

Smith. (S. W.) *With Compliments of
the Author.*

DIPHTHERIA

AND ITS

TREATMENT

BY

SAMUEL W. SMITH, M.D.

ATTENDING SURGEON TO DEMILT DISPENSARY, NEW YORK CITY

READ BEFORE THE NEW YORK STATE MEDICAL ASSOCIATION

November 19, 1885

Reprinted from THE NEW YORK MEDICAL RECORD, March 27, 1886



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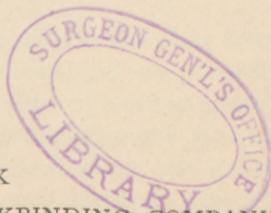
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DIPHTHERIA AND ITS TREATMENT.

MORTALITY reports establish the fact that diphtheria ranks among the most fatal diseases known to medical science, as is shown by the following statistics kindly furnished me by Dr. John T. Nagle, Deputy Register of Records in the Health Department of New York City :

Year.	Cases reported.	Deaths.	Per cent.
1880.....	3,307	1,390	42.032
1881.....	5,272	2,249	42.659
1882.....	3,507	1,525	43.484
1883.....	2,906	1,009	34.377
1884.....	2,201	1,090	49.477

An average of 42.405 per cent.

From January 1, 1885, to September 1, 1885, the statistics given me by months are as follows :

January reported 221 cases, with 101 deaths, or 45.701 per cent. ; February reported 259 cases, 110 deaths, or 42.471 per cent. ; March reported 229 cases, 118 deaths, or 51.528 per cent. ; April reported 236 cases, 103 deaths, or 43.644 per cent. ; May reported 287 cases, 116 deaths, or 40 per cent. ; June reported 253 cases, 111 deaths, or 43.873 per cent. ; July reported 202 cases, 98 deaths, or 48.514 per cent. ; August reported 133 cases, 71 deaths, or 53.383 per cent. ; September reported 149 cases, 83 deaths, or 55.711 per cent., or an average of 47.209 per cent.

Hence this disease becomes a theme of corresponding interest to every conscientious practitioner of medicine, and when one hears a physician say (as was said to the writer not long since in consultation) that he had treated scores of cases of diphtheria every year, amounting to several hundred, without a single fatal result, one is warranted in doubting the reliability of the man and justified in regarding his "facts as fictions."

Divers theories respecting the character and treatment of diphtheria are held by equally respectable authorities, which I shall not attempt

to discuss in this paper, but state such facts as appeared in the study of the following thirty cases, treated by me, as well and concisely as I can.

I came to have an extended experience in dealing with this disease, and devoted especial study to it, some four years since, in company with Dr. C. E. Billington, whose most excellent paper, read before the Academy of Medicine a short time previous, upon "Diphtheria and its Treatment," I had perused with much interest. I determined at the first opportunity to test its efficacy. Dr. Billington had several cases of diphtheria which we jointly treated, and in which we religiously followed the plan of treatment previously set forth in his paper. The result was flattering, there being two deaths in ten cases treated by us, and both had become laryngeal at the time of our first visit.

This plan of treatment, which I have adopted since it became known to me in every case I have been called upon to treat, and which I gladly make so prominent in this paper, consists in the most thorough medication of the parts affected with a solution composed of one teaspoonful of common salt to a pint of lukewarm water, to be forced with a common ear-syringe into the nostrils and throat of the patient every two hours. I added to this salt-water solution one to two drachms soda biborate, a solution to be used with a hand atomizer every half hour, composed of aqua calcis, oz. iv.; acid. carbol., gtt. x.; and the employment internally of tr. ferri chloridi with glycerine, alternated every half hour with potass. chloras.

I consider the soda biborate one of the best and least irritating of antiseptic solutions, especially to the nasal mucous membrane. The sodium chloride certainly promotes osmotic action; and when the diphtheritic membrane is not sufficiently loosened to be washed away by the stream of antiseptic solution from the syringe, this action facilitates the contact of the solution with the decomposing putrescent material underlying the diphtheritic deposit.

The iron, I believe, acts as nearly as a specific in this disease as it does in all forms of erysipelas, and in small doses, frequently repeated, is of great value for its local effect, and the glycerine seems to have a sustaining power of great value.

The large doses of tr. ferri chloridi recommended by some to children from three to five years of age—half a drachm to a drachm every hour or two—I think injudicious, unwise, and unscientific, and for this reason, if given in excess of amount entering into the circulation it must necessarily act as a local irritant to the digestive tract. It is a

recognized fact that one of the great dangers to the life of the diphtheritic patient, whether the local affection be primarily or secondary to the disease, is the septic poisoning by the absorption of the decomposing putrescent material as the result of the local necrotic process. My observation in the treatment of the disease has proved to my mind, beyond a doubt, that this local septic poisoning is the only danger to the life of the patient, except in those cases where the disease becomes laryngeal, or extends to the trachea and bronchi. Hence, I would say to those who would call upon the skin, kidneys, and intestines with their shot-gun style of administering drugs for the purpose of eliminating the poison of diphtheria, that to my mind it would be as reasonable to suppose that the septic poisoning from a decomposing retained placenta could as easily be eliminated by the use of drugs in the stomach, or a dirty-faced boy made clean by a dose of castor-oil.

FORMULÆ.

I.—℞. Sodium chlorid.....	3 j.
Sodæ biborat.....	3 j.—3 ij.
Aquæ fervens.....	Oj.

M. et Sig.—Use with a syringe into the nose and throat every two hours, lukewarm.

II.—℞. Acid. carbol.....	gtt. x.
Aquæ calcis.....	3 iv.

M. et Sig.—Use with a hand atomizer in the nose and throat every half hour.

III.—℞. Tr. ferri chloridi.....	3 j.
Glycerine.....	3 j.
Aquæ.....	3 jss.

M. et Sig.—Dose : a teaspoonful every hour.

IV.—℞. Potass. chlorat.....	3 ss.—℥ij.
Glycerine.....	3 ss.
Aquæ calcis.....	3 ijss.

M. et Sig.—Dose : a teaspoonful every hour, alternated with No. III.

When an unirritating astringent is deemed advisable, I add to No. I. formula tr. kino, 3 ss.—3 j.

Since treating the following cases, I have used with the atomizer,

instead of No. II. formula, the following formula, and am well pleased with it :

R̄. Iisterine	3 vj.
Glycerine	3 iij.
Aquæ rosæ	q. s. ft. $\frac{3}{4}$ iv.

M. et Sig.—Use with the hand atomizer instead of No. II.

I adopted this plan of treatment in the very spirit and letter of the law ; for, as Dr. Billington has so forcibly made known in his discussion on the treatment of diphtheria, it is in the little details in the care of the diphtheritic patient that success is obtained, and the neglect of these has caused many to abandon this plan for more heroic measures, or to content themselves with a constitutional remedy alone, and thus have they swelled the death-rate. Some, again, have carried out this plan of treatment in every particular, and seen, as I have seen, the disease leap from the tonsil to the pharynx, mount the pillars of the fauces, rage over the whole surface of the palate, rush into the posterior nares and Eustachian tubes to the middle ear, and, like a lurid demon, curl down into the larynx, as if mocking human opposition.

The nostrils are plugged up with diphtheritic exudation ; this is washed away, and epistaxis follows. This is controlled. The disease goes down the trachea into the bronchi ; rapidly, but secretly, the patient's system is being overwhelmed by the absorption of diphtheritic poison, unknown to the physician, threatening paralysis or cardiac thrombosis.

The little patient gets up from its cot, walks across the floor, and is seated in a chair to have its nose and throat washed out. You turn away for a moment to fill your syringe, then seat yourself before the child. A sad surprise seizes you—the little head drops on the shoulder, the face becomes purple, the eyes glassy. You lay the child quickly and gently on its cot, and hastily take out your hypodermic syringe—too late, the little sufferer is dead.

Another and another, and yet another case with like result, and the treatment is abandoned. But this is not, to my mind, a conclusive test either for or against any plan of treatment, because each case may have been of the most malignant type, or of that type necessarily fatal under any plan of treatment.

Again, you may have cases of the more simple type where any plan of treatment, or no treatment at all, would have been followed by recovery. I consider it necessary, therefore, to have at least twenty

or more cases to treat, and the given plan to be strictly followed in each case, to fairly decide as to the efficacy of any plan of treatment.

Without entering upon a discussion of the etiology or pathology of the disease, I will here observe that I had been taught, and fully believed, that diphtheria was primarily a constitutional disease, having a local expression in the throat and glands of the neck. My own experience, however, in the treatment of cases in common with Dr. Billington, and subsequently in the treatment of many other cases while Visiting Physician to Demilt Dispensary, has had the effect of entirely changing my old theories. I became convinced that diphtheria was a local disease with a constitutional expression, and all subsequent observations have confirmed and strengthened this conviction.

During the spring and summer of 1881, while I was Visiting Physician for the south district of Demilt Dispensary, I was called to see the following twenty-seven cases of diphtheria, each one of which was seen by Dr. Billington and others, experienced in the treatment of diphtheria, who confirmed my diagnosis. In 1885, the last three cases occurred in my private practice, and were also seen by Dr. Billington.

I will here beg your indulgence for a few minutes while I read in detail the history of three or four cases, which I personally attended, and which I believe justify my change of views on this subject :

CASE 4.—I was called to see S. C.—, aged four, June 12, 1881. Three or four weeks previous I had treated patient for scarlet fever. The condition of this patient was very bad. When first seen the diphtheritic exudation covered both tonsils, palate, pharynx, and extended into the nostrils. Temperature, $103\frac{1}{2}$, axillary; respiration, 30; pulse, 140; fetid breath. Vomiting any liquid or food taken into the stomach. Albumen in the urine. Treatment as given above, with a diet of milk and lime-water to be given immediately after syringing out the nose and throat.

June 13th, P.M.—Patient did not vomit after the first thorough syringing of the nose and throat, and had swallowed nearly a quart of milk during the twenty-four hours. Temperature, 101; respiration, 22; pulse, 120. From this on the patient did well.

June 18th.—Examination of patient showed no diphtheritic exudation either in the throat or nostrils; but the urine was scanty and dark-colored, containing a large quantity of albumen.

June 19th.—Patient was allowed to leave his bed and go out into the yard.

Thirty Cases of Diphtheria.

No. of case.	Name.	Age.	Date of attack.	Date when first seen.	Character of the disease.	Treatment.	Duration of disease.	Result and remarks.
1	Kate T.—	5 years.	1881. May 2.	1881. May 3.	Tonsillar and naso-pharyngeal.	Salt water and borax, with syringe-atomizer; iron and potass. chlorate, as per formula given above.	6 days.	Passed out of my hands at my second visit, and died on the sixth day of the disease. Recovered.
2	Mary D.—	8 years.	May 21.	May 22.	Tonsillar and pharyngeal.	Salt water and borax, with syringe-atomizer; iron and potass. chlorate, as per formula given above.	11 days.	Recovered.
3	Joseph K.—	8 years.	June 1.	June 1.	Tonsillar and naso-pharyngeal.	Salt water and borax, with syringe-atomizer; iron and potass. chlorate, as per formula given above.	8 days.	Recovered.
4	Samuel C.—	4 years.	June 10.	June 12.	Tonsillar, naso-pharyngeal, and laryngo-tracheal.	Salt water and borax, with syringe-atomizer; iron and potass. chlorate, as per formula given above.	9 days.	Patient died on the ninth day from the commencement of the disease. Recovered.
5	James C.—	1½ years.	June 15.	June 15.	Tonsillar and naso-pharyngeal.	Salt water and borax, with syringe-atomizer; iron and potass. chlorate, as per formula given above.	10 days.	Recovered.
6	Kate C.—	8 years.	June 15.	June 15.	Tonsillar and naso-pharyngeal.	Salt water and borax, with syringe-atomizer; iron and potass. chlorate, as per formula given above.	8 days.	Recovered.
7	James McM.—	6 years.	June 13.	June 15.	Tonsillar and naso-pharyngeal.	Salt water and borax, with syringe-atomizer; iron and potass. chlorate, as per formula given above.	6 days.	Recovered.
8	Bernard K.—	4 years.	June 17.	June 18.	Tonsillar and naso-pharyngeal.	Salt water and borax, with syringe-atomizer; iron and potass. chlorate, as per formula given above.	4 days.	Died suddenly on the fourth day of the disease. Recovered.
9	James S.—	5 years.	June 25.	June 26.	Tonsillar and naso-pharyngeal.	Salt water and borax, with syringe-atomizer; iron and potass. chlorate, as per formula given above.	10 days.	Recovered.
10	Rose R.—	4 years.	June 28.	June 29.	Tonsillar and pharyngeal.	Salt water and borax, with syringe-atomizer; iron and potass. chlorate, as per formula given above.	8 days.	Recovered.
11	Maggie O'B.—	15 years.	June 28.	June 30.	Tonsillar and pharyngeal.	Salt water and borax, with syringe-atomizer; iron and potass. chlorate, as per formula given above.	8 days.	Recovered.
12	Frances McG.—	9 years.	July 7.	July 10.	Tonsillar and naso-pharyngeal.	Salt water and borax, with syringe-atomizer; iron and potass. chlorate, as per formula given above.	14 days.	Recovered.
13	Anna B.—	3 years.	July 14.	July 16.	Labial, naso-pharyngeal, and laryngeal.	Salt water and borax, with syringe-atomizer; iron and potass. chlorate, as per formula given above.	10 days.	Recovered.
14	Mary T.—	9 years.	July 23.	July 25.	Tonsillar and naso-pharyngeal.	Salt water and borax, with syringe-atomizer; iron and potass. chlorate, as per formula given above.	13 days.	Recovered.
15	Edward C.—	5 years.	July 26.	July 26.	Tonsillar and naso-pharyngeal.	Salt water and borax, with syringe-atomizer; iron and potass. chlorate, as per formula given above.	11 days.	Recovered.
16	Michael D.—	6 years.	July 28.	July 29.	Tonsillar and naso-pharyngeal.	Salt water and borax, with syringe-atomizer; iron and potass. chlorate, as per formula given above.	10 days.	Recovered.
17	Maggie S.—	2 years.	August 6.	August 8.	Tonsillar and naso-pharyngeal.	Salt water and borax, with syringe-atomizer; iron and potass. chlorate, as per formula given above.	12 days.	Recovered.
18	Daniel S.—	5 years.	August 9.	August 9.	Tonsillar and naso-pharyngeal.	Salt water and borax, with syringe-atomizer; iron and potass. chlorate, as per formula given above.	10 days.	Recovered.
19	Ellen S.—	7 years.	September 22.	September 23.	Tonsillar and naso-pharyngeal.	Salt water and borax, with syringe-atomizer; iron and potass. chlorate, as per formula given above.	8 days.	Recovered.
20	Anna H.—	4 years.	September 22.	September 23.	Labial, tongue, naso-pharyngeal, and laryngeal.	Salt water and borax, with syringe-atomizer; iron and potass. chlorate, as per formula given above.	11 days.	Recovered.
21	Marian B.—	10 months.	October 3.	October 4.	Naso-pharyngeal.	Salt water and borax, with syringe-atomizer; iron and potass. chlorate, as per formula given above.	7 days.	Recovered.
22	Bridget F.—	5 years.	October 4.	October 5.	Tonsillar and pharyngeal.	Salt water and borax, with syringe-atomizer; iron and potass. chlorate, as per formula given above.	6 days.	Recovered.
23	John McA.—	3 years.	November 2.	November 3.	Tonsillar and naso-pharyngeal.	Salt water and borax, with syringe-atomizer; iron and potass. chlorate, as per formula given above.	9 days.	Recovered.
24	John S.—	3 years.	November 5.	November 7.	Tonsillar and naso-pharyngeal.	Salt water and borax, with syringe-atomizer; iron and potass. chlorate, as per formula given above.	7 days.	Recovered.
25	Peter M.—	7 years.	November 15.	November 18.	Tonsillar and naso-pharyngeal.	Salt water and borax, with syringe-atomizer; iron and potass. chlorate, as per formula given above.	10 days.	Recovered.
26	Charles A.—	3 years.	December 9.	December 11.	Naso-pharyngeal.	Salt water and borax, with syringe-atomizer; iron and potass. chlorate, as per formula given above.	7 days.	Recovered.
27	Michael D.—	4 years.	December 12.	December 14.	Naso-pharyngeal and laryngeal.	Salt water and borax, with syringe-atomizer; iron and potass. chlorate, as per formula given above.	10 days.	Recovered.
28	Ernest H.—	6 years.	1885. June 5.	1885. June 7.	Laryngo-tracheal.	Salt water and borax, with syringe-atomizer; iron and potass. chlorate, as per formula given above.	10 days.	Recovered.
29	Francis H.—	3 years.	June 12.	June 13.	Laryngeal, tracheal, and bronchial.	Salt water and borax, with syringe-atomizer; iron and potass. chlorate, as per formula given above.	5 days.	Died.
30	Samuel H.—	8 months.	June 15.	June 16.	Tonsillar and naso-pharyngeal.	Salt water and borax, with syringe-atomizer; iron and potass. chlorate, as per formula given above.	7 days.	Died.

June 21st.—I was called in the night to see the little patient, and found him in the last agonies of death with œdema of the lungs.

CASES 5 and 6.—Brother and sister of Case 4, aged eight years, and eighteen months respectively; took the disease June 15th. Both cases were of the tonsillar and naso-pharyngeal type. The disease in both commenced on the tonsils, spread to the palate and pharynx, and into the nostrils. The same treatment was carried out as in Case 4. In neither case did the temperature rise above $101\frac{1}{2}^{\circ}$ F. Both made a good recovery, one in eight and the other in ten days.

CASE 8.—B. K.—, aged three. Was called to see this case on the second day after the attack. Disease tonsillar and naso-pharyngeal. Breath, fetid; temperature, 103° ; respiration, 30; pulse, 140. This little patient was very intractable, so that I was never able to satisfactorily syringe out his nose and throat. He fought me to the last, and died suddenly on the fourth day of my attendance on him.

CASE 12.—Was called July 9th to see F. McG.—, aged nine. Patient first seen by me on the third day following the attack. Examination showed that the disease had spread from the tonsils to the palate, pharynx, and into the Eustachian tubes as well as the nostrils. Complete nasal stenosis. Palate and uvula very much swollen. Breathing rapid, stertorous, and breath extremely offensive. Temperature, 104° . Patient complained of severe pain in both ears. This patient was very refractory. It required the united efforts of my assistant, nurse, and the father of the patient to hold him in a chair while I syringed out his throat and nostrils. The relief to the patient was so great that two hours afterward the nurse had no trouble in using the syringe and atomizer alone.

July 11th.—Patient much improved. Temperature, 100° ; respiration, 22; pulse, 98. Exudative material almost entirely cleared from the throat. Palate ulcerated through on both sides of the uvula, so that I was able to pass my lead-pencil through the holes. Both drum-heads ulcerated, and ears discharging freely.

July 12th.—After syringing out the nostrils quite a severe epistaxis followed the operation, but was soon controlled by the use of ice. From this on the patient did well, and convalescence was fully established on the fourteenth day of the disease.

CASE 13.—Was called to see A. B.—, aged two and one-half, July 16th. Examination of the throat and nostrils showed no signs of diphtheria, but on examining the inside of the lips I found several spots of diphtheritic exudation. The disease spread to the tongue, tonsils,

pharynx, nostrils, and larynx. The same treatment as in the other cases, with recovery on the tenth day of the disease.

CASE 21.—Was called to see M. B—, aged ten months, October 4th. Patient unable to breathe through the nostrils. Nursed with difficulty and had frequent attacks of vomiting. Examination of the throat showed no signs of diphtheria. Temperature, $103\frac{1}{2}^{\circ}$; respiration, 38; pulsation, 140. Examination of the lungs gave negative results. I suspected nasal diphtheria and prescribed the usual treatment. In syringing out the nostrils the solution would pass into the throat.

October 5th.—Patient in much the same condition. Examination of the throat showed a few patches of diphtheritic membrane upon the pharynx, none to be seen on either tonsil. While syringing out the nostrils, suddenly one nostril became completely blocked up and a small portion of the diphtheritic membrane protruded from this nostril, which required considerable force with a pair of forceps to extract it. When spread out on a cloth this piece of membrane measured one inch in diameter and was about one-fourth of an inch in thickness and gave a perfect cast of the posterior nares and soft palate.

October 6th.—Patient much improved; nursing without difficulty; no vomiting; breathing about normal, and temperature $99\frac{1}{2}^{\circ}$ F. From this time on patient did well, and convalescence was fully established on the seventh day of the disease.

In referring to Cases 28, 29, and 30, I wish to bring out a point in tracheotomy for membranous croup, so called, but which my experience has taught me to call diphtheritic laryngo-trachitis. In the above cases, the occurring as they did within two weeks of each other, and in the same family, leaves no doubt on my mind as to the nature of the disease.

In Case 28, on the second day of the disease, when the breathing became very labored, pulse rapid, temperature 103° , and the features showing a want of proper aëration of the blood, I suggested tracheotomy to the parents. They would not permit the operation. The same treatment as in the preceding cases was followed. To my surprise the patient made a good recovery in ten days, except a slight hoarseness, which lasted for two or three weeks.

Case 29 was attacked, three or four days following Case 28, with precisely the same symptoms, and died on the fourth day of the disease without tracheotomy. The treatment was the same as in the former case. Hence, had I done tracheotomy in Case 28, and he had lived,

as he did without it, and then have omitted to do the operation in Case 29, I would doubtless have been wedded to the operation, which I am not.

One week following the death of Case 29, Case 30 was attacked with the disease. Its first appearance was seen on the tonsils; it rapidly spread to the palate, pharynx, and nostrils, made its appearance on the genitals, and the little patient succumbed on the seventh day of the disease.

I think there can be no doubt as to the nature of the disease in these three cases; yet Cases 28 and 29 were such as are regarded by dualists as typical of true croup rather than diphtheria.

It is proper that I should say that Dr. Billington claims nothing specific or new in the remedies, nor does my own experience lead me to believe that there is a specific for the cure of diphtheria known to the profession. However, Dr. Billington, believing the disease to result fatally if allowed to develop into blood-poisoning, and that this condition is superinduced by the absorption of decomposed gangrenous sloughs, adopted the plan of washing away the gangrenous discharge, cleansing the parts antiseptically, thoroughly, and often. The efficacy of this treatment as a preventive of blood-poisoning is most conclusively attested by the hundreds of cases it has saved, and these, too, under the most unfavorable conditions, surrounded by filth and foul air in the wretched houses of the poor of New York. In the treatment of a small number of cases there can be no just estimate formed of the value of any method of treatment. It not infrequently occurs that the first few cases coming under our observation are of a desperate character, or it may be that we are not called in until the disease has reached a stage when the system is almost overwhelmed with blood-poisoning. In these cases and at such times any plan of treatment may fail, and then we are too apt to abandon the course pursued as unavailing, or no better, at least, than other plans which have been advanced and resulted in failure. We may then solace ourselves with a few severe reflections on the fact that the highest authorities have always pronounced diphtheria a most fatal disease; that the County and State Medical Societies have reiterated this verdict, and that statistics have fixed its death-rate at no less than fifty per cent.

Confronted by this alarming rate of fatality, I determined at the outset of my contact with diphtheria to scrupulously avoid vacillating or experimenting with different forms of treating the disease, but firmly adhered to the one form in which I had fullest confidence. I

considered that the results from at least twenty or thirty cases treated were necessary before an intelligent judgment could be reached—before the plan adopted should be pronounced a failure. Therefore, when I assumed the duties of Visiting Physician of the south district of Demilt Dispensary, I decided to observe the very spirit and letter of Dr. Billington's plan of treatment. This means something more than an occasional spray of carbolic acid and lime-water, with a semi-occasional injection into the nostrils and throat of a spoonful of the salt-water solution. It means more than this, if it means anything. It means that the parts affected must be thoroughly cleansed with the syringe, using in some cases a pint of the salt-water solution for each sitting, and at intervals not exceeding two hours, and using the atomizer every half hour. Herein lies the success of this plan of treatment, as without a judicious thoroughness in applying the syringe the throat becomes filled with the gangrenous discharge, and the nasal passage completely blockaded; so that respiration is carried on through the mouth. In this suffering condition I have frequently found the patient on my first visit; a condition pre-eminently favorable for absorbing the poisonous discharge. Then allow no time to be lost in preventing or stopping such absorption, or the gravest consequences will ensue. I use a common hard-rubber ear syringe, with the tip of the nozzle cut off for cleansing the throat and nostrils.

With the inexperienced a mistaken diagnosis is frequently made in dealing with diseases of this class. A simple catarrhal pharyngitis is sometimes termed diphtheria, and again, follicular tonsillitis is mistaken for the same disease. When the muco-purulent discharge is thrown out from the follicles, besmearing the tonsils, and even the pillars of the fauces, drying and gluing itself to the parts, it presents to the eye of the casual observer the appearance of a marked case of diphtheria, as it resembles the plastic effusion thrown out by the diphtheritic process, or in the case of follicular tonsillitis, where the inflammatory process within the follicles has been so destructive that we find two or more follicles coalesced and surrounded by the débris of the broken-down walls, the appearance is again much like that of the destructive process of diphtheria; but by judicious syringing of the tonsil you will be able to wash away the exudative material and broken-down tissue and bring into view each inflamed follicle; and this, as in all other inflammatory products of the throat, not diphtheritic, we are able to remove by the aid of the syringe. However, I think in two of my cases the disease started first as a follicular tonsillitis, and afterward,

being in a locality where diphtheria existed, they became cases of diphtheria.

Before closing, permit me to state that in not a single case did I deem it necessary, neither did I give one drop of alcoholic or other so-called stimulants, nor one grain of quinine or other so-called antipyretics. In each and every case I adhered to a strictly milk diet until convalescence was well established.

