duced by the calculus; the latter, to one of two causes, the presence of a second stone, or worms. I prescribed a strong dose of calomel and scammony, and had my diagnosis confirmed by the expulsion of two large lumbricoides, which were doubtless the cause of the first attack.

I do not know whether this be an isolated case of encysted calculus being removed by lithotomy, but I cannot find a similar case related by the authorities in my small library. If my memory serves me rightly, there was something said at one of the societies last session about adherent and encysted calculi. This was certainly not simply adherent, but encysted for about three-fourths its surface, the margin of the cyst feeling somewhat like the os uteri when partially dilated.

I need scarcely remark, that I considered myself exceedingly fortunate under the circumstances, though the *vox populi* is not always the *vox Dei*.

ON ECZEMA INFANTILE.

By ERASMUS WILSON, Esq., F.R.S.

[*Read before the Annual Meeting of the British Medical Association, July 31st*, 1856.]

INFANTS at the breast and young children are peculiarly subject to eczema, and in them it is apt to assume the severest form presented by cutaneous disease. In young infants it commences at the end of the first month or six weeks, and unless submitted to proper treatment may continue for months and years—in fact, it may lay the foundation of a cutaneous disease, which may be prolonged in a chronic form until manhood, or may hang about the patient for the remainder of his days.

Eczema infantile, like eczema adultorum, originates in malassimilation, and with good reason is commonly ascribed to a faulty secretion of milk on the part of the mother: but when once established, it is not remedied, as might be expected, by the withdrawal of the cause and the substitution of a different and less faulty food. Unsuccessful attempts to cure the disease probably carry the child on to the period of cutting the teeth; then the continuance of the disease is attributed to dentition—this time, without so good reason—and hopes are raised that when the milk-teeth are perfected, the disease will subside. The milk-teeth are all cut, but still the eczema lingers, and then a new light of prophecy beams upon the little patient: when puberty arrives, then certainly the disease will go: but puberty possesses as little of the physician's art as change of food, or completed primary dentition: and so the malady becomes perpetuated. I have seen this picture in life so frequently, that I could not refrain from sketching it.

It is remarkable how trivial an exciting cause may become the origin of this distressing malady. A lady, six weeks after her confinement, travelled by the railroad from London to the sea-coast, carrying with her her infant. She was chilled by the journey, was feverish during the night; her infant was feverish the following day and threw out an eruption of eczema; the child was brought to me some months afterwards. Recently, a neighbour brought me her infant covered with eczema from head to foot. The child was a few months old; in her confinement the mother lost her husband under painful circumstances; the distress caused by this affliction was transmitted to the offspring as an eczema rubrum. How small is the cause of malassimilation in these cases, which may be taken as the type of the whole family; how easily is the assimilative function of infants disturbed; how difficult is it often to be restored.

When cutaneous eruption attacks an infant under these circumstances, it revels in all the typical and modified forms of cutaneous disease. At the same moment, and on the same child, may be seen erythema, lichen, strophulus, eczema, impetigo, pityriasis, and psoriasis: and an observant nurse seems to take a special delight in pointing out the various diseases which pervade the flesh of the poor little sufferer. In certain parts of the body erythema is apt to prevail; but a broken or cracked state of the skin, with however small a degree of ichorous oozing, must determine the case to be eczema. On the back, lichen is apt to predominate: on the head, in the bends of the joints, and on the pudendum, eczema: on the cheeks and ears, eczema impetiginodes; all on the same skin, and in gross defiance of the orders, genera, and species, of the Plenckio-Willanean method of classification.

The predominance of one or other of the typical forms of cutaneous eruption, is determined by the condition and temperament of the infant. The child may present every shade of variation of appearance, from a state difficult to distinguish from complete health, to one in which the little thing is attenuated and shriveled up, and looks like a little old man. In the former extreme, however ruddy and full the child may seem, there is evidence of an existing weakness, in the softness of its muscles; but with that exception, no trace of disorder of constitutional health can be discovered. Next to softness of muscles comes pallor in a slight degree, then an increasing whiteness of the eye, attributable to progressing anæmia: then follows emaciation; the skin shows signs of wrinkles, becomes dry and discoloured, and ultimately sordid. With these, the outward signs of the disease, malassimilation in fact, there is rarely any disturbance, or but little, of the digestive organs; the child takes its food well, and is not particularly restless or fretful. Sometimes the motions are green, sometimes mingled with an excess of mucus, and sometimes white from suspended biliary secretion: but there is nothing beyond the commonest gastro-intestinal derangement, and that in a very insignificant degree.

The eruption usually commences as a patch or blotch of slightly raised pimples; the patch is itchy, is rubbed, increases in size, becomes more inflamed, the cuticle is raised in more or less defined vesicles, which are usually broken by friction; the surface becomes excoriated, somewhat swollen, and pours out an ichorous secretion, varying, from a mere oozing, to an excess which wets through every thing that is applied to it. With the increase of irritation consequent on the excessive secretion and the congestion which gives rise to it, the patch spreads; where the eruption commenced by several blotches, they probably run into one; the ichorous discharge also increases the local disease, by irritating the parts over which it flows. The case up to this time is one of inflammatory eczema, or *eczema rubrum;* the state of *eczema simplex* has hardly existed, and is only to be seen occasionally; but the disease still runs on, its violence increases, and the morbid secretion, from being a transparent and colourless ichor, like water in appearance, becomes slightly opaque (tinea mucosa), milky, then yellowish and semi-purulent, and the case is transformed into *eczema impetiginodes;* or the discharge may take on a still more decidedly purulent character, while small pustules are developed on the red and tumefied skin around the patch, and then the case is one of *impetigo*. Thus the *plus* or *minus* of these pathological conditions is irrespective of the cause or essential nature of the disease; in other words, the disease being the same, it may, according to the temperament or constitution of the child, be an erythema verging upon eczema; an eczema rubrum; an eczema verging on impetigo, or eczema impetiginodes; or the pustular element being in excess, it may be an impetigo. Again, as I have before said, whatever the predominating character may be, whether erythema, lichen, eczema, or impetigo, there will always be present, in a greater or less degree, some or the whole of the other forms sprinkled over the body; a simple erythema here, an erythema with strophulus or lichen there; a few scattered vesicles of eczema in a third place, or a few congregated psydracious pustules of impetigo in a fourth.

In this description of the general characters of eczema infantile, I suppose the eruption to be comparatively undisturbed; but that is rarely the case—the great heat, the

prickling, the tingling, the intense itching which accompany the disease, render abstinence from rubbing and scratching impossible; hence these have to be added to the causes of aggravation of the local disorder. Again, the burning heat of the skin on the one hand, and exposure to the atmosphere on the other, tend to desiccate the surface very rapidly; the contents of the vesicles, in the simplest form of the affection, dry up into a thin transparent amber-coloured crust. In eczema rubrum with a more copious discharge, the crust is less transparent and thicker; and in eczema impetiginodes it is still further increased in thickness, is lighter both in colour and texture, and uneven in surface; while in impetigo, from the desiccated matter being pus, it is thickest of all, and has the appearence of dried honey; this circumstance has given the name of *melitagra* to the latter disease. As may be supposed, the crust presents considerable variety of appearance, according to the prevalence of accidental circumstances in a greater or less degree, such as accumulation of secretion, amount of desiccation, etc. Not unfrequently, as a consequence of pressure or friction, blood is mingled with the discharges, and the crusts become coloured, of various hues, from a lightish brown to positive black. Again, a variety of colour results from the age of the crust—that which has been longest formed being usually lighter than the rest: and another difference occurs when the original crust is broken, and a new discharge issues from between the severed fragments.

Sometimes this terrible disease attacks the whole body of the child, and the little thing has scarcely a patch of sound skin on its entire surface, being covered from head to foot with erythema, excoriations, and scabs of every variety of size and thickness, giving out an offensive valerianic odour, which has been compared to the urine of cats. But more frequently it is limited to one or more regions of the body; the commonest seats of the eruption being the head and face, the front of the chest, the umbilicus, the pudendal region, and the flexures of the joints. On the head the eruption is complicated by the presence of hair, which entangles the discharges, and the crusts are apt to form, in consequence, of considerable thickness, sometimes including the whole scalp in a thick, rugged, yellowish, and discoloured cap. At other times, when the discharge is less abundant, it dries up into a friable crust, which, broken into small fragments by scratching and rubbing, has been compared to particles of mortar dispersed amongst the hair, and has received the name of *tinea granulata;* many of these particles of crust, being pierced by the hairs, have the appearance of a string of rude beads. Later in the history of the eruption, and when it has become decidedly chronic, when erythema of the scalp with copious furfuraceous desquamation are the leading characters of the disease, it has been termed *tinea furfuracea;* and later still, when, with a slighter degree of erythema, the epidermal exfoliation is mealy, the case is one of *pityriasis capitis.*

When the ears are attacked, they become much swollen, and give forth an excessive quantity of ichorous secretion, which may be seen distilling from the pores of the skin, and standing in drops on the inflamed and excoriated surface. When the disease fixes on the face, it is also attended with swelling, and often gives the child a bloated and frightful appearance, every feature being distorted; and the deformity is increased by the production of a thick discoloured scab, which forms a mask, sometimes, to the entire face. This huge unnatural mask covering the child's face suggested the term *larvalis* given to one of his species of porrigo by Willan; only that, instead of *porrigo larvalis*, it should have been *eczema larvale*, or *impetigo larvalis.* Again, from occurring at the milk-period of life, this extraordinary crust, whether arising from the desiccated secretions of eczema rubrum, eczema impetiginodes, or impetigo proper, has received the name of milk crust or *crusta lactea.*

The inflammation of the scalp and face is apt to produce, as one of its secondary effects, enlargement and sometimes suppuration of the lymphatic glands; thus we find the gland situated behind the ear, the occipital, the submental, and cervical lymphatic glands, swollen and painful. And not unfrequently, in a pyogenic diathesis, there are superficial abscesses in the neighbourhood of these glands.

The pudendal region, both in the male and female infant, is not uncommonly the seat of the eruption: it being determined to this region, partly by the heat and moisture resulting from its function, and partly by the thinness and delicacy of the skin. For the latter reason, it is commonly met with in the flexures of the elbows and knees, and sometimes in the axillæ. In the flexures of the joints the inflamed skin is apt to crack into fissures of considerable length and depth, and often to bleed, the blood mingling with the excessive ichorous secretion poured out by the denuded skin.

The general character of eczema infantile is to form patches of considerable size, several inches square, and to attack, as I have already explained, a whole region at once, such as the head, face, etc.; but in addition to this, and sometimes without these extensive patches, the eruption appears in rounded blotches, from half an inch to two inches in diameter, sprinkled upon the skin in various parts, as upon the trunk, neck, arms, and legs. These patches are identical with the circumscribed patches which are seen upon the skin in lichen agrius, and the eruption has more the character of the latter disease than of eczema rubrum. The blotches are raised, thickened, papulated, excessively irritable, discharging but a small quantity of ichorous fluid, and covered when desiccated with thin squamous laminated crusts.

Eczema infantile, when left to itself, has no natural tendency to resolution or spontaneous cure. On the contrary it merges progressively into a chronic form, and undergoes that kind of modification which is common to cutaneous disease when passing from an acute to a chronic stage. By degrees the ichorous discharge diminishes, and the eruption retires to certain situations, where it continues to linger, sometimes subsiding into a state of calm, and sometimes breaking out afresh like a slumbering volcano. The situations on which it most commonly retreats, are the scalp, the eyelids, the ears, particularly the backs of the ears, the integument around the mouth, the armpits, the groins, and the bends of the elbows, wrists, knees, and ankles. The parts of the skin over which it has passed are arid and parched; and the fountains of moisture, the natural secretions from the skin, the perspiratory and sebaceous secretions, are dried up. On the scalp, the dried and parched skin continually throwing off a furfuraceous desquamation, presents the common characters of *pityriasis capitis*, and not only is the skin left in a state of parched exhaustion, but the hair also is dried up and scanty in quantity, and its growth is arrested.

The dry, parched, hot, fevered, state of the skin, which is the common sequel of eczema infantile, is a sign of the disorganisation, and extreme disturbance of function, which the skin has undergone. Even where there was no eruption, the cuticle is rugged, and constantly thrown off as a mealy exfoliation; but where the eruption existed, as around the eyelids, upon the ears, around the mouth, and in the bends of the joints, the skin is more or less red, thickened, uneven, cracked, and chapped, and the ichorous secretion having ceased, it throws off perpetually scales of dried cuticle various size, some being mealy, others furfuraceous, and others as large as the finger nail. This, then, is a case of genuine psoriasis; eczema infantile has therefore become, by the mere result of continuance, chronic eczema infantile, or, in other words, *psoriasis infantilis.*

This process of constant exfoliation is necessarily attended with pruritus, which is often very considerable; the inflamed part is then rubbed and scratched, and from time to time the ichorous secretion is reproduced.

I have noted that in the early outbreak of the eruption, the only trace of deteriorated condition that may be present in the child, is a feeling of softness of the muscles, and a slight degree of paleness of the skin and of the conjunctiva:

in fact, the discernment of these trivial but nevertheless significant signs is a matter of observation and tact; later, however, in the progress of the disease, these signs become sufficiently obvious to attract the attention of the unobservant; and later still, the poor little child is strangely altered from its normal state; malassimilation, cacochymia, are traced in conspicuous lines on every part of the surface, in every feature. The limbs are thin, showing out the prominence of the joints, the muscles are soft and flabby, the skin is soft and pasty, or discoloured and shrivelled: there is an expression of care, anxiety, of thought, upon the little face; from the general emaciation of the body, the head looks larger than natural. As I before remarked, one is struck by the senile look of the child: the mucous membrane of the conjunctiva and mouth is pale, and above all is the strangely white anæmic eye, sometimes dull and listless, sometimes bright and clear. The eye tells an eloquent tale of defective nutrition.

[*To be continued.*]

ON FÆCAL FERMENTATION AS A SOURCE OF DISEASE.

By C. H. F. ROUTH, M.D., Physician to the St. Pancras Royal General Dispensary; Assistant-Physician to the Samaritan Hospital for Women and Children; Vice-President of the Medical Society of London; etc.

[*Read before the Medical Society of London, February 23rd*, 1856.]

PART II *(continued)*.

I PROCEED now to consider the effect of fæcal fermentation, in solution or suspension in water, in the production of *particular* diseases.

Cholera. It is not my intention to dwell at great length on the subject of the spread of cholera by water impregnated with choleraic dejections. I conceive it is now generally admitted by all that cholera is most prevalent and fatal in the course of large rivers, and where the water supply is bad. Dr. Snow's work is full of examples on this point. I shall take from this work only three such examples, those of Newcastle-on-Tyne, Golden Square, and Lambeth.

Newcastle and Gateshead. The following table exhibits the mortality from cholera in the periods 1851-2, 1849, and 1853:—

Newcastle.

Year.	Actual mortality.	Population.	Deaths to 10,000 population.	Remarks.
1831-2	801	42,760	187	No water works.
1849	295	71,847	41	Good water supplied.
1853	1533	86,114	178	Bad water supplied.

Gateshead.

1849	Comparative immunity			Water works and water good.
1853	433	26,000	166	Bad water.

Both Newcastle and Gateshead are supplied by the same water company. Previously to 1832, there were no water works; subsequently, these were made, and water was obtained from the Tyne, about a mile above the town, although the tide flows six miles above the town. In 1848 these water works were abandoned, and excellent water was supplied from a small stream ten miles above Newcastle, called Whittle Dean. In 1853, the water from Whittle Dean being insufficient for the wants of the town, the original water works of 1832 were reopened, and thus bad water mixed with the good, so bad as to contain 7·1 parts of organic matter per gallon. (Dr. Thomson says at its origin there was 15·6 total impurities, of which 4·5 were mechanical, 2.68 organic in solution, and 8·48 organic impurity.) Thus, according as the water supply was good or bad, so the mortality from cholera was low or high. Again, the greater number of deaths, viz., 1011 out of 1553, occurred at Newcastle from 13th to 23rd September, inclusive. The reason was this. Owing to the outcry, the company supplied, after the 15th, no more Tyne water; and although the Tyne water was not out of the pipes till the end of a day or two, the deaths decreased from the 19th.

Sept. 12th	38	Sept. 18th	103
„ 13th	59	„ 19th	111
„ 14th	90	„ 20th	85
„ 15th	106	„ 21st	68
„ 16th	114	„ 22nd	82
„ 17th	103	„ 23rd	60
	510		509

It is also to be remarked that places supplied with pump water, and not with that of the company, at most suffered from simple diarrhœa, and not from cholera. Thus, in the workhouse, supplied by the company, out of 440 inmates, the number of deaths was 7 out of 12 cases of cholera. In the barracks, with 590 inmates, and in Greenhow Terrace, supplied by wells, there was no cholera, only diarrhœa. (See Dr. Snow's work.)

South London District. This district was supplied with water from two sources, the Lambeth Company and the Southwark and Vauxhall Company. In 1849 the former company got its water from the Thames, near Hungerford Market; the Southwark and Vauxhall from the same river, near Battersea fields. In 1854 the water of the latter company was obtained from the same place, while the former procured it from Thames Ditton. In 1849 the mortality was nearly the same in the districts supplied by each company. In 1853, the deaths were, in those parts supplied by the Southwark and Vauxhall Company, 525; while only 94 occurred in those supplied by the Lambeth Company, and 33 in those districts supplied from pump wells, and other sources. This mortality being divided over two periods, the first four weeks give 286 cases against the Vauxhall Company to 14 against the Lambeth; while, for the remaining three weeks, the deaths were in the proportion of 8 against the former to 1 against the latter. In the General Report of the Board of Health, speaking of the supply of water in London, is the following paragraph: "Those supplied by the Southwark and Vauxhall and Chelsea Companies greatly surpass the others in badness. In the Southwark and Vauxhall water, the evidence of unfiltered contamination reaches its highest degree, revealing to the microscope not only swarms of infusorial life, *but particles of undigested food, referable to the discharges from human bowels.*" (p. 46.) And it is this last contamination which propagates especially the disease, and which is plentifully supplied by the admixture of sewage matter.

Golden Square. The last example to which I shall allude is that afforded by the Golden Square tragedy. As Dr. Snow remarks, "The mortality in this limited area (*i.e.*, within two hundred and fifty yards of the spot where Cambridge Street joins Broad Street) probably equals any that was ever caused in this country, and it was much more sudden, as the greater number of cases terminated in a few hours." (*Op. cit.*, p. 38.) Upwards of five hundred deaths occurred in ten days. I cannot follow the history of the cases, which have been so ably drawn up by Dr. Snow. I can only allude to a few points. The outbreak commenced on the night between the 31st August and September 1st, and was to be traced to the drinking of water from a particular pump in Broad Street. In the subdistrict of Golden Square, Berwick Street, and St. Ann's, Soho, the deaths registered for the week ending September 2nd were 6 in the first four days, 4 on Thursday 21st, and 79 on Friday and Saturday 22nd and 23rd. Into those occurring in these last three days, 83 in all, Dr. Snow made close inquiry. In 68 of these cases the patients had all partaken of the pump water. In a coffee-shop in the neighbourhood, frequented by mechanics, and supplied with this water at their dinner, by the 6th of September ten of its frequenters had died of cholera. It was partaken of by a gentleman and his brother in Poland Street, both of whom died. It was partaken of by a lady and her niece, living at Hampstead, who sent daily for this water from