Fifteen Cases of Diphtheria. with remarks.

By.

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Fifteen Cases of Diphtheria with Remarks.

In this district, as in others in Perthshire, we had, in the late autumn and winter months of 1892, what cannot be otherwise termed than an epidemic of sore throats. Almost every child and young person were affected. In some districts of the county it was accompanied by Scarlet Fever, while in others districts the disease accompanying it was Diphtheria. The following cases of diphtheria occurred in my practice at that time. An Epidemic of Scarlet Fever followed, in the same locality, exactly a year later, but none of those who were affected with the Diphtheria suffered from it.

Case I. J. D. Aet. 6 years.
He has had repeated attacks of Tonsilitis, consequently, his Tonsils are in a chronic state of enlargement.
I saw him on 1st Oct, 1892, when he had acute Inflammation of the Tonsils and general redness all over the mucous membrane of the throat. Pulse 120, Temperature 102° and Respirations 28. No enlargement of glands in the neck, but pain on pressure at the angles of lower jaw.
I ordered steaming of the throat and poultices, and gave him a tea spoonful every four hours of a mixture containing, Pot. Chlor. ʒii. Tr. Ferri Mur. ʒiv. Aq ad ʒiv.
The diet to consist of liquid food, such as Milk, beef tea, Chicken tea, Soups and Gruel, all to be given in small quantities and at frequent intervals.

He remained in this same state till the 7th, when a croupy cough developed. His temperature rose to 103·6. Pulse 130 and respirations 30. The inflamed surface appeared to be of a deeper red colour and presented three dirty white spots, the size of pin heads, on each Tonsil. I touched these spots with solid Nitrate of Silver, and had the throat brushed with Tincture of Iodine night and morning. Ordered a tea spoonful of Brandy to be given every four hours, and continued the former treatment.

On inquiry I found that he attended Pitcairngreen Public School. That the greater number of the children, attending that School, were suffering from sore throats. Their water supply was from the river Almond, and their milk supply from a farm

in the neighbourhood. No drains were known to exist in connection with the house, The walls were damp and woodwork crumbling with rot.

On the 12th his voice was reduced to a husky whisper, Deglutition was performed with difficulty, and Albumen was present in the Urine; otherwise his condition was the same as on the 7th

I ordered him injections of beef tea and milk per rectum. The Brandy to be given every two hours and administered in a similar manner, if found necessary.

On the 13th his pulse was 120, Temperature 102·2 and respirations numbered 24. The cough was not so frequent, but worse at night. No improvement in Voice or deglutition.

I changed the mixture for the following:-

℞.

Liq. Strych. ℥ss
M. Ferri Mur. ℥i ℈ss
Aq ad ℥ii

Sig. ℥i every four hours.

20th no change in voice or deglutition, as yet. Continued the above mixture. He is otherwise much improved. Albumen is much less in the Urine.

From this time there was a slow but gradual improvement noted. By the end of November he was practically recovered and was able to move about as usual.

Case II. M. G. aet. 6 years. She has been a delicate girl all her life. Attends Pitcairngreen Public School, and resides about a mile from Case I.

Milk supply is from Whitelays Farm, Water supply is from a well situated within thirty yards from a dung hill. No drains in connection with the house so far as known. The walls are damp.

I was called to see this girl on 7th Oct. 1892, when she complained of a sore throat. The tonsils, fauces, and soft palate were of a dark red colour, very little swelling of the tonsils. No spots to be observed on the mucous membrane. Tenderness at angles of the jaw, but no perceptable enlargement of the glands. Pulse 130. Temperature 103. Respirations 30.

The same treatment was applied as in the first case, but, as the weakness was much more marked, a tea spoonful of Brandy was given

every hour, and beef tea administered, per rectum, from the first.

10th Decidedly worse, croupy cough developed, but no great obstruction to breathing. There was an irregular patch of membrane on right Tonsil, which readily came off on brushing with Tincture of Iodine. There was no blood to be observed on the surface underneath it.

She gradually sank and died at 4 A.M. next morning

Case III. J. F. Aet. 7 years. Also attends Pitcairngreen Public School. Milk supply is from Pitcairngreen Inn Farm. Water supply is from a burn, the water of which has been condemned.

I saw this girl on 9th October and found her suffering from

an inflamed throat, with croupy breathing and cough. There were no spots on the inflamed surface. The glands at the angles of the jaw, were slightly enlarged and tender. Temperature 107·2. Pulse 110, and Respirations 26.

I ordered steaming of the room with a kettle containing one percent solution of Carbolic acid, also steaming of the throat with hot water, and poultices applied externally, and gave Chlorate of Potash and Tincture of Steel every four hours.

10th There were several spots of membrane observed on the Tonsils and fauces, I touched them with Nitrate of Silver, and ordered brushing with Tincture of Iodine thrice daily. The Temperature, now registered

103·8. Pulse 136. Respirations 30.
12th Patient much the same as on the 10th. The Brandy, which had been given regularly every hour, was now given every half hour, And milk or beef tea was given every hour. She rapidly sank and died at 7 P.M.

Case IV. R. T. Aet. 9 years. Also attends Pitcairngreen Public School. Milk supply is from Pitcairngreen Farm. Water supply is from a well and from the river Almond. The walls of the house are damp. I saw him first on 12th October, suffering from a sore throat of three days duration. The throat was of a deep red colour, with a white patch, the size of a sixpence, on each Tonsil. Tenderness at angles of jaw, but no apparent swelling of

the glands. No cough or difficulty of breathing. Respirations 22. Temperature 99.6, Pulse 96.
I painted the throat with Tincture of Iodine, when the patches were removed, and there was no apparent abrasion of the surface underneath. I had the throat well rolled up with cotton wool, and gave him internally every four hours. in water.

℞. Pot. Chlor. Pulv. ℈ VIIII
Tr. Ferri. Mxx ℥ VIIII

For food, a cupful of milk or beef tea was given every two hours. A teaspoonful of Brandy was also given every hour, but not to be given immediately after milk, as it was inclined to produce Nausea.
The room was regularly steamed with Carbolic Solution of the strength of one to fifty parts.

13th. The false membrane is again present. Iodine reapplied, and the Brandy increased to a dessert spoonful.

He remained in this state till the 24th, when the Symptoms quickly dis-appeared, and he remained well till the 1st of November, when his former Symptoms reappeared, and on that date his condition was exactly as when I saw him on the 12th October. Under the same treatment these Symptoms rapidly dis-appeared in the course of three days, and the little fellow made a complete and good recovery.

Case V. A. J. Aet. 5½ years. Attends Methven Public School, and resides over three miles from the former cases. Milk supply is

from Cloag Farm. And water supply is conveyed by gravitation to the house from a Spring about a quarter of mile distant.

1st Nov. He felt wearied and very sleepy. At 11 PM his temperature was 103, pulse 130. respirations 28. Profuse perspiration was present. Tonsils were enlarged and red. He was excited, nervous and starting up in his sleep. I gave him two grains Antipyrin and he slept well after it.

2nd He appears to be much better. His Temperature is 99 and pulse 96

He continued in this state till the morning of the 5th Nov. when the temperature again commenced to rise. It now registered 101·2 with a pulse of 120; and he complained of a soreness at the angles of the jaw when touched.

a small patch of white membrane was observed on the right tonsil. There was a slight cough, not of a croupy nature.

We kept the room constantly steamed from a kettle containing a two per cent solution of carbolic acid and applied a few poultices to the throat I also gave him a teaspoonful of the following mixture every four hours:

℞.
P. Pot. Chlor. ℥i
M. Ferri Mur ℥ii
Aq ad ℥iv,

and had a teaspoonful of Brandy administered every two hours.

For food, milk was given at frequent intervals, varied with beef tea, chicken tea or Valentines meat juice.

In the evening the poultices were discontinued and cotton wool and flannel applied round the neck, and the throat was brushed, internally, with Tincture of Iodine.

6th Rested well, another patch on left Tonsil.

7th Appeared to be doing well till 8 P.M., when the cough became troublesome and croupy. Temperature 100·2. Pulse 108. Gave enema to open bowels, very offensive matter passed.

8th Restless night, Sleep much disturbed by the croupy cough, and laryngeal breathing. The patches are extending over the mucous membrane of the throat. Temperature, at 3 A.M. was 97 and at 8 a.m. 101·2. Pulse irregular and weak, about 120. Vomiting medicine.

Dr, Stirling, of Perth, saw him, with me, at noon, and advised the administration of:-

℞ Sulpho-carbolate of Soda ℈iiii
Glycerine ℥ss
Aq ad ℥iv ℥i

to be given every four hours. Also 3 grains of Quinine every six hours, and the application of a rag soaked in the following liniment over the Stomach.

℞. Chloroformi ℥i
M. Belladonnae ℥viii,

The rag to be covered with flannel after application. Iced Champayne was also given, but he fought so much against it that we thought it advisable to give it up. Port Wine was tried with a similar result. So the Brandy and Soda was resumed every hour.

milk or beefted was given every hour. There is a slight difficulty in swallowing.

10th Vomiting stopped, so commenced to give three drops of Tincture of the Perchloride of Iron every four hours. Patches, in the throat, more extensive, but vary in extent from time to time. Temperatur Variable; at 8 am. the Thermometer registered 99·8, at 12 noon 101·4 and at 8 PM 100·4. Pulse also variable, from 108 to 140. It is irregular and weak. Laryngeal breathing is very marked. The glands in the neck are much swollen and tender.

The throat was sprayed every two hours with undiluted Sulphurous Acid.

11th Evening. Throat completely covered with membrane,

and a gurgling noise in the Larynx. Nostrils partially stopped from the extension of membrane to the posterior nares.
Continued the spraying both by the nostrils and mouth, and increased the Iron to 5 minims, with 8 grs of Chlorate of Potassium, every 4 hours.
12th During the night the feet legs and skin generally, were covered with a cold Clammy sweat. Hot Bottles were applied to the feet and sides. at 8 a.m. his breathing was oppressed, and the cough was very troublesome, The voice was whispering and nasal. Soft Râles down Larynx and over front of the chest. Free discharge from the nose. The Temperature at 8 a.m. was 96·8, rising to

101·2 at 10 P.M. Pulse variable about 140. Heart sounds are good. Urine is very albuminous. Deglutition is very difficult. Gave him rectal injections of beef tea, milk, and Brandy. Meat Suppositories were also used every four hours.

13th Feeding entirely per rectum.

14th Throat very dirty, and very sloughy like. Slight smell off breath. Membrane coughed up in black sticky masses. Moist rales all through the Lungs. Skin feels cold and clammy.

15th appears a little better. Pulse 120. Temperature 99·8. Respirations 26. Expectoration seems to be rusty. He took a little milk today for the first time, swallowing it with some difficulty.

16th Signs of consolidation

at posterior base of the right Lung. Râles all over Chest. Temperature 101·8. Pulse 130. Respirations 36. Taking food better.

Applied a poultice on the back of right Lung, consisting of one part of mustard and three parts of flour, made into a paste with luke warm water and spread out very thinly on a cloth, with a thin muslin rag between the skin and surface of the poultice.

18th. His condition now is:- Pale emaciated look; very weak and prostrate; soft cough; expectoration is muco-purulent, with black sticky masses of decaying membrane; Abundant râles all over the chest; Voice is whispering and Nasal; Inspirations are

short and catchy; deglutition difficult; Bowels constipated; Urine scanty and loaded with albumen. The Temperature is 99. Pulse 108, Respirations 24. Willing to take food.

24th Lungs clearing. Albumen less in Urine.

The treatment at this stage consisted of

℞. Liq. Strych. ℥fs
℞. Ferri Mur. ℥ifs
Aq ad ℥ii

Sig. teaspoonful every 4 hours.

Massage to the intercostal muscles, muscles of throat and neck, and also those of the legs. Galvanism was applied twice a day for a short time. Regulation of the bowels by means of the enema tube, and frequent feeding with milk and potash water, beef tea, gruel,

Chicken tea or Valentines meat juice. Brandy or Burgundy wine was given six times aday. From this date there was a rapid improvement in all the symptoms, except those of paralysis, and they remained stationary till the 7th December, when the voice suddenly became its normal self, and the other symptoms slowly but gradually disappeared. By the end of Jany 1893, he could stand without support. A month later he appeared to be perfectly well and has remained so ever since.

Case VI. R. A. Aet. 7 years. Attends the Public School at Pitcaimgreen. Water supply is partly from a well in the garden and partly from

the river Almond. The Milk supply is from Pitcairn Farm. No drainage known to exist in connection with the house, They complain very much of damp walls.

I saw him on 4th Jany 1893, when he was complaining of a sore throat of eleven days duration. The Tonsils and fauces were inflamed and of a dark red colour. There were no spots. Complained of tenderness at angles of lower jaw, when touched. No swelling of glands could be made out. There was no cough. Pulse 86. Temperature 99. Respirations 20.

He had been playing with J.D. (Case I) and R.T. (Case IV) a week before he complained of his sore throat.

I suspected this to be a

Case of Diphtheria, and had him isolated and the lobby and room well sprinkled with Sanitas Powder, and gave him 4 grs of Chlorate of Potassium and 5 minims of Tincture of Steel, every 4 hours. I also brushed his throat with a strong solution of Borax in Glycerine four times a day.
He made a slow but good recovery.

Case VII. B. A. Aet. 3 months.
A sister of Case VI.
I saw this child on 10th Jany. when I found her in the following condition:- Imperceptable pulse, Temperature 100.2, skin cold and covered with a clammy sweat, rapid breathing. Tonsils, fauces, and soft palate covered with false

membrane. Inside of cheeks, lips, and tongue, spotted over with a pure white substance, which led the parents to believe that the child was suffering from a "foul stomach", the effects of feeding with biscuits and milk. There was no discharge from the nostrils, nor could any enlarged glands be discovered at the angles of the jaw. The child died three hours later.

Case VIII. Mrs. A. Aet. 39 years. Mother of the two preceeding and ~~four~~ three succeeding cases. On 12th Janry 1893, she complained of a soreness of the right breast, and slight soreness of the throat. The throat was slightly inflamed, there were no spots, no tenderness at the

angles of the jaw or swelling of glands. There was no cough, nor was the breathing in any way affected. The Temperature was 102·4, Pulse 110. The urine was slightly albuminous.
On examining the breasts, I found, on the mucous membrane of the right breast, at the base, and external side, of the nipple, and extending upwards and outwards from it over the dark areolar surface, a lozenge shaped patch of white tough membrane firmly adherent to, and impregnating, the mucous membrane and tender skin of the areola. So firmly was this membrane attached that a free rubbing with solid nitrate of silver had no effect upon it. After cauterising, I ordered it to be

dressed with Carbolic oil (1 to 20) twice a day. Three days later the membrane was completely removed, leaving a raw bleeding surface which granulated and was completely cicatrised in twenty days. With the exception of extreme weakness, she was completely recovered by the 4th Feby. This weakness continued for three months afterwards "especially in the legs". There was no definite appearance of paralysis further than a "weak tired feeling" in them.

The treatment, locally, consisted of Cauterising and then dressing with Carbolic oil 1 to 20 for three days when a strength of 1 to 40 was substituted. Internally it consisted of Chlorate of Potash and steel for the first ten days when strychnine and

Iron were administered and Massage applied to the legs.

Case IX. A. A. Aet. 16 years. Complained of a sore throat on 18th Jany 1893.
The Tonsils were enlarged and of a dark red colour, so also were the fauces and soft palate. On the posterior surface of each tonsil there was a patch of a whitish membrane, the size of a sixpence. There was slight tenderness and enlargement of the glands at the angles of the jaw. There was no cough or difficulty of breathing. Temperature 101·2. Pulse 108.
I cauterised the throat and had it sprayed every four hours with Sulphurous acid, and gave a mixture of Chlorate of Potash and

steel, also, every four hours.
She continued in this state for twelve days, when the symptoms disappeared. In three days more she felt so well as to be able to attend to the housework.

Case X. J. A. Aet. 18 years. Complained of a sore throat on the 18th Jany 1893.
The symptoms were identical to and followed the same course as in case IX, with the exception that recovery was more protracted from general weakness.

Case XI. W. A. Aet. 3 years. He complained of being cold and tired on 20th Jany 1893. I saw him on the 21st when he had a red inflamed throat. There were no patches of membrane to

be observed. The glands at the angles of the jaw were enlarged and tender, a very troublesome croupy cough was present, and the breathing was rapid and oppressed. There were no signs of disease about the lungs.
His Temperature was 104·8. Pulse 146. Respirations 48
I applied steaming of the room and throat, also hot applications externally to it, and gave, internally, Chlorate of Potassium and Tincture of the Perchloride of Iron, with free stimulation with Brandy.
22nd He died, very quietly at 3 A.M.

Case XII. J. B. Aet. 7 years. She complained of tiredness and a sore throat on the 18th Jany 1893. I saw her on the 21st Jany, when the throat was

of a deep red inflamed appearance, with a membranous patch over right Tonsil. She had a croupy Cough, and slightly enlarged and tender glands in the neck. Pulse 110, Temperature 100·8. Respirations 26.

I sprayed the throat with pure Sulphurous Acid and gave her internally Chlorate of Potash and Steel.

She continued in this condition for ten days when the Symptoms dis-appeared, and a fortnight later she was going about as usual.

She had contact with her Cousins, cases VI and VII.

The water supply was from a well in the garden and from the river Almond. Milk supply from Pitcairn Farm. There were no drains and the walls were damp.

Case XIII. R. B. Aet. 3 years.
Brother of last case.
Took ill on 22nd Jany 1893, with croupy cough, and difficulty of breathing. The throat was inflamed, but showed no appearance of false membrane. The glands in the neck were enlarged and tender. Temperature 103·8. Respirations 48. Pulse 156. I had the room kept constantly steamed, and the throat occasionally, and sprayed it every two hours with diluted sulphurous acid. I applied, also, hot applications to the throat externally, and upper part of the chest. Free stimulation with Brandy was tried and also feeding at frequent intervals, both by the mouth and rectum. I gave, also, Chlorate of Potash and Steel.
He died the following morning.

Case XIV. Mrs. H.A. Aet. 42 years.
A sister of Mrs A. Case VIII. She helped to dress the baby after death (case VII).
She resides in Methven, in a house without drains and with damp walls. Water supply from a spring well. Milk supply from a small dairy in the village.
She complained of a sore throat on 13th Jany 1893. It was of a deep red colour over fauces, soft palate and Tonsils. On the right Tonsil, there was a patch of membrane which extended backwards over the fauces. Her Temperature was 99·8. Pulse 96. There was no cough, and the breathing was normal, nor were there any enlarged or tender glands in the neck. I cauterised the patch and surrounding surface of mucous

membrane with nitrate of silver, and gave her Chlorate of Potash and Steel.
In three days the patch disappeared and she made a rapid recovery. At the end of seven days from the commencement of the attack, she was able to attend to her household duties.

Case XV. J. M°F. Aet. 46 years. He had diphtheria ten years previously and has been subject to a yearly recurrence of a sore throat ever since. He has had no contact with any person suffering from Diphtheria so far as he knows. On 21st March 1893, I saw him, when he was suffering from a sore throat of a deep red colour, similar to that we have in diphtheria. There were no

patches, but there was a slight swelling of the glands in the neck, which were painful to the touch. The Temperature was 102·4, Pulse 120. Respirations 22.

I ordered the throat to be Steamed, and applied cotton wool round the neck, and gave him, internally, Chlorate of Potassium and Tincture of the Perchloride of Iron; and the throat, gradually, recovered after seven days illness.

The water supply was from a spring well and the milk supply from his own dairy. There is a burn or semi-inclosed sewer, running in contact with the back wall of his house, which conveys sewage from the byre and dwelling houses. This is probably the cause of the recurrent sore throat.

Remarks.

The first point I will consider is the source from which the infection was derived in these cases.

The various sources from which Diphtheria may arise are said to be:-

1st Effluvia from drains, sewers and cesspools &c

2nd Contamination of drinking water with sewage or other discharge, solid or liquid, containing the contagium of Diphtheria.

3rd Contamination of milk in a similar manner.

4th Contact with the person affected, or his secretions or excretions.

5th The disease being carried from the sufferer to a healthy person, at a distance, by a third party.

When investigating the first appearance of diphtheria in any district, it is not always easy to obtain such distinct evidence of its origin, as to enable you to place your finger on the spot and say "this is the source from which all this mischief has originated".

In this small epidemic, the origin of the disease was very obscure and it was by a process of elimination that we arrived at our conclusions.

Taking the cases as a whole, we found that they lived in houses of two apartments, with the exceptions of Case V, which occurred in a house of six, and case XV, which occured in a house of five apartments. There were no drains known to exist in connection with any of the houses. The rooms were of a fair size,

varying from ten ft. by twelve to twelve by twelve. The height from floor to ceiling was from 7 ft. 2 inches to 8 ft. never more. The walls were built of Whinstone and in every instance were more or less damp. There were no cesspools near at hand and the ashpits were at a reasonable distance from the houses. These facts acted clearly against the idea that the disease had its origin from our first source, namely, effluvia from drains, cesspools, sewers &c..

Coming then to examine our second possible source, the water Supply. We could find no fault here, except in that of case III, where the water was taken from a burn and was found to be unfit for drinking or cooking purposes. Yet we could not say that this was the source

of the disease, even in this case, for the same water supplied the inhabitants of a village a mile distant from it, and none of them (numbering close on two hundred) were affected with diphtheria.

Coming next to the third possible source of infection, the contamination of the milk supply. Here we found that the milk supply to each household was from a different source, except in two instances, the A's and the B's where both households obtained their milk from Pitcairn Farm. There was no trace of disease at either the farms or dairies. So these facts clearly discredited any idea of the milk being the cause.

Our next possible source of the diphtheria is contagion,

and here we have the most likely source of all the trouble. We will now consider, specially, the first four cases which occurred within such a near interval of each other as to warrant the assumption that they had their origin from one common centre. Three things were common to them:- 1st None of them were in robust health. 2nd They attended the same school and mixed with the same playmates. 3rd They were exposed to infection from an epidemic sore throat, which was prevelant in the village, as well as in other villages in the County of Perth, among school children, an epidemic which, according to the verbal statement of Dr. Graham, The Medical Officer of Health for the County, was accompanied

by, or developed into diphtheria in some districts, and Scarlet Fever in others"

It is easy to infer that a child, exposed to an infectious sore throat, might, through constitutional weakness, idiosyncrasy, or susceptibility, aided by living in a damp house, develop the more serious disease of diphtheria. This we believe to have been the origin of the disease in this instance.

After the little boys in cases I and IV. were convalescent and out again, but prior to their return to school, it was observed that the little fellow, in case VI, was much in their company, especially in that of case IV, who lived within three hundred yards of him. Here, I believe, we have the source of the diphtheria in this case. The

infection taking place by contact with the sufferers from two to three weeks after all apparent symptoms of the diphtheria and their sequelae had disappeared. Thus giving an instance of the "late infectiousness" of the disease. (Jour. de. Med. Feb. 1888. Med. Pract. Jany 1884. P. 75)

This case (VI) was the starting point of all the others, up to and including case XIV, either by ~~direct~~ direct contact with him or with those infected by him. Case VIII, where the disease showed itself in the mother's breast, I believe to have had its origin by direct contact with the mouth of her child.

I have yet to mention cases V and XV. The yearly recurrence of the Diphtheritic throat in the latter case, I believe to arise from the partially covered in drain, sewer or burn (it was

originally a burn) running in contact with the back wall of his house, and conveying byre and other sewage. The subsoil of the house, no doubt, has become impregnated with the sewage, hence the repeated attacks of the disease.

Reverting now to case V. Here, I believe, we have an instance of our fifth mode of infection, namely, of the disease being carried by a third person from a distance, in this case of over three miles. It is true that, in this case, as in the first four, we had an epidemic of sore throats on the spot, and Dr Graham was inclined to attribute its origin to this same cause as in the others, but in this, I do not see my way to agree with him, because none of the other children, who were

similarly exposed, were similarly affected. Then we have the further possible source from a burn, running thirty yards in front of the house, which is contaminated with sewage and all sorts of rubbish, and is always in a poluted state, especially in dry seasons. The water in this burn, at the time of the seizure was frozen, and he, along with others, had been sucking the ice. But the fact that none of the others suffered from diphtheria, practically, excludes the possibility of infection from this source.

The little boy was my own son, and, I have a distinct recollection, while examining the throat in case I, of the little patient coughing some of the expectoration on my face and clothes. There is nothing more

likely than that, in this way, I was the medium through which the disease was carried to my little boy, who is given to the failing of being demonstratively affectionate. Whether we accept this as proof positive of the infection being carried from case I to case V, a distance of over three miles, or not, we have at all events, the following facts in its favour; 1st Diphtheria is present in case I. 2nd Expectoration is coughed on my face and clothes. 3rd After driving five miles and visiting other patients, I arrive home and am received by my son in his usual demonstrative fashion. 4th Four days later he falls ill with Diphtheria. 5th Against the other sources, we

have the fact, that no other child in the district, nearer than three miles, was known to be suffering from Diphtheria. These facts, to my mind, clearly show that I was the medium through which the little fellow contracted the disease, from which he so severely suffered.

After considering the source of Diphtheria we come naturally to the Symptoms. Of these I will say but little.

In some of the cases the constitutional Symptoms were out of all proportion to the local manifestations of the disease. This was specially noticed in four of the fatal cases and in case I. In others again the local Symptoms predominated, as in case V, where the temperature never

rose above 102°, on two occasions, indeed, it was found considerably below the normal, although the membrane completely covered the mucous membrane of the respiratory tract, and in case VII which proved so suddenly fatal. In others again the local and constitutional symptoms were quite in keeping with each other.

The membrane, in each case, with the exception of case VIII, where it was entirely confined to the mucous membrane of the breast, was first observed on one or other of the Tonsils

Albumen was observed in only three of twelve cases in which there was an opportunity of examining the urine.

Paralysis was present in two cases, unless we regard the "weak tired feeling in the legs"

as an indication of paralysis in that case (VIII)

Lastly, I would notice the treatment pursued in these cases. In all of them the general principles were followed 1st Of isolation and disinfection, 2nd Of sustaining strength by feeding and Stimulation. 3rd Aiding these with local applications and constitutional treatment.

Of isolation I need say nothing. Disinfectants were kept constantly in use, and the stools and urine, after receiving their share of disinfectants, were buried. The expectoration was collected on rags which were immediately burned. After complete convalescence was established the room was handed over

to the sanitary authorities for complete fumigation.

Sustaining the Strength I regarded as the most essential part of the treatment. and this we endeavoured to carry out by the administration of food and Stimulants. Brandy was given from the earliest stage every two hours and where there was a weak rapid pulse at more frequent intervals. When other forms of Stimulants were tried, they did not do so well and were given up. Food in the form of milk, beef tea, chicken tea or Valentines meat juice (when it could be had) were given every hour during the day, in small quantities, and every three hours during the night. The patient being wakened up, if found necessary, for

that purpose. The Stimulants also were given during the night. Where Swallowing was difficult or impossible the food was administered per rectum, and I believe that, in this way, the lives of, at least, two of the little patients were saved. Peptonised meat suppositories were used in case V and appeared to do very well.

The Medicinal treatment consisted, naturally, of local and constitutional remedies. The remedies which I used were, in the first place, a free application of Nitrate of Silver, followed by the brushing of the throat with Tincture of Iron three times a day. Of four cases thus treated, two recovered and two died. In the remaining eleven cases I substituted the

Sulphurous Acid spray, every two hours, for the Tincture of Iodine, when eight recovered and three died. The rooms, in which the patients were lying, were kept constantly steamed with a two per cent solution of Carbolic Acid, and inhalations of Eucalyptus were also used in several cases, but without any apparent benefit. Where the inflammation was severe, hot fomentations, or poultices, were applied to the throat externally, but as a rule, these were dispensed with, and the throat well wrapped up in cotton wool. The internal treatment consisted of Chlorate of Potash and Tincture of Steel every four hours. When these were rejected by the Stomach, and that occurred in only

one instance, Sulpho-carbolate of Soda and Quinine were given every 4 or 6 hours and Belladonna and Chloroform applied externally over the Gastric region. After the vomiting ceased, which it did in two days, we returned to our former treatment.

After the acute stage of the disease, and where we had extreme weakness or paralysis, Liquor Strychnine was given along with the iron. This, with time and massage, which the patients rather liked, we found sufficient for their recovery.

I am aware that other, and newer, modes of treatment are employed in the treatment of Diphtheria, and especially that 1 to 4000, 5000 or 10000 solution of the Bichloride of Mercury

is certain death to the organism of diphtheria (Med Ann. 1887. p. 114. Same 1891. p 145) and that a 1 to 3000 solution of Cyanide of mercury produces a like result (Med. Ann 1892. p. 183) There are a whole host of other drugs which might be used internally and externally. But we preferred the safer and simpler remedies, partly because their administration depended greatly on the care and attention of a mother or a sister, who, with unsteady hand, gives or applies the drug, either too sparingly and gingerly or with too much abundance and zeal.

I think the course of treatment, I have endeavored to sketch, more especially as to food and stimulation, gives the principles on which

the treatment of Diphtheria should be based. Granting, always, that each individual sufferer, and each separate epidemic of Diphtheria, should be treated on its own merits. Unless, indeed, the experiments of Behring and Boer (Brit. med Jour 2nd June 1894, Epit of Cur. med Lit. p. 87) should prove so successful as to revolutionise the entire treatment of this disease.