time of stress to co-ordinate action in defence of the community, and methods dependent on bounty and charity have been replaced in many countries by the conception of the community's duty to protect itself as a whole and each individual who may suffer misfortune. Hence the general measures we have seen of co-ordination of the tuberculosis services, their financing by the State, free treatment, and financial allowances to the sick and their families. The war awakened also a sense of international duty. It had brought together peoples who had lived in ignorance of each other, and, having assumed duties towards them in wartime, the projection into peacetime was natural, so that well before the war ended there were being laid the plans of international relief and co-operation which finally materialized in Unrra and then in the World Health Organization.

The wartime rise and the post-war fall in tuberculosis provide evidence that constitutes an indictment of existing social services when one relates them to what they should be. That tuberculosis is related to social conditions was already known, but the wartime evidence showing precise points of rise and fall is outstanding. With such evidence as this, and with the knowledge of rates obtained in countries such as Denmark, no country with a tuberculosis rate anywhere above the lowest rate yet recorded can afford not to make a continuous attack upon the disease and upon the conditions that favour its development. It has been said that "public health is purchasable, and that within natural limitations any community can determine its own death rate" (Biggs, 1911). Certainly of tuberculosis it is true. The more sore the economic plight of a country, the less it can afford to tolerate a preventable disease which affects the most active members of the community, and it is particularly in such countries that the tuberculosis programme should have a high budget priority.

We have the good fortune to be living through an age of extraordinary achievement. In the 80 years since the discovery of the bacterial sources of disease the advancement of knowledge in medicine alone has raced far ahead of our application of it to human welfare. Wars have arrested and then spurred on our progress. The means for attack on tuberculosis can be clearly seen; if the necessary measures are taken, and given a long enough respite from mutual massacre, there is no reason why this disease which has plagued the continent of Europe for many hundreds of years should not be almost eradicated before this century is out.

Among the many people to whom I am indebted for assistance in preparation of this paper I am particularly grateful to those in the Departments of Health of many European countries who have supplied information in person or by correspondence, and also to Dr. J. B. McDougall, of the World Health Organization.

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VARIATIONS IN BACTERIOLOGY OF THROAT AND RECTUM OF INFANTS IN TWO MATERNITY UNITS

BY

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This investigation was prompted by the suggestion that gastro-enteritis in infants might be due to bacteria usually regarded as normal inhabitants of the throat or intestine (Cruickshank, 1946). Particular strains or types of these organisms might be concerned; for instance, a serological type of coliform bacillus such as has been isolated from infants with diarrhoea (Bray, 1945; Giles and Sangster, 1948), and strains of *Streptococcus faecalis* which are active producers of tyrosine decarboxylase (Gale, 1944). It was also suggested (G. S. Wilson, 1947; personal communication) that *Staphylococcus pyogenes* might be the cause of some outbreaks of neonatal diarrhoea. The laboratory studies necessary to establish the serological type of coliform bacilli, the tyrosine decarboxylase activity of streptococci, and the phage type of staphylococci require considerable time and experience. In field investigations of an outbreak of neonatal diarrhoea it would be helpful if simple bacteriological methods could be used to give a rapid indication that coliform bacilli, faecal streptococci, or aureus staphylococci were present in cases with greater frequency than in healthy infants. Some observations suggested that this might be the case.

It had been noted in some outbreaks that coliform bacilli were often isolated from throat swabs (J. Taylor, 1947; personal communication) and in others that streptococci

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were present in greater abundance than usual in films and cultures of faeces (E. F. Gale, 1947; personal communication). Numerous surveys of the incidence of *Staph. pyogenes* in older age groups have revealed differences which suggest that it might be useful as a base-line for the study of epidemics of neonatal diarrhoea and vomiting to determine the incidence of the organism in newborn infants. In this investigation, therefore, simple bacteriological methods were used for routine examinations of throat and rectal swabs from infants. A general survey of the organisms in cultures was made and three points were particularly studied: (1) the frequency with which coliform bacilli were isolated from throat swabs; (2) the frequency with which colonies of *Str. faecalis* outnumbered those of coliform bacilli in cultures of rectal swabs; and (3) the frequency with which *Staph. pyogenes* (aureus) was isolated from throat and rectal swabs.

Technique

Infants in two maternity units were studied. Details about the two units, A and B, are given by Dr. Janet Roscoe at p. 1144 of this issue in a report on the incidence of infections in them. Apart from one outbreak of mild staphylococcal infections of eyes or skin there were only sporadic infections in the infants and no severe diarrhoea or vomiting. At Unit B weekly swabbings of all infants were examined from April to July, 1947, and from October, 1947, to April, 1948. At Unit A all infants in one of the four wards were swabbed each week from May to July, 1947, and from November, 1947, to April, 1948.

All swabs were taken by Dr. Roscoe, with care to swab the posterior pharyngeal wall and to avoid contamination of the rectal swab by the circumanal skin. The swabs were plated within a few hours of the time they were taken. Throat swabs were plated on horse-blood-agar plates which were incubated aerobically overnight and examined for aureus staphylococci, coliform bacilli, and other organisms. Rectal swabs were plated on horse-blood-agar plates which were incubated anaerobically for 18 hours in the first three months of the investigation and from November onwards for 42 hours before examination. The growth of coliform bacilli and streptococci was recorded as +, ++, or +++, and the presence of other organisms was noted. When the estimate of streptococcal colonies was higher than that of colonies of coliform bacilli, streptococci were said to be present in excess. Rectal swabs were also plated on 7.5% salt-agar plates which were incubated aerobically overnight before examination for aureus staphylococci. Films from rectal swabs were stained by Gram's method and examined for lactobacilli, Gram-negative bacilli, and Gram-positive cocci.

From time to time the following tests were done: coagulase tests on aureus staphylococci; V.-P., M.R., citrate, indole, and 44° MacConkey reactions on coliform bacilli; grouping of streptococci. Some streptococci isolated at the end of the investigation were tested for tyrosine decarboxylase activity.

Results

From throat swabs albus staphylococci and viridans streptococci were almost always isolated; pneumococci were occasionally found, as were haemolytic streptococci. None of the latter reacted with Group A, C, or G sera; one strain tested with Group D serum was found to belong to that group. The frequency of isolation of aureus staphylococci and coliform bacilli will be described later. All strains of aureus staphylococci tested were coagulase-positive. The majority of coliform bacilli tested were found

to be faecal *Bact. coli*, a few were *Bact. aerogenes* or irregulars.

From most rectal swabs blood plates showed colonies of coliform bacilli and streptococci. The streptococcal colonies were readily recognizable as low convex bluish colonies about 2 mm. in diameter, usually with greening under them, sometimes with no change in the blood and occasionally with β -haemolysis. Tests of colonies with the different types of haemolysis showed that they were Group D. At the end of the investigation 18 colonies of Group D streptococci isolated from rectal swabs were tested for tyrosine decarboxylase activity. One was inactive. The other 17 were active producers of the enzyme; 10 of them were picked from cultures of two infants (five each), three from a third infant, and four from four other infants. A few colonies of clostridia were occasionally seen on the blood plates. *Proteus* was very rarely present. Lactobacilli were isolated, but irregularities in the frequency of their appearance and in the number of colonies relative to other organisms were such that analysis of the results was not made.

On MacConkey plates non-lactose-fermenting colonies of coliform bacilli were uncommon and the organisms in such colonies were not salmonellae or shigellae. Colonies of coliforms and cocci appeared in the same relative numbers on MacConkey plates as on blood plates of the same specimen, but colonies of streptococci could not be distinguished from those of other cocci.

Films of faeces stained by Gram's method usually showed large numbers of Gram-positive rods resembling Cruickshank's (1925) drawings of lactobacilli. Coliform bacilli were less frequently seen, and Gram-positive cocci, usually in pairs, still less frequently. Gram-positive rods resembling bacilli or clostridia were occasionally seen.

Differences between Cultures from Infants of Different Ages

In cultures from infants during the first 24 hours of life growth was scanty or absent, and the percentage of swabs from which the organisms listed in Table I were isolated

TABLE I.—Percentage of Positive Cultures from Infants on Each of the First Five Days of Life

	Age of Infant in Days				
	0	1	2	3	4
Throat swab:					
Aureus staphylococci ..	19	13	17	25	27
Coliform bacilli ..	0	9	14	17	17
Rectal swab:					
Coliform bacilli ..	22	60	74	86	75
Streptococci ..	26	76	69	92	85
Excess streptococci ..	15	56	31	36	36
Aureus staphylococci ..	8	17	15	18	26
No. examined ..	27	24	42	36	41

was with one exception lower than on subsequent days. The exception was that aureus staphylococci were found in the throat almost as often on the first day of life as on later days. The results from infants aged 1, 2, 3, or 4 days showed an increase in the percentages of positive results during the first three days, and figures for the 4-day-old infants were approximately equal to those for 3-day-old infants. Subsequent comparisons were therefore made on results of swabs from infants aged 3 or more days.

The stained films of faeces showed that lactobacilli were present in an increasing percentage of infants on each of the first five days of life, the percentage positive on each day being 4, 14, 49, 60, and 82.

Differences between Cultures from Infants in Unit A and Unit B

Cultures were made from 187 infants aged 3 or more days in Unit A and from 198 infants aged 3 or more days in Unit B. The last column of Table II gives the per-

TABLE II.—Percentage of Positive Cultures from Infants Aged 3 or More Days

	Period										Total
	1 April-May	2 May-June	3 June-July	4 October	5 November	6 December	7 January	8 February	9 March	10 April	
Unit A											
Throat swabs:											
Aureus staphylococci		27			19		6	30	40	23	24
Coliform bacilli ..		10			9		10	0	4	8	8
Rectal swabs:											
Coliform bacilli ..		95			82		84	85	68	75	82
Streptococci ..		100			85		74	95	92	69	86
Excess streptococci		27			47		36	45	40	36	38
Aureus staphylococci		43			3		21	30	36	13	23
No. examined ..	40				32		31	20	25	39	187
Unit B											
Throat swabs:											
Aureus staphylococci	55	76	54	18	39	29	53		19		42
Coliform bacilli	22	12	54	41	35	25	47		33		33
Rectal swabs:											
Coliform bacilli ..	98	94	96	95	86	93	95		96		95
Streptococci ..	75	94	100	86	77	72	84		89		84
Excess streptococci	3	6	8	5	22	25	31		33		16
Aureus staphylococci	55	59	38	50	33	32	32		26		35
No. examined ..	36	17	26	22	23	28	19		27		198

All these infants received fluids or complementary feeds during the first few days of life.

Mild staphylococcal infections occurred in infants at Unit A in mid-May, July, and late February and March, and in Unit B in mid-May and January.

The following differences between the percentages of totals were statistically significant:

Throat swabs: aureus staphylococci D/SE = 3.8; coliform bacilli D/SE = 6.4.
Rectal swabs: coliform bacilli D/SE = 4.1; excess streptococci D/SE = 5.0; aureus staphylococci D/SE = 2.6.

centages of these cultures from which certain bacteria were isolated, and the other columns give the percentages for successive time periods during the investigation. These periods were the result of grouping successive weekly swabbings so as to give, when possible, about 20 or 30 results in each period.

Aureus staphylococci were less often cultured from both throat and rectal swabs taken in Unit A than from those taken in Unit B. The figures for successive time periods showed that in both units these organisms were more often isolated at times when mild staphylococcal infections were occurring in the infants. Not enough data were available to show whether an increased prevalence of the organism preceded the appearance of infections as suggested by Allison and Hobbs (1947) or occurred rapidly at the time when the first case was noted. The differences in the frequency with which aureus staphylococci were isolated in the two units can be attributed to a greater exposure of infants in Unit B. All infants in Unit B were in the same nursery as the infected infants, whereas in Unit A swabs were taken from infants in four nurseries and some infants were in nurseries where there were few or no cases. Infants in Unit B were often kept in the unit longer than those in Unit A. The environmental conditions in Unit B (see Roscoe, p. 1144 of this issue) were more likely than those in Unit A to allow the spread of organisms from infant to infant.

Coliform bacilli were less often found in the throat and rectal swabs from Unit A than in those from Unit B. The percentage of cultures of rectal swabs yielding streptococci

was similar in the two units. The cultures of rectal swabs in which streptococcal colonies were in excess of those of coliform bacilli formed a greater percentage of all cultures in Unit A than in Unit B. The percentage of cultures with excess streptococci increased in both units in November, when the time of incubation of the cultures was increased from 18 to 42 hours. The difference between the units was maintained throughout the investigation, though it was less in the later periods. The plates on which streptococci were present showed an excess of the organism more often in Unit A than in Unit B (Table III).

TABLE III.—Percentage of Cultures of Rectal Swabs with Streptococci in which Streptococcal Colonies Outnumbered Colonies of Coliform Bacilli

	Period										Total
	1 April-May	2 May-June	3 June-July	4 October	5 November	6 December	7 January	8 February	9 March	10 April	
Unit A	27				55		48	47	43	52	44
Unit B	4	6	8	5	29	35	37		37		19

In films of faeces, lactobacilli were found in 93% of 187 examined from Unit A and in 71% of 198 examined from Unit B. Differences noted between the units were that in Unit B there was (1) a higher percentage of cultures yielding coliform bacilli, (2) a lower percentage of cultures with excess streptococci, and (3) a lower percentage of films showing lactobacilli. The explanation which suggested itself was that these differences were due to the fact that a greater proportion of infants in Unit B than in Unit A were receiving complementary feeds or were artificially fed at the time of examination. Below is presented an analysis of data which were available on the effect of different feeding regimes on the bacterial flora.

Differences between Cultures from Infants on Different Feeding Regimes

Cultures were examined without knowledge of the feed given to the infant. With the help of Dr. Roscoe's data the bacteriological results were analysed to show results for infants on different feeding regimes.

In Unit B among 33 infants who were artificially fed the percentage of cultures of throat swabs yielding coliform bacilli was 60, as compared with 36% in 66 infants receiving complementary feeds and 29% in 42 infants who were breast-fed at the time of examination but had received fluids during the first few days of life.

A regime of breast-feeding with no additional fluid or food was introduced in two wards of Unit A in January. This made it possible to compare the bacteriology of the throat and rectum of completely breast-fed infants with that of three groups of infants. The first group had received complementary feeds during the first few days of life but were breast-fed when specimens were taken; the second group were receiving both breast and complementary feeds; and the third group were artificially fed at the time of examination.

The results (Table IV) varied in a similar way to those already mentioned. Coliform bacilli were not found in the throats of 65 breast-fed infants; they were present in two of 28 infants who had received complementary feeds but were breast-fed when examined, in four of 28 infants who were receiving both breast and complement, and in

TABLE IV.—Percentage of Positive Results in Infants in Unit A Aged 3 or More Days on Different Feeding Regimes

	Feeding of Infant			
	Breast Only	Breast After Complement	Breast and Complement	Artificial
Throat swabs:				
Aureus staphylococci ..	23	29	18	21
Coliform bacilli ..	0	7	14	17
Rectal swabs:				
Coliform bacilli ..	62	76	86	100
Streptococci ..	86	71	82	92
Streptococci in excess ..	41	35	21	19
Aureus staphylococci ..	12	14	21	12
No. examined ..	65	28	28	24

four of 24 infants who were artificially fed. Only one of the 10 infants whose throat swabs yielded coliform bacilli had vomited, and that one on a single day only. Three of the other nine had oral thrush. The remaining six were apparently perfectly healthy infants. In cultures of rectal swabs coliform bacilli were isolated less often from infants who received breast milk only and with increasing frequency in the other three groups: (1) those solely breast-fed but having received complement, (2) those receiving breast and complement, and (3) those artificially fed. Streptococci were found in approximately the same percentage of cultures from all four groups, but their colonies were in excess of the colonies of coliform bacilli in a higher proportion of cultures from infants who were receiving breast milk only at the time of examination than in cultures from infants receiving artificial feeds solely or as complement.

The absence of coliform bacilli in the cultures of throat swabs from 65 infants who were entirely breast-fed and the isolation of coliform bacilli from the throats of a number of infants who had received or were receiving complementary feeds (Table IV) suggested that these bacilli had been introduced with the feeds. In accord with this suggestion were the higher percentages of isolations of coliform bacilli from rectal swabs of artificially fed infants (Table IV) and the more frequent detection of Gram-negative bacilli in stained films of swabs from the same group of infants (Table V). Tests were made on several

TABLE V.—Percentages of Films from Rectal Swabs showing Different Numbers of Organisms

Organism	Growth	Feeding of Infant			
		Breast Only	Breast After Complement	Breast and Complement	Artificial
Lactobacilli ..	+	19	10	20	27
	++	17	24	40	33
	+++	54	59	35	17
	Total	90	93	95	77
Gram-negative bacilli	+	15	17	25	43
	++	0	3	5	14
	+++	0	0	0	10
	Total	15	20	30	67
Gram-positive cocci	+	17	3	25	50
	++	2	0	10	14
	+++	0	0	0	3
	Total	19	3	35	67
No. examined		59	30	30	30

samples of the ingredients of the complementary feeds and of feeds prepared in the ward, but coliform bacilli were not isolated. This did not, however, rule out the possibility that bacilli were introduced with some feeds. It is probable also that there were alterations in the intestinal environment of the artificially fed infants which favoured the growth of

coliform bacilli. The coliform bacilli isolated from the throat may have been merely transients there, deposited from feeds or by regurgitation.

The Gram-stained films from rectal swabs provided further evidence (Table V) of differences in the intestinal flora of infants receiving different feeds. Lactobacilli were less often seen, and far less often seen in large numbers, in the films from artificially fed infants than in films from infants receiving breast milk only at the time of testing. The converse was found for Gram-negative bacilli and Gram-positive cocci.

Discussion

The simple cultural methods which we used showed the following maximum percentages of isolations from infants aged 3 or more days: (1) 54% for coliform bacilli from the throat in Unit B and 10% in Unit A; (2) 47% for excess streptococci from rectal swabs; (3) 40% for aureus staphylococci from the throat and 50% from rectal swabs at times when no staphylococcal infections were occurring in infants. Films of faeces showed lactobacilli in large numbers in 60%, Gram-negative bacilli in 20%, and Gram-positive cocci in 15%. Figures of this order suggest that the methods might indicate the more frequent presence of large numbers of these organisms in infants with diarrhoea as compared with controls. Analysis of our results shows that in making these comparisons attention must be paid to the age of the infants and to the method of feeding, since these factors affect the results.

The methods used in this study might therefore, if applied to field investigations of epidemics, give a rapid indication of an abnormality in the bacterial flora of the cases. This would aid in deciding on the lines of search for the sources of an infection and its mode of spread. Subsequent typing of strains would be essential in order to establish the identity or difference of strains isolated from patients and other sources. The simple cultural methods which were used may be successful when applied to cases in which the infecting organism is likely to be present in large numbers. In the search for carriers and in the bacteriological diagnosis of some cases selective media may be necessary. For example, Robertson's meat medium with 10% of added NaCl (Maitland and Martyn, 1948) would be valuable for isolating staphylococci from faeces. The use of selective media would increase the percentages of positive results above those reported here and might reduce or eliminate differences such as we found. It does, however, appear from our results that the combination of simple cultural methods with rough quantitative estimates would be a practicable, and possibly a useful, method in field investigations of epidemics of neonatal diarrhoea.

Summary

In order to obtain a base-line for the study of epidemics of neonatal diarrhoea simple bacteriological methods were applied to the examination of throat and rectal swabs from infants in two maternity units. During the 12 months of the investigation the incidence of infections was low.

Variations were noted in the percentages of cultures from which coliform bacilli, faecal streptococci, and aureus staphylococci were isolated. Differences were found between the flora of infants examined during the first four days of life. The incidence of aureus staphylococci was higher at times when staphylococcal infections were occurring. Coliform bacilli were more often isolated from the throats of infants who were receiving complementary or artificial feeds at the time of examination than from the throats of breast-fed infants. In cultures of rectal swabs streptococci were more often present

in excess of coliform bacilli when specimens were taken from infants receiving artificial feeds than when they came from infants who were receiving breast milk only at the time of examination. Although coliform bacilli were not isolated from some feeds and ingredients tested, the differences observed suggested that the bacilli might have been introduced with the feeds. Whether they were introduced in that way or from some other source, the higher incidence of coliform bacilli and their preponderance in the faeces of artificially fed infants may have been due to changes in the intestinal environment of these infants.

Films from rectal swabs stained by Gram's method were examined and rough quantitative estimates were made of the numbers of lactobacilli, Gram-negative bacilli, and Gram-positive cocci. Variations were found with infants of different ages and on different feeding regimes.

It is suggested that the methods used in this study might be applied to field investigations of outbreaks of neonatal diarrhoea as a preliminary to typing of organisms and that they might help to direct investigations of the source and mode of spread of infection in the infant community.

This study was planned as part of a combined clinical and bacteriological study of infections in newborn infants. We wish to thank Dr. Janet Roscoe for taking swabs and for keeping clinical records for use in the analysis of the bacteriological findings. We are also indebted to Dr. Joan Boissard for grouping some streptococci in the early part of the investigation.

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INCIDENCE OF INFECTIONS IN INFANTS IN TWO MATERNITY UNITS

BY

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Since May, 1947, all infections and illness, however trivial, occurring in the babies of two maternity units in Cambridge have been carefully recorded. Unit A took all normal obstetric bookings; Unit B took the abnormal obstetric patients. In each ward day-by-day charts have been kept of the number of mothers, the number of live births, the number of babies in the nursery, and the number of these which were premature. Any infection which has occurred among the babies, the mothers, or the staff has also been recorded on these charts. Bacteriological investigations of the infected cases were undertaken by the Public Health Laboratory Service, Cambridge. In addition throat and rectal swabs of every baby in the ward were taken at intervals throughout the year. These results form the basis of a separate report by McFarlan *et al.* (see p. 1140 of this issue).

I saw all the infected babies. A detailed analysis has been made covering the period from May, 1947, to April, 1948. The infection rate in Unit A was 8.3% (104 infected babies in 1,257 live births); in Unit B the infection rate was 10.3% (19 infected babies in 185 live births) (Table I). It should be emphasized that the slightest evidence of infection was recorded as such; the smallest single pustule, or a

*This work was undertaken while holding a grant from the Medical Research Council.

TABLE I.—Analysis of Infections

	Unit A					Unit B
	By Wards				Total	
	VIIA	VIIIB	IV	VI		
Eyes	20	19	20	9	68 (5.4%)	3 (1.6%)
Skin	4	12*	9	1	26*(2.1%)	8* (4.3%)
Umbilical discharge	1	—	—	—	1	—
Rhinitis	—	2*	—	—	2*	4*
Otitis media	—	—	—	—	—	3
Thrush	1	—	3	—	4	—
Pneumonia	1	—	1	—	2	—
Green stools (± vomit)	—	2	1	—	3	1
Chicken-pox	—	—	—	—	—	1
Total	27	33*	34	10	104*(8.3%)	19*(10.3%)
Live births	391	343	367	156	1,257	185

* Three babies had two infections at the same time—two in ward VIIB and one in Unit B. The totals are therefore adjusted accordingly.

sticky eye if it remained sticky for longer than 24 hours, was recorded even if no pathogen was grown from the swab.

Table II shows the distribution of infections in Unit A according to wards, with the number of live births, by four-week periods. It will be seen that the infections occurred

TABLE II.—Time Distribution of Infections in Unit A

	Total Infections	Total Births	Wards							
			VIIA		VIIB		IV		VI	
			I.	B.	I.	B.	I.	B.	I.	B.
1947										
May 18–June 14	6	87	1	23	4	27	1	37	—	—
June 15–July 12	9	100	5	37	3	25	1	22	0	16
July 13–Aug. 9	3	84	1	24	1	25	1	26	0	9
Aug. 10–Sept. 6	11	89	3	30	5	29	2	27	1	3
Sept. 7–Oct. 4	8	106	3	33	2	29	2	31	1	13
Oct. 5–Nov. 1	2	80	0	29	0	22	1	25	1	4
Nov. 2–Nov. 29	6	120	0	35	2	28	3	35	1	22
Nov. 30–Dec. 27	7	94	2	32	0	19	4	27	1	16
1948										
Dec. 28–Jan. 24	10	84	3	26	1	24	6	21	0	13
Jan. 25–Feb. 21	3	94	1	31	1	28	1	23	0	12
Feb. 22–Mar. 20	17	107	3	29	9	35	3	31	2	12
Mar. 21–Apr. 17	13	118	2	36	5	31	5	32	1	19
Apr. 18–May 15	9	94	3	26	0	21	4	30	2	17
Total	104	1,257	27	391	33	343	34	367	10	156

I. = Infections. B. = Births.

more or less sporadically throughout the year, apart from a sudden increase in VIIB early in 1948, when there was a small epidemic of spots and sticky eyes at the beginning of March. This was controlled by barrier nursing precautions and the use of penicillin and sulphadimidine (sulphamezathine). None of the babies affected was ill and the nursery was not closed.

Very few upper respiratory tract infections and no intestinal upsets amongst the mothers or staff were reported during the year under review. It seems likely that this may have been a factor in the reasonably low infection rate amongst the infants. That there was no consistent rise of infections corresponding with increased business of the ward, as shown by live births, means no more than that there was adequate staff and space for potential cross-infection to remain controlled.

In Unit A 20 infant deaths occurred during the year covered; none was attributable to infection. Post-mortem examinations were made on 10 of these. Seven of the others were very premature (2–3½ lb. (0.9–1.6 kg.) birth weight) and died within a few hours of birth; the other three had severe congenital abnormalities and died within a few days. In this unit the only infection which caused serious illness was pneumonia; two babies were affected, one being a premature infant of 3 lb. (1.36 kg.), but both eventually recovered.