted	524	499	503	497	477

MILK.—214 SAMPLES.

8. The percentages obtained from the data in Table III. are stated below, together with those obtained in 1885-86, 1886-87, 1887-88, and 1888-89.

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.	1889-90.
Genuine	29·0	37·86	55·46	58·33	63·55
Adulterated	46·3	39·92	27·07	20·84	21·50
Inferior	11·0	18·10	14·41	14·81	12·15
Abnormal	13·7	4·12	3·06	6·02	2·80
Number of samples submitted	218	243	229	216	214

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

33·65	per cent. in 1889-90, as against
35·65	„ 1888-89,
41·48	„ 1887-88,
58·02	„ 1886-87, and
57·3	„ 1885-86,

And that the samples other than genuine normal Milk amounted to

35·45	per cent. in 1889-90, as against
41·67	„ 1888-89,
44·54	„ 1887-88,
62·14	„ 1886-87, and
71·00	„ 1885-86.

10. 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 31 to June 30, 1889.	55·2	22·4	18·9	3·5	41·3	58
June 30 to September 30, 1889.	75·67	13·51	8·11	2·70	21·62	37
September 30 to December 31, 1889.	75·4	15·4	4·6	4·6	20·0	65
December 31, 1889, to March 31, 1890.	50·0	33·3	16·7	...	50	54

11. "*Adulterated*" *Milk*.—The forty-six samples returned in Table III. as "*Adulterated*" had been tampered with *at least* to the extent indicated in the following Table (VII.). In order to facilitate reference, the quarter of the year in which each sample was taken is also given in this Table. Percentage of fat abstracted is calculated upon the amount of fat which should have been present in the particular sample under examination, according to the percentages of other constituents found in it.

TABLE VII.

Percentage of Extraneous Water.	Percentage of Original Fat Abstracted.	Number of Samples.	Quarter taken.
50	...	1	1st
...	40	2	1st and 4th
...	35	1	4th
30	...	1	4th
...	33	1	3rd
...	25	2	4th
8	20	1	4th
18	...	3	1st and 2nd (2)
17	...	1	3rd
15	...	1	4th
14	...	1	1st
13	...	1	3rd
12	...	1	4th
10	...	1	1st
...	10	1	4th
8	...	4	1st (2), 2nd and 4th
...	8	1	4th
6	...	1	4th
5	...	5	1st (2), 3rd & 4th (2)
...	5	5	3rd (2), 4th (3)
3	...	9	1st (4) 3rd (4) & 4th
Samples containing Boracic Acid		2	3rd
Total ...	...	46	

12. "*Adulterated*" *Milk (Analytical results)*.—The results in Table VII. were calculated on the lowest admissible limits which were consistent with the Analytical data obtained; a fact which adds considerably to the significance of the figures. With reference to the lesser amounts reported, it should be noted that the percentages are only to be regarded as "*small*" when compared with the higher ones. Adulteration of milk to such extents as will result in samples

being reported, upon low limits of quality, as containing at least 3 or 5 per cent. of extraneous water or of having had at least 3 or 5 per cent. of the original fat abstracted, is extensively practised. Two samples contained Boracic Acid in considerable amount, added for the purpose of preservation. The addition of Boracic Acid to milk is not necessary, and its use may be injurious to health. A special report was made to your Vestry on this subject.

13. "*Inferior*" Milk.—The 26 samples returned as "Inferior and probably Adulterated," were 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, in consequence of the existing necessity for calculating results upon low standards of quality. It is misleading to report milks of this description as "Genuine." It is also important to ascertain, for administrative purposes, where and under what circumstances they were sold. A permanent record of these sales is necessary for the proper working of the Acts.

14. "*Genuine*" Milk.—Of the 136 samples of milk reported as "genuine," 53 were of good quality, 41 were of fair average quality, 38 were poor milks, and 4 were submitted as "Skim Milks," and had been correctly described by the vendors as such.

15. "*Abnormal*" Milk.—With respect to the samples reported as "abnormal" of which there were 6, they were all milks containing unusually large proportions of Fat, in amount varying from 6·7 to 14·25 per cent. The following percentages of Fat were yielded in these six cases: 14·25, 10·0, 9·5, 7·63, 7·1, and 6·7. Remarks upon the presence of abnormal amounts of Fat in milk will be found in previous reports to your Vestry.

16. The sample containing at least 13 per cent. of extraneous water was submitted for analysis as "Skim Milk." The composition of "Skim Milk," which is milk from which a certain portion of the Fat has been removed, is different from that of milk adulterated with water

OTHER ARTICLES.

17. 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 four preceding years:—

TABLE VIII.

Year.	Genuine.					Adulterated.					Inferior.					No. of Samples.				
	1885-86	1886-87	1887-88	1888-89	1889-90	1885-86	1886-87	1887-88	1888-89	1889-90	1885-86	1886-87	1887-88	1888-89	1889-90	1885-86	1886-87	1887-88	1888-89	1889-90
Butter ...	57.8	47.8	78.7	87.5	93.3	8.9	17.4	6.38	6.25	6.7	33.3	34.8	14.9	6.25	...	45	46	47	48	30
Vinegar ...	53.8	76.9	90.48	87.1	89.3	23.1	7.7	4.76	3.2	6.4	23.1	15.4	4.76	9.7	4.3	13	13	21	31	47
White Pepper ...	92.8	75.0	45.4	33.3	85.7	7.2	...	9.1	44.4	...	...	25.0	45.4	22.2	14.3	14	8	11	9	7
Black Pepper ...	22.2	23.5	40.0	54.5	60.0	77.7	53.0	20.0	36.3	40.0	...	23.5	40.0	9.1	...	27	17	10	22	10
Lard ...	...	66.7	40.0	81.8	100.0	...	33.3	60.0	18.2	0.0	...	...	...	...	...	0	3	5	22	7
Coffee ...	75.0	68.7	89.3	100.0	90.90	25.0	31.3	10.7	0.0	9.1	...	...	...	...	...	44	32	28	23	44
Sugar ...	100.0	100.0	100.0	100.0	65.0	...	...	...	...	35.0	...	...	...	...	...	12	11	9	11	20
Cocoa ...	13.3	33.3	66.7	50.0	0.0	86.6	66.7	33.3	50.0	0.0	...	...	...	...	...	15	3	3	2	0
Mustard ...	12.5	57.1	82.3	100.0	100.0	87.5	42.9	11.8	0.0	0.0	...	...	5.9	...	...	24	21	17	32	17
Spirits ...	51.4	65.2	94.8	50.1	78.3	16.2	17.4	0.0	18.7	21.7	32.4	17.4	5.2	31.2	0.0	37	23	19	16	23

18. 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 percentages 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.

19. The two adulterated samples (Table III.) respectively contained

At least 90 per cent of Foreign Fat.

„ 35 „ „ „

20. The first sample contained very little Butter. It was taken under the "Margarine Act, 1887," and was certified as being "Margarine." The word "Margarine" means all substances, whether compounds 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 term "Foreign Fat" means any fat other than the fat of Butter.

21. The second sample was taken under the "Sale of Food and Drugs Act."

CHEESE.

22. The three samples of Cheese contained no fat other than the fat of Milk. They were free from mineral and organic adulterants, and contained a proper portion of fat.

VINEGAR.

23. Three samples were certified as adulterated.

Two of these (which were identical in composition) were found to be deficient in Acetic Acid to the extent that would result by

the presence of at least 30 per cent. of extraneous water—assuming that the original Vinegar was the weakest which should be allowed to be sold.

The remaining sample contained a trace of *free* Sulphuric Acid (Oil of Vitroil), and was therefore reported as adulterated.

BLACK PEPPER.

24. Three of the adulterated samples contained the percentages of Total Mineral Matter and of Sand as understated:—

Total Mineral Matter per cent.	Silica and Sand per cent.
13·28	6·62
9·27	5·00
8·82	5·02

These 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 remaining adulterated sample contained at least 25 per cent. of added Starches.

WHITE PEPPER.

25. One sample of White Pepper was certified as inferior. It contained an unduly high amount of Mineral Matter, but not sufficient to constitute adulteration.

26. *Adulterated Spirits.*—The five samples reported as adulterated, were lowered below the legal strength by admixture with water as follows:—

Whisky	30·84 Under Proof.
Whisky	29·08 Under Proof.
Whisky	27·96 Under Proof.
Brandy	25·7 Under Proof.
Rum	25·8 Under Proof.

27. *Legal Limits of Strength.*—The limit of strength imposed by the "Sale of Food and Drugs Amendment Act" of 1879 is 25 Under Proof for Whisky, Brandy, and Rum, and 35 Under Proof for Gin. The other samples examined were all of, or above, the strength required by law.

28. *"Genuine" Spirits.*—The use of the term "Genuine" is very liable to be misleading in reference to Spirits. It should be understood that this word applied to samples of Spirits does not imply more than that their composition is in accordance with the definition which can at present be scientifically, as well as legally given to them.

COFFEE.

29. The four samples reported as adulterated contained Chicory as understated:—

1	contained at least	45	per cent. of Chicory.
1	"	40	"
2	"	25	"

I am informed that the first-named sample was purchased as Coffee, and that no declaration that it was a mixture was made at the time of sale. It appears that the two samples, each containing at least 25 per cent. of Chicory, were purchased in tins which were labelled as "Coffee," but that the fact of admixture with Chicory was also stated upon the labels. Where the percentage of Chicory exceeds a certain amount, labelling as a mixture is no protection to the vendor. The sale

of the article as "Coffee" or with "Coffee" as its *principal title*, constitutes an offence under the 8th Section of the Act of 1875. The offence is obvious where the amount of the adulterant exceeds 50 per cent.; but this percentage is not to be taken as a limit. The presence of an adulterant, which can be proved, to the satisfaction of a magistrate, to have been added in a quantity sufficient "for the purpose of fraudulently increasing the bulk, weight, or measure, or of concealing the inferior quality" of the article, constitutes an offence under the Section above referred to.

30. It must be borne in mind that Coffee and Chicory are entirely different substances, merely resembling one another, to some extent, in colour and appearance. Coffee is a roasted and ground berry, containing certain aromatic and other compounds which give the substance its character and value. Chicory is a roasted and ground root, which does not contain the substances peculiar to Coffee, and which when present in large amount yields an extract which has a very unpleasant affect upon many persons.

SUGAR.

31. *Seven* samples were certified as adulterated. They were certified as having been prepared by dyeing colourless sugar crystals yellow, with an artificial organic colouring matter not natural to Sugar. They consisted of sugar crystals which had been dyed of a bright yellow colour by means of artificial organic colouring matters belonging to the class of so-called Aniline dyes. It is evident that great quantities of the dyed sugars are sold in London and elsewhere. Purchasers are under the impression that they are being supplied with genuine cane sugar (such as "Demerara"), whereas they are in reality getting sugar crystals which have been artificially dyed. In this way beetroot sugar is coloured and sold as "Demerara," and it is admitted that weight for weight, under ordinary conditions of use, beetroot sugar does not give the same "sweetening" as cane sugar. A natural product having been tampered with by admixture with an artificial dye, whatever the real object may have been in the preparation of these Sugars, it is obvious that the proceeding enables one article to be substituted for another. The dyeing materials used belong to a class of substances which are chemically of a very complicated

character. The discovery, and the application to industrial purposes, of a number of these dye-stuffs, is of comparatively recent date. Some of them are known to be of a poisonous nature, while the action of others, when ingested, is unknown, while others, again, are asserted upon insufficient and unsatisfactory evidence to be non-poisonous. Apart, therefore, from other considerations, these cases afford an illustration of the impropriety of tampering in such a way with articles of food, without, at least, an open statement of what has been done. Although in dyeing an article of food, the weight of the dye-stuff used must be exceedingly small as compared with the weight of the substance dyed, it must be admitted that the proper course of action in the present state of knowledge on the subject is, as far as possible, to prevent the use of dye-stuffs of the general character indicated for colouring articles of food, in view of probable abuse; and the public have every right to expect that natural food-products shall not be coloured with Aniline-derived dyes.

MUSTARD.

32. The adulteration of Mustard with Flour and Turmeric does not appear to be so common as formerly. The general quality of the samples submitted recently has, however, been inferior.

CONFECTIONERY.

33. These samples were all free from poisonous colouring matters and flavouring materials. No traces of metallic contamination from the vessels used for their preparation, were detected in them. They were free from insoluble matter, or excess of mineral matter. There exist no legal definitions as to the composition of Sweets, and accordingly the examination of them under the Acts is confined to the search for poisonous colouring matters, such as poisonous metallic pigments, or poisonous dyes, and for improper flavouring materials, or for insoluble and indigestible constituents, such as Plaster of Paris, Paraffine-wax, &c. Confectionery was at one time, and no doubt in certain places still is, liable to the very worst forms of adulteration in these respects.

LARD.

34. The vigorous action taken with reference to Lard, and the exposure by the English Public Analysts of the adulterants used, have apparently resulted in largely checking the adulteration of this article of food.

UNADULTERATED SAMPLES.

35. Where only a very small number of samples of any article of food is taken for analysis, no conclusions of much value can be drawn as to the extent to which the sale of adulterated articles of the kinds referred to may prevail in a district. The fact that samples are taken produces, as is well known, a very salutary general effect, and the practice of selling adulterated goods in the Parish has certainly largely diminished. The introduction of a more systematic method of taking samples will, no doubt, render it possible to obtain more accurate information as to the adulteration of those substances of which but very few samples have as yet been taken for examination.

LEGAL PROCEEDINGS.

36. 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 results 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 been included in my quarterly reports to your Vestry. The Local Government Board have lately asked 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 plain.

37. *Fines.*—In previous reports the attention of your Vestry has frequently been called to the inadequate fines inflicted in cases of adulteration. This has now become the subject of very general remark, and is often commented upon in the Press. The Local Government Board in their reports have also made strong representations on this matter. From the report for 1888, it appears that in the 1337 prosecutions reported as having been instituted by local authorities in England and Wales, the fines imposed amounted to £1782 in the aggregate, besides costs, the average penalty being thus under 27s. Excluding a few cases—namely 95, where the fines were exceptionally high (that is, of 15 and upwards)—the average fine was only 18s. “Considering the large profits of adulteration,” continues the Board, “we cannot regard penalties of this amount as likely to check it effectually, and we have, as in former years, received various complaints of the leniency of Magistrates in this matter.” At the instance of some London public authorities, questions have been put in Parliament, and communications complaining of the course followed by Magistrates in these cases have been addressed to the Home Secretary and to the Local Government Board. It remains to be seen whether these steps will result in producing any general improvement.

38. *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.

TABLE IX.

LEGAL PROCEEDINGS, ETC,

NAME OF SAMPLE.	ADULTERATION.	ACTION TAKEN.	RESULT.	REMARKS.
Milk ...	50 per cent. water	Vendor summoned	Fined £3 and costs	See below, A
Milk ...	40 per cent. original fat abstracted	Vendor summoned	Fined £1 and costs	
Milk ...	40 per cent. fat abstracted	Vendor summoned	Fined £3 and costs	One previous conviction. Three cautions
Milk ...	35 per cent. fat abstracted	Vendor summoned	Dismissed	Legal technicality
Milk ...	30 per cent. water	Vendor summoned	Fined £1 and costs	
Milk ...	33 per cent. fat abstracted	Vendor summoned	Fined £2 and costs	See below, B
Milk ...	25 per cent. fat abstracted	Vendor summoned	Dismissed	Legal technicality Previous conviction and cautions
Milk ...	25 per cent. fat abstracted	Vendor summoned	Fined 5s. and costs	
Milk ...	8 per cent. water, and 20 per cent. fat abstracted	Vendor summoned	Fined £1 and costs	
Milk ...	18 per cent. water	Vendor summoned	Absconded	False address
Milk ...	18 per cent. water	Vendor summoned	Fined £1 and costs	
Milk ...	18 per cent. water	Vendor summoned	Fined £1 and costs	
Milk ...	17 per cent. water	Vendor summoned	Fined 1s. and costs	See below, C
Milk ...	15 per cent. water	Vendor summoned	Fined £5 and costs	Two previous convictions
Milk ...	14 per cent. water	Vendor summoned	Fined £2 and costs	
Milk ...	13 per cent. water	Vendor summoned	Fined £1 and costs	See below, D

TABLE IX.—Continued.

NAME OF SAMPLE.	ADULTERATION.	ACTION TAKEN.	RESULT.	REMARKS.
Milk ...	12 per cent. water	Vendor summoned	Fined 10s. and costs	
Milk ...	10 per cent. water	Vendor summoned	Fined £1 and costs	
Milk ...	10 per cent. fat abstracted	Vendor cautioned		Further samples taken
Milk ...	8 per cent. water	Vendor summoned	Fined £1 and costs	
Milk ...	8 per cent. water	Vendor summoned	Fined £2 and costs	
Milk ...	8 per cent. water and containing Boracic Acid	Vendor summoned	Fined £2 and costs	Vendor previously convicted
Milk ...	8 per cent. water	Vendor summoned	Fined 5s. and costs	
Milk ...	8 per cent. fat abstracted	Vendor cautioned		Further samples taken
Milk ...	6 per cent. water	Vendor cautioned		Further samples taken
Milk ...	5 per cent. water	Vendor summoned	Dismissed	Legal technicality
4 Milks	5 per cent. water	Vendors cautioned		Further samples taken
9 Milks	3 per cent. water	Vendors cautioned		Further samples taken
5 Milks	5 per cent. fat abstracted	Vendors cautioned		
2 Milks	Boracic Acid	<i>Nil</i>		
Butter	"Margarine"	Vendor summoned	Fined £1 and costs	
Butter	35 per cent. foreign fat	Vendor summoned	Fined £1 and costs	
Vinegar	30 per cent. water	Vendor summoned	Fined £2 and costs	} Same Vendor
Vinegar	30 per cent. water	Vendor summoned	Fined £1 and costs	

TABLE IX.—Continued.

NAME OF SAMPLE.	ADULTERATION.	ACTION TAKEN.	RESULT.	REMARKS.
Vinegar	Trace of free sulphuric acid	Vendor cautioned		
Black Pepper	13.28 per cent. mineral matter, etc.	Vendor summoned	Fined 5s. and costs	
Black Pepper	9.27 per cent. mineral matter, etc.	Vendor summoned	Fined 5s. and costs	
Black Pepper	8.82 per cent. mineral matter, etc.	Vendor cautioned		
Black Pepper	25 per cent. added starches	Vendor summoned	Fined 5s. and costs	
Coffee ...	45 per cent. chicory	Vendor summoned	Fined £1 and costs	
Coffee ...	40 per cent. chicory	Vendor summoned	Fined 10s. and costs	
2 Coffees	25 per cent. chicory	No action		Bought in Tins as Mixtures
Whisky	30.84 Under Proof	Vendor summoned	Fined £5 and costs	
Whisky	29.08 Under Proof	Vendor summoned	Fined £5 and costs	
Whisky	27.96 Under Proof	Vendor summoned	Fined £5 and costs	
Rum ...	25.8 Under Proof	Vendor cautioned		
Brandy	25.7 Under Proof	Vendor cautioned		
7 Sugars	Dyed with artificial colour	Action deferred		

From the foregoing Table, it appears that fines amounting to £50 6s. were paid to the Vestry during the year. Costs were also paid to the Vestry in each case.

Case A.—This is one of the worst cases of milk adulteration which has been detected in the Parish within my experience, and the fine inflicted is somewhat inadequate, unless the Vendor was not in a position to pay a heavier penalty.

Case B.—This case was adjourned at the defendant's request, in order to allow the Inspector's reserve sample to be analysed at Somerset House. The Somerset House certificate confirmed the adulteration.

Cases C and D.—I am informed that when these cases were heard, it appeared that the two samples were taken at the same time from the same vendor, who asked the Inspector to take a sample of milk C after he had served him with milk D. I understand that the bench therefore considered that the vendor must have believed sample C to be genuine, and hence inflicted only a nominal fine in case C.

Black Pepper Cases.—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 must be remembered, however, that the *Sale of Food and Drugs Act* is the only existing check upon those who, through the channel of certain retail dealers, succeed in disposing of large quantities of valueless material to the detriment of the public generally.

GENERAL REMARKS.

39. *Samples examined in England and Wales.*—During the year 1888—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 26,344, an increase of 1904 upon 1887. This is a large increase when compared with that of 1887

upon 1886, which was only 844. The data in the following table have been obtained from the Local Government Board reports for 1887 and 1888, 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 1887.		No. of Samples in 1888.		Percentage adulterated in			
	Examined.	Adulterated.	Examined.	Adulterated.	1887.	1888.	Quinquenniads.	
							1877-81.	1882-86
Milk	10,333	1,539	10,859	1,292	14.9	11.9	21.1	16.7
Bread	872	17	689	4	1.9	0.6	6.6	3.4
Flour	400	—	429	2	—	0.5	2.5	0.5
Butter	2,411	423	3,499	363	17.5	10.4	13.9	17.9
Coffee	1,269	169	1,172	141	13.3	12.0	18.6	17.8
Sugar	158	—	144	—	—	—	1.2	—
Mustard	803	86	793	75	10.7	9.5	17.4	14.5
Confectionery & Jam	286	19	295	7	6.6	2.4	2.8	2.7
Pepper	1,836	202	1,315	101	11.0	7.7	—	—
Tea	423	1	461	—	0.2	—	—	—
Lard	427	25	1,782	299	5.9	16.8	—	—
Wine	32	2	45	2	6.3	4.4	14.2	4.4
Beer	803	18	399	11	2.2	2.7	5.4	3.0
Spirits	2,400	435	2,323	415	18.1	17.9	34.9	22.3
Drugs	441	48	383	28	10.9	7.3	22.0	13.6
Other Articles ...	1,546	150	1,756	96	9.7	5.5	—	—
Totals	24,440	3,134	26,344	2,836	12.8	10.8	16.2	13.9

40. *Lowest percentage.*—The lowest percentage of adulteration yet attained is that of 10.3 in 1888. In 1886 it was 11.9, and in 1887 it rose to 12.8. 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.

41. *Metropolis.*—The total number of samples of all kinds taken in the Metropolis in 1888 was 6922, an increase of 520 upon 1887,

and equal to one for every 551 persons. Of these 761 were adulterated, as against 894 in 1887, giving a percentage of 11·0 for 1888, against 14·0 for 1887.

42. It is pointed out in the Local Government Board Report that, as in former years, the public continue to avail themselves very little of the provisions of the Acts. "Of the 26,344 samples analysed during the year, all but 164 were obtained by officers of local authorities, and, as usual, a much larger proportion of the private than of the official samples was found to be adulterated; since, apart from the fact that the Inspectors are often recognised by the tradesmen, and so have superior articles supplied to them, a private purchaser is not likely to saddle himself with the trouble and expense of procuring an analysis unless he has strong grounds for believing that he is being cheated."

43. 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.

44. In my last Annual Report to your Vestry, I pointed out the urgent necessity for the extension of Public Analysis to other articles besides foods and drugs. Whenever an opportunity is afforded for doing so, I feel it to be my duty to make public mention of this matter, as one of the most important which can engage the attention of public authorities and of the legislature, in reference to the health of the community; and I earnestly hope that the influence of your Vestry will be exerted in pressing the question forward, and in showing the necessity of early legislation upon it.

45. A summary of the work of my Department during the past five years is appended to this Report.

I have the honour to be,
Gentlemen,
Your obedient Servant,

CHARLES E. CASSAL,
Public Analyst.

APPENDIX.

QUINQUENNIAL REPORT.

1. During the five years ended on the 31st March, 1890, a total of 2,500 samples of food and drugs were submitted to me for analysis by the Inspectors, thus giving an average of 500 samples for each year. The results are summarised in the following table (A):—

TABLE A.

	"Genuine," or "Not Adulterated," including Abnormal.	Per cent. Genuine.	Adulterated.	Per cent. Adul- terated.	Inferior.	Per cent. Inferior.	Total samples.
Milk ...	610	54.5	351	31.3	159	14.2	1,120
Butter ...	155	71.8	20	9.3	41	18.9	216
Coffee ...	143	83.6	26	15.2	2	1.2	171
Pepper ...	64	47.4	50	37.1	21	15.5	135
Vinegar ...	105	84.0	9	7.2	11	8.8	125
Spirits ...	78	66.1	18	15.2	22	18.7	118
Mustard ...	78	70.3	32	28.8	1	0.9	111
Flour...	95	—	0	—	0	—	95
Sugar...	56	88.9	7	11.1	0	—	63
Bread ...	61	—	0	—	0	—	61
Oatmeal ...	43	—	0	—	0	—	43
Tea ...	31	75.6	0	—	10	24.4	41
Lard ...	29	78.4	7	18.9	1	2.7	37
Cheese ...	30	93.7	0	—	2	6.3	32
Arrowroot ...	25	—	0	—	0	—	25
Cocoa ...	6	26.1	17	73.9	0	—	23
Drugs ...	18	85.7	0	—	3	14.3	21
Beer ...	12	92.3	0	—	1	7.7	13
Sweets ...	12	92.3	0	—	1	7.7	13
Tapioca ...	11	—	0	—	0	—	11
Sago ...	9	—	0	—	0	—	9
Wine ...	1	25.0	0	—	3	75.0	4
Cayenne ...	3	—	0	—	0	—	3
Curry ...	3	—	0	—	0	—	3
Rice ...	3	—	0	—	0	—	3
Ginger ...	2	—	0	—	0	—	2
"Corn Flour"	1	—	0	—	0	—	1
Cream ...	0	—	1	100.0	0	—	1
Totals ...	1,684	67.4	538	21.5	278	11.1	2,500

The number of bad samples, including Adulterated and Inferior, was therefore 316, giving a percentage of 32.6 for the five years.

MILK.

The samples reported as adulterated during the five years had been tampered with by the addition of water or the abstraction of fat or both, as shown below.

Adulteration with Water.—The percentages of extraneous water certified varied from at least 2 per cent. to at least 50 per cent., as follows :—

At least 50 per cent. Extraneous Water	No. of Samples
1 sample.	1
33	1
30	1
27	1
25	5
20	6
18	4
17	3
16	2
15	7
14	2
13	4
12	10
11	1
10	14
9	5
8	19
7	14
6	20
5	70
4	34
3	73
2	2

Adulteration by addition of Water and by Abstraction of Original Fat :—

Percentages of Extraneous Water.	Percentages of Fat Abstracted.	No. of Samples.
45	50	1
12	95	1
11	60	1
10	95	1

Percentages of Extraneous Water.		Percentages of Fat Abstracted.		No. of Samples.
8	...	20	...	2
8	...	12	...	1
8	...	10	...	1
8	...	8	...	1
7	...	8	...	1
6	...	25	...	1
5	...	10	...	3
4	...	10	...	1
3	...	30	...	1
3	...	8	...	1

Adulteration by Abstraction of Original Fat :—

At least 90 per cent. Original Fat Abstracted	No. of Samples.
1 sample.	1
85 " " " "	1 " "
70 " " " "	1 " "
60 " " " "	1 " "
40 " " " "	3 samples.
35 " " " "	1 sample.
33 " " " "	1 " "
30 " " " "	2 samples.
25 " " " "	4 " "
20 " " " "	1 sample.
16 " " " "	1 " "
15 " " " "	2 samples.
12 " " " "	3 " "
10 " " " "	3 " "
8 " " " "	1 sample.
7 " " " "	2 samples.
5 " " " "	5 " "

BUTTER.

All the adulterated samples were certified to contain Foreign Fats as follows:—At least 93 per cent. (2 samples), 90 per cent. (4 samples), 85, 70, 60, 50, 40, 35 and 30 per cent. (of each 1 sample), 25 per cent. (2 samples), 20 per cent. (4 samples), and 15 per cent. (1 sample).

COFFEE.

The samples certified as adulterated all contained Chicory as follows:—At least 45 per cent. (2 samples), 40 per cent. (1 sample) 25 per cent. (2 samples), 20 per cent. (1 sample), and 5 per cent (20 samples).

PEPPER.

Forty-four samples of black pepper and 6 samples of white pepper were certified as adulterated; 42 of the adulterated samples of black pepper were certified as containing unduly high percentages of total mineral matter, and of silica and sand. Three of these had also been adulterated to a small extent with added starches. The percentages of total mineral matter varied from 7.1 to 18.25, and of silica and sand from 3.0 to 13.2. The 2 remaining samples of black pepper contained, respectively, at least 5 per cent. of added starches, and at least 25 per cent. of added starches. Of the 6 adulterated samples of white pepper, 5 contained unduly high percentages of mineral matter, from 2.86 to 6.5 per cent., 3 of these were also adulterated with added starches, containing respectively at least 5 per cent., at least 10 per cent., and at least 25 per cent. The remaining sample contained at least 5 per cent. of added starches.

VINEGAR.

The following are the particulars relating to the 9 cases of adulteration. Four contained free Sulphuric Acid (Oil of Vitriol) from 0.24 to 0.53 per cent., and were very weak in Acetic Acid; 5 were certified as adulterated by the presence of extraneous water, viz.:—1 with at least 5 per cent. extraneous water, 1 with at least 16 per cent., 2 with at least 30 per cent., 1 with at least 70 per cent. These amounts were in each case calculated upon the reduced strengths of these "Vinegars," which were equal to the strengths that would be obtained by admixture of the lowest quality of Vinegar with such minimum percentages as those above-mentioned.

COCOA.

The Adulterated samples all contained added Starches and Sugar in the following minimum amounts :—

Added Starches. Per cent. at least	Sugar Per cent. at least
55	30
50	30 (2 samples).
50	20
40	35
40	30 (2 samples.)
40	25 (4 samples.)
35	30
25	30
25	25
25	20
20	16
15	20

CREAM.

This sample was Adulterated with Boracic Acid.

Special details, referring to the samples taken, to inferior and unwholesome foods, to new adulterants, and to decisions of interest in legal proceedings, have been given in my Quarterly Reports, and summarised in the five Annual Reports, which I have addressed to your Vestry.

DECREASE OF ADULTERATION.

The decrease in the percentage of adulteration generally is shown in Table IV. (from 34·5 per cent. in 1885-86, to 14·88 per cent. in 1889-90), and the case of Milk and of other articles in Tables V. and VIII. (see Annual Report).

The decrease of "Inferiority" has been from 11·1 per cent. in 1885-86 to 6·08 per cent. in 1889-90.

SPIRITS.

The 18 adulterated samples had all been lowered below the legal strengths of 25 degrees Under Proof for Brandy, Whisky, and Rum, and of 35 degrees Under Proof for Gin, by admixture with water; and included 4 Brandies (25·7, 27·13, 27·5, and 29·5 degrees Under Proof), 7 Whiskies (27·0, 3 *cases*; 27·96, 29·08, 30·84, and 33·32 degrees Under Proof), 3 Rums (25·8, 27·5, and 27·6 degrees Under Proof), 4 Gins (36·5, 38·05, 40·0 and 42·2 degrees Under Proof).

MUSTARD.

The 32 adulterated samples contained Wheat Flour in amounts varying from at least 3 per cent. to at least 40 per cent., viz.:— 3 per cent. (5 cases), 5 per cent. (23 cases), 7 per cent. (1 case), 10 per cent. (1 case), 15 per cent. (1 case), and 40 per cent. (1 case). During the last two years this form of adulteration would seem to have considerably diminished, so far as can be ascertained from the small number of samples taken.

SUGAR.

The 7 adulterated samples were taken during the fifth year, and the particulars relating to them are given in the accompanying Annual Report.

LARD.

Of the seven samples returned as Adulterated, 3 contained water, viz.:—1·5 per cent. and 3 per cent. (2 cases); 1 contained at least 20 per cent. of cotton-seed oil, much beef fat, and 1·5 per cent. of water; 1 contained at least 30 per cent. of beef fat; 1 contained at least 20 per cent. of beef fat; and 1 contained 1·5 per cent. by weight of membranous and gelatinous matter.

Fines.—From the information with which I have been furnished from time to time, it appears that a sum of £172 2s. has been paid to the Vestry in *fin*es: an average of about £34 0s. 6d. per annum. This is exclusive of the costs which were paid to the Vestry by the defendants in every case. Very few substantial fines were inflicted, the great majority being exceedingly small.

(Signed) CHARLES E. CASSAL.

MURKIN

The 32 exhibited samples were taken during the 1877-78 season. They were taken from the same place, and were taken from the same lot of material. The 32 samples were taken from the same lot of material, and were taken from the same lot of material. The 32 samples were taken from the same lot of material, and were taken from the same lot of material. The 32 samples were taken from the same lot of material, and were taken from the same lot of material.

TABLE

The 32 exhibited samples were taken during the 1877-78 season. They were taken from the same place, and were taken from the same lot of material. The 32 samples were taken from the same lot of material, and were taken from the same lot of material. The 32 samples were taken from the same lot of material, and were taken from the same lot of material.

APPENDIX

Of the 32 samples exhibited as A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, the 32 samples were taken from the same lot of material, and were taken from the same lot of material. The 32 samples were taken from the same lot of material, and were taken from the same lot of material. The 32 samples were taken from the same lot of material, and were taken from the same lot of material.

