[Report of the Medical Officer of Health for Croydon].

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CORPORATION OF CROYDON.

REPORT

OF THE

HOSPITAL DEPARTMENT

FOR THE

Official Year ended 31st March, 1895,

INCLUDING A

MEDICAL REPORT OF THE CASES.

Croydon:

PRINTED AT THE "CROYDON TIMES" OFFICE, 55, HIGH STREET.

With the Author's Compliments

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PRINTED AT THE "CROYDON TIMES" OFFICE, 55, HIGH STREET.

Hospital Committee and Officers.

Chairman of Committee:

MR. COUNCILLOR PRICE.

Committee:

MR. ALDERMAN RYMER, J.P.
MR. COUNCILLOR ALLEN.
MR. COUNCILLOR LILLICO.
MR. COUNCILLOR THOMPSON.

Visiting Physician:

LEONARD WILDE, M.D., M.R.C.P., D.P.H.

Resident Medical Officer:

ARCHIBALD KIDD, M.R.C.S., L.R.C.P.

Matron:

MISS JESSIE COOTES.

Sanitary Office,

Croydon.

GENTLEMEN,—I have the honour of submitting to you the record of the work done by the Hospital department for the official year ended March 31st, 1895.

1—The report would have been in your hands earlier but for the fact that many of the statistical tables and charts which I submit to your consideration have required a considerable amount of time and care for their compilation.

2—For many reasons the year has been an eventful one in the history of the Hospital department, not only because of the pressure on its accommodation, which, for a short time in the summer taxed its capacity to the utmost, but also because the long-hoped for scheme for the provision of a permanent isolation Hospital was finally sanctioned.

3—The new buildings are now rapidly approaching completion, and within a few months the Corporation of Croydon will possess an excellent permanent Hospital capable of accommodating over 100 patients and enabling the Sanitary Authority to undertake the treatment of all classes of infectious disease (with the exception of small-pox) without further addition for many years to come.

4—*Hospital Site and Buildings.*—The site comprises eight acres of land occupying a moderately elevated position, situated in the angle formed by the western boundary of the Borough and the Wimbledon Railway. It is about two miles from the more populous portions of the district.

5—I am indebted to Mr. W. Grant of the Engineer's department for the accompanying block plan, which shows the outline of the site and the disposition of the various buildings, distinguishing the permanent brick structures and those made of wood and iron.

6--The accommodation we have hitherto had at our disposal has consisted of a permanent administrative block, now in course of extension, three wood and iron ward buildings and a small probationary block and discharging room.

7—Two of these pavilions (Nos. 9 and 10 on the plan) contain 12 beds, and one (No. 8) accommodates 24 beds and two cots.

8—During the summer 26 beds were reserved for scarlet fever, 12 for diphtheria, and 12 for cholera or emergencies. The probationary ward No. 11 was used for cases of illness amongst the staff and doubtful cases.

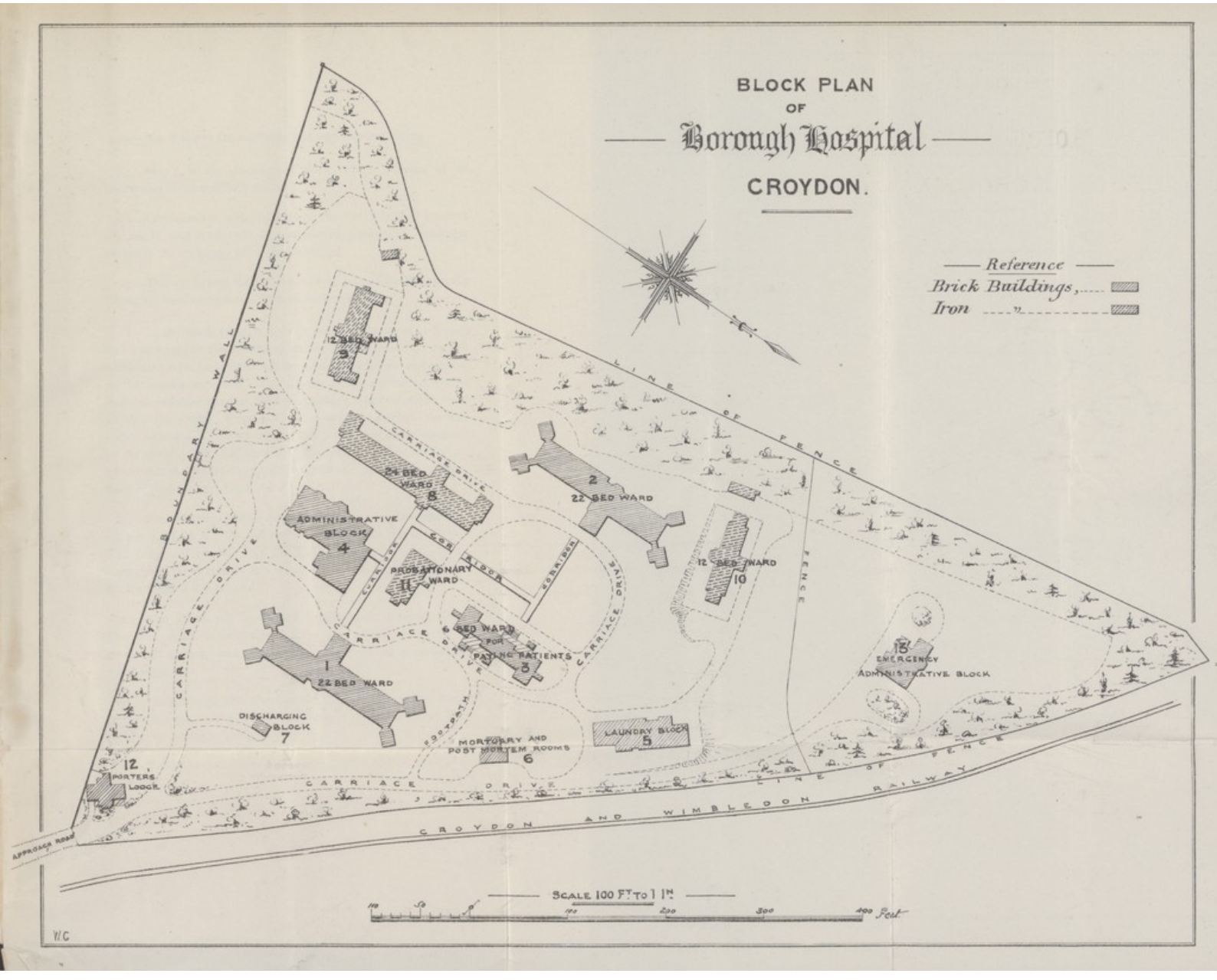
9—The permanent buildings now in course of completion will provide further ward accommodation and the necessary administrative offices.

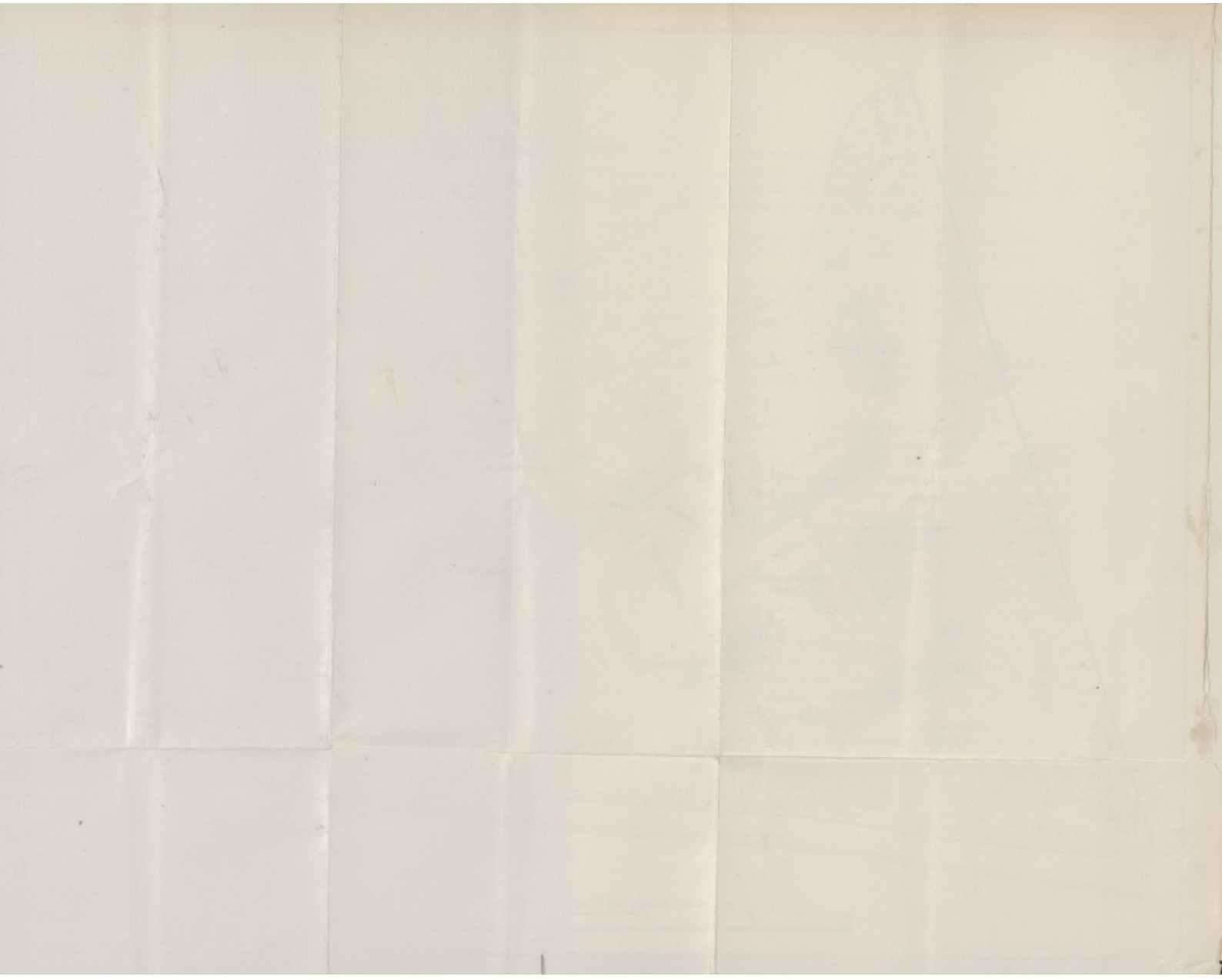
10—Reference to the Borough Engineer's report shows that the pavilions marked 1 and 2 on the plan are designed to receive 22 patients in four wards. The charge nurses' room and ward kitchen are placed in the centre, and there are two wards on each side of it, one containing twelve beds for women and children and the other eight beds for men and boys. In addition there are two small wards for the reception of severe or delirious cases. The large wards are 26-ft. wide, the superficial area of floor space is 162-ft., and the cubic capacity 2,112-ft. per bed.

11—No rate-supported Hospital under the control of a Sanitary Authority is now considered efficient unless special accommodation for paying patients is provided, and accordingly the pavilion marked 3 is reserved for six paying patients in four wards. More than one class of infectious disease can be treated in this block at the same time, as there is no aerial communication between one ward and another. The area per bed is 180-ft. and the cubical contents 2,340-ft.

12—No. 4 shows the administrative and residential block.

13—No. 5 is the laundry block, containing washing-room, drying closet, dirty linen room, disinfecting apparatus, ambulance shed, stable for one horse, harness room, and tool house.


BLOCK PLAN
OF
Borough Hospital
CROYDON.
Reference
Brick Buildings,
Iron
12 BED WARD 9
24 BED WARD 8
2 22 BED WARD
ADMINISTRATIVE BLOCK 4
PROBATIONARY WARD 11
12 BED WARD 10
6 BED WARD FOR PAYING PATIENTS 3
1 22 BED WARD
DISCHARGING BLOCK 7
MORTUARY AND POST MORTEM ROOMS 6
LAUNDRY BLOCK 5
13 EMERGENCY ADMINISTRATIVE BLOCK
12 PORTERS LODGE
BOUNDARY WALL
CARRIAGE DRIVE
LINE OF FENCE
FOOTPATH
APPROACH ROAD
CROYDON AND WIMBLEDON RAILWAY
SCALE 100 FT TO 1 IN.
Feet
W.C



14—No. 6 shows the mortuary and post-mortem rooms.

15—No. 7 is the discharging block, which consists of an undressing room and bath room.

16—Corridors 6-ft. wide, covered on the top only, will connect the wards, and roads will be constructed giving easy vehicular access to the entrances of all the buildings.

17—The wards and bath rooms will be heated by Moorwood's "hospital ventilating stoves," which have open fires.

18—In the wards for eight beds there will be a fire at each end, and a stove about the middle of the ward with one fire. In the wards for twelve beds there will be a fire at each end, and a stove in the middle with two fires. These stoves are connected by channels with the outer air, and thus bring a supply of warm, fresh air in to the wards. There will be an opening through the wall under each bed for the admission of air, capable of being regulated by the nurse. The foul air will be extracted by flues carried up by the side of the smoke flues, and Bunsen gas burners will be fixed in them to accelerate the draught.

19—The buildings will be drained by a 9-in. pipe into the outfall sewer, which is a few feet beyond the northern end of the site. This drain will receive only the foul drainage. There will be separate drains to remove rain water, which will discharge into the ditch alongside the railway.

20—The drains will be flushed by automatic flushing tanks. The 9-in. drain is intercepted from the outfall sewer by a ventilated syphon, and outlet ventilation will be provided at suitable places.

21—The drainage from the administrative block and the lodge will be disconnected from the other drainage by ventilating syphons and will be separately ventilated.

22—Numerous inspection chambers are provided for access to the drains.

23—Recent experience has convinced me of the importance of having a small ward in connection with the discharging rooms, in which after the bath of final disinfection, children can remain in bed for an hour or two pending the arrival of their parents with their home clothes.

24—The subjoined table shows the total number of beds provided and the bed rate per 1,000 population.

25—Although one bed per thousand of the population is generally considered as the average ratio required in non-epidemic times it is obvious that such a standard will not apply to all towns. Much will depend upon the character of the population and the number of diseases that are eligible for admission.

26—Croydon is essentially a residential town and possesses no manufacturies of any magnitude. There is practically no crowding of buildings on area, and the average density of the population is only 11 persons per acre. Thus the liability to the spread of infectious air-borne organisms is considerably diminished, and as it is proposed to limit the Hospital admissions to cases of scarlet fever, diphtheria, and enteric fever, the provision of slightly under one bed per 1,000 population appears in our case to be quite adequate for all requirements.

TABLE I.—Showing Bed-rate per 1,000 population.

District.	Estimated Population 1895.	Number of Beds, 1895.	Bed-rate per 1000 of population 1895.	Floor-space per Bed, in Square Feet.	Ward capacity per Bed, in Cubic Feet.	Remarks.
Borough of Croydon.	114,921	102	8	162 to 180	2112 to 2340	There is also an entirely separate administrative block and laundry (Fig. 13 in the plan) which is large enough to serve 20 emergency beds accommodated in temporary huts or tents on concreted sites. The addition of these beds would raise the bed-rate to 1·06 per 1,000 population.

27—*Hospital Staff.*—In February, 1894, the Committee determined that the Hospital should be permanently opened for the reception of scarlet fever and diphtheria patients. They therefore decided to elect a permanent staff, and I take this opportunity of thanking them for the honour they conferred upon me by appointing me Visiting Physician to the Croydon Borough Hospital.

28—The Committee subsequently instructed me to report upon the number of staff required and to define their duties and general regulations. These regulations were in due course approved and adopted by the Committee, and I can testify with gratification to the ready manner in which the staff complied with the rules that were framed with a view to prevent the transference of infection.

29—In March, 1894, Mr. A. Robb-Smith, M.B, C.M. Edinburgh, was appointed first Resident Medical Officer of the Hospital. He retained the post until the following October, when he resigned to take up general practice. I desire to express my appreciation of the good fortune which associated me with Dr. Robb-Smith in the opening and early administration of the Hospital.

30—Mr. Archibald Kidd, M.R.C.S, L.R.C.P., London, was elected to succeed Dr. Robb-Smith, and he still retains the appointment. He came to us with a distinguished record gained at the Middlesex Hospital, and to him I am indebted for his capable and zealous co-operation and for the compilation of many of the tables.

31—I also gladly acknowledge the assistance afforded me by Miss Coates, the Matron, and by the resident staff in every department.

32—*Staff Illness.*—It is with much regret that I have to report that during the year seven of the staff were warded for illness Four nurses were attacked with scarlet fever, and in one of these varicella was co-existent. They all recovered.

33—One nurse and two ward maids contracted enteric fever, and although their condition for some time gave rise to some anxiety, they made excellent recoveries.

34—The contraction of scarlet fever by those who are in attendance on such cases is a not unlikely incident, and is a risk which must necessarily be run by all such who are not immune against it.

35—The ætiology of the singularly localised and restricted outbreak of enteric fever has been thoroughly discussed elsewhere, and my views as to its origin are well known.

36—Cases of Infectious Disease occurring in Hospital Staff, from April, 1884, to March, 1895 :—

Initials.	Sex.	Age.	Where employed.	Nature of Disease.	Date of Attack.	Result	Remarks.
F.K.	F	21	Scarlet Fever Ward	Enteric Fever	April 1st, 1894	R	Assistant Nurse
E.N.	F	20	Diphtheria Ward	Enteric Fever	April 17th, 1894	R	Ward Maid
F.F.	F	23	Scarlet Fever Ward	Enteric Fever	May 20th, 1894	R	Ward Maid
F.G.	F	21	Scarlet Fever Ward	Scarlet Fever & Varicella	July 17th, 1894	R	Assistant Nurse
E.T.	F	—	Scarlet Fever Ward	Scarlet Fever	July 14th, 1894	R	Assistant Nurse
F.R.	F	26	Scarlet Fever Ward	Scarlet Fever	July 27th, 1894	R	Assistant Nurse
C.N.	F	29	Scarlet Fever Ward	Scarlet Fever	October 5th, 1894	R	Assistant Nurse

37—*Temperature of the Wood and Iron Buildings.*—Great watchfulness on the part of the charge nurses has been necessary at all times to maintain an equable or sufficiently warm temperature in the wards, and at times this has been impossible. The daily range of temperature registered in these buildings has frequently been very great, sometimes as much as 25 degrees, and the rapidity with which these oscillations take place under the varying conditions of night and day, sunshine and shade, has occasioned considerable anxiety.

38—The exceptionally cold weather experienced in January and February this year was very severely felt both by the patients and the resident staff.

39—Owing to the freezing of the gas mains very little gas was obtainable, and all heating apparatus supplied by this means were rendered useless. From a similar cause laundry operations were suspended and cooking was carried on under great difficulties.

40—During this weather it was found that in the wards provided with open fireplaces the temperature was maintained with comparative ease by careful stoking, but in the wards heated by hot water pipes, the night temperatures were dangerously low and the day temperatures could never be coaxed above 50 degrees F.

41—This defect was obviated by the addition of stoves, and the cold indraught through the walls has been prevented by filling up the crevices between the wood panelling and covering the walls with an impermeable material further protected by two coats of paint.

42—Summer heat was to some extent mitigated by whitewashing the iron roofs and turning the hose on them in the hottest part of the day.

43—*Return Cases.*—It occasionally happens that scarlet fever recurs in houses after the return home of patients from a fever hospital. This subject is a very important one, and is engaging the attention of the Metropolitan Asylums Board, and also the Local Government Board, who will shortly issue a special report upon it.

44—Only two such cases occurred in connection with the Borough Hospital during the past year.

45—Very stringent regulations have been drawn up with regard to the discharge of patients.

46—Every case of scarlet fever is kept in two calendar months, and as each patient is provided with complete sets of uniform during his stay in Hospital not a particle of home clothing is either brought into or taken out of the wards.

47—It stands to reason, however, that when a child has lived for a considerable time in an infected atmosphere, the residual air in his lungs must be charged with infection, and if on his return home he sleeps in the same room and in many instances in the same bed with his brothers and sisters, this is gradually given off, and thus a further dissemination is likely to occur.

48—With the idea of preventing secondary infection in this way, a printed card is sent to the parents acquainting them of the date and hour of the patient's discharge, requesting them to bring clean clothing, and at the same time warning them against the above mentioned practice, and suggesting further partial home isolation for a fortnight.

49—It has also been occasionally ascertained that the clothes which a patient has worn prior to removal are hidden away in cupboards and drawers to escape disinfection. These are brought out again on his return home, and in the event of a recrudescence the Hospital authorities receive the blame.

50—Lastly, many of these so-called return cases turn out to be, on further investigation, merely incidental, inasmuch as the period which elapses between the discharge of the patient from the Hospital and the onset of the following case does not correspond to the incubation period of scarlet fever.

51—*Bacteriological Research.*—The great progress recently made in our knowledge of the causation and treatment of diphtheria has rendered a bacteriological laboratory an almost necessary adjunct of a fever Hospital.

52—A large proportion of the cases sent in to the Hospital certified as diphtheria are not really such, and it is obviously undesirable that these cases should be treated in the diphtheria wards.

53—Accordingly every case of doubtful throat illness presented for admission is now submitted to a bacteriological and subequently a cultural examination, and unless confirmed as true diphtheria is, if possible, treated separately.

54—An excellent microscope and a few of the essential reageants and apparatus have been already provided, and it is earnestly hoped that the Committee will see their way to set apart and equip a small room in the new buildings as a laboratory in which research of this nature can be properly carried out.

55—*Financial Statement.*—A detailed analysis of expenditure under all heads during the official year 1894-95 is submitted. For comparative purposes it has been drawn up on the lines recommended by the Council of the Metropolitan Hospital Sunday Fund, now universally adopted.

For local purposes the following details are also appended:—

Total number of patients admitted	171
Average number of inmates, including staff ...	48
Average number of patients	29·3

Total cost, exclusive of interest and sinking fund	£2,779	12	7
Average annual cost per patient ...	16	5	1
Annual average cost per available bed (56)	49	10	0
Average cost per head per week, including staff	1	2	4
Average cost per head per week of patients	1	17	0

Detailed Analysis of Expenditure under all Heads in Year ending March 31st, 1895.

Provisions.		Alcohol.		Surgery and Dispensary.		Domestic.		Rent, Establishment and Miscellaneous Charges.					Salaries and Wages.			
Total.	Average Cost per Bed occupied.	Total.	Average Cost per Bed occupied.	Total.	Average Cost per Bed occupied.	Total.	Average Cost per Bed occupied.	Rent.	Establishment Charges and Repairs.	Miscellaneous Charges.	Total.	Average Cost per Bed occupied.	Medical, Dispensing, Nursing, & other.	Average Cost per Bed occupied.	Total Ordinary Expenditure.	Total Average Cost per Bed occupied.
£ s. d.	£ s. d.	£ s. d.	s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.		£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
904 19 7	31 4 2	5 10 4	3 10	141 12 9	4 17 8	482 2 7	16 12 6	—	405 5 9	74 4 5	479 10 2	16 10 8	765 17 2	26 8 6	2,779 12 7	95 17 0

Average Number of Patients, 29.

56—Although the expenditure in the first year of existence of any public institution necessarily includes certain sums for furniture and other items which are not ordinary outgoings, yet it is satisfactory to observe that the various averages and even the total average cost per bed occupied compares favourably with the averages of similar hospitals in London and elsewhere. It should, however, be borne in mind that owing to the absence of continuous pressure upon the beds of a fever hospital, the expenditure should be treated upon a five years' average to ensure a result from which any sound deductions as to comparative cost can be drawn.

57—*General Statement.*—With the exception of a few weeks during the summer there was a considerable decrease in the prevalence of infectious disease within the Borough.

58—The following table shows the number of cases notified and the number of removals.

59—It should, however, be stated that notification was adopted under the Croydon Act of 1884, and allows the medical practitioner to state whether he will undertake the duty of seeing that isolation and disinfection are properly carried out, or whether he wishes the Medical Officer of Health to attend to either or both of these matters. In the former case the Medical Officer takes no action, and accordingly the per centage of removals, if calculated on the total notifications, is rather low, but when estimated on the number referred to the Medical Officer of Health, fairly high.

TABLE II.—Showing the number of Infectious Diseases occurring within the Borough and notified to the Medical Officer of Health, from the 1st April, 1894, to March 31st, 1895, inclusive, and also the number of removals.

Disease.	Notifications.			Removals.			Percentage of removal to Notifications.
	Medical Officer responsible	Medical Practiti'n'r responsible	Total.	Hospit'l	Infirmary.	High-Gate.	
Scarlet Fever ...	125	102	227	108	7	0	50·6
Diphtheria ...	120	45	165	59	4	0	38·1
Enteric Fever	27	30	57	*0	17	0	29·8
Puerperal Fever	2	1	3	0	0	0	—
Continued Fever	1	0	1	0	0	0	—
Small-pox ...	5	1	6	0	0	5	83·3

* Four cases of Enteric Fever arose in and were consequently treated at the Borough Hospital.

60—Table III. gives particulars of the different forms of fever admitted during the official year, and treated to their termination. In this way the mortality rates can be accurately determined, and the result is the same whether calculated by the ordinary method or according to the Registrar-General's formula, *i.e.*, by dividing the deaths, multiplied by 100, by half the sum of the admissions, discharges, and deaths for the year.

61—It will be observed that the aggregate mortality of the Hospital was only 8·2 per cent., and that the death rates from scarlet fever and diphtheria were considerably below the average. The latter include deaths occurring within 24 hours of admission. For comparative purposes these moribund cases—hopeless from the first—should be deducted. The diphtheria mortality would then be 18·6 per cent.

TABLE III.—Showing the admissions, discharges, and deaths during the year.

Diseases.	Admissions.			Discharges.		Mortality per cent.
	Males.	Females.	Total	Recovered	Died.	
Scarlet Fever ...	52	56	108	106	2	1·8
Diphtheria ...	19	40	59	47	12	20·3
Enteric Fever ...	0	3	3	3	0	—
Epidemic Roseola	0	1	1	1	0	—
Grand Totals	71	100	171	157	14	8·2

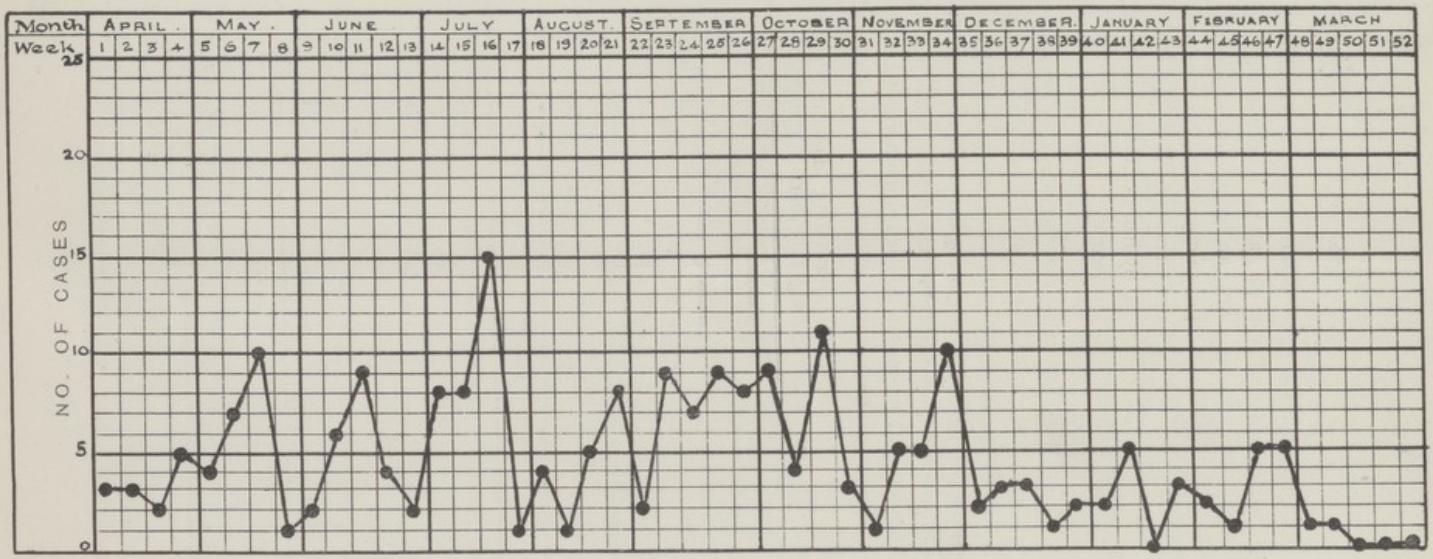
One patient admitted for Scarlet Fever was suffering from Epidemic Roseola.

62—The influence of Hospital treatment upon mortality is shewn below. It is not so marked in regard to diphtheria, inasmuch as the majority of mild cases are treated at home and most of the severe and hopeless cases removed to Hospital.

TABLE IV.

Disease.	Number of Deaths per 100 cases, Official Year, 1894 5.		
	Among all cases notified.	Among cases treated at home.	Amongst cases treated at the Hospital.
Scarlet Fever	3·08	4·2	1·8
Diphtheria ...	21·2	22·6	20·3

Chart showing the Seasonal Prevalence of Scarlet Fever during the year ended March 31st, 1895.



63—*Scarlet Fever.*—There was a considerable decline in the prevalence of this disease in the 12 months ended March, 31st, 1895.

64—Observations through a series of years show that scarlet fever tends to become epidemic at intervals of about five years, and it would appear that the Croydon curve of periodic incidence reached its maximum in 1893, was on the decline in 1894, and entered the period of minimum prevalence in 1895.

65—Altogether 227 cases were notified from 149 houses. The disease was of generally a mild type and low mortality, and consequently many parents were unaware of the nature of what appeared to them an apparently trivial illness and allowed their children to attend school when in an infectious condition.

66—The appended chart shows the rise and fall in the number of scarlet fever cases notified during each week. The greatest incidence was in the third week of July, and was due to school attendance. The drop in the following four weeks corresponding with the vacation period was particularly marked.

TABLE V.—Showing Scarlet Fever Admissions and Deaths at various ages during the year ended 31st March, 1895.

Ages.	Males.		Females.		Totals.	
	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
Under 1	1	0	0	0	1	0
1 to 2	0	0	2	0	2	0
2 to 3	2	0	0	0	2	0
3 to 4	1	0	5	1	6	1
4 to 5	8	1	3	0	11	1
5 to 10	23	0	25	0	48	0
10 to 15	13	0	11	0	24	0
15 to 20	1	0	2	0	3	0
20 to 25	2	0	4	0	6	0
25 to 30	0	0	2	0	2	0
30 to 35	0	0	2	0	2	0
35 to 40	1	0	0	0	1	0
And upwards.	0	0	0	0	0	0
Grand Totals	52	1	56	1	108	2

Average Case Fatality 1·8 per cent.

67—The subjoined is a list of complications occurring among the scarlet fever cases:—

Abscesses ...	... 2 cases.	Pneumonia	... 4 cases.
Adenitis ...	... 2 ,,	Relapse ...	... 2 ,,
Albuminuria	... 2 ,,	Rheumatism	... 7 ,,
Endo-carditis	... 6 ,,	Stomatitis ...	... 2 ,,
Nephritis ...	... 4 ,,	Tonsillitis of Convalescence	... 9 ,,
Onychia ...	... 2 ,,		48 ,,
Otitis ...	... 6 ,,		

68—*Diphtheria.*—During the 12 months ended March 31st, 1895, a total of 165 cases of diphtheria were notified from within the Borough. They occurred in 131 houses, and 36 deaths were registered.

69—The number of cases removed to the Hospital or Infirmary amounted to 38 per cent. of the number notified.

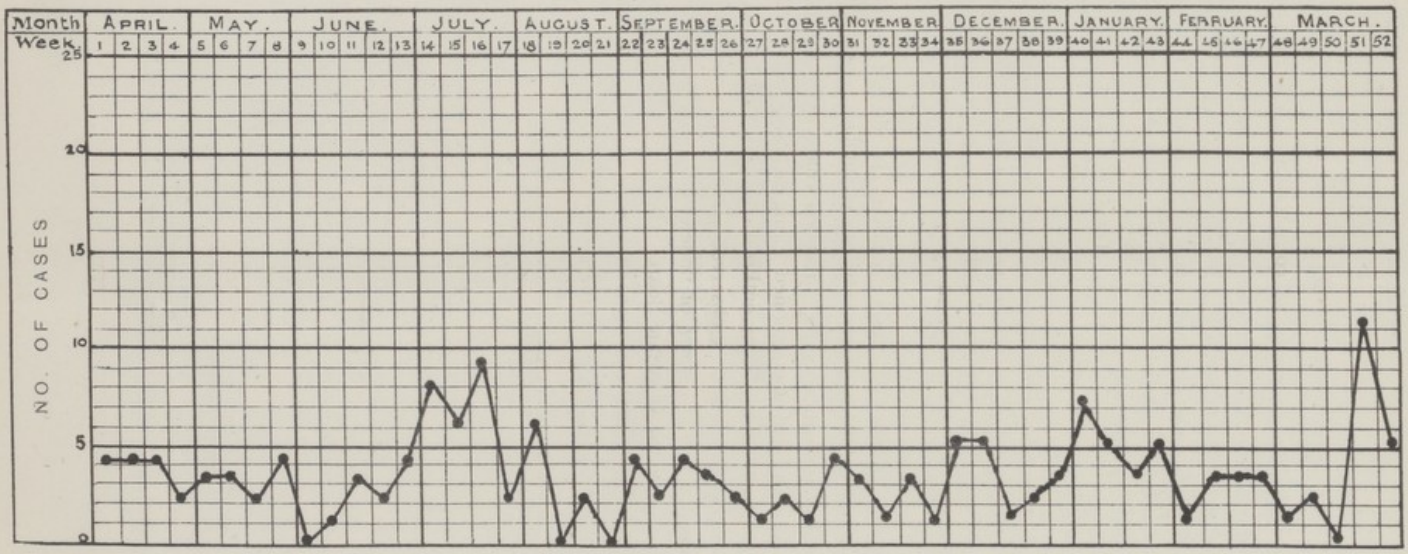
70—An examination of the appended chart, which shows the rise and fall in the numbers notified during each week, indicates that there has been no particular outbreak, but a somewhat uniform prevalence. The slight rise observed in the first three weeks of July was due to the presence of undetected throat illness among the scholars of the Woodside Board Schools. On this becoming known and the usual precautions taken it ceased at once.

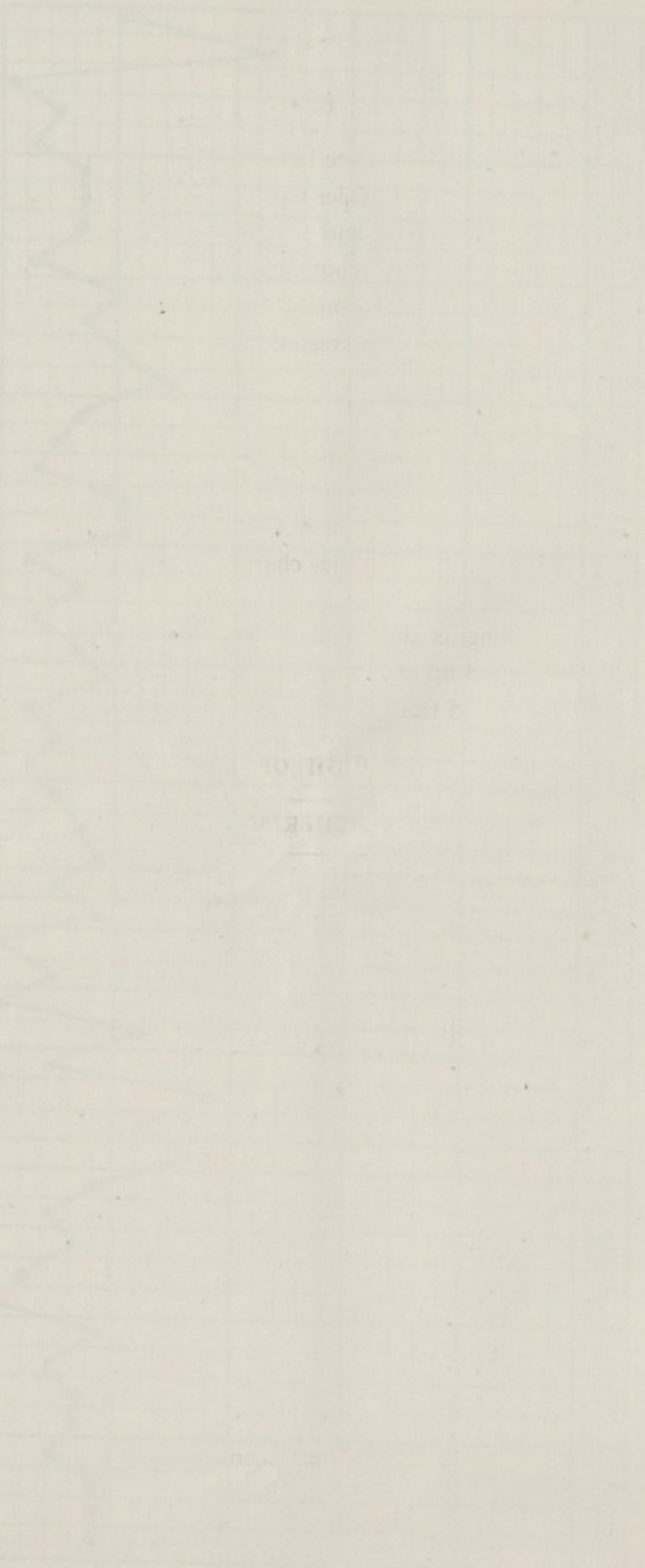
TABLE VI.—Showing Diphtheria Admissions and Deaths at various ages during the year ended 31st March, 1895.

Ages.	Males.		Females.		Totals.	
	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
Under 1	1	1	0	0	1	1
1 to 2	0	0	2	0	2	0
2 to 3	1	0	2	1	3	1
3 to 4	2	0	5	3	7	3
4 to 5	3	2	1	1	4	3
5 to 10	8	4	17	0	25	4
10 to 15	2	0	3	0	5	0
15 to 20	1	0	3	0	4	0
20 to 25	0	0	1	0	1	0
25 to 30	1	0	4	0	5	0
30 to 35	0	0	0	0	0	0
35 to 40	0	0	0	0	0	0
40 to 45	0	0	2	0	2	0
And upwards	0	0	0	0	0	0
Grand Totals	19	7	40	5	59	12

Average Case Fatality 20·3 per cent.

Chart showing the Seasonal Prevalence of Diphtheria during the year ended March 31st, 1895.





71—The increased incidence of diphtheria upon the urban populations of England and Wales has directed universal attention to its ætiology and treatment, and I therefore thought it would be of interest to submit a short report upon the work done in this direction by the Hospital department, including a tabulated statement of the details of 59 cases treated in the Borough Hospital (see Tables VII and VIII).

72—*Ætiology.*—Every house in which a case of diphtheria has occurred and which was placed under the supervision of the Medical Officer of Health, has been inspected by myself or Mr. P. Saunders, the inspector who has charge of this important duty.

73—The following is the inquiry form which is in use in this Borough. It is filled up at the time of first inspection and subsequently elaborated and transferred to a register similarly printed.

COUNTY BOROUGH OF CROYDON.

DIPHTHERIA.

Date
Address — Ward
Name
Sex, Age, and Occupation
Medical Attendant — Date notified
Place of Work or School
Last at Work or School — Date of Onset
History
Previous Illnesses of Patient
Work or Business carried on in house
Number of Occupants in house
Milk Supply
Water Supply
Description of House
Sanitary Condition of Premises
Condition of Drains
Previous Illnesses in house or in vicinity
Probable Source of Infection
Precautionary Measures
Remarks

74—Much time and trouble has been expended in trying to elucidate the origin of every case, yet in many this remained indefinite.

75—One of the difficulties of investigations of this nature arises from the mildness of the disease in some cases, and the impossibility of arriving at a definite conclusion as to its specific character (without a skilful bacterioscopical examination) for some considerable time, until the advent of paralytic or other sequelæ discloses its true nature.

76—It seems clear, however, that the supposed relation of diphtheria to drainage defects is quite unconfirmed as far as Croydon is concerned, the main local factor in its dissemination being undoubtedly school attendance.

77—It has also been observed that a prevalence of sore throat among school children frequently precedes the notification of cases of diphtheria and seems to pave the way for its development, *e.g.*, the threatened outbreak at Woodside schools in July.

78—A large number of cases still remain, particularly in certain localities which cannot be ascribed to either school attendance, pre-existing throat illness or drainage defects, and these would appear to have an entirely *de novo* origin, and the chief causes of their evolutionary development are possibly darkness, dampness, and decomposition, and the contamination of the surrounding soil with effete products.

79—*Complications.*—A summary has been prepared of the principal complications occurring among the 59 patients admitted for diphtheria.

80—Those in which the heart was implicated gave rise to most anxiety and required most careful nursing In eight of these cases, acceleration and irregularity of the heart with its corresponding effect upon the pulse were observed, and in five, attacks of cardiac syncope, occurring most frequently at night, were noted. Endocardial murmurs were present in six.

81—In one case where death took place from sudden syncope, a microscopical examination of one of the cardiac musculi papillares showed that every muscle fibre was degenerated, the tranverse stiration completely lost,and the continuity of the fibres interrupted.

82—Paralytic sequelæ were noted in 21 cases. They frequently appeared during convalescence and in the absence of fever.

83—Extreme and prolonged debility, accompanied by dangerous attacks of dyspnœa, were the prominent features of four cases.

84—Total suppression urine proved fatal in three instances, in all of which the disease assumed a very severe type, and there was evidence of general systemic infection. The nasal cavity was implicated in each instance, and pallor, langour, and debility, with the signs of extensive peripheral paralysis, were associated.

85—Summary of complications arising among the diphtheria cases :—

Heart Affections—	
Irregularity	8
Syncope	5
Endo-cardial Murmurs	6
Rheumatism and Pericarditis	1
Paralysis—	
Nasal	7
Laryngeal	3
Ophthalmoplegia	3
Absent Reflexes	8
Albuminuria	27
Suppression of Urine	3
Persistent Vomiting and Diarrhœa	8
Epistaxis	3
Otitis	3
Tonsillitis	2
Profound Debility during Convalescence... ...	4

86—*Treatment.*—There seems little doubt that the cause of diphtheria is the bacillus diphtheriæ *(Klebs-Læffler bacillus)*, and that the false membrane is the seat of infection.

87—Treatment must therefore be directed towards arresting the progress of the disease by the use of so-called specifics all more or less empirical, or by endeavouring to destroy the infective properties of the false membrane by means of germicides locally applied, or

lastly by the more recent method of neutralising the poison of the malady by the injection of the counteracting serum of an animal immunised against the disease.

88—All these methods have been employed at the Borough Hospital from time to time when indicated by circumstances.

89—Under the first or specific treatment a 10 per cent solution of citric acid, which possesses the property of softening diphtheritic membrane outside the body, was administered very frequently both locally and internally. Of the 15 cases so treated 11 recovered and four died.

90—A series of 15 consecutive cases were treated by local application of glycerine of carbolic acid, combined with frequent irrigation with boracic acid lotion. These all recovered, but the type of the disease did not happen to be severe.

91—In another series of 19 cases the throat was swabbed out twice daily with a 1-500 solution of perchloride of mercury, and the nose and pharynx frequently irrigated with boracic lotion. All these cases were fairly severe, and of the 19 thus treated 15 recovered and four died. Of chemical remedies this seems to me the most successful and reliable.

92—In January last the highly favourable reports of foreign physicians upon the anti-toxin serum treatment of diphtheria having been apparently confirmed by the experience gained in certain English Hospitals in which it had been tried, the Committee sanctioned its employment in the Borough Hospital, subject to the consent of the patients' parents.

93—In order to form a conscientious opinion as to the efficacy of this method, I thought it right to select only severe and undoubted cases, and as far as possible to confirm the clinical diagnosis both by bacteriological and cultural examination before commencing the treatment.

94—Up to the end of March last eight cases, Nos. 46, 48, 49, 50, 51, and 52, Table VII., and Nos. 7 and 8, Table VIII., were treated by injection of anti-toxin. They were all severe and undoubted cases, and in two it was only resorted to after other treatment had

been tried and failed, and the patients were in a critical condition. Of these eight cases six recovered and two died.

95—No deductions can rightly be made from such a small number, but certainly the impression left on my mind up to the present is that in anti-toxin we have a remedy of undoubted value. Whether there are any objections or contra-indications to its use can only be decided by further experience prolonged through several epidemics. In this way the influence of variations in the type of the disease can be eliminated.

96—Tracheotomy was performed in seven cases in which there was extension of false membrane to the trachea and bronchi.

97—*Co-existent Diseases.*—The fact that the majority of patients in most fever Hospitals are children, renders the introduction of juvenile complaints other than that for which they were admitted, a not unlikely occurrence.

98—At one time there was a widespread belief that the co-existence of more than one infectious disease in the same individual was a very uncommon occurrence. This is now known to be incorrect, and following the example of the Metropolitan Asylums Board I have prepared a list of such cases in which this occurred, and am happy to report that they have been comparatively few.

99—Table of co-existent diseases:—

Scarlet Fever and Varicella	...	...	5
Scarlet Fever and Enteric Fever		...	1
Scarlet Fever and Diphtheria	...	...	1

100—I have now presented the principal facts and statistics relating to the Hospital department for the year ending 31st March, 1895, and beg to tender my sincere thanks for the cordial support always accorded me by the Committee in all matters concerning the management of the Borough Hospital.

I have the honour to remain, Gentlemen,

Yours faithfully,

LEONARD WILDE, M.D., M.R.C.P., D.P.H.,
Visiting Physician.

24th June, 1895.

TABLE VII.—Cases of Diphtheria admitted during official year, April 1st, 1894, to March 31st, 1895.

No.	Register No.	Sex.	Age.	Date of Admission.	Days in Hospital.	Result.	Ætiology.	History.	State on Admission.	Course and Complications.	Treatment.	Remarks.
1	139	F	2	April 14	2	D	Indefinite. No other previous illness in house Sanitary condition good.	Cough and difficulty of breathing 3 days before admission.	Both tonsils swollen, large white patch on right. Laryngeal obstruction with intercostal retraction and cyanosis.	Tracheotomy performed and several large pieces of membrane brought up through tube. Vomiting and diarrhœa commenced on 5th. Death by syncope on 6th. No suppression of urine.	Tracheotomy 3 hrs. after admission.	
2	140	M	3	April 10	25	R	Indefinite. No sanitary defects.	Taken ill 4 days previously with "pain in nose."	Tonsils much swollen, with small white patches. On left tonsil was a large easily detached piece of membrane. Cervical glands enlarged. Very acrid nasal discharge.	Voice, nasal, and slight regurgitation on May 1st. Reflexes normal. Trace of albumen in urine for 14 days.	Nose syringed and throat swabbed every hour with solution of citric acid, 10 per cent. A mixture of iron and chlorate of potash, given every 4 hours.	
3	147	F	18	April 29	20	R	——	Malaise and feverishness on 27th. Throat a little sore and swollen.	Tonsils much swollen and fauces red and congested. Small white patch on right tonsil. Nasal discharge.	Membrane came away from nose on April 30th. Throat clean on May 10th. Reflexes present. No albuminuria.	Throat swabbed and nose syringed every hour with solution of citric acid. Citric acid given internally.	
4	153	F	1 8/12	May 9	15	R	——	Croupy cough on 7th.	Tonsils enlarged and congested. No membrane visible. Deep inspiration, croupy. No dyspnœa. Heart and lungs unaffected.	Pieces of membrane syringed from nose on 10th. Bronchitic râles in both lungs on 11th. No albuminuria except a faint trace on May 9th.	Throat swabbed and nose syringed with solution of citric acid every 4 hours.	
5	157	M	4	May 17	1/2	D	Manholes in street said to smell badly. Defective drains in surrounding houses.	Been ill 4 days.	Both tonsils much swollen and covered with membrane. Laryngeal obstruction. No nasal discharge A trace of albumen in urine.	Dyspnœa increased. Death occurred 36 hours after admission from syncope.	Throat swabbed with citric acid. Tracheotomy. Steam tent.	
6	159	F	3	May 20	2	D	——	Sore throat and croupy cough on May 19th.	Patches of membrane on both tonsils. Cervical glands enlarged. Laryngeal stridor. No dyspnœa. A trace of albumen in urine.	Laryngeal obstruction increased. Large quantities of membrane came through tube. Death from syncope.	Tracheotomy. Throat swabbed with solution of citric acid.	
7	162	F	7	May 23	9	R	Patient and her brother had measles on 14th. Brother died of croup on 22nd.	Sore throat on May 22nd.	No notes.	——	——	

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No.	Register No.	Sex.	Age.	Date of Admission.	Days in Hospital.	Result.	Ætiology.	History.	State on Admission.	Course and Complications.	Treatment.	Remarks.
8	163	M	34	May 24	12	R	Father of No. 7. Direct contagion from kissing boy who died of diphtheria. House cat killed for throatillness.	Sore throat for 2 days.	Uvula, soft palate and tonsils congested. Small grey patch on left tonsil.	Throat well in 2 days. No albumen in urine.	Throat swabbed with solution of citric acid.	
9	168	F	18	June 9	26	R	——	Throat sore, with pain at angle of jaw, on 8th.	Tonsils swollen and covered with grey patches. Reflexes normal. Heart and lungs unaffected.	Membrane extended on 14th. Throat well by 24th. Albuminuria for 8 days. Complicated with secondary tonsillitis on June 29th. Temp. 101·6, lasted 4 days.	Throat and nose syringed with solution of citric acid.	
10	170	F	17	June 11	26	R	——	Sore throat on 8th.	Tonsils enlarged, small yellowish patches on both. Reflexes normal. Heart and lungs normal.	Uninterrupted recovery. Throat clean on 17th. No albuminuria.	Throat and nose syringed with solution of citric acid.	
11	178	F	4	June 20	9	D	Indefinite. One case in next house some months previous.	Taken ill on 18th.	Tonsils enlarged, small yellow patches on both. None on uvula. Nasal discharge. Cervical glands enlarged. Soft apical murmur, second sound sharp. Coarse inspiratory râles at bases of lungs. Urine normal.	June 22nd, extension of membrane to soft palate. 25th, throat better; vomiting commenced. 27th & 28th, vomiting continued with diarrhœa; urine contained one-tenth albumen, and quantity was diminished; paralysis of soft palate; reflexes absent. 29th, suppression of urine occurred, with continued vomiting and diarrhœa, lasting 36 hours prior to death.	Solution of citric acid to syringe throat and nose. 22nd, solution of perchloride of iron and glycerine applied to throat. Condy's Fluid used as a mouth wash.	See B.M. Journal May 11th, 1895.
12	179	F	21	June 24	32	R	——	Sore throat on 22nd. Vomited on 23rd.	Both tonsils enlarged and congested with small grey patch on each. Reflexes normal. No albuminuria.	No complications. Uninterrupted recovery.	Solution of citric acid applied to throat and nose.	
13	186	F	44	July 6	35	R	Direct contagion from son, aged 6, who died on July 3rd, of diphtheria.	Sore throat on 4th.	Thick grey patches on both tonsils Pharynx red and glazed. Reflexes present.	A trace of albumen in urine for 21 days. No complications.	Solution of citric acid to syringe throat and nose.	

TABLE VII.—Cases of Diphtheria admitted during official year, April 1st, 1894, to March 31st, 1895.

No.	Register No.	Sex.	Age.	Date of Admission.	Days in Hospital.	Result.	Ætiology.	History.	State on Admission.	Course and Complications.	Treatment.	Remarks.
14	187	F	6	July 6	53	R	——	Illness commenced on 3rd.	Tonsils enlarged. Small grey patch on right tonsil and on back of pharynx. Heart and lungs unaffected. Reflexes present.	Regurgitation of food on July 12th. Albumen in urine till July 31st.	Solution of citric acid to syringe throat and nose.	
15	198	F	26	July 9	31	R	——	Sore throat on July 19th.	Small creamy white patch on right tonsil, and another similar patch on posterior wall of pharynx. Temp. 101.	Faint trace of albumen in urine for 2 days. No complications.	Throat sprayed with carbolic acid. Quinine and iron mixture.	
16	199	F	11	July 21	41	R	Six children in family attacked. The first 2 on July 12th, supposed indirectly from Woodside Board School.	Sore throat on July 20th.	Oval white patch on right tonsil & pharynx. Temp 102. Heart and lungs unaffected. Reflexes present.	July 22nd, membrane extended to soft palate. Considerable swelling of right side of neck. Temp. between 98·4 and 100 F. till 31st. Regurgitation of food on 31st. Trace of albumen in urine till Aug. 22nd.	Throat sprayed with carbolic acid, 1 in 20. Quinine and iron mixture.	House epidemic due originally to school attendance, and subsequently to direct contagion.
17	200	F	10	July 21	41	R	The 3rd directly from first 2. The last 3 attacked on July 21st, and removed to Hospital.	Sore throat on July 21st.	Right tonsil covered with thin grey membrane. Small patch on left tonsil.	Patch on tonsil detached on 22nd. Albuminuria for 2 days. No complications.	Throat sprayed with carbolic acid, 1 in 20, every 2 hours. Quinine and iron mixture.	2nd attack of diphtheria.
18	202	M	9	July 22	32	R	Two children attended Woodside, the others Oval Road Schools.	——	Small creamy patch on left tonsil. No constitutional symptoms.	Epistaxis on 25th. Albuminuria for 2 days. No complications.	Throat sprayed with carbolic acid every 2 hours. Quinine and iron mixture.	
19	210	F	13	July 28	86	R	——	Sore throat and head ache on July 25th.	Both tonsils much swollen, with thick white patches. Soft palate swollen. Some râles at bases of lungs. Acrid discharge from nose. Breath foul. Reflexes normal. Temp. 102. Pulse 150.	Epistaxis on July 29th and Aug. 1st. Vomiting between Aug. 7th and 9th. Knee jerks absent on Aug. 10th. Temp. normal for first time, previous range being 99 to 101. Vomiting occurred again between 13th and 18th. Urine averaged 30-oz., and contained albumen from one-fifth to one-twelfth till Aug. 29th.	Throat sprayed with carbolic acid and nose syringed with boracic acid. Slinger's suppositories given on Aug. 7th and 8th, and again between 13th and 18th.	When discharged gait was clumsy, but improving. Knee jerks were sluggish. No paralysis of palate.

TABLE VII.—Cases of Diphtheria admitted during official year, April 1st, 1894, to March 31st, 1895.

No.	Register No.	Sex.	Age.	Date of Admission.	Days in Hospital.	Result.	Ætiology.	History.	State on Admission.	Course and Complications.	Treatment.	Remarks.
20	211	F	5	Aug. 3	20	R	School attendance—Woodside Board Schools.	Ailing for 14 days.	Tonsils swollen, with white film on both. Laryngeal stridor and cough. Temp. 99. Pulse 140.	Trace of albumen in urine for 7 days. No complications.	Throat swabbed with solution of perchloride of mercury, 1 in 500. Steam tent.	
21	212	F	3	Aug. 3	2	D	Sister of No. 20.	Onset Aug. 3rd.	Throat red and inflamed. Both tonsils and uvula covered with thick yellowish white material. Laryngeal stridor and cough. Râles at both pulmonary bases. Temp. 101. Pulse 126. Urine contained three-fourths albumen.	——	Solution of perchloride of mercury 1 in 500, to swab throat. Steam tent with carbolic acid.	
22	213	F	5	Aug. 3	34	R	One brother attending Woodside School had sore throat 4 weeks previously, 2 other brothers and mother attacked.	——	Both tonsils swollen and covered with white exudation. Some on uvula. Glands at angle of jaw enlarged. Temp 102·6. Pulse 130. Trace of albumen in urine.	Albumen in urine for 3 weeks. No complications.	Throat swabbed with solution of perchloride of mercury 1 in 500.	
23	218	F	50	Aug. 30	15	R	Indefinite.	Throat sore on Aug. 29th.	Throat congested, with small white patches, resembling follicular tonsillitis.	Albumen in urine for 13 days. No complications.	Throat swabbed with solution of perchloride of mercury 1 in 500. Nose syringed with lotion of boric and salicylic acids.	
24	219	M	10	Aug. 30	15	R	Attended Woodside Schools.	Sore throat on 27th.	Throat congested. No membrane on tonsils or uvula. Some greyish exudation adherent to posterior pharyngeal wall. Glands enlarged. Breath and tongue foul. Reflexes present. No albuminuria.	No complications.	——	
25	220	F	6	Aug. 30	15	R	Attended Woodside Schools.	Sore throat on 26th.	Throat congested. Membrane visible. Systolic apical murmur. Temp. 100. No albuminuria. Reflexes present.	No complications.	Throat swabbed with perchloride of mercury 1 in 500. Nose syringed with boric acid lotion.	Distinct choreic movement noted on Sept. 5th, when she got up.

TABLE VII.—Cases of Diphtheria admitted during official year, April 1st, 1894, to March 31st, 1895.

No.	Register No.	Sex.	Age.	Date of Admission.	Days in Hospital.	Result.	Ætiology.	History.	State on Admission.	Course and Complications.	Treatment.	Remarks.
26	221	F	5	Sept. 1	14	R	Attended St. Mary's Schools.	Complained of sore throat on Aug. 24th.	Pharynx and tonsils congested. No membrane. Glands at angle of jaw enlarged. No albuminuria.	Uninterrupted recovery.	Solution of perchloride of mercury to swab throat Iron wine.	
27	228	F	5	Sept. 12	35	R	Indefinite.	Headache for 2 days, sore throat on Sept. 10th.	Both tonsils enlarged. Small grey patch on right. Temp. 101. Pulse 120. No albuminuria.	Uninterrupted recovery.	Solution of perchloride of mercury. 1 in 500, to swab throat.	
28	229	M	2½	Sept. 12	35	R	Brother of No. 27.	Sore throat on Sept. 11th.	Tonsils congested. Small grey patch on right one. Temp. 102. Pulse 124. No albuminuria.	No complications.	Solution of perchloride of mercury, 1 in 1,000, applied locally.	
29	230	F	$1\frac{8}{12}$	Sept. 13	34	R	Three cases in vicinity.	Been ill 10 days.	Thick white patches on both tonsils, and on pharyngeal wall. Voice hoarse.	Albuminuria for 3 weeks. Progress uneventful.	Solution of perchloride of mercury applied locally. Steam tent impregnated with caustic potash.	
30	234	M	$1\frac{1}{12}$	Sept. 19	2	D	Indefinite.	Sore throat on 18th.	Grey patch on tonsils and uvula. Laryngeal stridor. Bronchitic râles on both lungs.	Sept. 20th, much weaker. Coarse râles all over chest.	Solution of perchloride of mercury applied locally. Steam tent.	
31	238	F	3	Sept. 27	3	D	A relative had recently had diphtheria staying in house.	Taken ill on Dec. 24th.	Thick white patches on tonsils and pharynx, offensive smell, and nasal discharge. Glands at angle of jaw enlarged Temp. 100. Pulse 132. Knee-jerks absent. Urine contained a trace of albumen.	Regurgitation of food on 28th Sept. Urine contained one-eighth albumen Persistent vomiting and diarrhœa, with suppression of urine for 36 hours prior to death.	Solution of perchloride of mercury to swab throat.	See B.M. Journal, May 11th, 1895.
32	239	F	6	Oct. 1	28	R	—	Headache and sore throat on Sept. 29th. Rash on Sept. 30th.	Both tonsils enlarged; small white patches on each. Tongue foul. Heart irregular. No albuminuria.	No complications.	Glycerine of carbolic acid 1 in 40 applied to throat every 2 hours.	Certified scarlet fever.
33	253	M	7	Oct. 23	13	R	Indefinite.	Ailing 3 weeks. Treated by chemist.	Small white patch on left tonsil and on right posterior pillar of fauces. Glands enlarged. No albuminuria.	No complications.	Solution of acid citric to syringe throat every 2 hours.	Not regarded as diphtheria.

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No.	Register No.	Sex.	Age.	Date of Admission.	Days in Hospital.	Result.	Ætiology.	History.	State on Admission.	Course and Complications.	Treatment.	Remarks.
34	230	F	26	Oct. 20	41	R	Husband and child had previously had sore throats.	Sore throat on Oct 16th.	Membrane on both tonsils and uvula. Glands enlarged. Trace of albumen in urine.	Albumen varied from one-fifth to one-twelfth till Nov. 2nd finally cleared up on Nov. 20th. Voice nasal, and some difficulty in swallowing on Oct. 23rd. Reflexes normal. Nov. 17th, paralysis of accomodation.	Condy's fluid to wash mouth. Solution of perchloride of mercury to swab throat.	When discharged voice was nasal. Eyesight improved. No paralysis of legs. Said to have had paralysis of legs subsequent to discharge.
35	255	F	8	Nov 6	21	R	Sister of No. 32.	Headache on Nov. 5th. Sore throat on Nov. 6th.	Right tonsil much swollen and red, with a small ulcerated surface and a patch of membrane about size of a 3d. piece to which uvula was adherent. Left tonsil enlarged, but no membrane on it. Glands on right side swollen and tender. No nasal discharge. Face a good colour. Heart and lungs normal. Trace of albumen in urine. Temp. 101. Pulse 132. Resp. 34.	Nov. 7th, slight epistaxis Nov. 8th, epistaxis recurred, and piece of membrane came away from left nostril. Temp. rose to 105. Patient drowsy. Nov. 9th, extension of membrane on right tonsil, and a small patch on left. Temp. 99 4 Nov. 11th, severe epistaxis at 12.30 a m., during which a large piece of membrane discharged from nostril. Recurrence at 4 a m., membrane still present on both tonsils Nov. 12th, throat clean. No complications. Albuminuria lasted 15 days.	Throat sprayed with solution of chlorinated soda and chlorate of potash. Nov. 8th, throat swabbed with solution of perchloride of mercury. Nov. 15th, nose and throat syringed with lotion of boracic and salicylic acids.	
36	269	M	11	Dec. 8	35	R	Previous sore throats in family.	Felt ill on Dec. 1st. Throat sore and neck swollen on Dec. 4th.	Both tonsils and uvula swollen. Large patch of membrane on left tonsil. A smaller patch on right tonsil and on uvula. Slight nasal discharge. Glands enlarged. Colour good. Heart and lungs unaffected. Temp. 100. Pulse 88.	Dec. 14th, no membrane on throat, with exception of small patch on uvula. Dec. 20th, throat quite clean. Good deal of nasal discharge. Jan. 5th, nasal discharge ceased. No paralysis. Albumen in urine for 14 days.	Citric acid 10 per cent. to syringe nose and throat every 4 hours. Dec. 10th, glycerine of carbolic acid to paint on throat. Dec. 18th, glycerine of tannic acid to paint throat, and nose syringed with salicylic acid lotion.	
37	270	M	8	Dec. 9	29	R	——	Was hoarse on Dec. 5th. Sore throat on Dec. 6th.	Tonsils swollen and red. A small yellow patch on right tonsil. None on uvula or left tonsil. Glands enlarged. Voice hoarse.	Dec. 14th, throat clean Some nasal discharge. Jan. 6th, nasal discharge ceased. No complications.	Gargle of chlorate of potash. Throat painted with glycerine of carbolic acid. Nose syringed with salicylic acid lotion.	Contracted scarlet fever on Jan. 7th, and after transference to scarlet fever ward had some cardiac irregularity.

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No.	Register No.	Sex.	Age.	Date of Admission.	Days in Hospital.	Result.	Æticlogy.	History.	State on Admission.	Course and Complications.	Treatment.	Remarks.
38	275	M	8	Dec 18	36	R	Indefinite.	Sore throat on Dec. 17th.	Tonsils and uvula enlarged. No membrane visible. Nasal discharge. Glands enlarged. Systolic-apical murmur and cardiac impulse diffused. No albuminuria. Red blush on trunk. Temp. 101. Pulse 132.	Dec. 20th, throat clean. Both nostrils blocked. Double aural discharge. Ichthyosis of skin of chest and legs. Dec. 21st, profuse nasal discharge. Jan. 18th, cardiac impulse diffused, and heart's action irregular. Skin rough and desquamating on back and legs. Throat congested with a little secretion on tonsils. Jan. 26th, heart regular.	Nose and throat syringed with chlorate of potash. Jan. 18th, mixture of digitalis and iron three times a day.	
39	278	M	6	Dec. 28	3	D	House said to be damp. Several cases in road recently.	Vomited on 23rd. Complained of pain in neck on 26th.	Throat congested, with grey patches on tonsils and uvula. Cervical glands enlarged. Laryngeal stridor.	Breathing got worse and patient became cyanosed. Tracheotomy performed. Some membrane came through tube. Jan. 1st, died suddenly of syncope.	Throat swabbed with solution of citric acid. Tracheotomy. Steam tent, etc.	
40	280	F	5	Dec. 28	58	R	——	Has had a sore throat since leaving scarlet fever ward 2 months ago.	Patches of membrane on both tonsils. Cervical glands enlarged. No nasal discharge. No albuminuria.	Jan. 6th, throat clean Some membrane syringed from nose. Temp. on Dec. 29th and 30th, 104. and subsequently normal till Feb. 12th. Jan. 2nd, a little cardiac irregularity. Feb. 12th, septic sore throat. Temp. 106. On Feb. 15th, temp. 104. Subsequently normal.	Glycerine and carbolic acid to swab throat. Nose syringed with chlorate of potash. Feb. 12th, solution of mercury to swab throat.	Bacteriologically confirmed. On Feb. 12th, recrudescence occurred. Throat presented clinical appearance of diphtheria, but no constitutional symptoms and no bacilli found.
41	1	M	3	1895 Jan. 1	73	R	Indefinite.	Taken ill on Dec. 30th.	Throat very dirty. Considerable quantity of membrane on tonsils and uvula. Cervical glands enlarged Lungs clear. Heart sounds, regular but feeble. Pulse weak. Temp. 101. Pulse 120. Resp. 40. Trace of albumen in urine. Knee-jerks absent.	Jan. 3rd, nasal discharge. Throat still very dirty. General condition improved Jan. 6th, throat cleaner, some membrane from nose, a few rhonchi, and impaired resonance at bases of lungs. Jan. 16th, throat quite clean, lungs clear. Feb. 6th, tendency to syncopal attacks after getting up. Occasional intermission in heart sounds, lasting 3 days. Temp. 100 to 102 for 4 days. No paralyses.	Glycerine and carbolic acid to swab throat every 4 hours. Nose syringed with salicylic and boric acids. Steam tent, etc.	Bacteriologically confirmed. Double aural discharge for last 18 months. Superficial abscess behind right ear opened. Subsequently developed signs of mastoid abscess and was discharged at request of parents.

TABLE VII.—Cases of Diphtheria admitted during official year, April 1st, 1894, to March 31st, 1895.

No.	Register No.	Sex.	Age.	Date of Admission.	Days in Hospital.	Result.	Ætiology.	History.	State on Admission	Course and Complications.	Treatment.	Remarks.
42	2	F	8	Jan. 3	66	R	——	Sore throat on Jan. 1st.	Both tonsils enlarged and red. A small white patch on left tonsil. Glands at angle of jaw enlarged. Colour good. Heart and lungs normal. No nasal discharge. Reflexes present.	Jan. 10th, throat clean. Jan. 24th, irregularity and intermission of heart sounds. Systolic-apical murmur, which continued until Feb. 27th. Feb. 5th, paralysis of accomodation. Knee-jerks present. No regurgitation of food. Trace of albumen in urine for 20 days.	Glycerine of carbolic acid to swab throat. Mixture of digitalis and iron three times a day.	Bacteriologically confirmed.
43	3	M	16	Jan. 3	25	R	——	Sore throat on Dec 31st.	Tonsils and uvula red and swollen. Large patch of membrane on left tonsil and uvula. Cervical glands enlarged. Colour very good. No constitutional symptoms.	Jan. 7th, membrane extended to right tonsil, and soft palate. Jan. 10th, throat quite clean. No complications.	Glycerine and carbolic acid to swab throat. Nose syringed with salicylic acid lotion.	Bacteriologically confirmed.
44	6	M	4½	Jan. 9	2	D	——	Said to have had bronchitis and influenza on Jan. 3rd. Sore throat on the 8th.	Throat very dirty and offensive. Uvula and tonsils œdematous and covered with easily detached tough membrane Nose completely blocked, dirty and offensive. Glands considerably enlarged. Purulent ophthalmia in both eyes. Impaired resonance and crepitations at both pulmonary bases. Colour pale. Temp. 102. Pulse 128. Resp. 36.	Jan. 10th, Glands in neck considerably more swollen. Face pale and puffy. Large quantity of offensive membrane in throat. Profuse offensive nasal discharge. Heart sounds feeble. Vomited twice. A trace of albumen in urine. Considerable systemic infection. Death occurred from cardiac failure.	Steam tent, etc. Ice bag to neck. Solution of perchloride of mercury 1 to 500 locally. Nose syringed with boric acid lotion. Jan. 10th, hypodermic injection of digitalin gr. one twenty-fifth.	Bacteriologically confirmed.
45	7	F	33	Jan. 11	19	R	Mother of No. 44.	Sore throat for 2 days.	Small patch of membrane on left tonsil. Glands not enlarged No constitutional symptoms.	Jan. 15th, throat quite clean. No complications. No albuminuria.	Throat swabbed with solution of perchloride of mercury.	Bacteriologically confirmed.

TABLE VII.—Cases of Diphtheria admitted during official year, April 1st, 1894, to March 31st, 1895.

No.	Register No.	Sex.	Age.	Date of Admission.	Days in Hospital.	Result.	Ætiology.	History.	State on Admission.	Course and Complications.	Treatment.	Remarks.
46	8	F	5	Jan. 13	69	R	——	Taken ill on January 12th.	Tonsils red and swollen. Large patch of membrane on left tonsil and a smaller patch on right. None on uvula. Cervical glands enlarged. Heart and lungs unaffected Temp. 100·4. Colour good. Albumen in urine varied from one-fourth to one-twelfth for 7 days, and then gradually disappeared.	16th, vomiting set in; face pale; membrane still on throat. 18th, signs of cardiac dilatation; face pale and puffy; glands more enlarged; throat oedematous, very dirty and covered with a white sloughy looking material; vomiting continued and prostration was extreme. This condition lasted with very little change till Jan. 27th, voice was then nasal and knee-jerks absent; throat was beginning to improve and vomiting was less persistent. Improvement continued, and on February 1st she took solid food. Prostration was extreme with considerable emaciation, and convalescence very slow.	Glycerine of carbolic acid, 5 per cent., to swab throat. January 17th, nutrient enemata every 4 hours, steam tent, &c., solution of perchloride of mercury 1 in 500 locally, mixture of iron and digitalis. January 21st, antitoxin 10 c.c. injected, and repeated at intervals of 12 and 24 hours. February 2nd, nutrient enemata discontinued.	The noticeable features about this case were: (1) Persistent vomiting. (2) sloughy condition of throat, which shewed no improvement for 14 days. (3) Prolonged and extreme prostration. Bacteriologically confirmed.
47	9	F	8	Jan. 13	75	R	Sister of No. 46.	Taken ill on January 5th.	Tonsils red and enlarged. A small piece of membrand behind right anterior pillar of fauces. Cardiac impulse diffused. 1st sound weak. Temp. 100, pulse 100, resp. 16. Urine contained albumen for 25 days.	17th, throat quite clean, vomited once. 18th, complained of earache; heart's apex outside nipple line; systolic apical murmer. 19th, face pale; pulse feeble; vomiting set in and continued more or less till 28th. On 21st, voice was nasal, knee-jerks absent. On 28th, vomiting ceased and convalescence commenced. Heart still very weak. No further complications.	Glycerine of carbolic acid, 5 per cent. to paint throat. Mixture of iron and digitalis. January 19th, nutrient enemata every 4 hours. January 28th, enemata discontinued.	Presented same symptoms as her sister, though throat affection was very slight. Bacteriologically confirmed.

TABLE VII.—Cases of Diphtheria admitted during official year, April 1st, 1894, to March 31st, 1895.

No.	Register No.	Sex.	Age.	Date of Admission.	Days in Hospital.	Result.	Ætiology.	History.	State on Admission.	Course and Complications.	Treatment.	Remarks.
48	10	F	7	Feb. 4	25	R	—	Vomited on 3rd. Throat and neck swollen on 4th.	Tonsils enlarged and covered with grey easily detached membrane. Uvula œdematous. Glands enlarged. Breath offensive. Colour good. 1st cardiac sound feeble. Lungs clear. Nasal discharge. Reflexes present. Temp. 102, pulse 128, resp. 24.	February 6th, at 10 a.m., no change; glands rather more swollen; temp. at 4 a.m. 101, but fell to 98 after an action of the bowels; urine contained no albumen. February 7th, general condition improved; throat much cleaner; a large fleshy piece of membrane syringed away; nasal discharge less. February 11th, throat quite clean; knee-jerks present; no albumen in urine; February 12th, localised erythematous rash at seat of injection, which lasted 3 days, and was accompanied by albumen in the urine, which lasted 12 days.	February 5th, at 11.20 a.m., antitoxin 20 c.c. injected.	Bacteriologically confirmed.
49	16	F	6	Feb. 18	73	R	Brother died of diphtheria on 17th. Cat killed, having offensive discharge from mouth and ears. Child's throat painted with same brush as her brother's.	Indefinite. Had sore throat for 3 or 4 weeks, gathering in ear at same time.	Both tonsils enlarged and covered with thick white adherent membrane. Uvula enlarged but free from membrane. Cervical glands enlarged, Laryngeal cough and stridor. Face pale. Heart unaffected. Breath sounds at bases of lungs weak. Knee-jerks absent. Trace of albumen in urine. Superficial abcess behind left ear.	February 19th, a large quantity of pultaceous membrane syringed from throat. 20th, cough still laryngeal; some impaired resonance and prolonged expiration at right pulmonary apex. 21st, colour pale; food entered larynx; a few râles at right apex; throat clearer; cough less laryngeal. On 22nd, 23rd, 24th, and 25th, troublesome urticaria was present. On March 4th, developed acute rheumatism and pericarditis. 15th, pericardial effusion cleared up. Attacks of cardiac, irregularity and intermission recurred almost every night, from March 7th to April 10th. On March 28th, relapse of rheumatism, intestinal paresis with obstinate constipation and slight vomiting, which yielded to enemata.	Antitoxin 20 c.c. injected. Throat sprayed with boracic lotion. February 21st, fed with nasal tube for 12 days. March 4th, salicylate of soda grs. vii, every 4 hours. Daily, simple enemata.	Bacteriologically confirmed.

TABLE VII.—Cases of Diphtheria admitted during official year, April 1st, 1894, to March 31st, 1895.

No.	Register No.	Sex.	Age.	Date of Admission.	Days in Hospital.	Result.	Ætiology.	History.	State on Admission.	Course and Complications.	Treatment.	Remarks.
50	19	F	3	Mar. 9	38	R	—	Croup on March 6th.	Tonsils enlarged and covered with thick adherent membrane, which extended on to uvula and soft palate. Considerable laryngeal obstruction Heart unaffected. One-third of albumen in urine. Knee-jerks absent.	11th, throat about the same, some membrane came through tube. 13th, throat much cleaner. March 20th, food entered larynx. No further complications except some transient urticaria.	Antitoxin 20 c.c. Tracheotomy. March 10th, antitoxin 10 c. c. March 13th, injection repeated. 20th, nasal feeding for 10 days.	Bacteriologically confirmed.
51	23	M	6	Mar. 24	2	D	—	Bronchitis on 21st.	No membrane visible. Throat red and congested. Considerable laryngeal obstruction. Heart unaffected. Trace of albumen in urine.	Tracheotomy performed and patient was comfortable for 12 hours after, when vomiting and syncopal attacks occurred, and he died 36 hours after admission.	Antitoxin 20 c.c. injected.	Bacteriologically confirmed.
52	25	F	3	Mar. 31	25	R	—	Face and neck swollen on March 30th.	Tonsils enlarged and red, yellowish grey patches on both. Cervical glands enlarged. Colour good. Heart and lungs unaffected. No albumen in urine. Temp. 103, pulse 144, resp. 36.	On April 2nd, throat was quite clean, and child appeared well. On April 3rd, temp. rose to 103, accompanied with a fresh exudation on both tonsils of thick easily detached yellow membrane. On April 5th, several large tough pieces of membrane were syringed from throat, but it quickly re-formed; glands much enlarged; face pale; heart irregular; breath foul and general systemic infection. On 7th, throat much cleaner and less offensive and membrane pultaceous. On 9th, throat clean, general condition good. 14th, 2 slight attacks of syncope; trace of albumen in urine for 5 days.	Throat swabbed with solution of perchloride of mercury twice a day and syringed with boracic lotion. April 3rd, throat sprayed with iodine and carbolic acid. April 6th, antitoxin 20 c.c. injected. April 8th, antitoxin 10 c.c. injected.	Bacteriologically confirmed.

TABLE VIII.—Cases admitted as Diphtheria but not subsequently confirmed.

No.	Register No.	Sex.	Age.	Date of Admission.	Days in Hospital.	Result.	Ætiology.	History.	State on Admission.	Course and Complications.	Treatment.	Remarks.
1	279	F	31	1894. Dec. 28	15	R	Subject to sore throat. Daughter admitted at same time with diphtheria.	Sore throat on Dec. 26th.	Throat red. Tonsils enlarged. 2 small white patches on right side. No albuminuria.	No complications.	Throat swabbed with glycerine of carbolic acid 5 per cent.	
2	13	F	3	1895. Feb. 14	28	R	—·—	Had a fit on Feb. 13th. Throat bad on 14th.	Tonsils red and congested. A patch of grey adherent membrane on each. Cervical glands enlarged. Colour good. Heart unaffected. A little bronchitis. No albuminuria. Knee-jerks present.	No complications.	Steam tent, &c. Throat swabbed with solution of perchloride of mercury 1 in 500, and syringed with boracic lotion.	
3	17	F	9	Feb. 20	19	R	Considerable amount of throat illness in the vicinity. Child attended St. Saviour's school, being in same class with a girl now in hospital with confirmed diphtheria.	Headache on Feb. 16th. Sore throat on 17th.	Tonsils enlarged and covered with thick yellow loosely-attached exudation. Cervical glands enlarged. No albuminuria. Reflexes well marked.	No complications.	Throat swabbed with solution of perchloride of mercury, and syringed with boracic lotion.	
4	18	F	10	Mar. 7	26	R	School attendance.	Headache on March 6th. Sore throat on 7th.	Both tonsils covered with white adherent membrane. Glands slightly enlarged. Colour good. Reflexes absent	March 9th a large piece of membrane syringed away from throat leaving a raw bleeding surface, over which fresh exudation occurred next day. 15th, throat clean, a good deal syringed away.	Throat swabbed with solution of perchloride of mercury 1 in 500, and syringed with boracic lotion.	Though bacteriologocally unconfirmed, there was no clinical distinction from diphtheria.
5	20	F	8	Mar. 18	65	R	——	——	A few small yellow patches on tonsils. A good deal of laryngeal stridor and obstruction Temp. 103 Knee-jerks absent.	Tracheotomy performed, several large pieces of membrane coughed up, through tube. March 22nd, liquids entered larynx. 25th, wound unhealthy and sloughy, offensive smell, septic temperature, lasted 3 days. April 10th, developed endocarditis, which subsided, and eventually she made a good recovery.	Antitoxin 20 c.c. injected. Tracheotomy. 25th, nasal feeding.	Developed scarlet fever rash 36 hours after admission. Temp. high for several days. Though cultivations taken from throat yielded no typical bacilli there was no clinical distinction from diphtheria co-existent with scarlet fever.

TABLE VIII.—Cases admitted as Diphtheria but not subsequently confirmed.

No.	Register No.	Sex.	Age.	Date of Admission.	Days in Hospital.	Result.	Ætiology.	History.	State on Admission	Course and Complications.	Treatment.	Remarks.
6	24	M	5	Mar. 29	2	D	——	Ill 4 days previous.	Tonsils enlarged. Considerable laryngeal obstruction. Harsh breathing over both bronchi. Throat very dirty with greyish yellow patches.	Tracheotomy performed, and membrane coughed through tube, but there was considerable extension to smaller bronchi.	Tracheotomy.	
7	26	F	2½	Mar. 31	21	D	——	Sore throat on March 31st.	Tonsils enlarged and red. Small grey patch on left tonsil. Cervical glands enlarged. No nasal discharge. Colour good. Heart and lungs normal. Reflexes present. Temp. 100. Pulse 124.	April 2nd, throat clean and remained so for 5 days; child quite well. April 9th, temp. 102; throat red & congested; grey patches on each tonsil; no vomiting; red rash on body, which lasted 3 or 4 hours. 10th, temp. 104; throat covered with membranous exudation; reflexes present. 11th, temp. normal & throat clean. 12th, fresh formation of membrane on throat; nasal discharge; offensive smell; glandular enlargement increased. 16th, throat and nose better. 17th, vomiting commenced and persisted several days; quantity of urine gradually diminished, and albumen increased, and suppression of urine occurred 36 hours before death.	Solution of perchloride of mercury to swab throat, and syringed with boracic lotion. Apl. 15th antitoxin 10 c.c. injected. 16th, antitoxin repeated. 17th, nutrient enemata. 19th and 20th, vapour baths.	The throat affection for which she was admitted yielded no bacilli and was of a very slight nature. The 2nd attack presented all clinical signs of diphtheria, but though repeatedly examined was never confirmed bacteriologically.