

are mixed, any separation of water that may occur is removed, and in this way a clear mixture of ammoniated chloroform is obtained ready for use. In administering this compound by inhalation of the vapour, I put two fluid drachms of it into a small Wolf's bottle, and connect the bottle with a leather inhaler armed with an expiratory valve. The mouth-piece of the inhaler is held close to the mouth and the patient is instructed to inspire until bubbles of air are drawn pretty freely through the fluid in the bottle. The inhaler is in this manner charged with the vapours which are drawn into the lungs.

From the first the ammonia vapour is deprived of much of its pungency by the presence of the chloroform, and in time, as the narcotic begins to take effect, the pungency of the ammonia is covered so effectually that larger quantities of it can be inspired without cough or irritation. During the past week, in a puerperal case under the care of my friend, Dr. Rogers of Berners-street, in which I suggested this method in consultation, the patient inhaled freely every two hours for three days without the slightest discomfort and with obvious direct advantage. The effects of the inhalation seem to me to extend in four directions:—1. Under the sedative action of the narcotic relief from pain is obtained and repose, if not actual sleep, is secured. 2. Under the combined influence of the vapours there is reduction of temperature. 3. Under the influence of the ammonia there is a sustained fluidity of the blood and a production of freedom of secretion. 4. Under the action of the combined vapours there is an antiseptic result which is always favourable.

These are the points to which in this short paper I desire to call attention, dealing rather with a great and new principle of treatment than with its details. The principle is that through inhalation we should learn how to reduce zymotic fever at once, with direct precision, and without employing any of those medicinal agents which have to pass slowly into the system by absorption through the stomach, have to pass out of the system by slow elimination, and after all do not immediately command the position that ought immediately to be attained in the management of acute disease.

This principle once found to be correct, details will follow easily enough. I know at present of several vapours which reduce temperature more rapidly than those I have named, and I dare say there are vapours which are less complex than those, and yet possess the same properties. I can conceive again that in some forms of zymotic fever more or less alkaline vapour may be required than in other forms, and so on. These details will be subjects of independent and most interesting research. The end and object of such research, founded on the basis now suggested, will be to place living beings affected with what are now called fatal diseases of the acute type in such conditions that those human beings cannot die. I do not for a moment pretend that by the method I have here put forth we shall directly attain this goal, but I shall have played no bad part if I have taken a child's first step in so immortal a journey.

ON A

## FORM OF LATE RICKETS ASSOCIATED WITH ALBUMINURIA, RICKETS OF ADOLESCENTS.

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MY attention has lately been directed to a form of rickets occurring about the age of puberty, the true cause of which I do not think has been hitherto described or discovered. The first case that came under my notice was a pianoforte tuner, seventeen years of age, who consulted me in 1877 for lateral curvature of the spine. The constant elevation of the right arm in his employment had led to great projection of the right shoulder, and the double curve was well marked. His thorax was also distorted in the form known as pigeon-chested. There was some beading of the ribs and enlargement of the wrists. The pallor of the man led me to examine his urine, and I found that it gave a considerable precipitate of albumen on the addition of nitric acid.

The true cause of the albuminuria I did not in the least suspect, and I lost sight of him without, I believe, rendering him any great benefit. Dr. Moxon published his paper on chronic intermittent albuminuria in the Guy's Hospital Reports for 1878, and, under the title of Albuminuria of Adolescents, alluded to the cause which, I think, will be found common to both this late rachitic condition which comes under the notice of the surgeon and the albuminuria, which has probably hitherto been more frequently detected by physicians. Since the publication of that paper I have from time to time occasionally detected albuminuria in cases of curved spine and bent bones; but it is only lately that I have learnt definitely that the phenomena of late rickets and albuminuria are too frequently connected to be matters of chance, and that the latter is often an important symptom indicating the cause of the former. The form of rickets which it is the object of this paper to point out, I would suggest, should be called the "rickets of adolescents," so as to associate its etiology with the albuminuria of adolescents pointed out by Dr. Moxon. It is possible that some may take exception to the term rickets as applied to these cases, but I have not the slightest doubt in my own mind that the general condition under consideration is essentially the same as that brought about in early life by defective diet and consequent mal-nutrition—factors which may be regarded as contributing to the rickets of adolescents. Late rickets presents certain differences from the rickets of early life dependent upon the greater maturity of the skeleton, and those who regard the disease as simply a bone affection may be slow to recognise its later manifestations. The enlargement of the epiphyses, as would be expected from their more extensive ossification, is never so great as in early life, and the disease more commonly shows itself first in a yielding of the ligaments rather than in a bending of the bones. The skull, too, which in early life presents under the influence of rachitic health such remarkable and characteristic changes, escapes when ossification is far advanced. A certain amount of enlargement of the epiphyses will, however, be generally observed, and, in severe cases, a considerable degree of bending of the bones. I do not think that it is yet generally recognised how many cases of lateral curvature have their origin in the rickets of early life, which may go on unrecognised till a new depressing influence causes the curvature to become more pronounced. There is still a wide-spread notion that only a general backward curvature results from rickets, whereas the spine may be predisposed by this disease to bend in any direction, and lateral curvature from rickets is not only not rare, but very common among children. Knock-knee and flat-foot are among the more common and earlier signs of the late rachitic condition, because, as I before remarked, the bones and their epiphyses, having become extensively ossified, do not so readily indicate the general change. A large proportion of the cases of lateral curvature in males, commencing about puberty or somewhat later, will come under this category, and in many albumen will be detected in the urine. Whether similar deformities which are frequently met with in growing girls are also associated with albuminuria I am unable to state, as the difficulties in out-patient practice of examining the urine of females are very great, and I have made no observations; but I have long been of opinion that the rachitic state of health which may be observed about the age of puberty is imperfectly accounted for by the temporary indispositions consequent upon the menstrual molimina. The author of the paper to which I have alluded had at the time of writing made no observations on females, and if the albuminuria of adolescents were confined to males, it might be a question how far a mixture of secretions with the urine was the cause; but from the quantity present and the early age at which it is sometimes found, the more probable explanation seems to be that the renal organs lie within the radius of sympathetic irritation.

The following cases of rickets of adolescents have recently come under my notice:—

A boy, aged fifteen years, who was employed in an insurance office, was brought by his mother among my out-patients at Guy's Hospital in January last. He had been ailing in health and growing gradually weaker during the last twelve months. He had complained of pain in the back, weakness of limbs, and general lassitude. Of late he had been unable to run up the steps of the office in which he was employed as errand boy. It was noticed that he was walking

on the inner side of his feet, and that his knees bent in. On examination we found that the epiphyses of his ankles were large, and that the arches of his feet had given way. He was also suffering to a slight extent from genu valgum. When his back was stripped we found that he had a quadruple curve in the spine, and there was also slight enlargement of the growing extremities of the ribs. His urine treated with nitric acid gave a large supernatant precipitate of albumen. This boy was cautioned as to his habits, and treated with phosphate of iron and cod-liver oil. In about two months the albumen disappeared, and he had sufficiently improved in health to return to his employment.

At the same time another boy, aged twelve years, came under my care at the Evelina Hospital for Sick Children, suffering in the same way. He had general bending of his spine, causing it to project backwards, his head dropping forward over his chest. There was slight general enlargement of the epiphyses. He was pale and vacant in manner. His mother brought him because his spine had grown out, and he was so weak that he was unable to do anything. He was treated in the same way, and cautioned as to his habits. He became much more upright in a few weeks, and was gradually gaining strength when last seen.

A third case came first among my out-patients at Guy's Hospital on April 12th. He was a lad, aged sixteen years, employed as a plumber, and sought advice on account of genu valgum on the right side, which had been giving way for twelve months. He had pigeon-chest and general enlargement of his epiphyses, but the arches of his feet had not yielded. On testing his urine with nitric acid, we found it contained a considerable quantity of albumen. He had enlarged tonsils and dilated pupils. He admitted his culpability, and was put on the same general treatment as the other cases.

A fourth case came among my out-patients at Guy's Hospital on April 19th. G. W—, aged fifteen, complained that he had suffered from aching pain and weakness of the right ankle for some months. He had spurious valgus of the right foot, with enlargement of the epiphyses of both ankles. His thorax was pigeon-chested, probably from old rickets. On testing his urine with nitric acid, it gave a well-marked precipitate of albumen.

The foregoing observations will indicate the inutility of merely treating deformities by means of splints and apparatus, as if they were but local affections. The rachitic condition of adolescents has usually one cause, which may be generally discovered by testing the urine. The discovery of albuminuria renders it easy for the practitioner to give such advice as may prevent this unhappy class from persisting in habits which would cause their deformities to become permanent.

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## RUBEOLA :

EPIDEMIC ROSEOLA, RÖTHELN, SO-CALLED "GERMAN MEASLES."

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*Founded on 145 Cases: Males, 65; Females, 80; under fifteen years, 13; above fifteen years, 132; oldest patient, female, fifty-four; Mortality, nil.*

ESSENTIALLY a disease of adult life, rubeola frequently attacks those who are "capable" at the menstrual crisis; but this is not so generally the case as in scarlatina. Most cases occurred in the half year January to June, 1880, when both scarlatina and morbilli were very prevalent, and both at that time and subsequently these diseases were observed to occur simultaneously, or to follow each other in rapid succession in the same household. This, however, is not always the case.

*Specific nature.*—There can be no doubt that rubeola and scarlatina are distinct diseases. Case could be piled upon case to show that one does not protect against the other, and in my own experience there have been numerous instances of their following each other in the same patient at intervals of from three days to twelve months. That it is not identical with morbilli I have no doubt either, and clinically there is little difficulty in distinguishing them, but cases of their rapid succession in the same patient are

not common, and therefore the difficulties of absolute proof are increased.

CASE 1.—E. B—, aged sixteen years, had morbilli in December, 1879; was admitted with rubeola in January, 1880, and developed scarlatina a few days later.

CASE 2.—In March, 1880, two sisters at a school had "the measles." A fortnight later two servants who had tended them in the early stage developed "the measles," and were sent to the fever hospital, where they were found to have rubeola. These were the only cases of illness in the school. In May, 1880, one of these young ladies was sent to the fever hospital with the measles (morbilli and pleuro-pneumonia), of which she died, and in November, 1880, the other sister was admitted with scarlatina, which followed an ordinary course.

CASE 3.—E. O—, aged sixteen years, had scarlatina in January, 1882, rubeola in April, 1882, and severe morbilli in May, 1882.

CASE 4.—J. O—, aged four years, had scarlatina in January, 1882, rubeola in March, 1882, and morbilli in June, 1882.

CASE 5.—H. O—, aged three years, had scarlatina in January, 1882; rubeola in March, 1882; and morbilli in June, 1882.

Cases 3, 4, and 5 were sisters, and members of a household of nineteen. Nine had scarlatina and four scarlatinal sore-throat in January, 1882; nine had rubeola in March, April, and May, 1882; and five had morbilli in May and June, 1882. Except these last five, the rest of the household had had morbilli previously.

*Infectiousness.*—The cases reported in these notes show this very clearly. My experience would lead me to regard morbilli as most infectious, scarlatina as longest so, and rubeola as least so both in potency and duration. The accidental introduction of morbilli into the scarlet fever wards (two-thirds children) caused me upon one occasion more trouble and anxiety than all my other duties combined. The coughing and sneezing child infects the air far and wide before the rash appears, and, unless the most stringent and early measures are adopted for its suppression, the disease makes rapid headway. Scarlatina, however, under corresponding circumstances, will not spread if the patient and his immediate surroundings be removed, the bedstead, &c., scrubbed with some disinfectant, and a plentiful supply of fresh air secured. With rubeola, the removal of the patient, though advisable, is not necessary, provided his bedding, &c., can be kept absolutely distinct, and others kept away from his bedside, and plenty of fresh air be obtained. In about a week he may safely mix with others. These remarks are based upon actual practice.

At the London Fever Hospital, where from want of funds the committee had to force the medical staff to treat in the same wards rubeola, morbilli, typhus, enteric, diphtheria, doubtful cases, and other diseases—such as pneumonia, &c.—only one patient (suffering from enteric) contracted rubeola, and one (suffering from rubeola) morbilli. Nevertheless, in about two years over 500 patients were treated in these wards. It is not difficult to understand why morbilli spread only once, for this disease is essentially one of childhood, and most of the other patients were adults, and even when children had already had that affection. The mildness and brevity, or absence, of all the real or supposed sources of infection—catarrh, sore-throat, discharges, desquamation—reduce rubeola almost to the category of the strictly contagious disorders, and put it on a par with diphtheria, hence the precautions indicated above proved sufficient. It would be unfair to infer from this any identity between morbilli and rubeola, just as it would be to do so between these and enteric typhus, or diphtheria, for neither did either of these ever spread except to nurses and other direct attendants upon the sick. With regard to typhus, I never had more than two cases in the same ward at one time. To the nurses was the credit due, for by devotion to duty and loyalty to the medical officers they were unremitting in their endeavours to keep the bedding, &c., separate, and to "boycot" these diseases. The building in which these 500 odd mixed cases had to be treated is from window to window nine feet from the female scarlet fever wards (through which there passed during the same period over 800 cases), and connected to them by a covered corridor; and yet not once did scarlet fever spread to that building, notwithstanding that the physicians, the assistant resident medical officer, the matron, the night superintendent, and myself especially went freely from one to the other. With facts like these before one it is impossible