

health and appearance. Between then and now she has had occasional relapses into an anæmic condition, of which I have only seen one personally, as she took arsenic again on her own account whenever she began to feel unwell. She has been under my observation up to the present date and has developed into a strong, active woman, showing absolutely no trace of her former ailment, her complexion particularly being clear and healthy and her menstrual periods perfectly normal. She has never shown any disease in the other eye or knee or any other local mischief, so that the prognosis given at the time of the first examination has not been fulfilled. Dr. Jacobson saw the patient again about four years ago. From the report then given to me by him I may mention here that there was slight hyperopic astigmatism in both eyes, after correction of which vision in the left eye was full $\frac{4}{4}$, while it was $\frac{4}{4}$ in the right; this slight diminution in sight was accounted for by an exceedingly thin central opacity of the cornea, only noticeable by focal illumination, in which examination with a strong magnifying convex lens still showed traces of bloodvessels so characteristic of the remains of interstitial keratitis. There were no opacities of the vitreous, no peripheral choroiditis, the pupil acted promptly to light and accommodation, and tension was normal. The previous history of the patient does not reveal anything pointing to hereditary syphilis. She had measles and whooping-cough when a child, but she was born perfectly healthy, and during infancy and early childhood had no snuffles, no skin eruption, and no throat affection; no bone lesions were noticed; in fact, up to 1885 she had been in the enjoyment of perfect health. I may add that I have had at different times the opportunity of questioning the mother as to the above-mentioned point, and that she is perfectly positive about the absence of any similar symptoms. The father of the girl died within the last year; he had been confined in a lunatic asylum for the last ten years of his life. From the medical officer I learned that the disease was diagnosed by Drs. Wilks and Savage as general paralysis, and that he had no direct evidence of syphilis. The mother is a strong and energetic woman, who has always been in perfect health, and has been confined fifteen times with the following results: (1) miscarriage at six months; (2) full time, crossbirth, died shortly after (unskilled attendance); (3) son, living; (4) daughter, living; (5) miscarriage at two months; (6) daughter, living (the patient); (7) miscarriage at two months; (8) son, living; (9) daughter, living, twin died at birth; (10) miscarriage; (11) daughter, living; (12) daughter, living; (13) son born healthy, died two months after birth from inflammation of lungs; (14) twins at seven months, died at birth; (15) daughter, living. An analysis of the above shows there were four miscarriages: Nos. 1, 5, 7, 10; one premature birth, No. 14 (twins); three children born at full time, but dying shortly after birth, Nos. 2 (unskilled attendance at birth) and 9 (one of twins dying and the other surviving); No. 13 (died two months after birth from inflammation of lungs); eight living children, Nos. 3, 4, 6 (patient), 8, 9, 11, 12, 15. With the sole exception of the eldest son, I have not only examined all the living children, but I have had them under observation during the last nine years, and am positive that not one of them has shown any trace of specific disease. In none of them the peculiar formation of head the broadening and flattening of the nose, the notched teeth, or any other symptoms of the kind are to be found.

Remarks on case.—Most cases described as one-sided interstitial keratitis are of little value, the time during which they are under observation being too short, as not rarely several years elapse before the onset of the disease in the other eye, but I am not aware that the interval has ever been as long as nine years. As my patient has developed from a delicate, anæmic girl into a perfectly healthy woman without any trace of former disease, I have no hesitation in regarding the case as being at an end, and, therefore, as one of undoubtedly unilateral disease and as one of the rare exceptions to the law formulated by Hutchinson⁷ that "interstitial keratitis in its typical form is always in the end symmetrical."⁸ In the best observed cases the effusion into the knee-joint has also been symmetrical, and probably the percentage of double-sided affection is still higher than

⁷ Syphilis, p. 76.

⁸ Mansell Moullin also in his *Surgery*, London, 1891, p. 97, says: "Interstitial keratitis always attacks both eyes." This is only approximately correct for the cases due to congenital syphilis; it does not hold good for interstitial keratitis in acquired syphilis, which is as a rule unilateral.

one would gather from reported cases, the absence of pain in mild cases blinding the patient to its existence. As said before, a case where both affections have been limited to one and the same side of the body is according to my knowledge unique.⁹ Certainly no explanation can be given why one side should be attacked in preference to the other, as otherwise no difference between the two halves of the body could be found. As to the causation of both affections I do not feel justified in attributing them to hereditary syphilis simply for the one fact that interstitial keratitis existed together with knee-joint affection. The history of my case, complete as it is, contains scarcely anything to suggest syphilis; only one point might be interpreted in this way—viz., the miscarriages of the mother. As regards this, the number and the time of occurrence are such as might be met in any woman free from specific disease, and it ought to be borne in mind that abortions are very common quite independently of syphilis, that there is every day proof that women may bear large families of tainted children and never show any tendency to abort—that, in fact, the part which syphilis plays in the causation of abortion is commonly exaggerated.¹⁰ This, taken together with the entire absence of any other sign of syphilitic taint in the patient, or of any sign in her mother, her sisters and brother,¹¹ all seen by me and under observation to the present day, leaves practically nothing which could be adduced as an argument in favour of specific disease. On the other hand, the girl at the time of her illness presented the usual symptoms of pronounced anæmia with amenorrhœa, appearing at the time of puberty and probably due to change of climate. It is in this lowered state of nutrition that, in my case, the cause of the affection of the cornea as well as of the knee-joint must be sought. Complete recovery took place under a simple tonic treatment, neither mercury nor iodide being given. In a disease with a decided tendency to recovery this latter fact is not of much value; still, it in some respects corroborates the view taken here.

(To be continued.)

ON THE VALUE OF EUCALYPTUS OIL AS A DISINFECTANT IN SCARLET FEVER.¹

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SINCE I have been connected with the public health service I have always felt that there was room for improvement in the treatment of scarlet fever patients. It seemed to me that the long stage of desquamation, during the greater part of which the hospital patients are to all intents and purposes convalescent, was, to say the least, hard lines upon the general body of ratepayers, and that, therefore, all scientific endeavours should be directed towards the shortening of this desquamation period or towards the rendering of the desquamation itself in some way or other non-infectious. The average length of stay in hospital for scarlet fever cases varies in different institutions—e.g., in Leicester Borough Hospital it is about six weeks, as compared with seven to eight weeks or longer in the hospitals of the Asylums Board. Then, again, despite such a lengthened stay in hospital, patients when sent home appear (in a proportion of cases at least) to give rise to the disease in others. These are the so-called "return" cases—i.e., cases that are apparently, in some way or other, connected with the return of convalescents from infectious diseases hospitals to their homes; and their occurrence is disheartening when all possible precautions are taken in the way of keeping the patients isolated in hospital until every visible trace of peeling is gone and in the way of scientifically disinfecting clothes &c. As the result of my own investigations into "return" cases of scarlet fever, I have long felt that perhaps the desquamation stage is not their *vera causa*, the peeling skin not being so infectious as is generally supposed. It is true that

⁹ In fifteen cases of joint disease in inherited syphilis collected by Mr. J. Hutchinson, jun., one-sided knee affection is mentioned five times, but the time of observation is too short; and the clinical notes, especially in Virchow's cases, are too incomplete to allow these cases to be regarded as unilateral. ¹⁰ Hutchinson: *Syphilis*, p. 415.

¹¹ In this respect my case is in striking contrast to one published by G. Ogilvie (*THE LANCET*, June 10th, 1893), where syphilis could be traced from the "father" to all of the offspring. Out of nineteen confinements eight children survived, all showing to a greater or less extent the hereditary taint.

¹ A paper read before the Epidemiological Society, March 15th, 1895.

we as health officers are satisfied if we discover an antecedent case of peeling in the neighbourhood of a localised outbreak of scarlet fever, but it is equally true that in Leicester, when at the time of the outbreak of small-pox not less than 120 children in various stages of desquamation after scarlet fever were sent to their homes, no single second case occurred at any of these houses, although I carefully watched them for three months. Surely this was not a pure coincidence? My own line of reasoning is as follows. Scarlet fever is an infectious disease due to the entrance into the system of a micro-organism—the micrococcus scarlatinæ of Klein, the bacillus scarlatinæ of Edington, or other germ—the point of attack being in all probability the throat. On entering the body at this point, and incubating there for a certain length of time, the poison (be it the germ or its products) gives rise to certain changes in the blood, with a resultant train of symptoms—e.g., temperature and rash, followed by peeling of the epidermis. The simplest explanation is that the rash—i.e., hyperæmia or congestion of the skin—causes its outermost layers to die, to be thereafter cast off as waste products. No definite, generally accepted specific germs have as yet been found in this shed skin, nor have any cultivations been made therefrom, as far as I know; indeed, such skin is dead, and it has therefore seemed to me a little difficult to understand how such dead skin could so readily give (as it is generally stated) rise to the disease in others. I do not, of course, definitely state that it does not, but it has not yet been satisfactorily proved that it does; whereas experience, I think, is tending to prove that scarlet fever is extremely infectious in its early stages—i.e., from the moment that sore-throat and vomiting appear. Small-pox is undoubtedly infectious in its very early stages, as are also measles, diphtheria, influenza, whooping-cough, and typhoid fever. The fever stage in scarlet fever lasts from a week to two weeks, and the stage of desquamation from six to seven weeks. Presumably, when the fever stage ends the germs and their products have ceased to act deleteriously, and theoretically, therefore, all that is required is to render aseptic during the fever stage the blood, secretions, mucous membranes and skin, breath, &c. This Mr. Curgenvén claims practically to have done—a claim not yet seriously contested; and when my attention was first called to his eucalyptus treatment I may, perhaps, be described as being almost prejudiced in favour of such a line of treatment or disinfection. I read all Mr. Curgenvén's papers, and even after allowing a deduction for the praises naturally lavishly bestowed by a father upon his own offspring I felt that I had at last found my long-looked-for and long-wished-for remedy, by means of which I should be able to save my authority a considerable sum of money, whilst at the same time a much larger number of patients suffering from scarlet fever could be treated in my present hospital accommodation per year. Considering that Mr. Curgenvén unfortunately had to base his conclusions in regard to scarlet fever upon twenty-six cases, I anxiously waited for further statistics from other medical men, but none came. I decided, therefore, and through the courtesy of my committee was enabled, to try the treatment at the Leicester Borough Hospital, seeing and treating all the cases myself. In fact, I was able as medical superintendent to treat the cases, and then as medical officer of health to watch that no evil results arose therefrom in regard to the spread of the disease in the town. I propose now to bring forward all my facts, so that each one may draw his own deductions therefrom, contenting myself with stating that the comparatively few cases (120) that have been treated with eucalyptus by me do not warrant any very definite conclusions being drawn, but may perhaps tone down somewhat the exaggerated statements of others (on both sides) and be an incentive to those who have opportunities to do so to officially give this treatment a trial and to publish careful notes. I personally feel, as no doubt others do, that the subject is one that ought to be thoroughly and scientifically criticised and a definite opinion "for" or "against" come to. Mr. Curgenvén's paper, having the honour of being printed in the Transactions of the Epidemiological Society, and therefore practically "passed" by the society, holds the field, and his conclusions, until rebutted, must be accepted.

I have carefully followed out the treatment as suggested, personally supervising it, and have only included amongst my cases those patients who showed the rash well developed, so that not only was the diagnosis certain, but the disease had not advanced beyond its early stages—i.e., first or second day. It would be manifestly unfair to include cases with only initial symptoms—e.g., sickness, headache, and

sore-throat,—as whatever the result of the treatment might be in such patients it could never be definitely stated that they were genuine cases of scarlet fever, for I confess that I am one of those who deny the existence of scarlet fever without rash and subsequent peeling (branny or otherwise), though I recognise the so-called pseudo-scarlatinal cases, which are sometimes met with in scarlet fever infected houses or in times of epidemics, but which are not, in my opinion, genuine cases of scarlet fever. My mode of treatment has been as follows:—Careful rubbings with the oil over the whole body three times a day for three days, followed by one rubbing (after a warm bath) daily for seven days. The disinfectant is sprayed also into the patient's throat, mouth, and nose, and diffused into the air of the room. No eucalyptus has been administered internally beyond what passed down into the stomach during the spraying process. Further, sequelæ and complications as they arose were treated with the usual remedies—in addition, of course, to the eucalyptus oil. The oil that I use is Tucker's oleusaban "A" disinfectant, which is stated to be the essential oil of eucalyptus globulus with thymol and other camphors and aromatic antiseptics in solution in definite proportions, freed from most, if not all, resins and aldehydes by distillation and redistillation. There is stated to be a fluid hydrocarbon (eucalyptene) holding in solution an oxidised hydrocarbon isomeric with camphor—viz., eucalyptol. The eucalyptus oil is volatile and diffusible, evaporating readily, and so offers little or no obstruction to the pores of the skin, and it does not turn rancid. It is stated further to contain no fixed oil, no water, and no alcohol, and to be a non-poisonous, non-staining, and non-irritating germicide, antiseptic, and antiferment, according to the researches of Omelchenko, Bucholtz, Siegen, Mayo Robson, Lister, Schultz, Klein, Pitzer, Hirst, and others. I have compared the 120 patients treated with eucalyptus with 161 treated in the usual orthodox way, and at the same time, in the same hospital, and under precisely the same conditions—i.e., I have only included cases that showed the rash well out and were in the early stages of the disease. Further, all my patients were taken from the same epidemic (a declining one) and in rotation as they were notified, so that no selection of cases took place. In short, as far as possible, I chose my two sets of cases so that they practically agreed as to age, constitution, conditions of life, stage of disease, and severity of attack, the only difference, therefore, being one of treatment—i.e., eucalyptus *v.* orthodox or ordinary. The total 281 cases were the only suitable ones admitted to hospital during 1894. The majority of the cases were of a mild type. My results may be tabulated as follows:—

Details of cases.	Eucalyptus.	Ordinary.
Number of cases of scarlet fever treated and number of deaths ...	120 cases and 2 deaths. Per cent. 1·6	161 cases and 7 deaths. Per cent. 4·3
Length of stay (in days) in hospital—		
Non-fatal cases... ..	34·4	42·7
Fatal cases... ..	8·5	13·4
Length of interval (in days) between admission—i.e., commencement of the treatment—and normal temperature—i.e., the cessation of all fever... ..	11·4	10·3
Percentage of complications and sequelæ	20·0	27·3
Serious	79·3	83
Trivial	20·7	17
Percentage of "return" cases—i.e., of all those treated with eucalyptus and discharged from hospital during 1894	3·9	5·0
Calculated on special cases treated ...	4·2	6·4
<i>Particulars as to Complications and Sequelæ.</i>		
1. Serious—	Cases.	Cases.
Rhinorrhœa	2	1
Otitis	9	7
Phagedæna pharyngis	2	4
Acute rheumatism	2	4
Abscesses	4	1
Albuminuria... ..	1	14
Uræmic convulsions	0	3
Pneumonia	1	4
Acute tuberculosis	1	2
Hæmaturia	0	1
Meningitis	0	1
Anasarca	0	2
2. Trivial—		
Tonsillitis	2	2
Pityriasis	1	0
Urticaria	1	3
Epistaxis	0	1
Erysipelas	0	1
Reinfection—i.e., secondary rash	2	3

It must be stated that with twenty-three exceptions the eucalyptus cases were kept in hospital until their skins were quite smooth—i.e., until all visible peeling was gone. If we take the 97 cases that were thus kept in hospital until all peeling was finished, we find the average stay in hospital of each patient was 35.6 days, whilst the average stay for the 23 patients who were sent out still peeling on the feet was 32.4. It makes, therefore, little difference, so that we may treat of all the eucalyptus cases together, with the understanding that practically each case was detained in hospital until the skin was smooth. I do not feel justified in sending the patients out into the town at the end of ten days as suggested by Mr. Curgenven. As medical officer of health I feel chary of doing so, of being a party to such an arrangement; though as medical superintendent I sent 23 patients out with peeling feet (the rest of the body being smooth) without any bad results accruing—without, in short, coming into collision with my other self, the medical officer of health! The 5 "return" cases in connexion with eucalyptus patients have reference to those who were perfectly smooth, all peeling having ceased, though I may mention that 2 were connected with patients who were discharged (at the request of the parents) with running ears; and we must all admit that a suppurating middle ear is theoretically an ideal cultivation medium for germs, and practically has been shown to be so by the interesting bacteriological investigations of Dr. F. Blaxall, who shows that the streptococcus pyogenes, and the staphylococci albus and aureus are constantly found there, whilst Frankel's diplococcus pneumoniae and Friedländer's bacillus pneumoniae have also been found by other observers. Of the 5 "return" cases, the patients in connexion with whom they had apparently arisen had been 35, 23, 25, 44, and 34 days respectively in hospital, whilst the intervals elapsing between the dates on which they returned home and the "return" cases sickened were 5, 15, 6, 8, and 12 days respectively. Taking my own eucalyptus statistics, then, it would appear that there were in those particular cases in favour of the eucalyptus: (1) a lower death-rate; (2) a shorter stay in hospital; (3) slightly fewer complications of a serious nature; and (4) fewer "return" cases; whilst the process of desquamation was certainly hastened with, I may add, a slightly increased epithelial loss. The stage of fever was practically the same in both sets of cases—if anything, slightly increased in the eucalyptus ones; and I would mention here that the fever was not supposed to be gone until normal temperature had been not only attained, but also maintained. Two doubtful cases of scarlet fever out of 5 that were put into the eucalyptus ward and treated developed a rash, sore-throat, and temperature in 4 and 9 days respectively. Other results noticed were stimulation of the skin with feeling of warmth to patient, heightening of the colour of the rash, slight cough, slight suffusion of conjunctivæ, and tendency to sleep after the application, pulse softer and less rapid, whilst the smell of the oil was but slightly objected to. As to the cost of the treatment, my figures work out to about 2s. per patient, and taking the average number of rubbings as sixteen it is equal to 1½d. to 2d. per application (about an ounce being used each time). The stay in hospital, however, is shorter, and so the hospital maintenance expenses per patient are less. In Leicester during the last nine years the average weekly cost per patient is 16s. 2½d., and this I take in connexion with an average stay in hospital of 42.7 days for orthodox, as against 34.4 for eucalyptus, treated cases. There is thus a saving of a week's expenses—i.e., 16s. 2½d., whilst the oil costs 2s., leaving a balance of 14s. 2½d. in favour of each patient treated with eucalyptus, even when such patient is kept in hospital until smooth.

[Dr. Priestley then quoted from the reports of others. Thus Mr. C. Knox Bond, resident superintendent at the Liverpool City Fever Hospital, published in THE LANCET of June 6th, 1891, that during 1890, 305 cases were admitted, and 47 (44 consecutive cases) were treated with eucalyptus, but not by inunction. The oil was administered internally and the throat sprayed. The mortality was 8.5 and the complications 42.5 per cent. Mr. H. G. Armstrong, medical officer to Wellington College, read a paper on June 27th, 1894, before the Medical Officers of Schools Association. He had not tried the treatment himself, but had asked other medical officers of schools and superintendents of metropolitan fever hospitals. Of twenty-three medical men who were asked—Does antiseptic inunction prevent infection?—nine said "yes" or

"probably," three said "no," two were doubtful, and nine had no experience. In answer to the question—Does the inunction shorten the disease or prevent complications?—seventeen said "no," four said "yes," and two expressed no opinion. The conclusions drawn by Mr. Armstrong, who somewhat ridiculed the treatment by calling it the "bacon fat method," comparing it with a method adopted at Hanover, were—(1) antiseptic inunction does not exert any specific power over infectious diseases; and (2) it has but little if any power in preventing the spread of infection. Mr. R. M. Bruce of the Western Fever Hospital treated 16 cases by antiseptic inunction; 5 cases were uncomplicated (equal to 31.2 per cent.), 11 cases showed complications (68.8 per cent.), and 1 case died (6.25 per cent.). Mr. Curgenven quoted statistics of a fever hospital of 16 cases in which 30 per cent. had suppurative complications and 1 case died from "lung disease." Dr. Sweeting, late of the Western Hospital, says "the advocacy of the eucalyptus treatment rests on a crude generalisation." Dr. Edward Little of Wimbledon reported favourably on the treatment. Dr. Thresh of Chelmsford reported (from his own experience and that of others) unfavourably. Mr. Peake of Shepherd's-bush and others supported Mr. Curgenven. Drawing a comparison between hospital and home nursing Dr. Priestley said that in Leicester during the ten years 1883–92 7612 cases of scarlet fever were notified: 4488 were treated in hospital, where the death-rate was 3.6 per cent.; 3124 were treated at home, where the death-rate was 8.2 per cent.]

In conclusion it will be understood that my only desire is to get at the truth of this eucalyptus treatment and to inspire my colleagues to scientifically investigate it, at least in regard to scarlet fever. There is, I think, more in it than the "bacon fat" of Mr. Armstrong, though less than the "hospitals disestablishment" of Mr. Curgenven. *In medio tutissimus ibis.*

Leicester.

CASES ILLUSTRATING THE SURGERY OF THE KIDNEY.

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(Continued from p. 608.)

JUST after correcting the proof of my last paper I was asked to see the patient described under Case 39 in consultation, and found that she had in some respects relapsed into the condition before the removal of the kidney. The urine is quite as bad as it has ever been—viz., bloody, pyoid, and extremely offensive—and the warty condition of the vagina has returned, though it is not as bad as before. There is no sign of inflammation or suppuration in the tissues of the loin above and around the ureteral stump, and the latter is to be felt quite distinctly as a small and very tender swelling about the size and shape of a large almond. There is no fever and the pulse is quiet and of good character. The patient takes her food fairly well, being not nearly so emaciated as she has been, and can get out and about when allowed to do so. It is, however, the getting up and getting about that reproduce all the mischief. When she is kept at perfect rest in bed, and has the bladder carefully washed out frequently with antiseptics, the urine gradually clears and becomes in time bright, acid, and normal, and the vaginal trouble also subsides. Then if she is allowed to get up almost immediately slight bleeding occurs at the end of micturition, and in a few days the urine is again in its old foul condition. Evidently the least movement sets up hæmorrhage, and then putrid suppuration in the little sac in which the stones lie. It seems clear that another operation will be necessary to remove the stump of the ureter and the calculi, and I believe the best way of reaching them will be by turning aside the peritoneum and its contents, a modification of Abernethy's operation for ligaturing the iliac artery. The chief risk of the operation lies in the probable adhesion of the parts to the peritoneum and the possible adhesion to the iliac vessels, as they are lying very near the point at which the ureter crosses them. The only alternative is a very prolonged rest in bed, but I do not feel at all confident, or even hopeful, that there