

the condition of the patient, as compared with that of the boy who had allowed the disease to pursue its course, offered a most strikingly unfavourable contrast. There was no prospect of amelioration; for it appeared that the mutilated limb had not become ankylosed at the knee, and, moreover, had ceased to grow with the rest of the body; every year, therefore, would make its difference with the opposite more marked, and give it a lower value. Any attempt at progression was accompanied by such distension of the spine, as would in a very short time have produced a permanent curvature of the severest form; while artificial support could only be obtained by means of a complicated apparatus, which would embrace the thigh about the middle, and, terminating in a very high-soled boot, surround the useless and withered member as a sheath.

ON THE MORTALITY OF INFANTS IN FOUNDLING INSTITUTIONS, AND GENERALLY, AS INFLUENCED BY THE ABSENCE OF BREAST-MILK.

By C. H. F. ROUTH, M.D.

[Read before the Medical Society of London, October 17th, 1857.]

PART I.

THERE is an outcry everywhere against *red tape* and *routine*; yet surely these are very prevalent among ourselves and our medical institutions. Most of the latter, except a few which stand out in honourable contrast, do not give us the benefit of their experience; and thus it is that, in England, much information which might, if regularly published, lead to a just comprehension of subjects in medicine, is lost to the profession. The subject of my paper is in this category. The books and pamphlets that have been written on it are *legion*. De Watteville enumerates a hundred and thirty; yet all this foreign and British experience has, after all, effected but little good. I have, however, been compelled to use chiefly French returns, although of course wishing to make them bear almost exclusively on England and Ireland. Exactitude in the figures given is thus not to be expected. At most, I can only seek to bring out results which shall be *true relatively*; and this I hope I have done. Still, in many cases, my conclusions may be also *true absolutely*. Vital statistics, in the present day, are found to be governed pretty generally by the same common laws; and, although the actual figure of per centage may occasionally vary to a small degree, the difference is not by any means so great as it may appear to be at first, even where populations of different countries are spoken of. Hence it is often allowable to deduce from foreign data, which we do not possess for our country, conclusions which, nevertheless, are perfectly true when applied to ourselves. Take, for instance, Paris and London. The mortality may vary by 1 or 2 per cent., but nevertheless it is still governed in the two cities by the same general laws.

With these few remarks, necessary as an introduction, I proceed at once to the consideration of my subject.

Nearly all writers, who have endeavoured to explain the mortality of foundlings, have usually and chiefly attributed it to want of breast-milk; alluding, as examples, to the hospitals of Paris, Lyons, Rheims, a place called X, and Parthenay. Thus, in Lyons and Parthenay, where the children are suckled at the breast, the mortality is respectively 33.7 and 35; whereas, in Paris, Rheims, and X, where artificial feeding is either extensively or very generally employed, the mortality is respectively 50.3, 63.9, and 80 per cent. Many years ago, Sir Hans Sloane, in a letter to the Vice-President of the Foundling Hospital, quoted at length in Mr. Brownlow's Memoranda of that hospital (pp. 215-16), gives the following results:—

Date of admission.	Total.	To wet nurses.	Deaths.	To dry nurses.	Deaths.
March 5, 1741	30	2	—	28	15
April 17, 1741	30	7	1	22	11
May 8, 1741	30	17	4	13	8
	90	26	5	63	34

Six of the latter were taken out. The mortality of the former was 19.2 per cent., against 53.9 of the latter.

Facts like these appear certainly to tell very strongly against dry nursing. It is usual to add the figures of mortality in other hospitals, whose circumstances are often very different; and, these figures being very heavy, the inference is, that these children have died chiefly from want of breast-milk. Thus, the following may be taken as an example:—

Mortality in Foundling Hospitals in different parts of the World.

	Per cent.	Period.
Dublin	91	Close of last century.
Marseilles	90	
St. Petersburg	40	
Florence	40	
Barcelona	60	
Paris	80	1824
All France	60	
"	75	
Dublin	48.7	1818
Paris	50	1750-60
Mean	63.4	1838

A more recent and succinct account by M. De Watteville, who has very ably treated the whole subject, includes all France, and gives the following results.

Mortality of Foundlings in the Departments of France.

(a) Departments shewing the highest rate of mortality.		(b) Departments shewing the lowest rate of mortality.	
	Per cent.		Per cent.
East-Pyrénées	33.3 to 50	Haute-Saône	0
Seine-Inférieure		Haute-Garonne	2.2 to 2.5
Gironde	25 to 33.3	Haut-Rhin	2.5 to 3.3
Loiret		Jura	2.5 to 3.3
Seine-et-Marne	20 to 25	Hautes-Pyrénées	3.3 to 4
Aube		Ardeche	3.3 to 4
Cantal	20 to 25	Finisterre	3.3 to 5
Cher		Moselle	3.3 to 5
Côte-d'Or	20 to 25	Vosges	3.3 to 5
Ile-et-Vilaine		Gers	3.3 to 5
Loire-Inférieure	20 to 25	Lot-et-Garonne	3.3 to 5
Seine		Nièvre	3.3 to 5
		Basses-Pyrénées	3.3 to 5
		Bas-Rhin	3.3 to 5
Mean	26.5	Mean	3.6

Mortality of Foundlings in France in regard to the number of Expositions.

Highest.	Per cent.	Lowest.	Per cent.
Basses-Alpes	83.3	Haute Saône	0
Loire-Inférieure	76.9	Haut-Rhin	5.6
Loiret		Vosges	6.3
Seine-Inférieure	76.9	Moselle	11.3
Vaucluse		Ponts	13.
Ardeche	71.4	Finisterre	15.8
Aude		Ariège	15.9
Aveyron	71.4	Hautes-Pyrénées	16.3
Cher		Jura	17.4
Gers	60	Nièvre	17.5
Gironde		Bas-Rhin	17.8
Ile-et-Vilaine	60	Haute-Garonne	18.4
Manche		Lot-et-Garonne	19.2
Seine	60		
Mean	72.4	Mean	13.4

In comparing the deaths of *enfants trouvés*, whether with the total number or that of the *expositions*, this is the result obtained. One dies out of seven, from 1 to 12 years, or about 78 per cent.; and the mortality of such children in the first year of their existence is 50 per cent.

There is but one foundling exposed in every 39 births in France, while the number of foundlings in institutions is one to every 353 inhabitants. Again, the number of foundlings exposed is one-fourth the entire number of foundlings actually existing in institutions, whence it would follow that the mean duration of life of foundlings is four years. Fortunately, of late years this mortality has been diminishing. Thus, for all France, it was for children from 1 to 12,

Year.	Per cent.	Year.	Per cent.	Year.	Per cent.
1838	14.02	1841	13.30	1844	11.33
1839	13.37	1842	12.60	1845	11.30
1840	13.25	1843	11.35		

These results, albeit the mortality is lessening, are nevertheless bad enough. It is manifest, however, on closer examination, that, although these figures may represent the mortality of foundlings, their difference is too great to be referrible to one cause only, and that cause want of breast-milk; for, however fatal and injurious this want may be, it will appear in the

sequel that there are many others, far more fatal and injurious, also co-operating.

But I proceed to speak more particularly of the three hospitals before alluded to; and, in the hope of tracing therefrom that there are several causes in operation, I shall quote at length from M. Villermé's work *On the Mortality of Foundlings* (*Annales d'Hygiène*, vol. xix, p. 47), the same as given in abstract by Dr. West, in his *Diseases of Children*.—

"Lyons is apparently, of the great cities of France, that in which most care is paid to foundlings. I have been witness of this in 1825; and I can certify that nowhere have I seen so much attention, and so wise a care exercised, as in this hospital. So soon as the infant is deposited in the tower, it is taken out, warmed, cleaned, its linen changed; and it is given to a nurse, who always suckles the child; or it is sent to a wet nurse by a messenger. By whomsoever, however, the child is taken from the institution (and it is generally by the hospital nurse herself), it never is allowed to pass more than two or three days without suckling at the breast. It is necessary that this hospital nurse herself should see the child put into its bassinette at the moment of departure, all precautions being taken to avoid its being chilled in any way. The child's body is almost entirely surrounded by cotton, and hot clothes, always adapted to the season. Finally, the bassinette itself, in which the child is taken away, is surrounded by coverings; and at certain distances (whether the nurse or messenger carries it) she must stop at some house which has been selected beforehand to accommodate and change the infant. It was not, however, before 1824, or more particularly 1831, that the hospital administration had so far perfected this department.

"The foundlings of Rheims are fed by the bottle and *petit pot* (and never at the breast) by women from the country, which take them away at the end of twenty-four hours or seven days after their deposition in the hospital. Up to the hour of their departure they are very well taken care of, under the direction of the head midwife.

"The children of the Paris Foundling Hospital are kept longer than those of Lyons and Rheims in the house where they are received, and their nurses (a large number of whom live at great distances) bring them up generally at the breast."

Mortality in Foundling Hospitals from 1 to 10 years, to 1000 Admissions.

Place.	Year.	Cases admitted.	1	2	3	4	5	6	7	8	9	10
Rheims	1826	52	506	115			19					
"	1827	70	585	85	14	28						
"	1828	90	633	77	11	11						
"	1829	83	747	72	24							
"	1830	103	640	116	19							
"	1831	102	607	98	9							
"	1832	108	676	64	45							
"	1833	89	663	67		11						
"	1834	122	662	41								
"	1835	97	567	31								
"	1 Total	916	639	714	727	731	733	735				736
"	2 Total	916		73	13	4	2	1				
Paris ..	1820	5101	515	144	58	20	8	7	4	2	2	0
"	1821	4963	492	165	4	16	10	6	4	4	1	1
"	1822	5040	401	128	58	24	8	6	3	2	1	2
"	1 Total	15104	503	140	54	20	9	6	4	3	1	1
"	2 Total	15104	503	650	705	725	735	741	745	749	750	751
Lyons..	1820	1580	511	101	45	16	8	3	1	3	2	2
"	1821	1626	404	157	29	11	5	3	4	2	2	3
"	1822	1643	373	125	52	17	7	11	4	5	2	0
"	1823	1669	357	133	50	22	15	7		4	1	6
"	1 Total	6526	425	129	22	17	9	6	3	4	2	2
"	2 Total	6526	425	555	599	615	626	632	636	640	642	645
"	1824	1690	288	157	54	27	13	8	8	3	3	5
"	1825	1646	288	151	60	26	16	9	7	9	6	
"	1826	1823	307	144	90	19	17	4	8	4		
"	1827	1809	366	157	58	17	7	7	7			
"	1828	1896	394	98	57	19	8	8				
"	1829	1886	409	154	44	26	8					
"	1830	1743	358	86	48	22						
"	1831	1881	303	133	52							
"	1832	1831	309	151								
"	1 Total	16205	337	136	49	18	8	41	27	17	0	0
"	2 Total	16205	337	473	523	542	551	555	557	558	559	560

The arrangements, both in Paris and Rheims, appear, from the above account, to be very defective. To keep children, as in Paris, a long time in hospitals, is to expose them to much contagion. It is a bad feature to have nurses living at a great distance; and in the difficulty of procuring wet nurses, it is to be feared bad selections are made, perhaps of diseased females, whose antecedents are not known. At Rheims the management is even worse. To keep many of these infants as long as seven days on unsuitable diet, and then to send them far up the country, where they may not be carefully looked after (since over these nurses there is no supervision exercised), must be very imprudent. In Lyons, however, the arrangements made appear to be praiseworthy; but even here exposure before reception in the hospital is not prevented.

The first question which presents itself here is the following:—Is there any common law observed in the mortality of these three institutions, and even in the same institutions in different years, which might lead us to determine a common cause in operation? Can this cause, by which the march of mortality, its extent, the influence of age in these three hospitals are regulated, be detected. It was in the hope of deducing this that I reduced the mortality of these three institutions to a scale of 1000 for the purpose of comparison. (See Table in opposite column.) But, although I annex the table for reference, my expectation in this respect has been belied; whence I conclude that the causes of this mortality are numerous, and that they vary so much in different institutions, and even in the same institutions at different times, that they require separate consideration. Some of these are doubtless endemic to particular institutions; others are often so peculiar and generally misapprehended, as to necessitate separate study. Writers have already specified many of these causes. A few of them have, however, been overlooked; and thus, although I may be guilty of compilation in some respects, I hope also to bring out some original points, the whole to be useful in a practical point of view.

I. Usual Mortality of Children of Tender Age, distinguishing whether in Town or Country. First, I think most writers have forgotten in the outset to state what is the actual mortality of infants under ordinary circumstances. As this is essential for comparison, I shall begin by determining this mortality, especially for early ages.

Percentage of Mortality of Children from 0 to 1 year, and from 0 to 10 years, after Benoiston de Châteauneuf and Quetelet, for all Europe.

	0 to 1 year.	9 to 10 years.
Switzerland . . .	19.109	34.871
Holland . . .	19.642	36.214
Geneva . . .	19.507	30.329
Paris . . .	21.287	52.511
Brussels . . .	21.30	42.97
Southern Netherlands . . .	22.49	43.44
France . . .	23.248	44.452
Provence . . .	24.211	47.024
Petersburg . . .	27.897	41.974
Sweden . . .	28.393	50.044
London . . .	36.371	48.453
Berlin . . .	39.538	54.108
Vienna . . .	45.594	55.578

If we take England and Ireland, selecting indifferently different years, the returns obtained betray some most extraordinary results, which will tend to explain, in some measure, the excessive mortality of children in foundlings. The returns, obtained for all England and all Ireland, are first given; then for some districts of England abounding in manufacturing population, as in towns; others containing an excess of persons occupied in agricultural pursuits, as in known agricultural counties. The same has been done for Ireland; but, as for that country the census returns invariably distinguish between rural and civic districts, advantage has been taken of this distinction to deduce the relative mortality in both districts. Some of the returns here given for Ireland are calculated on the deaths of 1850 with the population of 1851. This introduces a slight error, still one scarcely of much importance for practical deductions; because such returns will be found, as a rule, only to diminish slightly the cypher of mortality; for, from emigration and physical deterioration, the population in the sister island has been steadily on the decrease.

I may be allowed to examine a few of these results *seriatim*. First, in England and in Ireland, taking districts as well as towns, it may be said that the mortality is greatest in towns

for all children under one and under five years old. This result may be obtained both from the Irish and some English tables.

Percentage of Deaths to Population of each age in Ireland.

Date.			Under 1 year.	Under 5 years.
1850-1	.. All Ireland.	Civic Districts	15.4	8.4
"	"	Rural	8.4	4.2
"	.. Ulster.	Civic	12.3	6.9
"	"	Rural	6.9	2.6
"	.. Connaught.	Civic	15.4	7.7
"	"	Rural	8.6	5.0
"	.. Leinster.	Civic	15.6	9.3
"	"	Rural	9.01	4.3
"	.. Munster.	Civic	15.1	8.4
"	"	Rural	11.0	5.6
1850	.. All Ireland.		6.0	
	Mean.	Civic	14.7	8.1
	"	Rural	8.8	4.3

The returns for England are to be taken in another way, no similar data to those of Ireland being given.

Percentage of Deaths of Infants to all Deaths in England, in 1838-9.

Towns.	Under 1 year.	Under 5 years.
Manchester and Salford	25.7	55.4
London	19.1	40.2
Liverpool	24.1	50.3
Leeds	23.9	52.9
Birmingham	25.6	50.1
Mean	23.7	49.8

Agricultural Counties.	Under 1 year.	Under 5 years.
Norfolk and Suffolk	21.2	34.5
Huntingdon and Cambridge	25.2	40.0
Essex	19.4	34.0
Wales, with Monmouth, etc.	18.6	31.7
Middlesex, exclusive of London, with Herts., Beds., etc.	22.1	34.7
Mean	21.0	34.9

All England and Wales

The difference between rural and civic districts is not so clear from the English returns as it is from the Irish. One reason, doubtless, is this: in the English returns, even when a town or civic district is spoken of, the population always includes a small number of families engaged in agricultural pursuits. Again, when rural districts are spoken of, as reference is made to an entire county, the returns necessarily include many engaged in manufacturing pursuits, and town residents. So far there is error, which should not be overlooked; and the conclusion should only be regarded as relatively true.

Hence it becomes very important to distinguish between foundlings living in the country and in towns. Unfortunately, however, after long inquiry, I do not find this distinction made in any work on foundlings I have seen: nevertheless, I have attempted to deduce it from some figures given in the general statistics of foundlings in France, published by authority of the government. But here, as in the former case, the data being insufficient, I am unable to obtain more than an approximative result. The relative mortality, however, between hospital foundlings and those placed in the country thus comes out more strikingly than we might have supposed. Thus, in five years,

Out of 52,883 hospital foundlings, the mortality was 72.2 per cent.

Out of 123,110 country ditto, the mortality was 11.5 per cent.

This conclusion proves that foundling hospitals, if established at all, should always be placed in the country.

II. *Mortality in the first Months.* It has been said that the mortality of foundlings is always greatest during the early periods. The data before given for Lyons, Rheims, and Paris, prove this. De Watteville states the mortality during the first year at 50 per cent. The same fact is set forth in the following from Bordeaux and Lyons:—

At Bordeaux, out of 928 foundlings of the same age, the deaths in twelve years, as given by M. De Watteville, were as follows:—

Year.	Deaths.	Per cent.	Remaining.
1	480	51	448
2	112	28	336
3	37	10	299
4	14	5	285
5	13	5	272
6	4	3	268
7	2	1	266
8	7	3	259
9	3	1½	256
10	4	2	252
11	3	1½	249
12	4	2	245
	683		

Thus the average annual percentage of mortality was 10; or 73 per cent. on twelve years.

At Lyons, out of 8053 children from birth to twelve years, the deaths were:—

Year.	Deaths.	Per cent.	Remaining.
1	3098	37.10	4955
2	1114	22.41	3841
3	383	9.47	3458
4	157	4.50	3301
5	84	2.54	3217
6	57	1.77	3160
7	39	1.20	3121
8	23	1.05	3098
9	20	.64	3068
10	26	.84	3042
11	15	.49	3127
12	8	.28	3019
	5031		

Thus the average annual percentage of mortality was 8; or 62 per cent. in twelve years.

This is true also for all children; but, of all the months of the first year, the first is also the most fatal. I do not find the mortality for the first and following months, however, usually stated. Still it may be deduced.

From Quetelet's researches, it appears that in the Southern Netherlands the rate of mortality of children from 0 to 5 years is as follows:—

Years.	Deaths.
0	100,000
1	77,507
2	69,470
3	64,799
4	61,899
5	59,864

Upon this table he remarks that rather less than a quarter of the children born die in the first year following their birth. In Brussels for the first year he found—

1st month	1034	7th month	162
2nd month	890	8th month	152
3rd month	231	9th month	140
4th month	185	10th month	150
5th month	156	11th month	142
6th month	156	12th month	140

So that more children die in the first three months than in all the remaining months of the first year. These numbers are in the proportion of 1665 to 1384. In Paris, and for the year 1823 (*Annuaire du Bureau de Longitudes pour 1826*), the corresponding numbers are in the proportion of 1764 to 693.

There is an excellent table for Ireland, setting forth the mortality in public institutions for all ages, and from one to twelve months in particular. From this the exact rate of mortality due to this confinement might be deduced. Unfortunately, however, an analogous table of population for the same years in public institutions is not given; so that the table is, after all, of little use. The only tables which bear at all upon this point apply only to the first month, and are those obtained from lying-in institutions, or from the statistics collected by accoucheurs of large hospitals, under whose care the infants, with their mothers, have remained for the month in hospital. These tables afford us the means of deducing the probable mortality in public institutions for one month. We have such a table given in the summary for all Ireland for ten years, from 1831 to 1841, for the Irish lying-in hospitals.

Total births	35,131
Total deaths	2,258
Mortality per cent.	6.1

Again, from the tables published by different accoucheurs, we may deduce almost the same per centage cypher of mortality.

	No. births.	No. deaths.	Per cent.
Madame Lachapelle	22,243	837	3.7
Dr. Ramsbotham	49,528	2723	5.6
Drs. Hardy and McClintock	6,702	467	6.9
Dr. Arneth (Vienna)	6,608	244	3.7
	85,091	5311	6.1

So far both modes of procedure give a similar result. But here a difficulty presents itself. When we come, in the case of Ireland, to measure the mortality in the first month, which the tables for that country enable us to do, we find the mortality is at least five times, sometimes six times, as great. Thus, in Ireland and its four divisions, we have—

Deaths per cent.

	Civic Districts.	Rural Districts.
All Ireland	33.1	21.6
Ulster	24.	15.9
Connaught	38.8	24.9
Leinster	35.7	24.6
Munster	35.6	23.9
Mean	31.6	22.2

I can find no tables for England illustrative of the same fact.

We have indeed some excellent tables, set forth by the Registrar-General, giving us the deaths in the first, second, third, etc. months of life; but, as we have not corresponding tables of the living population at such periods, the per centage mortality cannot be set down. There is, however, reason, I fear, to believe it is also very high, if not higher, in many parts of England. We have, in these tables before alluded to, the totality of births in the year given. From the Irish tables, by including all one year old and under, we also obtain a number which may represent all the births in one year. Comparing these in both cases with the number of deaths in one month, we may get a number which may express at least the relative mortality in both countries.

Deaths to 100 Births in First Month of Life.

	Civic Districts.	Rural Districts.
All Ireland	2.7	1.1
Ulster	3.0	1.2
Connaught	3.4	1.9
Leinster	2.3	1.8
Munster	2.2	2.0
Mean	2.7	1.6

If the number of deaths per cent., compared to the population living, of one month old, in Ireland, bears any relation to these returns, whether taken for Ireland or for England, it would appear that the per centage of mortality to the population of one year old is actually greater in England. But, with the difficulty of isolating rural and civic districts as before stated, and the small difference observed between the two districts here spoken of, it is evident this is not a fair inference. We may, however, conclude this mortality to be at least as high in England as in Ireland; and this result may be brought out another way. Considering all deaths at all ages as 100, the deaths will be, under one month—

	Towns.	Country Districts.
Metropolis	4.0	—
Manchester and Salford	5.0	—
Liverpool	5.3	—
Leeds	7.4	—
Birmingham	5.9	—
Norfolk and Suffolk	—	7.3
Huntingdon and Cambridge	—	8.6
Essex	—	5.4
England and Wales	—	6.4
Wales, with Monmouthshire	—	5.3
Middlesex (except Metropolis)	—	—
Hertford and Bedford	—	7.5
Mean	5.5	6.7

The disparity between town and counties is actually in favour of towns, but no doubt referrible to the difficulty of distinguishing the two classes.

Comparing this result with that for Ireland for ten years, 1841-51, considering, as in the case of England, all deaths as 100, the deaths for one month and under will be as follows:—

	Civic Districts.	Rural Districts.
All Ireland	5.	3.7
Ulster	5.4	3.7
Leinster	5.3	3.4
Connaught	4.9	3.6
Munster	4.6	3.6

Whence I think we may conclude that the mortality of children under one month, great as it is in Ireland, is not much smaller in England, even in ordinary populations; and this out of founding or other hospitals—a fact, I think, which has been generally overlooked, or, at least, not sufficiently insisted upon.

But this difference of mortality under one month may be set forth in another way, and one by which we can speak more decidedly to the senses. Taking England and Wales on the same scale, all deaths at all ages been represented by 100, 6.4 deaths take place under one month, and 21.8 under one year; *i. e.*, out of 28.2 deaths, 6.4 die under one month, or 27 per cent. In all Ireland, reckoning all deaths as 100 at all ages, 4.3 die at one month, 13.6 die under one year; *i. e.*, out of 17.9 deaths, 4.3, or 24 per cent., die under one month. This is an appalling mortality. How does it not prove the extent of neglect, mismanagement, and crime, rampant even in a civilised country like this. Indeed, in regard to the latter, I am told by Mr. Wakley, the coroner for Middlesex, whose opportunities of knowing this are only equalled by his untiring zeal in the cause of humanity, that at least 300 children are known to be the victims of infanticide, albeit often returned as still born, or dying from other causes. If this be the case in London, where there is so large a detective police force kept up, and where the opportunities of disposing of a child are so small, what must it be in retired districts and towns, where police authorities are either few and far between, or absent altogether, and in which it is so easy to hide or bury a child out of the way!

Here the cypher of mortality is in favour of Ireland, yet in both it is very high. Can any reason be assigned for this? I think there may be one suggested. Infant foundlings are placed often in very impure air, which, I make no doubt, greatly interferes with nutrition and healthy development; and I believe it has a great deal to do with the great mortality among children. It will be at once and by all recognised that hospital aggregation must necessarily make the children more obnoxious to contagious diseases. Two of these, which produced the highest mortality in the Parisian hospitals, the *endurcissement cellulaire*, and the *muguet* or *diphtheritis*, were particularly contagious, and, as such, highly fatal. But this would apply equally to all diseases, such as scarlet fever, hooping-cough, etc., etc. Even in London alone, taking a year (1849) indiscriminately, from diseases peculiar to infants, including small-pox, measles, scarlatina, pertussis, croup, thrush, diarrhoea, remittent fever, tabes, hydrocephalus, convulsions, bronchitis, laryngitis, pneumonia, teething, inflammation of bowels, want of breast-milk, and premature birth and debility, the deaths were—

	Under 1 year.	Under 5 years.
From the above-named diseases	8,197	16,138
All diseases	12,122	24,814

The births amounted to 72,612; so that the gross mortality of children for that year, under one year old, amounted to 11.1 per cent.; for those under five, to 22.5 per cent.; and from all diseases, in the first case, to 16.6 percent.; in the second, to 34.1 per cent.

Apart from this source of common mortality, which should apply equally in both cases, I think, with all those who have had much to do with infant children, it must be admitted that the hospital atmosphere engendered by children congregated together is peculiarly offensive and injurious. Even the cleanest children have a peculiar faint soapy odour: when this comes to be mixed with that arising from towels drying by the fire, and from foul motions, it is very abominable; while the delicacy of infants, and the easy way in which they catch cold, renders a certain degree of closeness imperative; at least, it is always kept up. And herein, I think, lies a fertile source of fatality in bringing up infants in hospitals or foundlings, where, of necessity, they must be congregated together. And in it, I

think, we may find an explanation of the high mortality of infants in Ireland. The writer of the article in the *Quarterly Review*, on Ireland Past and Present, No. 203, p. 78, thus describes the homes of its inhabitants:—

"Any one who has travelled through Ireland, until within the last few years, must have been struck with the miserable condition of the dwellings of the poorer peasantry. They were built of mud; the roof was sunken, and seldom whole. The thatch was black and rotten; water had saturated it, and grass and weeds grew rank upon it. The window was generally a hole stuffed with hay and rags; and, where glass had been formerly put, there remained scarcely an unbroken pane. The chief access for light or air was the door, which was always open. Close to the door, and generally in front of it, was a fetid pool, in which foul straw, potato-stalks, dung, and all kinds of abominations, were fermenting and macerating; while half-naked and squalid children enjoyed themselves around it. Inside there was as much dirt and discomfort as without; the floor was broken and uneven; the walls were dark from smoke; there was but one room common to the family, their poultry, and their pig. Something like a bed, in which all sexes and ages slept, an iron pot, an old tub, a stool or two, a rude table, and a dresser, with some broken plates, constituted the furniture and all the family possessions."

No wonder, then, if, under such circumstances, an atmosphere was generated, even in rural districts, peculiarly fatal to the children, and not better than hospital air.

Effect of a strange nurse's milk, not the child's mother, is of itself a source of mortality. M. Benoiston de Chateaufneuf has shown that the mere substitution of a hired wet nurse's for a mother's milk increases the mortality 10·64 per cent. per annum. *i. e.*, from 18·36 to 29 per cent. I know of no facts on any large scale to verify this statement, although, from the high character of the observer, I cannot doubt it. One fact has been communicated to me, however, by my friend Dr. Wright, who had it from a lady correspondent. It is so far confirmatory. It applies to six twins, *i. e.*, twelve children. Six were fed by their mothers, and all did well. Six were entrusted to hired wet nurses; three died; and of the remaining three, two at twelve months were looking puny and delicate, as if they could not long live; the sixth was quite healthy. No doubt can be entertained that even hired wet nurses, although well paid, and with all their preference for their sucklings, if not well looked to, will often, when failing in their milk, or from other causes, sacrifice their sucklings to their interest. I have seen this, and know it to be the case. It may be perhaps in measure due to ignorance, but in other cases it is wilful injury—in my mind, as much wilful murder as a more glaring attack, albeit the law does not acknowledge it. Hence another influence at work to increase the mortality of foundlings, and children generally. I shall, however, again recur to this subject.

So far, then, we have certain causes in operation which are not exclusively confined to foundling institutions, which may explain some of the mortality.

Residence in town will account for from 5·07 to 6·1 per cent. for children under one year old. During the first month, if the number of inmates die only in proportion to the number which die out of hospital in civic districts, the mortality may be as high as 33 per cent. Of this amount, under the most favourable circumstances, 6·1 per cent. must take place in the first month. At least, from 16·6 to 34·1 per cent., or the mean of 25·3 per cent., should be put down for the effect of contagious diseases. To absence of the mother's breast-milk, 10 per cent. per annum may at least be referred: in all, 47 per cent., at least, for children under five, from causes not peculiar to foundlings—a large per centage to be deducted from the usual mortality of foundlings. It should also not be lost sight of that, as the mortality of children is generally greatest in the earlier years, and as, in a given population of foundlings, there is a higher per centage of children of early than of later years, so necessarily the whole per centage mortality must be greater.

[To be continued.]

SUPERSTITION. At the recent execution of John Beale, for murder, at Taunton, among many extraordinary applications relating to the culprit, was one from a person at Bath, suffering from a wen in the neck, which it was stated would be removed by the patient being permitted to touch the dead body of the murderer. The application was, of course, refused.

Transactions of Branches.

ROCHESTER, MAIDSTONE, AND GRAVESEND DISTRICT MEETINGS, IN CONNECTION WITH THE SOUTH-EASTERN BRANCH.

REPORT OF TWO CASES OF STRANGULATED HERNIA.

By FREDERICK FRY, Esq., F.R.C.S., Senior Surgeon to the West Kent Infirmary, Maidstone.

[Read December 11th, 1857.]

CASE I. An old man, aged 75, was admitted into the West Kent Infirmary under my care, suffering from symptoms of strangulated hernia. According to his account, the hernia had been down five days; and vomiting of a stercoraceous character had existed for twenty-four hours. Upon examination, a tumour was discovered extending the whole distance from the spine of the ileum to the pubis. Its whole extent was dull on percussion. A few hours after admission, an operation was performed. The sac was uncommonly tense and thin; and on being opened, a large gush of fluid took place. I and my friends present calculated the quantity to be from sixteen to twenty ounces. A small knuckle of intestine was felt to be strangulated. With great difficulty the point of the finger was introduced, and a stricture divided; but the intestine could only be returned a trifling distance. On reintroducing the finger, another obstruction was discovered and divided; and the gut was then easily reduced. Not more than a teaspoonful of blood was lost during the operation. The old man sank exhausted about sixteen hours afterwards.

On a *post mortem* examination, the two notches made during the operation were very distinct; and it was apparent that a double stricture had existed: one at the external, and the other at the internal ring. An atrophied testicle was found in the inguinal canal; and on examining the gut, only one-third of its calibre was found to be implicated in the stricture.

REMARKS. The curious points in this case are, I consider—1, the great quantity of fluid in the sac; 2, the double stricture; and 3, the atrophied testicle in the canal, coupled with the fact that the hernia was newly formed, the man never having worn a truss, and, according to his wife's account, had never suffered from previous hernia.

CASE II. An old man, aged 73, was admitted into the West Kent Infirmary under my care, suffering from symptoms of strangulated hernia. Upon examination, a large tumour was discovered occupying the whole of the right side of the scrotum. According to his account, he had been subject to hernia for forty years; and although he had always worn a truss, incarceration must have existed to some extent, as he declared that side of the scrotum had always been three times larger than the other. Before he came in, he had suffered severely from violent pains about the umbilicus, and from vomiting; but when seen by me, these symptoms had ceased. About twelve hours after admission, as the tumour could not be reduced, although no urgent symptoms were present, except the swelling and obstinate constipation, an exploratory operation was considered justifiable, and was performed. There was nothing unusual until the sac was reached. When that was opened, on introducing the finger, a perfectly free opening was found to exist into the cavity of the abdomen; and on passing the finger downwards, the stricture was found to consist of a strong fibrous band in the centre of the sac. The scrotum was filled with omentum, in the shape of a cup: in this was a knuckle of intestine, which was strangulated in the centre by the fibrous band of the sac. When this was divided, the gut was easily reduced. The hernia was direct. The lower portion of omentum was strongly adherent; and when relieved (which it was with some difficulty), it was cut away to within half an inch of the opening into the abdomen. No ligatures were required. The opium treatment was exhibited for three days, and then half an ounce of castor oil was given, and the bowels were shortly relieved. Twelve ounces of brandy were given every day for a week; and afterwards six ounces of wine, and the same quantity of brandy. He is now (a month after the operation) quite well.