

The treatment & disinfection of scarlet fever by antiseptic inunction / by J. Brendon Curgenvén.

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THE

TREATMENT & DISINFECTION

OF

SCARLET FEVER

BY

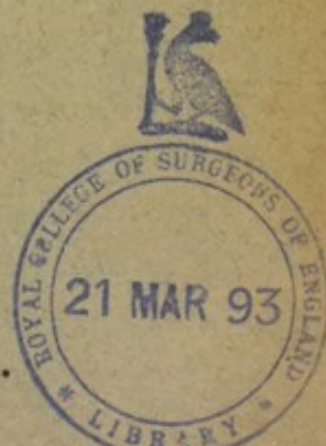
ANTISEPTIC INUNCTION

BY

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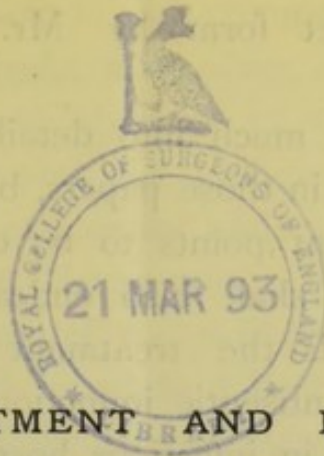
READ AT A MEETING OF THE MEDICAL OFFICERS OF
SCHOOLS ASSOCIATION, JANUARY 13TH, 1893,
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ON THE TREATMENT AND DISINFECTION OF
SCARLET FEVER BY ANTISEPTIC INUNCTION.

By J. BRENDON CURGENVEN, M.R.C.S., &c.

READ AT A MEETING OF THE MEDICAL OFFICERS OF SCHOOLS ASSOCIATION
JANUARY 13TH, 1893.

IN reply to the invitation conveyed to me by the Honorary Secretaries of your Association to read a paper on the Treatment and Disinfection of Scarlet Fever by Antiseptic Inunction, at your meeting to-day, I readily assented. I felt it a matter of very great importance for the welfare of the Public Schools, and indeed of all schools, that the merits of this method of treatment should be recognised, and that the hands of the Medical Officers of the Schools, and of the Head Masters should be strengthened to cope with any outbreak of infectious disease. For it is not only to Scarlet Fever, but to all forms of infectious disease, that this treatment is applicable, and I shall give you evidence that it has been successful in several instances in arresting the spread of infectious disease in schools.

My first paper on this subject I read in this room before a meeting of the Fellows of the Epidemiological Society in 1890, and it is published in the transactions of that Society. In the following year I read a paper at the International Congress of Hygiene, which will be published

in the transactions of the Congress; and both papers are published in pamphlet form by Mr. Lewis, of Gower Street.

I will not enter so much into detail on the subject on this occasion as I did in those papers, but will bring before you the more important points to be observed in carrying out the treatment. I shall also endeavour to show that greater success attends the treatment of the patients in their own homes by antiseptic inunction than by removing and segregating them in infectious hospitals.

It is very commonly believed by the public and by many medical men that the duration of Scarlet Fever and the generation of the infectious germs continues for three to six weeks, or as long as the patient is liable to infect others. This is contrary to the etiology of all exanthematous diseases. In Scarlet Fever the duration of the specific fever during which the infectious poison is generated in the blood of the patient is only about six days, when the temperature again becomes normal.

During that period it is all thrown out and deposited in the epithelium of the skin and mucous membranes, from thence to be cast off. This process takes a few weeks, and unless the poison so stored in the epithelium is destroyed by a strong antiseptic, the patient remains infectious to others until desquamation has ended.

Take a simple case of Scarlet Fever; without any treatment whatever, the temperature will fall from 103° on the second day, to normal on the sixth. Such a case cannot be said to be still suffering from fever although it is still infectious. If the infectious germs have been destroyed by antiseptic inunction, then is the patient no longer infectious, he may be considered well, and after about the tenth day free to mix with others.

If antiseptic inunction be commenced on the first or second day, the full development of the disease is prevented,

no sequelæ occur, and it terminates as a simple case of the fever. If the treatment be not commenced until the 3rd or subsequent days, sequelæ may occur, as the poison has had time to produce those changes in the epithelium of the mucous membranes and the kidneys which lead to their development. You can easily understand that if by early antisepsis the Scarlet Fever poison is destroyed, or greatly so, the epithelium, both of the skin and mucous membranes, is, in a great measure saved from destruction, the desquamation is lessened, follicular suppurations and subsequent ulcerations are prevented, and the patient saved from the consequences.

This favourable termination of even mild cases does not occur when a number of cases are segregated in the ward of a hospital, for there they are exposed to an atmosphere laden, not only with the Scarlet Fever poison, but also with the special bacillus of suppuration, the *Streptococcus Pyogenes*, the most dangerous of pyogenic microbes, and the cause of all the suppurative complications of Scarlet Fever.

If we would never think of placing cases of wounds in a ward with others suffering from erysipelas or hospital gangrene, neither should we place cases of Scarlet Fever, diphtheria, nor even catarrhal sore throat in a ward with others suffering from ulcerated scarlatinal throat, suppurating adenitis, or from scarlatinal rhinorrhœa or otorrhœa. It is not at all surprising that a large number of the cases in the crowded infectious hospitals suffer from this streptococcus infection, and become affected by suppurative complications to an extent that is never witnessed in private practice, and is almost totally absent from the cases treated by antiseptic inunction—I say almost, but I have never heard of any.

It is the rule in all infectious hospitals that no patient must be discharged until every atom of desquamating cuticle is cast off; they are consequently retained in the hospitals,

for from two to three months, exposed all this time to an atmosphere laden, not only with the germs of Scarlet Fever and the streptococcus, but exposed also to the infection of other diseases, so that 8 to 12 per cent. of the cases contract other infectious diseases whilst in the hospital.

Not only do the cases develop more severe symptoms and more complications in hospital than in their homes; not only is the mortality higher by 3 or 4 to 1, but the great object of isolation for a lengthened period is in many cases not secured. Cases of infection of other members of the family have in my experience occurred from those who have returned from hospital after many weeks' detention, and many members of the profession have met with similar experience. Dr. Iliffe says, "even after eleven weeks' detention in the hospital a patient has been returned home, and other children have within a few days become infected." A "Medical Superintendent," in a letter to the *British Medical Journal* last week says, "all patients are kept in the hospital at least eight weeks, and are sent out free from desquamation and free from eruption," what eruption? "or discharge, and yet apparently they communicate infection to others." The frequent occurrence of these cases of infection causes him "great distress," and makes his position "almost unbearable" as each case is investigated, and negligence on his part is implied. Dr. Bulstrode, in his address on public medicine at the Nottingham meeting of the British Medical Association, said "A somewhat serious drawback connected with infectious hospitals was the occasional recurrence of disease in the home of a patient apparently due to, or, at any rate, intimately connected with his return from hospital. Cases had come under his notice in which patients after having been in hospital *three, four, five* and in one case *eight months* had apparently taken Scarlet Fever back to their homes on their return thither. In some cases the explanation was presumably to be found in the retention by the mucous membrane of the air passages of infection

inhaled during the patient's stay in a highly infectious atmosphere."

There is no doubt in my mind that this is the true explanation. The patients themselves do not generate the spores of Scarlet Fever after about the sixth day of their illness, but they continue to inhale air full of these spores, which, on being discharged from hospital, they carry away with them, and some time elapses before their air passages are free from them. These spores cannot be destroyed except by the inhalation of a disinfectant; neither carbolic acid nor sulphurous acid can be inhaled strong enough for the purpose, but the vapour of the Oleusaban Eucalyptus can be inhaled of sufficient strength to effect the destruction of all infection in the air passages without injury to the patient. For three very strong reasons the patients are treated more successfully at home than in the hospital. First, they come under treatment earlier, when the treatment is more successful. Secondly, the patient can be isolated in his own bed, surrounded by sheets if the room be large, and there so saturated by the disinfectant, by inunction, inhalation, and internal administration that all infection is speedily destroyed. In the third place there is no risk of his symptoms being aggravated by the inhalation of fresh doses of the poison with every breath, no risk of his being infected by the streptococcus nor by the poison of any other infectious disease.

We have seen that during the epidemic of Scarlet Fever now prevailing in London, the removal of cases to the infectious hospitals has not in any material degree arrested the spread of the disease. As in all former epidemics it has gradually subsided as January approached, and will diminish more rapidly during that month and February.

According to the investigations of Dr. Boobbyer, additional cases occurred within three weeks in 23 per cent.

of the houses from which primary cases were removed to hospital, although officially disinfected. At Enfield, in 54 houses where Tucker's Oleusaban Eucalyptus was supplied by the Sanitary Inspector, and used without any or very little medical supervision, the primary cases were followed by additional ones in only 14 per cent. of the houses within four weeks. In all these houses there were other children belonging to the families; and if those cases be excluded that were infected before inunction was used, then in only 9 per cent. of the houses did additional cases occur.

The inunction of these cases was carried out very inefficiently; some of the mothers and children objected to the smell, and in others the slight smarting of the skin made them rebel against it.

In the hands of medical men who have seen that careful inunction has been carried out, no fresh cases have occurred beyond those already infected. In my last paper I gave the testimony of Mr. Cartwright, who affirmed that the treatment never failed, and he "had but the one case in the house;" also that of Mr. Elsom, who said that "the treatment wants but a careful supervision to make it a certainty of success;" and of Mr. Peake, who first treated his own child by this method, and confined two of his other children in the same room with the patient for eight days, at the end of which time the patient had become convalescent, and the two others did not take the disease. Since then he had had the same experience in other cases. In the twenty-six cases treated by myself and my son, some of which I related in my former papers, there was no extension of the infection in a single instance; there were no complications and no death. One case I related showed the arrest of infection in a lady's nursery, where three young children were exposed to infection from a nurse for thirty-six hours, until she was removed to the hospital. Two cases, in whom the disease was arrested

after the initial symptoms had commenced in two young girls: one who had spent three days and nights with her sister before they were separated; and the other, who had spent three days with her brother before he was sent to hospital, where he died. These two cases recovered in about twenty-four hours, without any rash appearing. Another case I related where two young children were allowed to frequent the bedroom, and to play on and about the bed of their brother, who was suffering from a sharp attack of Scarlet Fever, and yet they did not take the disease. For the particulars of these cases and others, I must refer you to my former papers.

From all the evidence of my own experience, and from that which I can obtain from other medical men who have used the antiseptic inunction as I have directed, there is no extension of the infection; the duration of the fever is shortened, and the symptoms are mitigated; there are few or no sequelæ, and no deaths. Yet, I would not say that in any virulent cases complications might not occur, and death take place. I would contrast the results of inunction as obtained in private practice, as stated above, or even from the fifty-four cases treated at Enfield under the directions of the sanitary officer—for there were no complications nor deaths amongst them—with the results obtained in one of the fever hospitals, the Medical Superintendent of which kindly undertook to use the inunction in suitable cases. He afterwards favoured me with full reports of the sixteen cases so treated. They were all inuncted twice a day for two weeks. Ten, or 62 per cent., of these cases had no complications or sequelæ, whilst six, or 38 per cent., had. Of these six, three, or 19 per cent., had acute nephritis; two, or 12 per cent., had chicken pox and whooping cough, one of them both these complaints; two had adenitis and abscess, and three rhinorrhœa and otorrhœa, or about 30 per cent. with sup-

purative complications. One died on the forty-seventh day of lung disease, clearly the result of streptococcus poisoning.

One great source of failure in the treatment of infectious disease by inunction in hospital, is the delay before treatment can be commenced. In the sixteen cases above mentioned the first inunction was used on the second day in eight cases, on the third day in five cases, on the fourth day in one case, and on the fifth day in two cases, of which the fatal case was one. As I have before said, this treatment to be successful as far as the disease is concerned must be commenced not later than the second day, as by the third all the damage is done, but as far as it concerns disinfection it does not matter when it is commenced. Other reasons why the treatment would fail in the wards of a hospital I have already stated. Twelve of the above cases were sent to another infectious hospital at periods varying from six to eight weeks; one was discharged at the end of eleven weeks, two at seventeen weeks, and one died in the seventh week.

Dr. Knox Bond, of the Liverpool Fever Hospital, reported in the *Lancet*, 6th June, 1891, an account of forty-seven cases of Scarlet Fever in which he administered Eucalyptus Oil, but did not use inunction. Of these there were twenty-seven, or 57 per cent., without complications, and twenty, or 42·5 per cent., with complications. Of the twenty, 16 or 34 per cent. had albuminuria, and there were 4 or 8·5 per cent. of deaths. He found that the oil caused vomiting, and he condemned the Eucalyptus treatment in strong words. It is evident, therefore, that he used the ordinary oil of Eucalyptus of commerce, as most chemists have no other, it being the lowest priced in the market, and it is of a turpentine nature. It is very irritating to the skin and mucous membranes, and of little antiseptic value. The general mortality from Scarlet Fever in London has lately been at the rate of 4·6 per cent., the mortality in the

infectious hospitals being 7·1 per cent., and amongst cases treated at home 2·1 per cent. The large mortality in the infectious hospitals compared with that amongst the cases treated at home, and the complete absence of deaths amongst those treated by antiseptic inunction, must be due to the surroundings of the patients and to their segregation in the hospitals, for no one could doubt the care and skill exercised over them there. This increase of mortality is borne out by the testimony of Dr. Alfred Hill, of Birmingham, who said that "in his experience" (a very large experience, too) "the overcrowding a hospital was a source of very great evil . . . if the cubic space was diminished, mortality was increased, and there was a marked increase in the severity of the disease."

I ask you to contrast the results of hospital treatment with this statement of Dr. Sunderland, the Medical Officer of Health for the District of Bexley, Kent. In a letter to me, dated the 8th of December last, he says:—"In 157 consecutive cases of scarlatina treated at their own homes, there were two deaths (1·21 per cent.); no case of albuminuria: about five cases of rheumatism, three very slight; and about ten with enlarged glands in neck; several of these latter were in the same patients as had rheumatism; no case of otorrhœa or rhinorrhœa as far as I can gather. In all the cases which recovered, recovery appears complete. We are practically free from scarlatina." Of the 157 cases, there were twelve with slight inflammatory complications, or 7·7 per cent.; none with any suppurative sequelæ, and none with albuminuria.

The Local Board of Bexley contemplated building an infectious diseases hospital last July. I sought and obtained an interview with Dr. Sunderland. At the next meeting of the Board, by his advice, they delayed building until the antiseptic treatment had been tried. Only a few of the 157 cases were treated by inunction, those only that were attended personally

by Dr. Sunderland. He says in another letter, "I have used the Eucalyptus plan in all cases of scarlatina under my care since I saw you, and have had no spread of infection."

The rate-payers' money has been saved, and the cases treated at home at the cost of a few shillings.

I have endeavoured to obtain interviews with other Medical Officers of Health without success, the sceptical incredulity of editors and critics, without a trial have set them against the treatment. I have sent my pamphlets to all the Medical Officers of Health of London, and many in the provinces, and have received an acknowledgment only from three. In one district I know that the treatment has been used for more than twelve months, instead of the intention of the Local Board to build a hospital being carried out, and yet I cannot get any information as to the results of the treatment from the Medical Officer of Health.

I have entered rather fully into the subject of infectious hospitals, as the same argument would apply to segregating boys in school infirmaries. I have, I think, proved that by this method of antiseptic treatment carried out in the homes of the patients, the symptoms of the disease are mitigated, complications and sequelæ prevented, and deaths rarely occur; and, moreover, infection is arrested in a more perfect manner than by the expensive process at present adopted. What, I would ask, should prevent the Local Government Board from enquiring into the subject, or the Local Authorities from testing my statements? The Local Government Board and the Asylums Board tell me that they cannot suggest any new method of treatment, and the Medical Officers of Health say it does not fall within their province. It rests, therefore, with individual medical men, and with the medical officers and heads of schools, institutions and large establishments, whose hands are not tied by official red tape or strong conservatism, to adopt this simple and rational method of preventing

the spread of infection in their establishments. I have from the first used Tucker's Oleusaban Eucalyptus Disinfectant; it was with that I met with my first success in treating a case by inunction (related in my former papers), and I have adhered to its use, for I found that the Eucalyptus Oil kept by most chemists was of that variety which cannot be used therapeutically on account of its irritating qualities. I found it to produce sickness when administered, and in two instances when prescribed in a liniment it produced an eruption with severe burning pain.

I direct that the patient should be lightly rubbed over with the antiseptic night and morning for three days, then each night, after a warm bath, for seven days; at the end of which time I consider he is perfectly free from the poison, and not in a condition to infect others. The disinfectant should also be sprinkled over the bed and pillow, and diffused in the air of the room by a spray diffuser. In all my cases treated in this manner, I have not had one instance of infection. I advise also the administration of three to six drops of the "Oleusaban," according to age, in mucilage or on a lump of sugar three times a day, or the same amount of the Oil of Eucalyptus Globulus in the same way. The only inconvenience to the patients produced by the inunction is a slight smarting on the more highly sensitive parts of the skin, and that not in all alike.

It stimulates the skin, producing a sense of warmth, and heightens the colour of the rash. If smarting is complained of, less may be used, as it is only necessary that the skin should receive a slight, but complete, application, no spot being omitted. When the vapour is too strong, it produces a slight headache. Should this occur, less may be sprinkled on the bed, and more fresh air admitted.

The greatest benefit is derived by the patient under this treatment during the first three days of the fever.

Should sequelæ afterwards occur, they must be treated in the usual manner. The suppurative sequelæ may be treated by the local application of the antiseptic, as it would destroy the streptococcus.

I have no means of ascertaining to what extent this method of treatment has been adopted, nor by whom; but I can give you the testimony of a few heads of schools with whom I have corresponded.

In my last paper I published a letter from the Rev. Henry Parker, Rector of Mount St. Mary's College, Chesterfield, in which he relates how he succeeded in stopping an outbreak of Scarlet Fever amongst two hundred boys. It will be observed that he says of the first cases that occurred, before he used the Oleusaban: "Seven of these were of a malignant type, causing us grave anxiety; while, in every case," he says, "where inunction was employed as soon as the case was discovered, the sickness was of an exceptionally mild type." Thus confirming my experience and that of others that, if inunction be commenced as soon as the initial symptoms are observed, the severity of the disease is lessened, the fever rapidly abates, the temperature falling two degrees or over after the first inunction, and the illness quickly terminates without any complications. The Rev. Mr. Parker, writing to me last month, says: "In reply to your enquiry, I am happy to say that, since the Oleusaban Eucalyptus did us such a good turn in April, 1891, by clearing out Scarlatina so rapidly, we have been free from infectious sickness." He then speaks of its saving them from Influenza, and goes on to say that "about ten days after schools re-opened in September last, we had a case of strongly-developed chicken-pox. As soon as it was noticed, we had the boy inuncted, and we repeated the inunction several days. Not another case has occurred."

Mr. W. B. Anthony, Head Master of the Collegiate

School at Belper, writing to me, 7th December, 1891, said:—"I have had no Scarlet Fever in the house for fifteen years, but something told me to look out, and sure enough it came. A day boy began. I sent them the Oleusaban Eucalyptus—they used it freely, and no other cases occurred in their house, although they had a large family. Some fortnight after, one of my younger boarders, who, five days before had been to Derby on a visit, began. I suspected him twenty-four hours before it could be diagnosed, and I treated him as you directed. I sent him off to hospital, but his parents fetched him home the same day. He was fully out with rash, but not in the least ill. I have kept the disinfectant about ever since, but no more cases have occurred." Mr. Anthony had fortunately provided himself with the disinfectant a short time before the first case occurred, when something told him "to look out," and he was able to act promptly before others were infected.

In reply to my letter of enquiry last month, Mr. Anthony says, "I am happy to say that since our trouble with Scarlet Fever this time last year, we have had no infectious disease in the school. The influenza was epidemic in the town the first quarter of the year 1892. I used the Eucalyptus disinfectant daily, making all the dormitories odorous, and not a boy was touched. I still use it, a few drops on every boy's pillow at night, and by God's blessing we are kept. I am as ardent a believer as ever, but I am amazed that it has not been more extensively used in the London epidemic."

Mrs. Laffan, writing from the School House, Stratford-on-Avon, last month, says:—"We found the Oleusaban disinfectant *most excellent* during a spell of German measles in our house, and I am convinced it was of great service."

Mrs. Harrison, of Holt House School, Fakenham, says that, "In October last a pupil showed signs of Scarlet Fever. Although the case was not severe in itself, I felt very anxious as to the disease spreading, as I have thirty

young people resident in my house. I at once used Eucalyptus as directed ; and although I had, of course, the attendance and advice of a medical man, I continued to use the "Oleusaban" in all baths, and for every disinfecting purpose throughout the house. The case ended very favourably, and no other child took it. The child returned home at the end of three weeks from the rash appearing, still using Eucalyptus, and none of her friends, nor a little brother of four years, took any harm."

At Wellingborough Grammar School, Scarlet Fever was arrested at the first case ; and at schools at Windsor and other places the antiseptic inunction had been equally successful.

Sister Dorothea, Matron of the Aberdeen Hospital for Sick Children, writing in November, 1891, says, "We use the two preparations of the disinfectant entirely now in place of carbolic in our fever ward, and I think it is generally approved of by the Doctors there. I am sure it is quite as effectual and far more agreeable from a nurse's point of view."

Mr. T. E. Hayward, Medical Officer of Health of Haydock, Lancashire, says, in a letter I received last month, "I have certainly seen, since employing this treatment, several cases where the disease (Scarlet Fever) did not spread to other children of the family, who were not protected by a previous attack, and where no strict isolation was possible."

He is using it in Small-pox cases, and there has been no spread of infection from those on whom he has used it. He says, "It is difficult to exactly estimate what part it may have played in preventing the spread of infection, as of course vaccination and re-vaccination, strict isolation, etc., have been resorted to ; but my impression is, that it is a very desirable and useful aid to treating the disease, from the point of view of the patient's comfort and well-being, and from that of the safety of others."

No treatment that has ever yet been suggested can give such results as these statements testify to, for you have it in your power to stop immediately any outbreak of infectious disease in schools, institutions, or in the families of your patients.

Let me remind you of the words of M. Pasteur, when he says, "All of you, whatever be your pursuits, I entreat you not to allow yourselves to be taken possession of by sneering and barren scepticism."

Diphtheria is as readily treated at home as Scarlet Fever. By surrounding the bed with sheets to confine the vapour of the antiseptic, the patient is isolated in his own bed, and no infection can spread from him.

Dr. Murray Gibbs, of New Plymouth, was the first to treat Diphtheria with Eucalyptus on the right principle during an epidemic that prevailed there in 1883. He surrounded his patients' beds with sheets, and placed at their bedside a tub containing fresh leaves on which boiling water was poured. This was repeated at intervals, the steam containing the vapour of the oil from the leaves being confined by the sheets. By the inhalation of this vapour alone, without any medication, his patients, 37 in number, all recovered, while two of his medical neighbours, under other treatment, lost all their severe cases.

In most of my cases I have not used the sheets. I have found the vapour of the "Oleusaban" Eucalyptus strong enough to check the disease and prevent infection, if it be used by the spray diffuser and sprinkled over the pillow and bed. It should be rubbed also at intervals over the chest and front of the neck, that the warmth of the body may keep up constant evaporation in a position favourable for inhalation; and the tonsils should be brushed over with it two or three times a day. No other treatment is necessary; neither I nor my son have lost a case, and no instance of infection has occurred. Every case should be watched and kept more

or less under the influence of the vapour for ten days, in case of the recurrence of the disease, although in most cases the deposit rapidly disappears after the commencement of the treatment.

In considering the chance of infection in diphtheria, it must be borne in mind that, unlike Scarlet Fever, the source of this disease is often to be found in some decomposing animal matter in or near the house, as the following will illustrate :—

I had attended four cases of diphtheria in one house ; two children and one servant recovered, and another servant was sent to hospital for want of accommodation. A child that was in the country was expected home. I persuaded the mother not to allow her to come to the house, but to send her to some friends until the repairs of the drains and the disinfection of the house was completed. The child was brought to the door of the house a few days after to see the mother, and she gave her, at her desire, a glass of water to drink. In a few days the child was attacked by diphtheria, and died. I did not attend her, as she was staying at a distance from me. On hearing the circumstances I concluded that the glass of water conveyed the infection to her. I ascertained that the cistern from which it came was under one of the landings of the staircase. On taking up the boards, which were laid close on the cistern, a mass of decomposing matter, about an inch thick, was seen floating on the water. This had been the collection of some years of dust and dirt that had fallen between the boards, and much of it consisted of animal matter from the dirt of the streets and the dust of the bedrooms, matted together by mycelium of fungus.

I could relate several instances to show that the poison of diphtheria first proceeds from decomposing animal matter in dust-bins and heaps, where the kitchen refuse is thrown, from uncleansed cow, fowl and pigeon houses, and from

drains into which the washings from the scullery and kitchen sinks flow. I once attended a kitchen maid who had pudendal diphtheria from this latter source. But all this is beyond the purpose of this paper.

The same argument that I used against the segregation of Scarlet Fever cases in hospital wards holds good, and in a greater degree in diphtheria.

The advocates of the infectious hospital system are compelled to confess that "it is impossible to ignore the fact that our limited experience of hospital isolation for diphtheria is not altogether satisfactory some 40 per cent. of the patients admitted into the Metropolitan hospitals, set apart for diphtheria, have died."* The infection was found to spread to the Scarlet Fever pavilions, and out of twenty-seven cases there attacked during one year, eighteen died, or 65 per cent. "But," says this advocate, "these considerations should not in themselves prevent the isolation of diphtheria in hospital."* But I think that "these considerations" should induce the advocates of the hospital system to enquire if there be not some other method of checking the spread of infection without such a lamentable sacrifice of life. The general mortality of diphtheria is about 20 per cent., and under the antiseptic treatment by the vapour of the Oleusaban Eucalyptus it is much less. I have not been able, as yet, to collect a sufficient number of cases to give a statistical quotation, but of all the cases that I have known treated by this method, there have been no deaths. One case reported to me was that of an adult on whom tracheotomy was contemplated, but first the antiseptic treatment by the "Oleusaban" was tried, at the suggestion of a second medical man who was called in. The patient was relieved after the first application to her throat, the inhalation was maintained, and after a second application she passed a quiet night. The next day she breathed

**British Medical Journal*, Dec. 1892, p. 1307.

freely and could take her food, and at the end of a few days she was well.

I should advise the medical officer of a certain public school where outbreaks of diphtheria have occurred, and where the drainage has been accused as the cause, to have more regard to the dust and refuse heaps—the kitchen middens, where decomposing animal matter, the fruitful soil of the bacillus, the real cause, is often overlooked. It is from this cause that diphtheria prevails so extensively in country villages, in otherwise healthy localities. But it is the privies and the water-supply that are always officially condemned.

A considerable controversy is likely to arise over the merits of the various Eucalyptus oils. Up to the present time a large amount of the oil imported has been distilled from a mixed variety of the trees, and a great deal of it is unfit for medicinal use. Hence the annoyance and disappointment of medical men who have prescribed Eucalyptus oil for their patients. In two fever hospitals it caused such sickness that it was discontinued. Since I published my first pamphlet on the use of Eucalyptus oil, about three years ago, in infectious diseases, chest affections, wounds, abscesses, etc., a greater demand for it has produced a greater supply, and we can obtain now oils of more defined quality. Several of them are sold under the trade-mark of the distillers, but it would be much more satisfactory if they came to us under the name of that variety of the tree from which they are distilled; for there are 150 or more varieties of the Eucalyptus tree, from the giant Globulus and Amygdalina of 400 feet high, to the scrub-bush of two or three feet.

We are supplied with Globulus oil from Tasmania, America and Spain, and we are promised some from India and Natal. From South Australia we get Bickford's, Faulding's, and Wheeler's Amygdalina oil. From New

South Wales, Cumming's *Cneorifolia*, an *eleosa* variety, and Bosisto's *oleosa* oil, distilled from the mallee scrub. Then there are also Timbury's *Citriodora*, and Ingham's *Citriodora* from Queensland. These oils should all be introduced and sold under their specific names, as then we should probably get that which we prescribe, instead of that which the chemist happens to have in his shop, and which at present cannot be depended upon. The *Globulus* and *Citriodora* oils are not irritating, and the *Amygdalina* but little so. In the use of any of these oils we must be guided more by their therapeutical advantages than by the amount of crystallizable Eucalyptol which they contain. It will be necessary to be guarded against the assertions of Schimmel, Helbing, and other analytical chemists, who state that Eucalyptol is the only therapeutical agent contained in *Eucalyptus* oil, and Professor Charteris backs up their assertion without trying any therapeutical test whatever.

Eucalyptol is an oxidised hydro-carbon, isomeric with camphor, and all essential oils contain similar camphors, of which Thymol is a familiar example. These oils contain also various hydro-carbons with strong antiseptic qualities, and it is a great error to ascribe all their medicinal and germicidal powers to the camphors which they contain. Eucalyptene, one of these hydro-carbons, is stronger than Eucalyptol as an antiseptic. Eucalyptol has been proved by actual experiment to be only about half the strength of the oil itself as a germicide. The vapour of Eucalyptol takes 134 hours to destroy the bacilli of anthrax, whilst the vapour of the oil destroys them in 72 hours.

Professor Charteris and the chemists propose to exclude from the British Pharmacopœia all oils that do not contain at least 40 per cent. of crystallizable Eucalyptol. By that means the *Amygdalina* oil would be excluded, because its Eucalyptol cannot be crystallized by freezing, and the inferior oils would be introduced, as they contain 50 per cent.

It has, however, been separated from the Amygdalina oil by Cloez's process by Umney, Lascelles Scott, and others, and it answers in every way to the characters of that separated by freezing. The Amygdalina oil is that which is universally used in South Australia, and in my trials of it, I find it is equally good as a therapeutical agent as the others.

While protesting against this dictum of the chemists, I must refrain from speaking of any of the above-named oils under their brands or distillers' names for obvious reasons.

I have examined and tested many of the disinfectant preparations which contain the oil, and which have been advertised within the last year or two. The Oleusaban Eucalyptus, as I have said in my last paper, contains Thymol and other antiseptics of that class combined with the oil of Eucalyptus Globulus. There are two articles known as Eucalyptol, besides Eucalyptol itself—one is Eucalyptus oil, the other a mixture of Carbolic acid, Salicylic acid, and Eucalyptus oil; one as Eucalyptoel, a bichloride of Eucalyptene; two, sold as Eucalyptia, one Eucalyptus oil, the other a hair wash. Eucalyptol essence is a mixture; Eucalyptic extract is Eucalyptus oil; "Sanitas" Eucalyptus oil is a mixture of Citronella oil with a small quantity of Eucalyptus oil; there are also Eucalyptera, a mixture; Eucalyptine, a dentifrice; Eucalyptogen and Eucalyptosine, perfumes. There is a small quantity of Eucalyptus oil, about 60 drops in a gallon, in "Listerine" which is a watery solution of several essential oils with, as far as I can ascertain, boric and benzoic acids and borate of soda. There are several other preparations, and every month witnessess an addition to their number.

You must agree with me that the trade in Eucalyptus oil has been wonderfully complicated by enterprising chemists, and that for safety in prescribing, the oils should be known only under their proper botanical designations.

It is, perhaps, unnecessary for me to point out to you that essential oils partake more of the character of spirit than of fixed oil, and that they completely evaporate, leaving no residue, nor do they become rancid, nor do they obstruct the pores of the skin like fixed oils and fats. Yet the public are unaware of the difference, and to my astonishment some members of our profession have condemned the use of this method of inunction, on the same mistaken notion, from want of knowledge of the difference between the properties of essential and fixed oils.

In the discussion which followed, Dr. Alder Smith, Medical Officer of Christ's Hospital, stated that six weeks since, Scarlet Fever commenced in the school with two cases. The first he watched until the eruption was out; he then used the Oleusaban Eucalyptus disinfectant, rubbing the boy all over with it. His temperature rapidly subsided, and he had a modified but general desquamation. In the second case he commenced inunction as soon as the first symptoms occurred before the rash was developed. He recovered rapidly, and to his astonishment there was no desquamation. No other cases occurred in the school. Dr. Dickinson of St. George's Hospital, the President, Mr. Armstrong, Medical Officer of Wellington College, Dr. Brett, of Watford, Dr. Shelly, Medical Officer of Christ Hospital, Hertford branch, and others took part in the discussion.

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In the discussion which followed, Dr. Alder Smith, Medical Officer of Christ's Hospital, stated that six weeks since, Scarlet Fever commenced in the school with two cases. The first he watched until the eruption was out; he then used the Olibanum-Eucalyptus disinfectant rubbing the boy all over with it. His temperature rapidly subsided, and he had a modified but general desquamation. In the second case he commenced immersion as soon as the first symptoms occurred before the rash was developed. He recovered rapidly, and to his astonishment there was no desquamation. No other cases occurred in the school. Dr. Dickinson of St. George's Hospital, the President, Mr. Armstrong, Medical Officer of Wellington College, Dr. Burt of Wandsworth, Dr. Shelly, Medical Officer of Christ Hospital, Heston branch, and others took part in the discussion.