Richard Whytock Leslie (1862–1931)

President of the Ulster Medical Society 1912–13

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THE INFECTIOUS DISEASES INCIDENTAL TO SCHOOL LIFE: THEIR EARLY RECOGNITION, TREATMENT, AND CONTROL.

Fellows and Members of the Ulster Medical Society – The first duty devolving upon me to-night is to thank you – and I do so from my heart – for having exalted me to so enviable and honourable a position as your presidential chair. Believe me, there is no one who could esteem more highly this honour; and it is in my opinion enormously enhanced owing to the fact that it was utterly unexpected and entirely unsought. It is no easy task to be called upon to occupy a position that has been filled in the past by so many eminent physicians and surgeons. The task is moreover rendered still more difficult owing to the fact that the year of office of my immediate predecessor was a red letter one in our annals. But whilst it is with no little trepidation I enter upon my duties and responsibilities I shall endeavour to do my best, relying implicitly upon your sympathy and forbearance, and upon the co-operation and support I know I shall receive in no stinted measure from my good friend the Hon. Secretary.

Gentlemen, it has been more or less customary for each succeeding president to pass in review any outstanding events in the past year possessed of local or general medical interest. In accordance with that usage we have first to deplore the loss of two former presidents of this Society, Dr. Whitaker and Lieutenant-Colonel Macfarland, who have passed away full of years and amidst widespread expressions of regret.

Dr. Henry Whitaker was Medical Officer of Health for this city for more than fifteen years, and in this important position his relations with his professional brethren were always of a cordial nature. In private life he was one of the kindliest of men, the very soul of hospitality and generosity, and we remember him as one of our most gifted speakers.

Lieutenant-Colonel Macfarland will long be remembered in Belfast. He was a man of whom it might truthfully be said that "he wore the white flower of a blameless life." Retiring from the army after twenty years' service, mainly in India, he engaged in private practice, and very soon attracted a large and select clientele. He was a life-long total abstainer, and by his genial courtesy, and reasonable advocacy, he did much to commend his views to the acceptance of others. Colonel Macfarland was one of the pioneers of the St. John's Ambulance Association in the North of Ireland, and to the end of his days he manifested an absorbing interest in the work of the Association.

The sad death of Dr. Stuart Dickey has awakened deep sorrow in the Ulster Medical Society, whose proceedings have been more than once enriched by his contributions. Dr. Dickey's career, although brief, has been full of achievement, and he has left an enduring monument to his genius and painstaking researches in the invaluable Thesis published by him on the "Applied Anatomy of the Lungs and Pleural Membranes."

The death of Dr. R. C. Parke, of Newtownards, leaves another blank among the Fellows of the Society. Dr. Parke was a man of high standing in his profession. He was an excellent coroner, and as a sportsman and hunter of big game he enjoyed a more than provincial reputation.

The year now drawing to a close will long be memorable for that stupendous ocean tragedy that spread a thrill of horror across two continents, and plunged hundreds of homes into mourning and desolation. The thrilling incidents and heroic deeds enacted on that April morning, unparalleled in the records of the mercantile marine, are destined to live in history. Among the brave souls who on that occasion perished at the post of duty, without so far as we know making any attempt to secure their own safety, were two of our fellow-countrymen, members of our own profession. One of them, although not belonging to this Society, may well be regarded as one of ourselves.

John Simpson is worthy to rank among the heroes of our profession, and his name will long be held in remembrance along with that other hero from the western wilds whose memory is enshrined in this building.

Among the events of local medical interest occurring during the past year has been the opening of the New Ulster Hospital for Children and Women. I am sure every good wish for its continued prosperity

will accompany that Institution as it enters upon its new and enlarged sphere of usefulness.

The strained relationships at present existing between the Chancellor of the Exchequer and the entire body of the medical profession does not prevent us from heartily congratulating our esteemed colleague and fellow-member, Dr. Maguire, on his high appointment as Medical Commissioner of the Insurance Act for Ireland. Nor from congratulating Dr. Charles Dickson, a distinguished alumnus of the Queen's University, on his obtaining the important position of a Medical Inspectorship under the Act.

Undoubtedly the outstanding event of general medical interest occurring during the year has been the passage of the Insurance Bill, inflicting as it does so serious and intolerable an injustice upon our own profession, and giving rise to discontent, resentment and unrest amongs talmost all classes in the community. I do not intend to-night to discuss the Insurance Act, even did I possess a sufficient acquaintance with all its injustices, inconsistencies, and absurdities. No useful purpose would be served by further parley. The fullest representations have been made to the Chancellor on behalf of the profession, but up to the end of last month it really seemed as though that gentleman was one of those individuals, so aptly described by the late Oliver Wendel Holmes, "whose mind was like the pupil of the eye – the more light there falls upon it the more it contracts." On the 22nd of last month, however, Mr. Lloyd George announced an apparent concession upon one of the six points laid down by the profession. I think we may safely leave the consideration of the new proposals to our trusted advisers, but meanwhile I would venture to utter a note of warning.

Whilst we are familiar with the old adage that we should never look a gift horse in the mouth, the belated nag trotted out by the Chancellor should be carefully scrutinized; and bearing in mind the celebrated incident in ancient history I would repeat the caution disregarded upon that occasion, "*Timeo Danaos et dona ferentes*," and counsel you not to surrender our citadel until we have X-rayed the creature and satisfied ourselves that no instrument designed for sinister intent was concealed in its interior that might lead to our undoing.

At least one beneficent result has been produced by all this racket. The presence of a common danger has drawn us more closely together, and there is a spirit of friendly cooperation such as never previously existed in our profession.

Our ex-President, Dr. M'Kisack, is to be warmly congratulated upon his new work on "Systematic Case Taking." This little volume, which enhances Dr. M'Kisack's reputation as a medical author, will prove a valuable *vade-mecum* for both students and practitioners.

The action of the Belfast City Council in conferring the freedom of the city upon Sir Almroth Wright gave great satisfaction to the Fellows and Members of the Ulster Medical Society, who signalised the occasion by electing Sir Almroth an Honorary Member and holding a complimentary dinner in his honour.

I cannot allow this opportunity to pass without, I think I may say in your name, offering a cordial welcome to the Belfast Medical Guild, which has sprung into being during the past few months. It may be said with some truth that we have too many organisations already, and that all this zeal for co-operation and reform might find sufficient outlet in some of our older organisations; but it is never wise "to put new wine into old bottles," and I am confident that this association, which is in no sense antagonistic to any of our existing societies, will best fulfil the purpose for which it was inaugurated by proceeding along its present independent lines.

Fellows and Members of the Ulster Medical Society, I have been not a little exercised in my mind in the choice of a subject upon which to address you to-night, and in my final selection of "The Infectious Diseases Incidental to School Life: their Early Recognition, Treatment, and Control," I have been chiefly influenced by the fact that for the past 18 years I have acted as medical officer to one of the largest boarding schools in Ireland, and one which in many respects, and more especially in its self-contained provisions for dealing with infectious disease, approximates most closely to those great public schools, which are such a notable feature of English life.

It has occurred to me that my experiences during this lengthened period, and any conclusions I may have been led to draw, might prove a suitable topic upon which to address a society containing so large a number of general practitioners, and even if you discount or utterly disregard those conclusions, a faithful record of my experiences may prove of interest, and serve as a modest contribution to the sum total of our knowledge of the diseases with which I have had to deal.

I do not propose to deal exhaustively with all the infectious diseases to be encountered in school life; indeed it would be quite impossible for me to do so

within the compass of an address of reasonable length. I shall, however, trespass upon your patience while I submit a few tables of general statistics, illustrating some details of more or less interest, and subsequently discuss some of the diseases most frequently met with in the light of my personal experiences.

Table I.	Total number in 18 years	Average annual incidence	Per cent. per annum.
Scarlatina	43	2.38	1.90
Measles	89	4.94	3.87
Rötheln	68	3.77	3.01
Whooping Cough	6	0.33	0.26
Mumps	111	6.16	4.32
Chickenpox	14	0.77	0.61
Diphtheria	1	0.05	0.04
Typhoid Fever	2	0.10	0.08
Smallpox	0	–	0.00
Ringworm	15	–	–
Total	349		

TABLE I.

To show the total incidence of infectious disease at Campbell College from September, 1894, to July, 1912, with an average number of 125 in residence, inclusive of teaching staff, exclusive of servants' staff:

TABLE II.

It is noteworthy that of this total of 349 cases of infectious disease 306 cases occurred in the first and last three months of the year, only 43 occurring in the remaining six. It is remarkable that 210 cases out of the grand total occurred in February and March, the balance of 139 cases being spread over the remaining ten months. The greater preponderance of infectious disease in November, February, and March, apart from meteorological conditions, is to some extent due to the fact that there are no holidays in these months.

The comparative immunity from infectious disease in April, July, August, and September is of course to some extent accounted for by the inroads made upon these months by the vacations. This does not, however, apply to May and June, which also show a low incidence.

Table II.

To show monthly incidence of infectious disease at Campbell College from September, 1894 to July, 1912.

Name of Disease.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
Scarlatina	2	5	5	2	7	6	–	–	–	4	4	8	43
Measles	6	25	23								26	2	89
Rötheln	1	24	25	–	6	10	2						68
Whooping Cough	–	–	2	–	–	1	–	–	–	–	3	–	6
Mumps	1	50	35	–	1	–	–	–	1	6	13	4	111
Chickenpox ...	–	2	7	–	1	–	1		–	2	1	–	14
Ringworm	2	4	3	1	3		–	–	–	–	2	–	15
Typhoid Fever	–	–	–	1								1	2
Diphtheria ...													1
Smallpox													
Monthly Totals	12	110	100	4	18	17	3	0	1	13	49	15	
													Grand Total ... 349

Table III. Name of Disease	Number of times on which disease appeared in epidemics or sporadically	Number who had previously had disease	Number who had not previously had disease	Number who developed the disease at school	Percentage of those unprotected to develop disease
Scarlatina	7	120	619	43	6.94
Measles	5	541	198	89	45.00
Rötheln	6	70	669	68	10.2
Whooping Cough	3	472	267	6	2.25
Mumps	8	215	524	111	21.2
Chickenpox	6	323	416	14	337

These figures will, I think, compare favourably with any similarly situated combined boarding and day school existing in a large city where the boys are all under the same roof, and where so large a number of the parents residing in the near neighbourhood involves an increase in the number of exeats granted. I have purposely excluded influenza from this table, as it is not always easy to draw a hard and fast line between influenza of a mild or afebrile type, and the ordinary colds and coughs so prevalent in the winter months.

TABLE III.

To show the relative flash point of the predominant infectious diseases between the ages of 11 and 17, as indicated by the history of 739 pupils during a period of 18 years:

These figures clearly indicate that between the ages of 11 and 17 measles is by far the most infectious of the various infectious diseases. In other words it possesses the lowest flash point. There are, moreover, several circumstances that still further accentuate this fact. In the first place, one visitation of measles took place on the eve of the Christmas holidays, and 22 cases occurring at the pupils' own homes are thus eliminated from these statistics; so that 55 per cent. would more accurately represent the relative percentage of the incidence of measles amongst those unprotected. Again, next to whooping cough measles appeared on fewer occasions than any of the other infectious diseases. Mumps comes next in this comparison with a percentage of 21.2; rötheln third with 10.2; scarlatina fourth with 6.94; varicella fifth with 3.37; whooping cough last with 2.25. These statistics are in striking contrast with those of Dr. Clement Dukes who, as a result of 23 years' experience at Rugby, was led to regard Rötheln as next to influenza the most infectious of all infectious diseases.

The first disease I desire to discuss in some detail is scarlatina. I have often thought that an absorbing romance might be written relating the life history of the scarlatina microbe. I might perhaps suggest as a title, "A Study in Scarlet," or "Leaves from the Life of a Microbe," with apologies to Sir Arthur Conan Doyle!

One can almost picture to oneself this impish little miscreant chuckling with unholy glee as it contemplates the confusion and consternation created by its knavish freaks! There are, I think, few physicians engaged in general practice, not to speak of surgeons and accoucheurs, who have not been occasionally badly bunkered in the differential diagnosis of this disease. If there are any medical men in our midst who pride themselves upon their ability to distinguish with infallible accuracy between scarlatina and the different eruptive condition resembling it, to them I would venture to address the scriptural injunction, "Let him that thinketh he standeth, take heed lest he fall!" Certainly I can lay claim to no such distinction, and increasing experience, instead of inspiring me with increasing confidence, has led me to the exercise of redoubled caution.

A typical case of scarlatina, of course, presents no difficulty in diagnosis. Its sudden abrupt onset, with sore throat, difficulty of swallowing, nausea and vomiting, it may be diarrhoea. The high temperature and pungent skin, with a pulse accelerated out of all proportion to the temperature, followed in from twelve to twenty-four hours by the characteristic punctate or stippled rash appearing first upon the sides of the neck and chest, then extending to the trunk and limbs, with, it may be, a tendency to assume a papular form on the wrists and lower limbs. The so-called cutis anserina, the flushed cheeks, and by way of contrast, the striking pallor of the circumoral triangle, the livid and swollen tonsils, displaying pultaceous patches of inspissaled mucous, the erythematous rash on the soft palate with the frequent presence of stellate petechiae, the tongue coated with a thick creamy furr with the prominent filiform papillae at the sides, peeling on the fourth day, presenting the typical strawberry, or rather raspberry appearance, thus ushering in the desquamating process which begins on the sides of the face and neck about the seventh and eighth day – these physical signs complete a picture which the most inexperienced can hardly fail to recognize – but how often the appearances are far different? The constitutional disturbance being reduced to a minimum, many of the characteristic symptoms being conspicuous by their absence, the temperature it may be not exceeding 99°, the throat so slightly affected as not to give rise to any complaint, and possibly, even, not to attract attention, and the rash being faint, ill defined or evanescent – it is these cases that are so vexatious to the general practitioner, and which are the very bane of a school doctor's existence. It may be that increasing knowledge of the life history of this microbe, and the exercise of still more scrupulous care in our examination of all the symptoms, may lead to greater precision in our diagnosis, but I greatly fear that until our bacteriological friends have succeeded in finally isolating the microbe, and in not only providing us with an infallible diagnostic test, but also with a curative and prophyllactive vaccine, these vexatious

problems will continue to present themselves for solution.

The first epidemic of interest occurred in January, 1900, and in order to comprehend the difficulty of ascertaining the original source of infection we must retrace our steps to the 17th of December in the previous year, when on the eve of the break up for the holidays a boy developed unmistakeable measles. All the parents were made acquainted by circular with the fact, and warned of the possibility of their sons having been exposed to infection, thus enabling them if they desired to institute quarantine precautions. Twenty-two boys developed the disease at their homes. All the cases being pronounced measles by the several doctors in attendance. The first youth to be attacked sickened on December 25th; he was able to return to school on January 23rd. On February 1st, a case of scarlatina occurred at the College; on the following day the boy who had returned on January 23rd, after his attack of measles, met with an accident on the football field, and on examining him I found his feet and legs desquamating freely. On questioning him about his previous illness he admitted that, in addition to the usual catarrhal symptoms, he had suffered from severe sore throat and had had an intense rash. The suspicions aroused by the extensive desquamation were in no wise lessened by the significant fact that one of the boys who assisted in carrying him off the field developed scarlatina a few days later on February 5th. I need hardly add that I did not permit the injured boy to return to school until long after the desquamation had been completed and thorough disinfection had been carried out. I think, considering all the circumstances, there can be little doubt that the interpretation of this case is that the injured boy had developed measles and scarlatina concurrently on the previous Christmas Day.

There were in all 11 cases in this epidemic, and the only other circumstance worthy of note was the interval of seventeen days which elapsed between the second and third case. I hold, in common, I think, with most physicians that scarlatina never takes more than seven days, and rarely more than five days to incubate. In my opinion in the overwhelming majority of cases the period of incubation is from two to four days. When, therefore, after a break of seventeen days the next case occurred on February 22nd, plainly one of three causes was responsible: – (1) The extremely unlikely introduction of a fresh source of infection.

(2) The possibility of some boy who had suffered from scarlatina in a mild undetected form, being at large desquamating. I excluded this possibility by a careful examination of every individual in the building. There remained a (3rd) solution of the mystery which seemed to me the most probable, the fact that several cases of sore throat had occurred unattended by any other symptoms, both among those who had, and those who had not suffered from scarlatina previously. On referring to my notes, I find that during this interval of seventeen days no less than ten boys, two of whom had had scarlatina, suffered from sore throat without any other symptoms, and were quarantined for periods varying from three to fourteen days. I shall have occasion to refer later to this fertile source of disseminating the infection of scarlatina.

The next epidemic of scarlatina occurred in May of the following year, 1900. The manner of its introduction was interesting and instructive, and led to an important alteration being made in the wording of our Health Certificate. School re-opened after the Easter holidays on April 20, and on May 5 following, a boy developed scarlatina. As the most careful investigation failed to reveal the source of infection, I examined the whole school and found one boy peeling freely. When questioned as to whether he had suffered from any infectious disease during the holidays he said he had not, and his father had signed the usual health certificate to that effect. On cross-examination, however, he admitted having had a slight sore throat for one evening and a rash on one shoulder, that a doctor had seen him and pronounced it non-infectious, that all symptoms disappeared in twenty-four hours, and that during the remainder of his holidays he had mixed freely with other young people and been present at one or two evening parties. In spite of all these facts there was no room to doubt that he was suffering from scarlatina, and his own doctor, who subsequently saw him, endorsed my opinion. It is of interest to note that the boy who developed the disease on May 5th had travelled up to the College in the same cab from the railway station with this boy who was desquamating. There were in all ten cases in this epidemic. The dates upon which the cases occurred were as follows: – May 5, 16, 25, 29; June 8, 9, 10, 11, and 18. There were thus four intervals exceeding seven days apparently bridged over by cases of scarlatina, sore throat unaccompanied by other symptoms. These cases of sore throat are in my experience generally present in any considerable scarlatina epidemic. As I have stated, this experience led to an alteration in our Health Certificate. Formerly the parent had to append his signature to a declaration that his son had not, to his knowledge during the holidays now ending, been

exposed to any infectious disease. Then followed a list of the different infectious diseases. The following addition was now made – Further, if the boy, or any inmate of the house where he may have been resident, has had a sore throat or any form of rash or skin eruption, the circumstances must be communicated in writing to the Head Master before his return to school.

After seven years of peaceful and happy immunity, scarlatina again made its appearance in the summer of 1907. The first case occurred on May 14th, and as the second case did not occur until June 7th, viz., after an interval of twenty-four days, during which period no one had complained of sore throat, I felt certain that some boy in school was at large desquamating. Accordingly, as a preliminary step to the examination of the whole school, I examined all the boys who, for three or four weeks previous to the appearance of the first case of scarlatina, had suffered from any indisposition whatever. There were two boys who had complained of sore throat on April 30th and May 7th respectively. I had taken careful notes of both cases; the first boy had sore throat, slight cough, with labial herpes, no fever and no rash. The second boy had sore throat, headache, some catarrh, no fever and no rash. Both boys were kept out of school for several days. You can imagine my consternation when I state that I found both boys desquamating freely. Needless to say they were at once consigned to the Sanitorium, and, I am happy to say, no further cases occurred.

It is of interest to note that the two cases produced by the original mild ambulatory specimens were both of a severe type; indeed, they occasioned me more anxiety than all the other cases of scarlatina in my school practice combined. The first boy suffered from severe rheumatism and endocarditis. The latter suffered from enormous enlargement of the cervical glands, middle ear trouble with otorrhoea and deep sloughing of the tonsils, on one occasion giving rise to an alarming haemorrhage, which only yielded to the application of the actual cautery to the bleeding point. Looking back upon these cases it seems possible that there may have been rashes present previous to the time the first boys complained of sore throat and came under observation. It is worthy of note that although both boys had been at large in the school for nearly one month desquamating freely only two of their companions developed the disease.

The striking feature of the next scarlatina epidemic by which we were visited was the large number of boys who, during its prevalence, suffered from sore throat, unaccompanied by rash or followed by desquamation. There can, I think, be little doubt that these sore throats were an important factor in the spread of the disease, and in my opinion accounted for those cases which occurred after the lapse of intervals exceeding the maximum duration of the period of incubation of scarlatina. Thus the first case developed on October 16th, 1907, the next on October 26th, and during this ten days' interval eight boys were in quarantine undergoing treatment for sore throat unaccompanied by any other symptoms.

The next three cases appeared in quick succession on October 27th, 29th, and November 2nd; these were followed by another on November 25th, and during this interval of twenty-three days there were five additional boys in quarantine with sore throat. The next case occurred on November 30th, followed by three others on December 1st, 4th, and 7th. In all there were eleven cases of scarlatina and twenty-eight cases of sore throat, which were free from rash and other symptoms, and which were not followed by desquamation. During the Christmas holidays following this epidemic very drastic measures of disinfection were adopted. You can therefore understand my feelings when five days after school re-opened, on January 30th, 1908, another case of scarlatina occurred. Naturally I was beginning to doubt the thoroughness and efficiency of our own measures, elaborate though they had been. My misgivings, however, proved groundless, for subsequently we had good reason for believing that the disease had been introduced from without, at all events we had no further cases, and since that time, nearly five years ago, we have enjoyed immunity from this vexatious disease.

It seems to me that the most striking lesson to be learnt from the experiences I have just recorded is the frequency with which a scarlatina epidemic is accompanied by cases of sore throats, which do not present any special characteristic indicating their true origin and the sinister role they fill in disseminating the disease.

Dr. Clements Dukes lays particular stress upon this in his admirable book, “Health at School,” and my own experiences, if I rightly interpret them, emphasise the importance of adopting very drastic measures with all patients suffering from apparently ordinary sore throat during the prevalence of a scarlatina epidemic. There is a difficulty in estimating the exact length of the period of quarantine requisite in these cases and the best method of treatment to adopt. I would, however, venture to suggest that the following procedure should be observed:– They

should be kept in strict quarantine for a period of from twelve to fourteen days, during which time the throat should be swabbed once daily with glycerine of carbolic acid, one in twenty, and both throat and nose repeatedly sprayed with a solution of phenate of soda or formaline; at the end of this period if there is any desquamation they should be relegated to the scarlatina ward; if, on the other hand, there is no desquamation they may be released from quarantine, but only on "ticket of leave," and they should continue to use the antiseptic throat and nose spray, and be required to report themselves for observation every few days. I feel confident if this treatment were adopted an important reduction in the number of cases occurring would be affected.

Unquestionably there are times when the differential diagnosis of scarlatina is beset with difficulty. There are, I think, certain axioms which should be observed on all such occasions: –

(1) A final opinion should not be expressed based upon any one symptom but only after taking into consideration all the circumstances, including the season of the year, age of the patient, and the infectious diseases from which he has previously suffered.

(2) A final opinion should not be expressed upon a rash when only viewed by artificial light.

(3) A discreet physician will be careful to maintain his lines of communication so that if future developments should not substantiate the original opinion he may have formed it may be possible for him to negotiate an orderly and graceful retreat from a position no longer tenable!

(4) When after careful and systematic investigation the nature of the rash is still doubtful the case should be treated as though it were scarlatina.

It is obviously quite beyond the scope of this address to deal with all the diseases and conditions with which scarlatina may be confounded. I must, therefore, resist the temptation of discussing some of the rashes, resembling scarlatina, due to septic and toxic causes that I have encountered in the surgical ward of the Ulster Hospital for Children and Women, and confine my remarks to the difficulties I have met with in my school practice.

On one occasion I recollect a boy who suffered from obstinate constipation whilst undergoing treatment by soap and water enemata developed a diffuse erythematous rash closely resembling scarlatina, but the absence of any constitutional symptoms, the appearance of the inside of the mouth, the absence of the peculiar punctate appearance of the rash, and the conditions under which the rash appeared, enabled me to exclude the possibility of scarlatina. The same remarks apply to an erythematous rash, followed by desquamation that made its appearance in a boy who was being treated with belladona liniment applied under oil silk. I have never experienced any difficulty in differentiating between scarlatina and measles. I do not deny the possibility of such a problem presenting itself, but I am sure the occasions upon which this does happen must be much less frequent since the careful observations of Dr. Koplik have provided us with such a constant and reliable aid to the diagnosis of the latter disease. I have on several occasions during the prevalence of epidemic sore throat of influenza origin met with ill-defined erythematous blushes bearing some resemblances to scarlatina, but the absence of the peculiar stippled character of the eruption, the appearance of the inside of the mouth, and the attendant circumstances, have simplified the diagnosis. I confess, on the other hand, I have more than once experienced very considerable difficulty in differentiating between scarlatina and the scarlatiniform variety of Rötheln. I have little doubt now that Dr. Clement Dukes would have characterised such cases as examples of the "fourth disease," but as I have never had any personal experience of this disease (if it does possess a separate entity) appearing unaccompanied by any other type of rash, and as on this occasion an epidemic of Rötheln was in full progress in which many of the patients displayed rashes of the morbiliform variety, I prefer meanwhile to regard them as a modified type of the latter disease. The symptoms upon which I rely for distinguishing between these diseases, in addition to the history and attendant circumstances, are – first, with regard to the rash that even when confluent this is more so in outward appearance than when looked at closely, being composed of maccules rather than punctae; second, the fact that, as Heim has pointed out, when these maccules or punctae are firmly pressed by the finger, in both cases they for a moment appear quite pale. In Rötheln the original red point quickly reappears, the flush spreading from the periphery. While on the other hand in scarlatina the same red point does not reappear, but redness returns irregularly, beginning at the centre of the spot pressed upon. Then there is the presence of catarrhal symptoms accompanied by the so-called "pink eye," and the presence of maccules in the circumoral triangle points to Rötheln. Again, the appearances inside the mouth are generally different; whilst in Rötheln there is a diffused redness, and possibly a maccular appearance on the mucous membrane of

the soft palate, and inside of cheeks there is an absence of the patchy appearance of the tonsils and of petechiae on the soft palate, so common in scarlatina. Finally, there is the characteristic distribution of the enlarged glands in Rötheln, the post sterno-mastoid glands and post occipital gland being more usually involved.

My own experience has led me to form the opinion that the initial period is the most infectious stage of scarlatina. The persistance of an unhealthy state of the throat, with nasal or ear discharge, being the next most fertile source of either early or late infection, and the desquamating skin, even at a very late stage being an occasional, but less frequent, source of infection.

My own routine of treatment of scarlatina invariably includes the use throughout the entire illness of a nasal and throat alkaline spray, containing carbolic acid 1 in 80, the daily innunction of the skin and hair, with eucalyptus oil 1 in 6, beginning before the period of desquamation sets in; baths with carbolic soap are commenced at the conclusion of the febrile period prior to which I rely upon sponging.

In the *British Medical Journal*, published on October 31st, 1908, Dr. Robert Milne, Medical Officer of Dr. Barnardo's Homes, contributed a highly important and somewhat sensational paper on the "Home Treatment of Scarlatina," in which he contended that by the routine method of treatment, adopted by him over an extended period of years, the incidence of all complications might be greatly lessened, if not entirely prevented, the period of prolonged isolation with all its vexation and expense obviated, and the spread of the disease, sc far as personal contact is concerned, checked.

Dr. Milne's method is as follows:– For the first four days the patient is carefully rubbed twice daily from the crown of the head to the soles of the feet with eucalyptus oil, presumably in its purity. After this period the inunction is continued once daily until the tenth day.

As an additional precaution the throat is swabbed every two hours for the first 24 hours with carbolic oil 1 in 20. This would appear to be the entire treatment. Dr. Milne evidently possesses the courage of his convictions to judge by the very brief and elastic measures of quarantine he adopts. Whilst a careful perusal of the paper certainly does not carry conviction to my mind; whilst it does not appear to me that his premises entirely justify his conclusions; and whilst his method of explaining away any circumstances calculated to upset his theories is somewhat far fetched, still I think a case has been established for an experimental adoption of the method on an extensive scale without perhaps incurring the risks that Dr. Milne seems to have run, and, moreover, not with entire impunity. It may be added that the method is a revival more or less of that recommended by Curvenden and Priestly many years ago.

MEASLES.

I have already endeavoured in Table III. to prove that our next disease – measles – is, between the ages of 11 and 17, the most infectious disease of all the infectious diseases incidental to school life with which I am now dealing. Had I included influenza in the list I should have been obliged to concede to it the place of honour, inasmuch as one attack would seem to confer no immunity against a subsequent one. All the same, it would appear that in early adolesence the susceptibility to measles amongst those unprotected is well nigh universal. There is, however, one factor that must be taken into account, viz., the season of the year. Strange to say, we have not been visited by measles at Campbell College between April 1st and September 30th in any year. And in private practice in summer epidemics I have frequently encountered surprising instances of immunity amongst those exposed. In 18 years we have been visited by measles on five occasions, and we have had in all 89 cases. I have already dealt with the first epidemic occurring in December, 1899, when all but the initial case developed at the pupils own homes. The only point of interest in this epidemic is, as I have already pointed out, the apparent coincidence of this disease and scarlatina in one patient.

The next epidemic occurred in the spring of 1900 at a time when there were 114 pupils in residence. Of this number there were only 26 boys who had not already had the disease. The feature of this epidemic was that out of these 26, 22 pupils developed the disease – a further argument in support of my contention that measles possesses the lowest flash point, One other pupil developed the disease who had apparently suffered from a previous attack, and I may here state that I have only met with two such cases in the whole course of my school practice. We were next visited by measles in November of the same year when only one case occurred, due partly to the fact that the boy had been out of school with catarrhal symptoms for two days before the rash appeared, and partly no doubt to the paucity of potential victims, owing to the previous visitation in the same year. Up to this period I had not had an opportunity of making observations upon the presence or absence of Koplik's spots, although in common with others

relying upon the early appearance of a macular eruption upon the soft palate, I had been frequently able to anticipate the appearance of the rash for a few days and to institute quarantine precautions accordingly.

During the remaining two epidemics in 1905 and 1910 I was able to make some observations of the phenomenon first described by Koplik. As a result of which I have no hesitation in stating that we have been furnished with a most important and valuable aid to our early recognition of measles; and still more our early differentiation of this disease from the other exanthemata resembling it. I cannot do better than quote Dr. Koplik's own language in description of this phenomenon – "If we look inside the mouth at the period of invasion of measles we see a redness of the fauces, perhaps not in all cases a few spots on the soft palate. On the buccal mucous membrane and the inside of the lips we invariably see a distinct eruption which consists of small irregular spots of a bright red colour. In the centre of each spot there is noticed in strong daylight a minute bluish white speck. These red spots, with accompanying specks of a bluish white colour, are absolutely pathognomonic of beginning measles, and when seen can be relied on as a forerunner of the eruption. ... No one has, to my knowledge, called attention to the pathognomonic nature of these small bluish white specks and their background of red irregularly shaped spots. They cannot be mistaken for sprue because they are not as large nor as white as sprue spots. These spots are seen on the buccal mucous membrane and on the inside of the lips, not on the hard or soft palate. Sometimes only a few red spots with this central bluish point may exist – six or more – and in marked cases they may cover the whole inside of the buccal mucous membrane. If these spots are at the height of their development, they never become opaque as sprue, and in this respect when once seen are diagnostic, nor do they ever coalesce to become plaque-like in form. They retain the punctate character."

"The eruption just described is of the greatest value at the very outset of the disease. As the skin eruption begins to appear and spreads, the eruption on the mucous membrane becomes diffuse, and the characters of a discrete eruption disappear and lose themselves in an intense general redness. When the skin eruption is at the inflorescence the eruption on the buccal mucous membrane has lost the characters of a discrete spotting and has become a diffuse red background, with innumerable bluish white specks scattered on its surface. ... The mucous membrane retrogrades to the normal appearance long before the eruption on the skin has disappeared."

Out of the last sixty-four cases of measles, of which I have notes, occurring in two epidemics in 1905 and 1910, I observed these spots in thirty-eight cases (59.3 per cent.) at variable periods of time before the appearance of the skin eruption. Thus, I found them present in twenty-four cases one day before the appearance of the rash, in nine cases two days before the rash, in four cases three days before the rash, and on one occasion four days before the rash. I am bound to add that I fancied I detected them in two or three cases that did not develop a skin rash or any other symptoms; and in five or six cases I had no opportunity of inspecting the inside of the mouth before the skin eruption. As a result of my somewhat limited opportunities for making observations I am of opinion that the greatest benefit accruing from Dr. Koplik's investigations is that it provides us with a means to differentiate between measles, influenza, scarlatina, and Rötheln.

I am thankful to say that neither from measles, nor from any other disease has there been any mortality during the 18 years with which I have been dealing. At the same time we are only too familiar with the heavy toll in human life levied by this scourge among the children of the poor at an early age, and I should like, therefore, to embrace this opportunity of emphasising the urgent necessity there exists for having this disease, and also whooping cough, included among those for which compulsory notification is required in Belfast. It is surely high time that the members of our profession, through our several organisations, including that new and invaluable handmaiden the *Belfast Medical Guild*, should unite in bringing pressure to bear upon the local authorities to induce them to take this vitally important step in preventive medicine.

I have often marvelled how men possessed of ordinary intelligence could be so misguided as to endure pains and penalties rather than submit to compulsory vaccination with its overwhelming advantages and its entirely imaginary or infinitessimal risk, while they permit without a murmur their children of tender years to be dragooned into pestilential and overcrowded compounds where they incur such grave dangers of contracting this and other diseases. Surely this is "straining at a gnat and swallowing a camel" with a vengeance!

Time will not permit me to deal with this question as it ought to be dealt with, but the most cursory glance at the annual report for 1911 of the Medical Officer of Health for this city will render further

comment needless. If you refer to page 29 of this report you will find that the average annual death rate for the ten preceding years from measles, whooping cough, diphtheria, and scarlatina is as follows:– Measles, 206; whooping cough, 182; diphtheria, 38; scarlet fever, 17! Under these circumstances to enforce the Compulsory School Attendance Act, without first providing reasonable securities for the lives and health of the children, is to my mind little less than criminal.

RÖTHELN.

The next disease I have to refer to is Rötheln. I select this title out of the numerous synonyms in common use, mainly because of its brevity, and also because on the whole it is less likely to lead to confusion. It is most inconvenient that there is such an absence of uniformity in the nomenclature of this disease. One does not so often now hear it styled Rubella as heretofore, but German measles and epidemic Roseola are still in common use. I think most observers will not now deny the existence of the disease as a separate entity quite distinct from ordinary measles and scarlatina, both of which it may closely resemble. There are, however, many who are of opinion that the name Rötheln includes more than one entity. Unquestionably the striking want of uniformity displayed by even the most careful of observers lends some support to this theory. In my own comparatively limited experience I have found three different types of this disease – (1) The morbiliform variety with which we are most familiar. (2) The scarlatiniform variety which would seem to correspond very closely with the fourth disease described by Dr. Clement Dukes. (3) A variety which may be styled "sine eruptione," which I am confident is far more common than is generally supposed. I have quite an open mind on the question of the fourth disease or scarlatiniform, Rötheln being a separate entity. My own experience, however, up to the present does not justify me in admitting that it has a separate existence, and certainly I have never seen an entire epidemic of Rötheln to conform solely and exclusively to any single one of the types I have mentioned. Rötheln may be described as a specific contagious fever, with an incubation of from two to three weeks, characterised by the appearances of a macular rose coloured rash accompanied, or it may be preceded, for from two to three days by slight catarrh of the throat, nose, and eyes, enlargement of the cervical glands, particularly those in the post-sterno-mastoid and occipital region, and occasionally pain in the back with a feeling of general malaise. It is beyond all question now, that an attack of Rötheln in the vast majority of cases protects the individual from a recurrence of the disease, but is no protection against his contracting either measles or scarlatina. I am of opinion that the most frequent duration of the period of incubation is eighteen days. I have, however, seen it occur in less than fourteen days, and after an interval as long as, but not exceeding, twenty-one days. Although the rash is so frequently the first manifest symptom of the disease, I am satisfied from my own experience that it is quite erroneous to regard the appearance of the rash as the first symptom in reality, and the invasion to last for only one day. Again and again I have had patients undergoing quarantine for catarrhal symptoms or enlarged glands for two or three days before the rash developed. The rash, which has been described by Heim as resembling spots of darkish red ink on white blotting sheet, appears first on the brows, temples, behind the ears and round the mouth. It may either come out in instalments or simultaneously over the entire body, which is the way in which the scarlatiniform variety appears. While these papules or maccules have a tendency to arrange themselves in patches, they have not the crescentic outline usual in measles. Again, though the eruption instead of being discrete may appear to be confluent, a closer inspection shows that the papules do not really coalesce to form patches, but the intervening spaces are occupied by a uniform Roseolar erythema. The catarrhal symptoms are rarely so severe as they are in even a mild attack of measles. Sore throat is a fairly constant symptom, and choryza is present in a large number of cases. The "pink eye," due to the catarrhal conjunctivitis of this disease, is to my mind when present almost pathognomonic. It certainly presents a totally different appearance to that seen in the conjunctivitis of measles. Lastly, there is the marked enlargement of different groups of the lymphatic glands. Perhaps they might be enumerated in the order of frequency, as post- sterno-mastoid, occipital, inguinal, and axillary. The enlargement of the first group mentioned is often a very marked feature, particularly the glands immediately over the mastoid process. Indeed I used to rely upon this latter sign as almost pathognomonic of the disease. I have, however, seen this chain of glands not infrequently affected in measles. There have been six different occasions upon which Rötheln has appeared at Campbell College, and the only occasion on which the diagnosis presented any particular difficulty was once when a number of the cases closely resembled scarlatina.

Our first visitation occurred in May, 1896, when

only two boys developed the disease. The next occasion was in January, 1901. On this occasion we had forty-five cases, all of which conformed to the morbiliform type except two who had the catarrhal symptoms present to a striking extent, but were unaccompanied by a rash. During the progress of this epidemic two boys developed varicella. Next autumn German measles appeared again, but only one boy took the disease.

The third visitation possessed greater interest. On February 2nd, 1903, a boy developed sore throat and eyes with catarrhal symptoms, followed almost immediately by a rash closely resembling scarlatina. The constitutional symptoms were very trivial. The throat was not patchy, and whilst there was an erythematous appearance cn the soft palate, there were no petechiae. The post-sterno-mastoid glands were enlarged and particularly prominent over the mastoid process, the temperature never exceeded 101°. The rash in this case certainly closely resembled scarlatina, but it could not be described as punctate, there was a distinctly papular element and the circum oral triangle was not exempt from the eruption. The case was followed by a moderate degree of desquamation, which, however, was not completed for one month. I was by no means certain of my diagnosis of this case, but of course I adopted all precautions as though it were scarlatina. On February 22nd, twenty days later, another pupil developed an absolutely characteristic attack of morbiliform Rötheln.

On March 3rd two boys developed sore throat and conjunctivitis, unattended by any marked glandular enlargement and not followed by the manifestation of a rash.

On March 4th a member of the servants' staff developed sore throat and eyes with enlarged post cervical glands, and a rash which began behind the ears, at first papular in type but ultimately becoming scarlatiniform in appearance. There was no desquamation in this patient beyond a slight branniness.

On March 5th a boy came under observation suffering from glandular enlargement with stiff neck conforming to that usually seen in Rötheln but not accompanied by rash or sore throat.

On March 6th another boy developed sore throat and eyes with a distinctly measly rash. There were no further cases occurring attended with a rash, although some other boys suffered from sore throat or catarrhal symptoms. Strange to say, as on a former occasion when Rötheln was prevalent, three boys developed varicella on March 16th, 31st, and April 3rd.

If I am correct in interpreting this epidemic as Rötheln it would certainly seem to justify my classifying the disease into three distinct types.

Our next visitation occurred in May, 1905. On the 15th of that month a boy developed Rötheln, who, fifteen days previously had come in contact with an inmate of his father's house reputed to be suffering from acute urticaria.

The second case occurred on May 27th. There were in all sixteen cases of the disease, including four boys who only complained of stiff neck due in every case to marked enlargement of the post-sterno-mastoid glands, and who had no rash or catarrh. 1 wish to emphasise this feature of the epidemic. It is probably more common than has been reported, and I have no doubt that all cases of stiff neck occurring during the prevalence of Rötheln should undergo strict quarantine.

MUMPS.

My experience of this disease has been both extensive and varied. I have already demonstrated by the statistics I have presented that in point of infectiousness mumps is at the ages I have dealt with second to measles. In table No. I. I have shewn that the percentage per annum for eighteen years was 4.32, and in Table No. III. I shew that the total percentage of those unprotected who during a similar period contracted the disease was 21.2.

It is also worthy of note, as indicated in Table No. II., that only two cases out of a total of 111 occurred in the half-years beginning with April and ending with September 30th. I regard mumps as a profoundly interesting and by no means trivial complaint.

In my opinion nineteen days is the commonest duration of the period of incubation, although I have known this period to be as short as thirteen days and as long as twenty-five days. I have strong presumptive evidence of the possibility of mumps, like all the exanthemata, being conveyed by a third party.

Whilst the commonest initial symptom of mumps is the acute enlargement of one or both parotid glands, with its accompanying fever and constitutional disturbance, the parotid enlargement occasioning pain and stiffness in yawning, and mastication, and giving rise to tenderness on pressure behind the angle of the jaw and over the site of the socia parotidis on the cheek, it is well to bear in mind the possibility of the earliest symptoms being a swelling in one of the submaxillary glands, the onset of orchitis, or even presumably the development of acute pancreatitis. In all there have been eight occasions in the eighteen years with which I am

dealing on which mumps has made its appearance.

The first occasion was in October, 1895, when two cases occurred presenting no special features of interest. In the latter months of 1896, we had an epidemic of the disease in which twenty-one cases occurred. I find on referring to my notes that there were no cases of orchitis on this occasion, but in two boys the disease was confined to one submaxillary gland.

In October, 1902, the disease appeared again, but only one boy developed it.

In February, 1904, we had an extensive epidemic. In all fifty-two boys developed the disease – nearly 50 per cent. of those unprotected. Among these cases three boys developed orchitis, one upon the third and two upon the 6th day of the illness. In four other cases the only gland to be attacked was the submaxillary. It was during this epidemic that I first encountered a complication that I now know to have been acute pancreatitis.

A day boy developed mumps on March 16th. The early symptoms were exceedingly mild. On the 21st instant, however, at a time when the fever had left, and the parotid enlargement was greatly reduced, he suddenly developed violent uncontrollable vomiting with intense pain and tenderness in the neighbourhood of the epigastrium. There was no return of the fever nor recrudesence of the glandular enlargement. The tongue was moderately clean; there were no head symptoms, nor any symptoms pointing to obstruction of the bowels. The urine was quite normal. Nevertheless the symptoms continued for six days, at the end of which time the patient was in a semi-collapsed condition. During these six days he was fed by nutrient enemata, the only food that would stay when administered by mouth being buttermilk. I confess I was greatly puzzled by this case, and at the time I did not suspect what I now believe to have been its true nature. I erroneously interpreted the epigastric pain to have been due to the incessant vomiting. Had I had an opportunity of examining the stools, possibly the true nature of the complication would have been revealed to me.

Isolated cases of mumps occurred during Feb., 1908, and Jan., 1909, the last epidemic with which I have to deal appearing in February of the present year. On this occasion 32 boys developed the disease. There was an unusually large number who suffered from orchitis, no less than nine altogether. The days of the disease upon which this complication appeared being as follows:– In one case orchitis was the initial symptom, and one submaxillary gland was subsequently attacked. In another case it appeared on the second day, in two on the fourth day, in one on the fifth day, in two on the seventh, in one on the eighth, and in one on the eighteenth. In four boys the disease attacked the submaxillary gland, the parotid escaping altogether. Two of these suffered from orchitis; one in addition developed acute pancreatitis in an unmistakable form. This boy developed submaxillary mumps on February 26th, orchitis on March 1st, and acute pancreatitis on March 4th! The latter disease was ushered in by violent vomiting, with great epigastric pain and tenderness. The tenderness extended over a large area, and was well marked over the duodenum and head of the pancreas. The stools on two occasions had on oily appearance and contained blood. There was no fever, but the boy for two days was in a very serious state. The vomiting in this case, unlike the other instance I have recorded, subsided in two days, and the boy made an uninterrupted recovery. Up to the time of this epidemic I had never seen nor heard of acute pancreatitis occurring as a complication of mumps. Since then, however, I have been consulting journals and other sources of information, and I find that Dr. Gordon Sharp, of Leeds, published a very interesting series of cases of this complication in 1909. The probability is that it is more common than is generally supposed. Serious as this complication is, so far as I can ascertain, it seems to be invariably followed by recovery.

From the figures I have submitted you will note that in 111 cases of mumps I met with 12 cases of orchitis, rather more than 10 per cent. 1 have been greatly impressed with the great severity of the constitutional symptoms attending this complication. In 5 cases, the temperature reached, and once exceeded, 105°. This has also been a frequent experience of mine in private practice. It need not, however, give rise to any great anxiety, as in all the cases I have seen the symptoms yielded rapidly to treatment.

It is with the utmost diffidence I venture to offer any suggestions as to the treatment of this troublesome complication of mumps. In a comparatively recent local lawsuit, the leading legal luminary in this island appeared to contend that it was in the province of His Majesty's Judges to decide as to the legitimacy or propriety of the particular therapeutic measures to be adopted, and that the unfortunate medical attendant was entitled to bear the brunt of any ulterior consequences that might result from the inherent stupidity of his patient. At the risk, therefore, of incurring the disapproval of this supreme therapeutic tribunal, I will briefly indicate

the lines of treatment that I have found most beneficial!

It so happens that I have never myself used belladonna locally, although I fully recognise its propriety and utility. I am in the habit of relying on the internal administration of vinum antimonial. Local support to the part by a splint or pillow is indispensable. As a topical application I prefer an iced lotion of lead, opium, and spirit, occasionally substituting for this antiphlogistine applied hot, and in the less acute stages an ointment of icthyol. It may be necessary at a still later stage to use an ointment of oleate of mercury, but in my experience the necessity for this rarely arise.

In conclusion, allow me to thank you for the patient hearing you have accorded to a far too long and I fear somewhat rambling address.