

REMARKS ON THE WORK DONE BY PUBLIC ANALYSTS DURING 1877
UNDER THE SALE OF FOOD AND DRUGS ACT.

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Read before the Society of Public Analysts, on the 1st May, 1878.

I AM very glad to be able to lay before the Society this evening these returns of the work done officially by our members and a few other gentlemen who are not members, but who have kindly forwarded to me their lists. Part of these returns were published in a tabulated form in the April number of THE ANALYST, and the remainder will appear in the forthcoming number, together with the remarks I shall make upon them this evening.

The first point, of course, which attracts attention is as to how the general percentage of adulteration stands as compared with previous years. During the time of the

TABULATED STATEMENT SHOWING THE WORK DONE BY PUBLIC ANALYSTS, UNDER THE SALE OF FOOD
AND DRUGS' ACT, DURING THE YEAR 1877.

Compiled specially for THE ANALYST.

(CONTINUED FROM THE APRIL NUMBER.)

	ANALYST FOR	Milk, Butter-milk and Cream.		Butter.		Groceries.		Drugs, &c.		Wine, Spirits, and Beer.		Bread and Flour.		Sundries.		TOTAL.		REMARKS.
		No. Analysed.	No. Adulterated.	No. Analysed.	No. Adulterated.	No. Analysed.	No. Adulterated.	No. Analysed.	No. Adulterated.	No. Analysed.	No. Adulterated.	No. Analysed.	No. Adulterated.	No. Analysed.	No. Adulterated.	No. Analysed.	No. Adulterated.	
C. A. CAMERON	Carlow (County)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	1	All waters.
"	Cavan "	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12	—	
"	Clare "	—	—	—	—	—	—	—	—	—	—	—	—	—	—	81	9	
"	Down	—	—	—	—	—	—	—	—	—	—	—	—	—	—	74	12	
"	Drogheda (Town)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	84	7	Both waters
"	Dublin (City)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1769	89	
"	" (County)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	300	69	
"	Fermanagh (County)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	
"	Galway (City and County)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	18	4	
"	Kerry (County)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	15	1	
"	Kildare "	—	—	—	—	—	—	—	—	—	—	—	—	—	—	33	1	
"	Kilkenny (City and County)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	21	2	
"	Leitrim (County)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	
"	Limerick (City)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	21	4	
"	" (County)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	51	7	
"	Mayo "	—	—	—	—	—	—	—	—	—	—	—	—	—	—	18	3	
"	Meath "	—	—	—	—	—	—	—	—	—	—	—	—	—	—	48	7	
"	Queen's "	—	—	—	—	—	—	—	—	—	—	—	—	—	—	25	1	
"	Rosecommon "	—	—	—	—	—	—	—	—	—	—	—	—	—	—	16	1	
"	Sligo "	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	3	
"	Tipperary "	—	—	—	—	—	—	—	—	—	—	—	—	—	—	74	11	All waters.
"	Waterford (City)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5	—	
"	" (County)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	27	—	All waters.
"	Westmeath "	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	—	
"	Wexford "	—	—	—	—	—	—	—	—	—	—	—	—	—	—	19	3	
"	Wicklow "	—	—	—	—	—	—	—	—	—	—	—	—	—	—	14	3	
C. ESTCOURT	Macclesfield	8	—	—	—	—	—	—	—	—	4	2	—	—	—	12	2	All waters.
"	Oldham	35	9	—	—	6	—	—	—	20	8	20	—	—	—	81	17	
A. BOSTOCK HILL ...	Stratford-upon-Avon	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0	0	
F. P. PERKINS	Exeter	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	
Totals brought forward from Table		43	9	—	—	6	—	—	—	20	8	25	2	—	—	2842	248	
in last number		3171	829	681	85	2987	389	403	96	1331	626	1042	71	818	177	11943	2371	
		3214	838	681	85	2993	389	403	96	1351	634	1067	73	818	177	14785	2619	

N.B.—No other particulars are given as to Dr. Cameron's list, except that it includes 377 waters.

Lancet commission 65 per cent. of the samples were found to be adulterated, while when the 1872 Act was in force 26 per cent. were adulterated. During the years 1875-76, according to our returns, the adulterated samples had decreased to 18·10 per cent., while the present returns show that the percentage has decreased again to 17·71 per cent., or ·39 per cent. less than previously. This is a change for the better, although a small one, as showing adulteration to be still on the decrease, but this slight decrease may also be taken to indicate that the fines imposed are in most cases insufficient to repress adulteration; while, looking at it from another point of view, it may be considered satisfactory, inasmuch as a gradually-increased amount of work having been done, and a larger number of fresh districts having been brought under the influence of the Act, fresh hotbeds of adulteration, so to speak, have been opened up. The increase in the number of samples analysed is very striking. During the two years ending December, 1876, the total number of articles examined in 103 districts was 15,989 samples, while our returns this year, from 127 districts, show a total of 14,785 samples, or a little more than 1,000 less than in the two previous years. The labour entailed upon individual analysts in preparing these returns is so great that, gladly as I know they are welcomed by others, I can scarcely wonder that in a few cases they are deficient in some of the details it was thought desirable to set out in the table. Owing to this fact the percentages of adulteration of each individual article may differ slightly from the real fact, but as, out of nearly 15,000 samples, we have full particulars of about 12,000, the error is a trifling one.

Calculating each article or class of article separately, and omitting Dr. Cameron's and Mr. Horsley's figures, because they give no details, I find that the number of samples purchased, and the percentages of them found adulterated, are as follows:—

	Purchased.	Adulterated.
Milk	3,214	26·07 per cent.
Butter	681	12·48 "
Groceries	2,993	13·00 "
Drugs	403	23·82 "
Wines, Spirits, &c. ...	1,351	47·00 "
Bread and Flour ...	1,067	6·84 "
Sundries	818	21·63 "

A glance at the above figures will show that milk has lost the worst position which it occupied last year, and that its place has been taken by wines and spirits, in which the amount of adulteration is nearly equal to half the samples purchased. In both these cases the adulterant may, in nearly every instance, be assumed to be the same, namely, added water, but, in one view of the matter, the offence is greater when water is added to a valuable liquid than when it is added to a liquid of comparatively small intrinsic value.

From another point of view, I find that the adulterated samples alone may be divided as follows:—

Milk	36·6 per cent.
Butter	3·7 "
Groceries	17·1 "
Drugs	4·2 "
Wine and Spirits ...	27·6 "
Bread and Flour ...	3·1 "
Sundries	7·7 "
	100·0

In this case again the milkman and the grocer show an improvement upon the last returns. The percentage of adulterated milk has decreased from 51·22 to 36·6, and the percentage of groceries and butter from 29·1 to 26·8.

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Drugs appear worse than before, as may be expected, when it is seen that out of the 403 purchased 96 were adulterated; and yet, notwithstanding this state of things, I do not at present call to mind a single case in which the Pharmaceutical Society has, during the past year, instituted a prosecution for the sale of adulterated drugs.

Bread and flour have a slightly larger percentage than previously, but the principal increase is in the case of wines, spirits, and beer, where, instead of the 6·04 per cent. which appeared last year, we now have 27·6 per cent. There is, however, in my opinion, no doubt that a great deal of this increase is more apparent than real. Prior to the date of the last returns it is doubtful whether an analyst would have been justified in certifying diluted spirits to be adulterated, but the decisions which, from time to time, have been reported in THE ANALYST have shown, with approximate accuracy, what the standard of spirits was expected by magistrates to be, and therefore many samples, which would previously have been passed as satisfactory, have been condemned.

We may also look at these returns in another light, and notice what the percentage of adulterated samples is on the total number purchased. Omitting Dr. Cameron's and Mr. Horsley's figures as before, I find that 11,430 samples were purchased, and out of these the adulterated samples were as follows :—

Milk ...	...	...	...	...	...	...	...	7·33	per cent.
Butter...	...	...	...	...	...	...	...	·73	„
Groceries	...	...	...	...	...	...	...	3·70	„
Drugs ...	...	...	...	...	...	...	...	·83	„
Wines and Spirits	...	...	...	...	...	...	...	5·54	„
Bread and Flour	...	...	...	...	...	...	...	·64	„
Sundries	...	...	...	...	...	...	...	1·55	„

So far then for the general features of the returns, and now in a few words I will consider the special ones. The first thing which strikes the eye is the vastly different proportions between the number of samples analysed in different districts. Thus for instance we find Somersetshire with 814 samples, Surrey with 455, Stafford with 667, and Cornwall with 28, while Norfolk figures with a grand total of 7 samples. In this last case it really seems wonderful that notwithstanding Mr. Sutton's well-known standing his inspectors should not have taken more samples to him or that it should have been considered unnecessary to have more than that number examined. In Mile End Old Town, where according to the previous returns 1 in 72 samples was adulterated, the authorities appear to consider that enough has been done, and therefore during the past year no samples at all were purchased. Hampstead previously showed 1 in every 59 to be adulterated, it now shows 7 in 62, which approaches a little more to the average proportion. At Hackney we had before 9 in 214, we now find (omitting 10 waters, all of which were condemned,) 20 in 110—in the latter case it is clear there has been some improvement in the mode of purchasing samples, perhaps instead of inspectors in uniform procuring them unknown persons have been employed.

Scotland, again, appears in a very unfavourable position, the number of samples analysed being only about 350, while Ireland, on the other hand, shows a very large total, mainly as the result of Dr. Cameron's 2748 samples.

Looking at the returns as a whole I think they bear out the statements which have been so often made, that the Act needs to be made compulsory, and that the samples should be purchased by unknown persons, and not by well-known officials. Viewing the matter in a broad light it seems an almost incredible thing that in a country like England one-fifth of the samples purchased by officials are found to be adulterated within the meaning of the Act. Surely if one-fifth are found adulterated when purchased in this way the percentage of adulterated articles obtained by private purchasers must be very much larger.

It seems to me very important that this tabulated statement should be brought under the notice of the Local Government Board as early as possible, as naturally their returns cannot yet be made up so completely.
