

NOTES ON THE MILK-SUPPLY OF TWO LARGE TOWNS.

By F. W. F. ARNAUD, F.I.C., AND EDWARD RUSSELL, B.Sc., F.I.C.

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THE inadequacy of the present standard for fat in milk in preventing adulteration must be felt by every public analyst; also that an extensive quantity of new milk is sold mixed with separated milk, though containing at least 3 per cent. of fat, is also generally acknowledged. It is our intention in this communication to emphasise this fact by various comparisons.

If the average monthly percentages of fat obtained in milk samples examined in our large towns be compared with the results published by H. D. Richmond, the inferiority of the town-supplies at once becomes apparent. Below, the average monthly figures obtained in the samples submitted for analysis under the Food and Drugs Acts at Bristol and Portsmouth are compared with H. D. Richmond's monthly averages for the years 1907 and 1908. Over 600 samples are examined annually at each of

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the above towns, and, in compiling the averages milks falling below 3·0 per cent. of fat have been disregarded.

Month.	1907.				1908.			
	Monthly Averages (Richmond).	Ports-mouth.	Bristol.	Monthly Averages, Morning Milk (Richmond).	Monthly Averages (Richmond).	Ports-mouth.	Bristol.	Monthly Averages, Morning Milk (Richmond).
January ...	3·73	3·58	3·54	3·61	3·83	3·59	3·51	3·66
February ...	3·70	3·59	3·52	3·55	3·71	3·81	3·38	3·55
March ...	3·64	3·45	3·52	3·50	3·72	3·51	3·51	3·55
April ...	3·55	3·47	3·42	3·42	3·65	3·59	3·55	3·50
May ...	3·52	3·46	3·45	3·29	3·63	3·40	3·59	3·41
June ...	3·51	3·52	3·42	3·23	3·52	3·48	3·42	3·29
July ...	3·63	3·52	3·64	3·41	3·60	3·62	3·43	3·40
August ...	3·76	3·53	3·53	3·53	3·76	3·53	3·56	3·50
September ...	3·86	3·47	3·61	3·65	3·90	3·81	3·75	3·65
October ...	4·01	3·68	3·55	3·78	3·90	3·70	3·59	3·66
November ...	4·14	3·74	3·68	3·98	3·90	3·37	3·58	3·70
December ...	3·97	3·53	3·57	3·81	3·90	3·47	3·47	3·75
Annual mean ...	3·75	3·54	3·54	3·56	3·75	3·57	3·54	3·55

It may be argued that the town supply figures are not comparable with H. D. Richmond's, inasmuch as a greater number of samples of morning than evening milk are taken by inspectors under the Food and Drugs Acts. This may be the case to a limited extent, and a slight majority of the milk samples taken by inspectors may represent morning milk, but there is no great difference in these numbers. In the above table, however, the town averages are compared both with the monthly mean of all samples analysed by H. D. Richmond, and with his results obtained on morning milk alone. It will be noticed that during at least six months of the year the town averages obtained on all samples fall below the morning averages obtained by H. D. Richmond.

It is acknowledged that the quality of milk is poorest, so far as fat is concerned during the months of April, May, and June; but, in the case of retail milk, poor milk is by no means restricted to these months, for in 1907 the Portsmouth averages for March and September are equally low, and in 1908 November milks had the lowest average fat content. If milk were invariably sold of the same quality as received by a retailer, then the supply of September, October, and November milks would yield the highest averages, as shown by H. D. Richmond; but this is not the case, these months occasionally yielding the lowest averages.

The comparatively small variation in the monthly percentages of fat in town milk also points to the fact that much of the milk sold during nine months of the year at least is sold only after admixture with separated milk. It by no means

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follows that the number of samples returned as poor is greatest during the months when cows are known to give poor milk; this is emphasised by the following table, which shows the monthly percentages of samples containing between 2·99 and 3·25 per cent. of fat :

	1907.		1908.	
	Bristol.	Portsmouth.	Bristol.	Portsmouth.
January	25·4	28	20·4	12
February... ..	23·2	28	44·1	30
March	32·2	38	35·2	23
April	45·1	20	28·5	37
May	37·2	23	25·5	41
June	37·7	33	50·0	29
July	25·0	21	39·1	18
August	29·2	36	21·9	17
September ...	17·6	17	11·8	11
October	22·9	12	25·9	9
November ...	20·9	5	30·4	41
December ...	33·3	30	34·8	31

At Bristol 34 per cent., and at Portsmouth about 36 per cent., of the legally genuine samples examined had a fat content *below* 3·3 per cent.

The percentage of milk samples submitted containing less than 3 per cent. of fat is given in the undermentioned table, for each quarter of the years 1907 and 1908. It may be seen that the greatest percentage of milks returned as adulterated does not necessarily occur during the second quarter of the year.

	1907.		1908.	
	Bristol.	Portsmouth.	Bristol.	Portsmouth.
First quarter ...	7·5	4·6	8·2	5·5
Second quarter ...	18·1	11·6	24·0	4·6
Third quarter ...	12·6	10·4	3·2	3·0
Fourth quarter ...	1·2	11·8	3·7	3·2

Evidence so far has tended to show that much of the milk sold in two of our large towns is only sold after the addition of a quantity of separated milk. By tabulating the results obtained from milk supplied by various dairies, this fact becomes apparent, and shows that, whilst some retailers sell milk of good quality throughout the year, others only supply milk to their customers after the addition of separated milk. The following results have been obtained on milk supplied by

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retailers A, B, and C, during the last three years, about ten samples per annum having been taken from each retailer :

	Percentage of Fat.	Percentage of Solids-not-Fat.	Percentage of Samples in which Fat was less than 3·2 per Cent.	Percentage of Samples in which Fat was above 3·5 per Cent.
A ...	3·70	8·92	8·3	66·6
B ...	3·75	8·98	8·6	69·5
C ...	3·29	8·77	76·4	5·8

The significance of these figures is apparent, and it therefore seems necessary that some steps should be taken to prevent the continuous sale of milk which has been artificially brought down to the Board of Agriculture limit.

