

An account of the late epidemic of scarlatina in Newcastle and its neighbourhood / [Edward Charlton].

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AN
ACCOUNT
OF THE
LATE EPIDEMIC
OF
SCARLATINA
IN
NEWCASTLE AND ITS NEIGHBOURHOOD.


BY
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NATIONAL INSTITUTE OF WASH-
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Newcastle-upon-Tyne :

M. A. RICHARDSON, 44, GREY STREET.

1847.



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IN 1778, Newcastle was visited by a severe epidemic of Scarlatina, and the disease, as it prevailed in that year, found a worthy historian in the late Dr. John Clark of this town. Since that time, though scarlet fever has occasionally been both extensive and severe, no visitation has we believe occurred, so fatal and so widely spread, as that which characterized the summer and autumn of 1846. When the malady was extending its ravages on every side, we felt anxious that this remarkable epidemic should not be allowed to pass, unrecorded and unknown beyond the limits to which it prevailed. We therefore used our best endeavours to obtain on all sides such information, as might enable us, with our own experience in dispensary and private practice, to form a tolerably complete history of the epidemic. Our enquiries were received with the utmost cordiality and kindness, and were most readily responded to by many, whose urgent professional occupations would indeed have excused this additional labour; and we soon found ourselves possessed of abundant materials to complete the object of our wishes. If,

in what we have recorded, there be one fact or observation that may guide the practitioner, or throw a light on the pages of the medical historian, we shall be amply rewarded, and shall feel that the toil we have bestowed on this essay has not been vain.

*7, Eldon Square, Newcastle upon Tyne,
May 1st, 1847.*

HISTORY OF THE EPIDEMIC.

DURING the summer and autumn of 1846, scarlet fever prevailed in Newcastle and in its neighbourhood, to an extent almost unprecedented, whether we regard the number of cases that occurred, or the great mortality they occasioned. The disease had been more or less frequent in this town for nearly twelve months, but it did not appear as an epidemic until the spring of the past year. The winter of 1845-1846 was, as will be well remembered, remarkable for its mild unvaried temperature, the thermometer rarely descended to the freezing point, the trees and hedges had assumed their vernal clothing by the middle of February; and though vegetation received a severe check from the snow storm and intense cold at the end of March, it was speedily revived by a most genial spring, succeeded by a summer of almost tropical heat. For weeks during the months of June, July, and August, the thermometer ranged above 70 degrees F., and frequently rose above 80 F., rain seldom fell, and when a shower came, it was speedily absorbed by the parched and thirsty ground.

Several cases of Scarlatina occurred in February and March, 1846, but they were rarely malignant, and presented no peculiar features. In April the cases were less numerous, perhaps the spread of the disorder was arrested by the bitter cold of the end of March. It was in May that the first indications of a malignant epidemic appeared, in some cases of remarkable severity, but their number was small indeed when compared to the fearful progress of the disease during the six succeeding months; till it was finally and suddenly arrested by the intense frosts that ushered in the month of December. To this sudden cessation of the epidemic at the last named period, we devoted considerable attention, and from all that we could learn from other parties, or that we observed ourselves, it seemed, that after the first week of frost, few fresh cases of Scarlatina presented themselves, and of these, few or none exhibited the malignant symptoms, that characterized the height of the epidemic.

Fortunately, we may say, for the infant population of Newcastle and its neighbourhood, the Italian summer of 1846 has been succeeded by a winter of almost Arctic severity; by three long months of nearly uninterrupted frost. A short interval of a fortnight of rather milder weather, did, indeed, occur in the month of January, 1847, and again, with this slight change, we found cases of Scarlatina to become more rife, but with the return of the frost, they disappeared. If my readers will refer to the tabular view of the cases received into the New-

castle Dispensary, appended to this Essay, they will observe that the malady was apparently at its height during the months of September, October, and November, and that an immediate decrease is observable in the December returns, corresponding to the period when the severe frosts set in. Cases of Scarlatina, however, still continue to recur, and lately (April, 1847) a few have proved fatal with all the rapidity of the past epidemic, and it may reasonably be feared that should the ensuing summer be of the same character as the last, a fresh invasion of the malady may take place in the scene of its former ravages.

SYMPTOMS AND COURSE.

The disease was often sudden in its attack, I may say indeed, that such was generally the case. A child was seized, while at its ordinary meals, with vomiting, which recurred two or three times that day, and by the evening, he became hot and feverish. During the night, the febrile symptoms increased, sometimes within a few hours after the first attack, they were attended with delirium, and in favourable cases, the eruption came out at the usual period, of twenty-four or thirty hours after the first invasion of the malady. It is not my intention to record any of those cases where the disease ran its normal course, the general symptoms of Scarlatina are too well known to require description, but the progress of the epidemic was marked by several

important varieties, which it is our especial object here to delineate and describe. To these varieties, I think the appellation of Irregular Scarlatina to be the most appropriate, for they do not include one case, which was not marked by some striking peculiarities, either as regards the presence or absence of the rash, the period of its first appearance, its sudden retrocession and return, or by the overwhelming malignity which characterized the symptoms from the very beginning.

In this epidemic, as in almost all those recorded of late years, numerous instances occurred, where a child, or more rarely an adult, was indisposed for a day or two, vomited perhaps once or twice, was listless in the day time, and restless at night, and then *seemed* to recover without passing through the stages of Scarlatina. It was not perhaps till three weeks after this period that dropsical symptoms began to appear, and not unfrequently these sequelæ proved fatal, though the previous malady had been of the very mildest description. The true nature of the disease was often unsuspected; the existence of previous indisposition was frequently at first denied, and could only be elicited by rigid questioning of the attendants. It was rarely that medical aid was called in for these apparently slight and unimportant cases, but sometimes such instances came under our notice, while attending on other members of a family affected with Scarlatina. I will not, however, positively state that in any one of the cases above described, *no rash ever came out*. I

know that the eruption is sometimes of the faintest kind, and so transient in its nature, as to remain only for a few hours upon the skin. Moreover in these very mild varieties, it is frequently not seen at all upon the face, but is confined to the elbows and to the scapular regions, where, from these parts being covered by the dress, it is the less likely to be noticed. In the dark dwellings of the poor, there was little chance of the eruption being recognised when thus slight and partial, especially at a time when the severe illness of other members of the same family, engrossed all the attention of the parents. Nor will I venture to affirm that another equally characteristic symptom of Scarlatina, the erythematous blush of the fauces, with or without swelling of the uvula and tonsils, was *wanting* in these cases, for instances occurred both to myself and others, where this symptom was developed to a high degree, without any complaint of pain on the part of the patient. I saw one case in a very intelligent child, where the throat was deeply ulcerated, and there was fever and delirium at night, but no rash could ever be detected by the vigilant attendants. Nor was the slightest pain on swallowing or speaking evinced by the little patient. The same has been observed by Dr. Hamilton of Falkirk,* and by Roeser of Bartenstein,† in Germany. The affection of the throat was however, not always so mild when the rash was

* Edinb. Med. and Surg. Journal. Vol. 47, p. 141.

† Kleinert's Repertorium. Sp. Pathologie, p. 91. 1845.

deficient, for many patients complained of sore throat, and of nothing else, till the supervention of dropsy revealed the true nature of the previous disease. Numberless instances of this kind occurred in the practice of almost all my correspondents, and it has been a constant remark, that dropsy occurred more frequently after the mild, than after the severe attacks of Scarlatina. This however, is, we think, easily explained. Few parents would believe that their children could incur any further danger, after escaping so lightly from the exanthema, many would not believe that their children had suffered from an attack of Scarlatina, and almost all therefore, neglected the necessary precautions against exposure of the convalescent to the influence of cold and to the fresh air. Nor did they pay more attention to the requisite cleansing of the skin by means of the warm bath ; while in the severer cases, the patient often escaped all these dangers, from a protracted convalescence, which hindered him from going out till desquamation was completed, and till the new skin had acquired sufficient density to resist the influence of the cold.

During the epidemic, numerous adults, the parents and relatives of the sick children, were affected with sore throat, but I have not been able to learn that dropsy ensued upon any of these cases, where the patient had had well developed Scarlatina in early youth. The other forms of the irregular malignant Scarlatina may perhaps be reduced to two ; in the one, there was but little eruption, in the other the

rash was most intense, and of a deep purple colour, while in both these varieties, the affection of the throat was constant, and of the worst possible kind. The eruption in the former variety sometimes receded and returned, and exhibited no regularity in the day of its appearance, often not coming out till the fourth or fifth day, as in the ancient epidemics of this disease ; but when it assumed the dark purple form, though the period of its becoming visible was equally uncertain, it almost always remained unchanged till death ended the patient's sufferings. A most prominent symptom in both these varieties, was the frightful swelling and infiltration of the cellular tissue about the angle of the jaw, which often extended completely round, so as to encircle the neck with a collar of inflamed cellular tissue. It was not the glands of the neck that were affected in these cases, it was at first only the cellular membrane, though at a later period the glands themselves became implicated. The condition of the internal parts of the throat did not appear to have any direct correspondence with the external swelling, for there was sometimes great tumefaction on the outside, while but little ulceration existed within, and unfortunately the converse was too frequently the case. The hard uniform swelling of the neck, was often the symptom that first directed the attention of the parents to the throat. In very young children and infants at the breast, it was sometimes the *only* symptom ; no eruption appeared, the neck swelled rapidly, though seldom to the great extent observed in

children of more advanced age, and the little patients were either carried off by convulsions, or they died with symptoms of lobular pneumonia. In such cases the swollen fauces and neck, augmented the difficulty of breathing, a thick yellow purulent secretion was forced out at each laboured expiration from the nostrils, and excoriated the *alæ nasi* and the lips. This secretion was of such an acrid nature, that it not only caused excoriation, but actual ulceration and sloughing of these parts, so that in one case detailed by one of my correspondents, the septum and both *alæ nasi* were actually destroyed, and in several, deep excavations were caused by loss of substance in the upper lip. Few or none of these terrible cases recovered. It is, however, a question still I think undetermined, whether we are to ascribe this sloughing and ulceration to the *supposed* acridity of the secretion, or whether it be not more probable that excoriation would have been the only result, had not the vital energies of the patient been so completely prostrated by the malignity of the epidemic disease. Few cases of great severity occurred among adults, and consequently the ratio of mortality among them was small; much less, indeed, than we have been taught to believe, when grown up persons are affected with Scarlatina. In one young man of 19 years of age, whom I did not see, but who was treated by a friend, on whose accuracy and powers of observation I can confidently rely, a most formidable train of symptoms appeared. He had violent vomiting, the eruption was suppressed and

livid in colour, the typhoid character of the disease was speedily developed in all its phases, there was low muttering delirium, with incalculably quick oppressed pulse, and these untoward symptoms were accompanied with such enormous enlargement of the neck, as to threaten rapid asphyxia. He was greatly relieved by free leeching; but this did not prevent subsequent suppuration to a fearful degree, and he required an actively stimulant and tonic plan of treatment, to recruit his exhausted powers. This man recovered, but in another person, aged 36, of stout and powerful frame, the eruption was never fully developed, and what came out was of a livid hue; delirium set in, and he sank in 48 hours from the commencement of the attack without any return of consciousness. The enormous swelling of the neck appears to have acted unfavourably in two modes, 1, by obstructing the return of blood from the head, and so increasing the tendency to congestion of the brain, and its usual consequences; 2, by hindering the free access of air to the lungs, and thus preventing the due oxygenization of the blood.

In some instances, (I have records of about half a dozen) the rash bore at first an exact similarity to that of measles, so much so that in one case in my own practice, I considered it as such, until the swelling of the throat caused me to doubt the accuracy of the diagnosis, and two days after the rash changed, after having faded considerably, into livid blotches about the joints, and the child rapidly sank. I own

that I feel some doubt whether this was Scarlatina from the very beginning, or whether it was not measles at first, which subsequently yielded to the more potent miasm of the epidemic. Similar phenomena were observed by several of my correspondents, and they too owned, that they were at first deceived by the great resemblance to measles. For in the case I saw, there was coryza, bronchial affection, and the red watery suffused eye, exactly as we see it in rubeola.

Chomel has described a punctated eruption of Scarlatina, where the rash does not present a decided and uniform redness, and he says it may be distinguished from that of measles, by the spots being perfectly symmetrical and similar in form, and everywhere alike in colour.

The cases signalized by deep purple coloured eruption were usually fatal, but there were instances where patients recovered, even when a rash of this nature receded and returned. But such a fortunate issue was indeed rare, when once out, the purple rash remained steadily on the skin, till death closed the scene. The dark hue of the integuments often deepened after dissolution till the whole body became almost black.

The hard and extensive swellings of the neck did not on all occasions remain stationary, they too frequently passed on to suppuration, the abscesses burst, and discharged large quantities of pus mixed with blood and sanies; and the excavations thus produced, exhibited a tendency rather to extend

their ravages than to heal. It was not always the glands which suppurated, but at times they appeared later on to be the part, in which the morbid action was chiefly seated. The loss of substance in the neck was often enormous, the muscles were cleaned of their cellular tissue, as completely as could be done by the knife of the most experienced dissector, and once the carotid artery was laid bare by the same process, but that child, contrary to all expectation, eventually recovered. In another fatal case, the back part of the neck was chiefly affected, and the attachment of the muscles to the occiput was in like manner exposed. As the disease advanced, dark eschars appeared in the hardened portions, and soon large shreds and patches of dead cellular membrane were thrown off, so as to expose the parts beneath in the manner we have just described. Many patients sank long before the disease went on to suppuration, and in many cases where leeches had been injudiciously applied, a dark spot appeared around the leech bites, often within twenty-four hours, and when this softened and came away, deep holes were seen passing into the neck.

Dark (petechial?) spots occurred on some of the patients. I saw them in one fatal case, and though authors have endeavoured to draw a distinction between these, and the petechiæ of typhus fever, I confess myself unable to discover the difference. Both no doubt originate from diminished vitality, and an altered condition of the blood. The wide field of the true pathology of that fluid, in Scarlatina as in

other zymotic diseases, remains yet to be investigated. In a few instances very large petechiæ appeared a short time before death, on the lower extremities.

Violent diarrhea and vomiting were not uncommon, and I find it to be the *general* opinion of my correspondents, as it is also my own, that when these two symptoms occurred together, the prognosis was most unfavourable to the patient. Mr. Humble says, "When diarrhea occurred singly it was mostly a favourable sign, but when conjoined with vomiting, the prognosis was decidedly bad, in fact I do not remember a recovery where the disease was ushered in with violent and intractable vomiting and diarrhea." Diarrhea was also injurious when it came on some days after the eruption had appeared, with offensive evacuations resembling water mixed with mud and slime. When violent purging occurred in infants suffering from the swollen throat before alluded to, it was almost always fatal. We do not here mean to assert that vomiting was unfavourable when it was not excessive, for the mildest cases were often ushered in by this symptom, it was only dangerous when excessive and obstinate.

The difficulty of obtaining post mortem examinations was as great in Newcastle, as it seems to have been in Germany in the epidemic of 1842. We learn from Dr. Roesch of Schwenningen,* that al-

* Obgleich viele Eltern höchst gleichgültig über den Tod ihrer Kinder waren, und sich segneten, wenn Sie eins verloren hatten, so gaben sie doch nie ihre Einwilligung zur Section.—Medizinische Annalen, p. 561. 9ter Band, 1844.

though many parents were exceedingly indifferent to the death of their offspring, and blessed their good fortune when they had lost a child, he could never obtain permission to examine the bodies after death. The dissections made during the epidemic in Newcastle were but few, parents and relatives alike opposed the investigation, on the ground that the children had died of a well known complaint, and the morbid curiosity to ascertain the cause of a lingering and mysterious complaint, was consequently not here excited. We must own too that the few examinations that were permitted, threw little or no light on the nature of the disease, but this must never preclude the really scientific practitioner from endeavouring on all occasions to obtain observations of the condition of the various organs after death. Many of my correspondents returned the significant answer "no time to make post-mortem examinations," and to those in active general practice this excuse will be felt to be almost sufficient. Many of the fatal cases seemed to die from pneumonia, especially where the patients survived the first onset of the disease. It was in vain that we tried to obtain post-mortem examinations in those cases, where children sank rapidly, with oppressed breathing and a weak or irregular pulse. I wished particularly to ascertain the cause of death in these instances, but my request was invariably denied. Other observers, more fortunate than myself, have found great congestion, and even inflammation of the lungs, with

hepatization, or rather a species of splenization, of that organ.

Pneumonia and pericarditis were more frequent as sequelæ, than during the height of the epidemic. But perhaps the bronchitis, then so often observed, was only a consequence of lobular pneumonia, it is indeed not easy to distinguish these affections in children. In one instance, pneumonia proved fatal in thirty-six hours from the commencement of the disease, and the diagnosis was verified by dissection.

Of the so called *second* attacks of Scarlatina, occurring in an individual who had previously suffered from that malady, there were several examples, but the majority of these were rather to be considered as returns of the fever during the process of desquamation. Thus one of my correspondents writes as follows: "A second attack was observed in three instances. In the first of these, the primary seizure was very severe, but recovery took place, and the little patient had been running about the room for eight or ten days, when a second invasion came on, and proved fatal. In each attack, the disease was fully developed, presenting the characteristic eruption on the skin, with ash coloured ulceration of the throat, and swelling of the cellular tissue and glands of the neck. In one of the other two instances, the primary and secondary attacks were both remarkably mild. The third patient was but slightly affected on the first seizure, but the second was considerably more severe, though the child eventually

got well." Another communication informs me that the disease occurred a second time in a boy aged seven years, who a few months before had experienced a second attack of measles. It would be more interesting to accumulate evidences of this kind, could we be in all cases perfectly certain, that the former attack had really been of the nature described. But too often this rests merely on the authority of relatives, sometimes on mere hearsay evidence, and we confess that the cases we have investigated, have not by any means tended to shake our faith in the protecting power of one attack of scarlet fever, against a recurrence of the disease. It is true that during the prevalence of Scarlatina in a house or room, all the inhabitants, both adult and young, have suffered from sore throat, but though this indicates that they had not entirely escaped the Scarlatinous miasm, by which they were surrounded, it no more proves that a former attack has had no prophylactic virtue, than the occurrence of modified small pox after vaccination detracts from the value of Jenner's immortal discovery.

A practitioner of great experience in children's diseases writes to me as follows: "I have never seen a well marked instance of a second attack of the disease. One case under treatment now (December 1846) has all the symptoms *except* ulceration of the throat: the eruption is visible, though pale. If this be a case of Scarlatina? the symptoms are doubtless modified by the former attack." Rayer mentions one instance which came under his own

observation, where the same individual was twice affected with Scarlatina. In the epidemic at Heriot's Hospital in Edinburgh,* returns of the fever took place during convalescence in three cases out of forty-four. And similar to these last is the case related by Dr. Steinbeck,† where the disease returned in an adult, three weeks after the primary attack, and therefore, we may justly conclude, within the period of desquamation. Scarlatina is said to be rare in pregnant females. I did not hear of a single instance of its occurrence in this state. The disease is also considered to be especially dangerous, when it attacks women recently delivered, but this opinion was not corroborated in the late epidemic, for though I have records of at least five women being affected with Scarlatina shortly after delivery, yet all these cases, and three of them were extremely severe, ultimately recovered.

CAUSES.

Until the influences that govern epidemics are more thoroughly investigated and understood, we cannot hope to arrive at any satisfactory conclusions regarding the nature of these visitations. We have carefully examined all the relations of former epidemics accessible to us, from 1627 to the present time, and we have endeavoured to ascertain if there was any one particular condition, any peculiar at-

* Edin. Med. and Surg. Journ. p. 32, vol. 43.

† Neumeister's Repertorium, p. 95. Feby. 1844.

mospheric constitution, or telluric influence, which could account for the increased virulence of the disease. In very few of these histories of epidemics, even up to the latest period, do we find any allusion to the sanitary state of the town, or district, in which the malady prevailed, and seldom do we meet with a history of the atmospheric changes, that preceded or accompanied the outbreak of the disorder. To this, however, the German writers, both those of earlier, and those of more recent date, form an honourable exception; and it is most satisfactory to find, that these important particulars were not neglected by our townsman, Dr. John Clark, in his excellent relation of the epidemic of 1778. Difficulties of this kind will, we are certain, henceforward become more rare, for few large towns do not contain some sedulous and scientific observers of atmospheric changes, and the public attention is now thoroughly awakened to the improvement of the health of our towns and large manufacturing districts. One circumstance has especially attracted our notice, viz. the frequent occurrence of epidemics of Scarlatina in summer and autumn, and their comparative rarity in winter and in spring. The ravages of the disease seem almost always to have been checked by the first severe frost. Again, the spring and early part of the summer, in those years marked by the epidemics, have been often intensely dry and sultry, and the previous winter had been likewise remarkably mild. The scarlet fever in Birmingham and in Newcastle in 1778, appeared

as an epidemic about the month of May, and continued its ravages till the cold set in in October; the temperature was very low throughout November, but it rose again in the succeeding month, and the scarlet fever then returned. Now if we examine the conditions under which the late epidemic visited Newcastle, we shall find that similar atmospheric influences, to a great extent prevailed. The winter of 1845-6 was extraordinarily mild, vegetation was at least two months in advance of its usual appearance in the north, and though it was checked by the snow storms of March, the succeeding months presented a uniform high temperature, and the summer was warmer than any we have enjoyed for the last 19 years.

It is observed by Dr. John Clark "that the scarlet fever of 1778 was not prevalent in genteel families, but it raged with great mortality among the lower orders of the people." Although the better classes by no means altogether escaped the late epidemic, yet my enquiries and my experience have convinced me, that by far the greatest amount of mortality from the disease, occurred in those parts of the town, where there is the most urgent necessity for sanitary improvement. The fever was not confined to the ancient and low lying streets along the water side on either bank of the Tyne, it spread through the streets and courts higher above the level of that river, especially to those recently built houses, inhabited by numerous families, about Arthur's Hill, to the densely crowded courts and narrow lanes at

the foot of Westgate-street, and about the Castle; while in Gateshead its ravages were greatest in the wretched purlieus of Leonard's-court, and the cottages about Busy Burn. Still the disorder prevailed extensively in other spots, apparently less subject to deleterious influences. But those who know the general neglect of ventilation and cleanliness, too apparent among our labouring population, will not wonder at the spread of the epidemic in well situated streets; and the surprise of others will be lessened, by the well known fact, that many of these streets are totally without any but surface drainage. Many of the courts are still unpaved, the wet and filth accumulates in the irregularities of the surface, and soaks into the surrounding soil, until the whole works up into an almost impassable quagmire. If any doubt the truth of this picture, let them examine Leonard's-court in Gateshead, or the unpaved streets about Arthur's Hill. In these localities, too, we find many families occupying one house, nay more than one family congregate in a single room, and in some of the lodging houses we find four or five beds in one small apartment, lighted by a single window, which is rarely opened; and the rays of the sun have to struggle through the dirty panes, patched with paper, and must encounter still further obstacles, in long lines of ill washed linen stretched across the chamber. We cannot then wonder at the mortality having been so great in these places, and we must conclude that the virulence of the disease was greatly enhanced by the hot tropical sun of

1846, beating on the heaps of filth that accumulate around these dwellings. Or if this be doubted by some, it is at all events certain that a residence in such localities must impair the health of the inhabitants, even if they were free from the destroying vices of addiction to ardent spirits, and from immorality, which alas is too frequent in the abodes of hunger and want. That cases of great malignity occasionally occurred among the higher classes cannot be denied, but in a large town like Newcastle, all ranks of society are more or less subjected to the deleterious influences we have alluded to, and the health, both of parents and of their children, is undermined by a variety of causes, all tending to reduce the standard of vitality, and predisposing to malignant disease. Lastly, there existed both in the town and in the country, an unfortunate prejudice among the lower classes, against the admission of fresh air to patients in Scarlatina. The idea so universal before the time of Sydenham, that in exanthematous diseases, the morbid matter supposed to exist within the system, must be *brought out* by every possible contrivance, is still too prevalent in this neighbourhood.

We ourselves saw three children huddled together in one bed upon the floor, close to a large fire, in a room of 8 feet high, the single small window by which the chamber was lighted, was kept carefully closed, while though the external temperature was above 65 F., screens of thick blankets were interposed between the bed and the door, to intercept the

slightest draught on its way to the pallet of the sufferers. This was in the town, but the sufferers had recently arrived from the country, and I suspect that where cases of very great severity occurred in rural districts, much of the malignant character of the disease might be traced to the effects of this baneful prejudice.

SEQUELÆ.

The sequelæ of this epidemic were numerous and severe, many who had suffered but slightly from the exanthema died afterwards from (inflammatory?) dropsy with head symptoms, others were carried off by pneumonia or pericarditis, and a few sank exhausted by the continuous drain of abscesses which formed in various parts of the body. Of all the consequences of the epidemic, dropsy was by far the most frequent, and perhaps that morbid condition of the kidneys from which it arose, or which, at all events, was its constant companion, gave rise, in other cases, to the various and fatal inflammations of different organs that occasionally ensued.

It is a remarkable fact, that while almost all the older writers represent the dropsical effusion to occur only after severe attacks of Scarlatina, the experience of later years has shewn it to be at least equally common as a consequence of the mildest form of that disease; in the epidemic we are now describing it was chiefly after the very slightest cases that anasarca and ascites supervened. This we

think may be partially explained by the well known fact, that many children, who had been very slightly affected with Scarlatina, were heedlessly suffered by their parents to run out into the open air, before the period of desquamation was fully completed, and while the tender skin was acutely sensible to atmospheric impressions. Those patients on the other hand who had suffered more severely from the disease, were often so much weakened by a tedious recovery, or by the treatment adopted to arrest the progress of the disorder, that they remained prisoners to the house until the perilous period of the formation of the new skin was past, and thus escaped the dangerous sequelæ. But we are not quite certain that this will fully account for the marked freedom from anasarca and ascites observed in most of the severe cases.

The invasion of dropsy took place in at least two different modes. In the first form the symptoms came on with extreme rapidity, and I think usually earlier after the eruption, than the more gradual attacks of dropsy. The patients became feverish, the pulse hard and full, often very rapid, the skin was hot, the eyes flushed, and in a short space of time, often only a few hours after the first appearance of these symptoms, the face began to swell, then the hands and feet, and in twenty-four or thirty hours; the whole body became puffed up with effused fluid. Head symptoms, restlessness, and delirium were not wanting, and the child died with convulsions, or sank with all the signs of asphyxia. The

second form more resembled secondary fever, the patients after recovering slowly from the debility left by the exanthema, became gradually more restless and feverish, and often, too, extraordinarily irritable. The urinary secretion was now observed to be much diminished, and it deposited on cooling a brown sediment, like finely ground pepper, at the bottom of the vessel. For some days matters continued in this state, and then a slight puffiness appeared below the eyes, the child was delirious at night, this was followed by convulsive movements of the eyes and limbs, and the patient expired with those symptoms formerly supposed to denote effusion on the brain, but which more probably are indicative of irritation of the nervous system from various and opposite causes. Sometimes a more complete anasarca condition was thus gradually produced, but many died without the dropsical effusion proceeding beyond the face, and even there it was confined to a slight puffiness below the eyelids. One symptom alone was constant in both forms, the suppression of the urinary secretion, and the alteration in its character. Often the urine was of a deep red colour, resembling water in which raw flesh had been washed, or it was muddy, and sometimes had a greenish hue, and after standing for some time a thick dark brown deposit sank to the bottom, which under the microscope seemed to consist of epithelial scales with ruptured blood corpuscles. In almost all cases where the specific gravity was examined it was below the natural standard, and the urine coagu-

lated on the application of heat, or on the addition of a few drops of nitric acid. The coagulum thus obtained was in many instances extremely hard and firm.

My attention was particularly directed to the period when the dropsical affection supervened. One of my correspondents, on whose skill and powers of observation I can rely, informs me that in one instance, the feet, the hands, and the face, were œdematous during the earliest stage of the exanthema, and the child sank rapidly. It is much to be regretted that in this patient the urine was not examined. The œdematous condition of the limbs in the earlier stages of Scarlatina has been noticed before, and appears indeed to have been more prevalent in some earlier epidemics than in that we now describe.

As a general rule, I find that few cases of dropsy occurred before the seventh day after the retrocession of the rash; but one instance was mentioned to me, and I afterwards saw the child, where dropsy came on as soon as the exanthema had disappeared. Twenty-five days after the departure of the eruption is the longest period that elapsed in this epidemic, before dropsical symptoms supervened. Cases have certainly been alluded to by some of my friends, where the anasarca or ascites was longer delayed; but there was a degree of uncertainty as to the exact period of time. From the instructive table drawn up by Mr. Humble, of the Newcastle Dispensary, we find that dropsy occurred in the propor-

tion of 1 in $5\frac{1}{2}$ cases, and of these 1 in 14 proved fatal. In the Gateshead Dispensary we had 56 dropsical cases out of 132 affected with Scarlatina.

I have nothing to add to the general doctrine regarding the cause of anasarca and ascites after scarlet-fever. I fully conicide in the opinion of all my correspondents, that it results from exposure to cold during the period of desquamation. It has been well remarked by Dr. Pitschaft, that if we cause a patient after Scarlatina to take six or eight warm baths, to avoid exposure to the cold air, and keep the bowels daily opened by mild aperients, we have no reason to fear the supervention of dropsy. One of my correspondents paid especial attention to this point, with the most favourable results : he did not lose a single case from anasarca or ascites.

I have already hinted my belief, that the inflammation of other organs during the sequelæ of Scarlatina, may perhaps, in many instances, be traced to the circulation of urea in the blood. To the same cause we may ascribe the tendency to head symptoms and convulsions ; so often observed, though the œdema of the lungs, and the obstacle presented to the due oxygenization of the vital fluid from the play of these organs being hindered by the great distension of the abdomen, should not be forgotten as influencing these appearances. Pericarditis occasionally occurred during the existence of the anasarca ; pleurisy was less common, but pneumonia and bronchitis were very frequent. I have little doubt myself that many of the cases which were so

speedily fatal were complicated with pneumonia; indeed I believe with Mr. Humble that in numerous instances inflammation of the lungs carried off the patients in a few hours after the first invasion of the exanthema. This is corroborated by the dissections of Roeser of Bartenstein, who found in such cases inflammation and even hepatization of the lungs; and we know, too, that the more rapidly the lungs become unfitted for their important office, the greater is the danger to the patient.

The pneumonia and bronchitis that supervened during the dropsy often persisted for weeks, the patients sometimes recovered, but in other cases they sank asphyxiated, or else exhausted by excessive discharge of muco-purulent matter from the lungs. Rusty coloured expectoration was not common, percussion did not always shew marked dullness over those parts of the chest, where small mucous crepitation was detected, and I think that in many cases the disease did not extend beyond inflammation of the mucous lining of the smaller bronchial passages. Throughout all these varied symptoms, the decided alteration in the character and amount of the urinary secretion, was rarely if ever wanting. I will not, however, affirm that the urine was *always* albuminous, it varied from time to time in this respect, but it was generally deficient in quantity, and very frequently deep coloured, probably by the admixture of blood corpuscle, or dissolved hæmatoglobulin. The specific gravity was not always changed, though it usually tended to a low figure; I often found it to

range from 10° to 15° , but it was rarely, if ever higher than the natural standard. We consider then, that the first effect of the impression of cold upon the tender skin, is to cause congestion of the kidneys, and the results of Dr. Robinson's experiments have proved, that albumen and blood may be exuded from the congested vessels of those organs, which of course will pass off by the urine. Into the disputed question of Bright's disease accompanying albuminous urine after Scarlatina, we shall not enter, as only a well conducted series of dissections can determine this point. Dr. R. Willis's admirable paper on this subject in the London and Edinburgh Monthly Journal would lead us to infer, that albumen does not occur in the urine after Scarlatina, unless the kidneys are diseased; and in Roeser's dissections, these organs were never in a healthy condition.

Many children passed well through all the stages of the exanthema, desquamation proceeded without any untoward symptoms, till it was observed that they continued pale, and did not regain their former florid health. Shortly after, the *glands* of the neck began to swell, they softened, the skin covering them became of a purplish hue, till at length they burst, and a thin humour with shreds of caseous matter was discharged, having all the characteristics of scrofula. Many of these children had been remarkably healthy before they were attacked with Scarlatina, and thus it seemed, as if that disease had awakened into activity the germs of scrofula or at least had induced

that change of constitution, eminently favourable to the developement of the latter malady.

This affection was totally distinct from the uniform hard engorgement of the cellular tissue of the neck, so common during the late epidemic. When abscesses therefore formed in the *glands* during or after the period of desquamation, I regarded them as of a scrofulous nature, and directed my treatment accordingly. The deep corroding destruction of the cellular tissue after general engorgement of that tissue in the neck, sometimes left the glands entirely untouched. Thus in a fatal case that occurred in dispensary practice in Gateshead, the ulceration excavated the upper portion of the anterior triangle of the neck, and partially dissected the sub-maxillary gland, but the gland itself did not appear to be diseased.

Noma was of rare occurrence, nor could we trace it to the too free use of mercury, as is maintained by Roeser, and other German pathologists. Varicella, or I should rather term it variolois, was observed in some cases during the period of desquamation, but in the practice of a friend in this town, two instances occurred, where a varioloid eruption appeared simultaneously with that of scarlet-fever. These instances of double eruption are so curious, that I shall make no apology for inserting their brief history here.

I. Dec. 15, 1846.—“A child, aged three years, has been indisposed for two or three days with lassitude, heat of skin, thirst, and sore throat. Yester-

day evening a few spots were observed upon the extremities. On seeing the child to-day, I found him sitting up, with a flushed face, and dull expression of the eyes; the skin was hot, and on various parts of the body, as the back, the extremities, and the abdomen, there were vesicles in different stages of development, from the millet-sized pimple, to the well filled vesicle with yellow contents. Red patches beneath the skin could on close inspection be discovered in various parts. The tongue was coated with a cream like fur, through which the enlarged papillæ were visible, and the fauces and tonsils were inflamed; the urine was scanty and high coloured, and deposited a dense sediment on cooling. On the day following I found the scarlet eruption out over nearly the whole surface of the body, and the vesicles, some of which were shrivelled and dark coloured, placed indiscriminately upon the patches, or upon the pale surface between these. From this time the case went on favourably, the vesicles disappeared and desquamation proceeded. The child recovered, nor was its convalescence interrupted by dropsy, or other adverse sequelæ."

II. January 12, 1847.—"A child aged twelve months was affected with Scarlatina at the same time with two others of the same family. On the second day of the eruption, vesicles made their appearance on various parts of the body, and passed through their stages of maturation and decay in about five days. The scarlet exanthema was plentiful, and perfectly regular. About the fourteenth

day from the commencement of the disease, and when the child seemed to be perfectly convalescent, erythematous looking patches of an angular shape, made their appearance on the extremities, accompanied with a little febrile excitement. These gradually faded, and the child was quite well on the twenty-first day."

I believe that all the children in whom varicella or variolois appeared after Scarlatina had been properly vaccinated; had the contrary been the case, it would have been a curious question, how far the Scarlatina had altered the susceptibility of the system for the poison of small pox. It is affirmed by Hecker,* that Scarlatina has run its long course of upwards of 200 years, without being in any degree checked or influenced by the other exanthemata, and such certainly seems to have been the case, in the two examples from my correspondent's practice which I have just detailed.

One of the most lingering sequelæ of the late epidemic, was where numerous small abscesses formed in various parts of the body. Fortunately this termination of the disease was rare; but, like the dropsy, it sometimes followed very mild attacks of the exanthema. In one instance the scarlet fever was very slight, but the dropsy that ensued was severe, and after that, abscesses formed on the back of the wrist and in the axilla. Mr. Humble, of the Newcastle Dispensary, shewed me a most severe

* Geschichte der neueren Heilkunde. 1839. p. 216.

case of this nature in Gallowgate, where abscesses formed three weeks after the recession of the rash, about the shoulders and groins, and continued in a constant succession on various parts of the body for upwards of two months. The life of the poor child, a boy of 9 or 10 years of age, was saved by the judicious administration of tonics and stimulants; but he was reduced, when we saw him, to the very last degree of marasmus.

Another curious consequence of the epidemic was swelling of the wrists, ancles, and elbows, and which was thought by many to be of a rheumatic character. But I believe that many of these swellings were really scrofulous in their nature, for I did not find that they differed in appearance from those that went on to suppuration, which last is a very rare consequence of rheumatism.

TREATMENT.

We have next to consider the treatment of Scarlatina, in so far as it has been elucidated by the experience of the late epidemic. In one respect almost all my correspondents were unanimous, that *in every case where the disease was mild, medicines should be administered as sparingly as possible*. The well known words of Joseph Frank,* were strictly applicable in this epidemic. “Nec satis tyrones in arte nostra hortari possum, ne farragine remediorum ægrotulos, Scarlatina laborantes, obruant.” But

* Jos : Frank. Acta Instit : Clin : Vilniensis. p. 41. Annus II^{us}.

though the direct administration of medicines was but little required in simple cases, the visits of the medical attendant could not be dispensed with, for a heating regimen, errors of diet, or any of the numerous well known aggravating causes, might convert a mild form of the disease, into one most malignant and destructive. Cooling drinks, and very mild aperients were also generally useful, but during the height of the epidemic it was sometimes observed, that a simple cathartic, given before the appearance of the eruption, rendered that which was likely to prove a mild case, extremely severe. The due regulation of the temperature of the apartment, the constant attention to the admission of fresh air, and lastly the frequent necessity for examining the throat of the patient, all demanded the constant and regular visits of the medical attendant. Finally, during convalescence, it was often, I might say always, necessary to oppose firmly the urgent appeals of the patient to be allowed to go out, ere the period of desquamation was fully completed, and to insist on the frequent use of the warm bath, which was but too much neglected by those unacquainted with the impending danger of anasarca. The extreme mildness of the autumn, and the temptation of a brighter sun than usually shines on our cloudy isle, often caused the warnings of the medical attendant to pass unheeded, and it was precisely in the mildest cases, where the patients recovered as they thought their usual health

after a few days indisposition, that the severest forms of dropsy supervened.

There was a greater diversity of opinion as to the treatment of the severer forms of the malady, but in these too, we have found valuable coincidences in the results of our own, and of our correspondents' experience; confirming the *value* of certain remedies or methods, and the worthlessness of others. When we examine the records of the treatment of Scarlatina in former times, we find the lancet to have been often unsparingly employed, but by none has it been more universally used than by the English practitioners of the first thirty years of the present century. This general employment of venesection was decidedly unadvisable during the late epidemic. Not only has our own experience impressed us with the danger of indiscriminate bleeding, but we have received the most convincing testimony in this regard, from almost every practitioner with whom we have been in correspondence. True, there *were* cases wherein, the fever running very high, with great tendency to cerebral congestion, venesection was tried and was beneficial, but these were exceptional instances, and in general, patients bore bleeding from the arm so badly, that most practitioners abstained altogether from its employment. Of all our correspondents we found but three, who had practised general venesection, and that only when there was a full strong pulse, and at the very first onset of the disease. We may observe also that two

of these gentlemen resided in healthy country districts, where the standard of vitality is usually much higher, than among the debilitated inhabitants of our great towns. Local bleeding was more frequently employed, though not always with the most favourable results. We seldom used even leeches in the Gateshead dispensary; the practice of that institution lay chiefly among the most wretched of the population of that borough, and rapid exhaustion followed, where blood was too freely drawn. We may say, that in the truly malignant cases, leeching did more harm than good. Their application was speedily followed by deep eschars about the bites, and by delirium, or rapid sinking, though in some few desperate instances, benefit appeared to follow from their use. Nor did we in general find blisters of any signal benefit. Children sank rapidly when large blisters were applied to the swollen throat and neck, or the blistered surface healed badly, and degenerated into malignant ulceration. In his report of the Newcastle Dispensary, Mr. Humble observes:—"Blisters to the throat have been much recommended, but I have not employed them, save at the commencement of the epidemic, for I found that if they *did* mitigate the severity of the internal symptoms, (which was not always the case,) a gangrenous surface was liable to be produced on the vesicated part, which was quite as difficult to heal, and the source of as much irritation and danger to the patient, as was the original sore throat." Blisters were occasion-

ally useful when pneumonia threatened to supervene, but here, too, they were liable to the same objection.

Warm poultices to the swollen neck were, however, remarkably beneficial. Many used nothing else externally, and had good reason to be satisfied with the moderation of their treatment.

As a local application to the inflamed and ulcerated fauces and tonsils, we all preferred a solution of the nitrate of silver, (8 or 10 grains to the ounce of distilled water,) freely applied over the affected surface. The solution was much more manageable than the solid nitrate, and we think equally efficacious. The earlier this remedy was used the better, for the throat was often discoloured before any complaint of pain, or of general indisposition was made. Gargles of hydrochloric acid were also most valuable, and served admirably to clear the throat of the tough acrid mucus, which adhered so pertinaciously to the fauces, and obstructed the air passages. The removal of this mucus was of no small moment, for on the one hand it checked the freedom of respiration, and thereby increased the tendency to head symptoms, and to pneumonia; and on the other its acidity? if swallowed, caused griping and diarrhea, which tended still further to exhaust the strength of the patient. For young children, who could not gargle, the best mode of applying this remedy was by means of a strong syringe. Purgatives were pretty generally employed by some, but in malignant cases their efficacy was more than doubtful. Several

practitioners found that severe diarrhea ensued when purgatives were administered early in the disease. Was this a consequence of the acrid mucous secretion we have referred to above? passing through the bowels; or, in cases where the eruption receded, did a determination of the exanthema really take place to the lining mucous membrane? and was the patient's strength broken down by the profuse alvine discharge? We leave others to answer the question. One or two practitioners state, however, that they used *drastic* purgatives with success at the first onset of the disease, while they found the milder sort totally inefficacious. This is contrary to our own experience, and to that of the majority of our correspondents. Diaphoretics were very generally used, but we are not aware that any very marked benefit followed their employment. Many of them, too, partook of the character of stimulants. But no medicine seems to have received more general approbation than the chlorine mixture recommended by Dr. Watson, in his lecture on Scarlatina. Mr. Humble says, "Of all the remedies which have fallen under my notice, the most successful was Dr. Watson's chlorine mixture. In every case in which it was given sufficiently early it seemed to mitigate the severity of the symptoms, and to change what had every appearance of becoming in a few hours a most malignant case, into one of moderate severity. It seemed more to act as a specific, than anything I ever saw, and it had moreover this advantage, that it was grateful to the palate of the children, many of

whom would take it when they could not be prevailed upon to swallow anything else." Among those practitioners who did not use this preparation, other formulæ likewise containing chlorine were greatly in favour; thus the chlorate of potass was much employed, as was likewise hydrochloric acid in various combinations. In the milder cases we thought the chlorate of potass (3 or 4 grains to a child of 4 years) to be extremely useful, and in the hands of another practitioner of great experience and discrimination, its administration was attended with the happiest results. Among the other antiseptics which were occasionally tried I need mention only one, viz.: fresh yeast, which in some malignant cases, characterized by very dark coloured eruption, succeeded admirably.

Fresh yeast has, we believe, only been used by one practitioner during the late epidemic, and indeed we should rather say that it was towards the close of the visitation that it was first employed. Still the cases in which its use was attended by marked benefit, were of a most malignant character; and we saw a day or two ago two of the little patients, who by this means had been apparently saved from certain death. My friend stated that he gave it as an antiseptic, being led to its internal administration by the great advantages he had seen obtained from yeast poultices applied to malignant sores. The children took the freshest yeast that could be obtained, they swallowed it most readily, in doses of from half an ounce to an ounce and a half, every two or

three hours. Its effects my friend states, and this was corroborated by the parents, were most remarkable; the patients were soon roused from their sinking condition, and became to a certain extent exhilarated by this simple remedy. Since yeast has been employed by my friend, he has not lost a single case. Ventilation and gargling or syringing of the throat were at the same time carefully attended to. We think this mode of treatment well deserves a further trial.

Stimulants, as may be inferred from the character of the epidemic, were in malignant cases early called for. When the pulse was weak, and intensely quick and vibrating, wine and even brandy were had recourse to, nor did the delirium in general appear to be increased by the stimulants administered. On the contrary, the head symptoms often subsided, as the wine was increased in quantity. A boy, in the higher ranks of life, took Scarlatina on recovering from measles, on the third night the prostration of strength was so great, that my correspondent, who relates the case, ordered him champagne, and he revived, but in twenty-four hours violent delirium came on, this subsided, and he completely recovered.

In cases where the breathing was greatly oppressed, the carbonate of ammonia was found extremely useful, as a rapidly diffusible stimulant.

TREATMENT OF DROPSY AFTER SCARLATINA.

It will be recollected by the reader, that we regard the numerous cases of dropsy that followed the epidemic, as attributable to the neglect of due precautions on the part of the patients and their relatives. We have already quoted Dr. Pitschaft's remarks, that dropsy will never come on after Scarlatina, if six or eight warm baths be taken, and the bowels be kept duly open; and though we acknowledge the truth of this observation in general, we cannot positively speak to its invariable accuracy. Mr. Humble writes to us as follows: "I cannot corroborate the statement of some authors, that dropsy *never* supervenes, when the warm bath is duly taken during the stage of desquamation. I have seen it come on, notwithstanding that every precaution was taken to cleanse the skin, and to preserve the convalescent patient from exposure. Such cases, however, formed exceptions to the general rule."

We have described the dropsy as coming on in two different ways. In the one its invasion was intense and sudden, in twenty-four hours the body was distended with fluid, there was high fever, and a tolerably full, but very rapid pulse, while the urinary secretion was almost entirely suppressed. In such cases free general venesection was found to be the most efficacious remedy, and it could the more easily be employed, as these intense attacks of dropsy usually supervened after the mildest forms of the ex-

anthema, where the patient's strength was quite equal to bear the loss of blood. In illustration of this mode of treatment, we may subjoin a brief extract from the letter of one of our most valued correspondents. "The treatment depended much on the nature of the case. If the anasarca was great, with much oppression of the breathing, high fever, and rapid, but tolerably firm pulse, I found one good general bleeding to be followed by the most beneficial effects. This was succeeded by the administration of a mixture of the Nitrate of Potass, Liq. Ammon. Acet. and Tart. Antimon., in moderate doses every two hours, with Calomel and Compound Jalap powder at night, and the latter repeated in large doses in the morning."

We ourselves occasionally had recourse to the treatment recommended by Dr. Golding Bird.* The patient was kept in bed, wrapped in a large flannel bed-gown, hot baths were given every night, and he took the following mixture every four hours:

R. Vin. Antimon. Potass. Tartr. m. x.

Julep. Ammon. Acetat. oz. iii.

Syrup Papav. m. x.

with pulv. Ipecac. comp. gr. iiiss and pulv. Hydrarg. \bar{c} Cretâ gr. v. every evening.

Elaterium and other drastic purgatives were likewise employed with success, as was also Croton oil.

In the other form of dropsy, where the swelling came on gradually with but little fever, we had recourse to nearly similar treatment, only that vene-

* Guy's Hosp. Reports. April, 1845. p. 131.

section was not required. But sometimes most dangerous head symptoms unexpectedly supervened, or the respiratory organs were severely affected. Nothing was then found more efficacious than the free employment of drastic purgatives. It was surprising to see how well they were borne, and how little debility was induced by the copious evacuations they occasioned. The favourite remedies of this kind were croton oil and elaterium, especially the latter. Whether the fluid had accumulated in the pericardium, the pleura, or the peritoneum, or whether it had invaded the cellular tissue throughout the body, elaterium, in doses of from one-twelfth to one-sixth of a grain every three or four hours, often brought about the most rapid and unlooked for amendment. We saw one child, who had been in the most dangerous condition from dropsical effusion and pneumonia, and who regained his health in three days from taking small and frequently repeated doses of elaterium, squills and calomel. He was in the most debilitated condition before these remedies were given; but stimulants, chiefly gin and water, were freely administered during the operation of the drastic purgatives, and with the happiest effects.

A correspondent in the neighbourhood of Newcastle informs us that "one child of five years of age, whose death was hourly expected from effusion of fluid into the thorax and abdomen, was *emptied* in a single night by taking one-twelfth of a grain of elaterium every three hours, and from that time rapidly recovered.

Some of our friends used the iodide of potassium to facilitate convalescence from dropsy, after diuretics, &c. had been freely given. They consider their patients to have derived much benefit from this preparation. Often when patients escaped the perils of the anasarca, they remained pale and leucophlegmatic, and seemed as though about to succumb to scrofulous disease. Many did indeed suffer in this way, swellings formed in the joints, or abscesses burst in the neck, and discharged the matter so characteristic of scrofula. Here the preparations of iron were of especial advantage, particularly the citrate and the iodide of that mineral. Lastly, change of air, was, as it ever is after the exanthemata, peculiarly beneficial in restoring the patient to florid health.

We are not quite sure that diuretics were always useful in the dropsy, they seemed sometimes to increase the already existing congestion and irritation of the kidneys. Leeches applied over the situation of these organs seemed to succeed better.

Where small but numerous abscesses threatened the life of the patient after Scarlatina, we ever made it our principal object to support the strength by wine and nourishing diet, and to correct the tendency to scrofulous disease by the administration of the iodide or citrate of iron. It is needless to observe, that to secure ultimate success, the utmost attention to personal cleanliness, and to due ventilation of the apartment was required.

MORTALITY.

It has been extremely difficult to obtain correct data of the mortality during the epidemic; the general report of the Registrar General, which would supply the requisite information, not having as yet been published. Many deaths no doubt have been registered as dropsy or pneumonia, where the primary disease was Scarlet fever, of which the fatal disorder was only a consequence. From all that we can learn, the increase above the usual average of deaths from this epidemic, cannot have been much less than 700, in Newcastle, Gateshead, and the immediate vicinity of these two boroughs; while we must not forget that this fearful mortality has been still further augmented, by the prevalence of measles and of hooping cough, which have also respectively been extremely fatal to children. In the parish of All Saints in Newcastle there died, during the quarter ending September 1st, 1846, one hundred and forty-three children under eight years of age, and of these forty-two perished from Scarlatina. The mortality of the succeeding quarter was not less appalling, there were one hundred and forty-nine deaths of children in this parish under six years of age, and of these seventy-one were referred to Scarlatina. It may be truly said, that had such a mortality occurred among the adult portion of our population, a general panic, like that which prevailed in the cholera year, would inevitably have ensued.

The proportion of deaths to those affected cannot

be distinctly ascertained, for many of the patients were so slightly indisposed, that no notice was taken of their illness, till dropsy supervened, and revealed the true nature of the previous affection. In the practice of several of my correspondents, the ratio of mortality appears to have been one in four and a half, and one in five. The table of the deaths, and cases drawn up by Mr. Humble of the Newcastle Dispensary, and by that gentleman kindly permitted to be annexed to this paper, will illustrate the fatal character of the epidemic among the lower classes of our population. In most of the country districts the mortality was much less, in the Gateshead Dispensary we had one hundred and thirty-two cases, and twenty-three deaths. Among the causes of death enumerated by my correspondents were two cases where immense abscesses formed under the chin, and proved fatal by their exhausting discharge. Two other instances were detailed to me, where the abscesses that formed in or near the parotid and submaxillary glands, after a tedious maturation, perforated the veins or arteries of the neck, so that the cavity of the abscesses became filled with blood. One of these was unfortunately opened by an ignorant practitioner, who was called in, in the absence of the regular medical attendant, and death instantly ensued. The other case progressed more slowly to its fatal termination.

OBSERVATIONS.

A few notes on former epidemics of Scarlatina, from sources not generally accessible to the English reader, may perhaps not here be out of place, as the study of the earlier visitations of the malady tends greatly to illustrate some of the phenomena of the recent epidemic. Plans of treatment also have been promulgated and praised by continental writers, which seem rarely to have been tried in England, and though I do not speak from experience of the success of any of these modes or peculiar remedies, an acquaintance with them will increase our resources, when engaged in combating the disease.

It is generally said that Scarlatina first broke out at Naples in the middle of the sixteenth century. Under the name of Rossalia, this malady was described by Ingrassias, a physician of Palermo who died in the year 1580, but after carefully reading the account of this epidemic as given by that author, we fully coincide with Hecker's opinion, that the disease in question, was plainly measles and not scarlet fever. No mention is made by Ingrassias, by Prosper Martian, or by Fra Jacopone de Todi, of the dangerous affection of the throat, which has been so constant in all the true epidemics of Scarlatina. In Rossalia too, the desquamation of the cuticle took place in small scales, and never in large patches, while the eyes were at the same time severely affected, as we generally observe them in Rubeola.

It was remarked too by Prosper Martian that

death scarcely ever occurred from Rossalia,* and the malady seems to have entirely disappeared about the beginning of the seventeenth century.

The first real epidemic of Scarlatina appeared at Breslau in 1627, and was there observed by two physicians well fitted to record its symptoms, by Michael Doering and Daniel Sennert. The phenomena of the disease were exactly similar to those that characterize mild and regular Scarlatina at the present day, and had so general and well marked a disorder existed in previous years, it would hardly have escaped the notice of some one of the host of monograph writers, who inundated the medical world with their publications, shortly after the invention of printing. Contrary to the usual nature of epidemics, which, as was well exemplified in the cholera, are most severe on their first invasion, the scarlet fever of Breslau was rarely fatal, but the cellular tissue about the neck was greatly inflamed and swollen, pneumonia frequently occurred, and when death *did* ensue, it was often a consequence of the pulmonary affection. The pulse was very quick, the skin dry and burning, the urine scanty, and of a brownish red colour. As the fever declined, pains in the limbs were felt, and the dropsical sequelæ were not less troublesome and dangerous than at the present time. The disorder we have just des-

* At experientia docet, nullum fere ex Rossalia interire, et nisi miraculo quodam, et ob errata maxima, quæ aut ægri committant aut medici, potissimum vero Sanguinem mittentes. p. 308. Epid : L. II. S. 3. 20.

cribed, and which is evidently the *Scarlatina* of the present day, seems to have continued mild in character for the space of one hundred and fifty years, or until the latter part of the 18th century. It spread through Germany in 1642 and 1658, and ten years later we find its appearance recorded in the British Isles, where it was extremely mild, and required no treatment whatsoever. In Holland at this time it was also known, and bore the singular appellation of the *Rood-hont* or red dog. Its existence in France is not mentioned till about the year 1707. In 1717, *Scarlatina* prevailed at Berlin, along with a fearful epidemic of small pox, and whenever the latter malady broke out in a patient convalescent from scarlet fever, all the efforts of art were unavailing. Roncalli,* of Florence, observes that the disease of that city was fatal rather from the sequelæ of dropsy, than from the immediate effects upon the throat. From 1720 to 1750, the progress of scarlet fever in Germany was carefully observed by Johann Storch,† who has recorded and described no less than seven different epidemics, all apparently of a mild character, with a mortality of ten per cent. At the same time it prevailed extensively in Scotland, and it is stated that those individuals who had before suffered from the disease, were peculiarly liable to attacks of sore throat, during the prevalence of *Scarlatina* in their neighbourhood. It is curious that, before the

* P. F. Roncalli. *Europæ Medicina*. &c. fol. Brixen. 1747. p. 333.

† J. Storch : vom Scharlach-fieber. Gotha, 1742.

time of Plenciz (1740-1762),* the eruption does not seem to have come out until the third or the fourth day ; and at this period, too, we first hear of the distinction between mild and malignant Scarlatina. From this era, which is that of the decline of the great epidemics of plague and petechial typhus fever throughout Europe, we may date the rapid increase of the malignant form of Scarlatina, such as it now prevails. The epidemics recorded by Dr. John Clark of this town, and by Dr. Withering in Birmingham, were remarkably severe ; there was in these, extensive and dangerous swelling of the throat, with gangrenous ulcers of the tonsils and soft palate. But the mortality in these epidemics was certainly less than in that we have recently observed in Newcastle. From 1790 to 1830 Scarlatina has been very prevalent both in England and on the continent, and like the typhus fever of this same period, it presented a peculiarly inflammatory character, if we may judge from the success which followed the free use of the lancet, especially by the English practitioners. It was in this form, too, of the disease, that the cold water effusions of Dr. Currie and of Mr. Mossman† were found so peculiarly advantageous. During this period, also, an anomalous form of the disease was observed in different countries, characterized by a painful affection of the joints, which was at first supposed to be rheumatic in its nature. This variety

* Marci Antoni Plenciz : *Tractatus de Scarlatina* · Viennæ, 1780.

† *Annals of Medicine*, 1779. vol. iv. p. 422.

was seen in Aberdeenshire by Mr. Murray of Alford,* and its counterpart was observed and described at great length, as it occurred in the practice of the late Dr. Cock, of St. Bartholemew's in the West Indies.† It was there called the dandy fever, and many of its symptoms are analogous to those of the malignant sore throat, which ravaged South Carolina and Georgia some thirty years before. It is curious to examine, as I have done, the records of French, English, and German practice at this period, and to mark how, during the first thirty years of the present century venesection was considered to be, and we really believe was actually necessary in the treatment of Typhus fever and of Scarlatina; and how, after the fearful visitation of the Cholera, we rarely and more rarely still, find the lancet upheld as a specific in such diseases, till, in the present decade, its employment has been seldom called for, and often has been regarded as absolutely hurtful. Are we then to believe that fashion and not experience guided the practice of our medical predecessors in the last generation? or should we not rather infer, that some real change has taken place in the epidemic constitution of the diseases above named, and which has rendered necessary the employment of stimulants, and tonics, in place of the former antiphlogistic modes of treatment? We ourselves believe that a real difference in the character of epi-

* Edinb. Med. and Surg. Jnl. p. 294. vol. 33. 1830.

† Edinb. Med. and Surg. Jnl. p. 28, vol. 37. 1832.

demics, and perhaps, too, of isolated cases of disease, has existed during the last 15 years, for it is not merely in Europe but likewise in America, that this disposition to debility, and to rapid nervous exhaustion has been so apparent. Dr. Chapman states, that Scarlatina was exceedingly mild in America from 1800 to 1830, but that since the latter period, it has greatly increased in malignity, and the cases are ever characterized by a tendency to fatal collapse.

The reader will I am sure excuse this brief sketch of the progress of Scarlatina, from its earliest appearance to our own times; it has been extracted from the copious notes I took when reading the works alluded to, and it can hardly be regarded as foreign to the present subject. A few notices of some modes of treatment little known or practised in this country, may perhaps not be unacceptable. And first as to the pretended prophylactic virtues of Belladonna. The source from whence this remedy was first recommended, is sufficient to render it suspected; but though Hahnemann proposed its employment, it should not be rejected solely on that ground. Belladonna was tried extensively as a preservative by one of my correspondents, but it totally failed. As to its virtues in the small doses advised by the Homœopathic Charlatan, we withhold all belief, until better conducted experiments have proved its efficacy, or what is more probable, have destroyed the delusion of its powers.

Of the remedies that some time ago enjoyed the

greatest repute, the carbonate of ammonia holds perhaps the first place, especially among our German brethren. But in some of the later epidemics, it has been found much less efficacious, and Marc of Bayreuth* prefers the acetate of ammonia in severe cases. Latterly, large doses of calomel have been employed with success in the same country. Ice has been extensively used by French and American practitioners, both as an external application to the swollen throat, and internally to allay the thirst and fever. Musk and camphor have been highly praised by Wendt† in putrid cases, and the same author employs the warm bath, where there is much febrile excitement and delirium, and recommends that iced water should be poured on the patient's head, during his immersion. Schoenlein advises as a preservative against dropsy, that the patient should be rubbed daily with olive oil, before a large fire. This precaution might be useful if patients were *obliged* to go into the open air during the period of desquamation, but it is too tedious a process to be generally adopted. We cannot better terminate these remarks, than by exhibiting to our readers, the result of forty-one cases of Scarlatina, occurring under circumstances highly favourable to observation and to treatment. The history of these cases I owe to the kindness of Dr. Joseph Brown of Sunderland, and his name is a sufficient guarantee for the accuracy of

* Kleinert's Repertorium. p. 175. June, 1843.

† Analekten für Kinderkrankheiten. Stuttgart, 1837. Band IV. S. 137.

the details. Dr. Brown observes that the cases in question may properly be termed select, as they occurred in one locality, and furnished a contrast to the disease as it prevails in a given number of the population of a town or city. The locality was a large school near Sunderland, yet sufficiently remote from that town to be free from smoke, from vitiated air, or from other suburban influences. It is built on a gravelly soil, with a substratum of magnesian limestone, both of them admitting of a free percolation of water. An area of about twelve acres surrounds the building, and is used as a play ground for the boys, the house consequently stands isolated from other dwellings. Within this area, but at some little distance from the school, is a hospital with every convenience for the treatment of the sick, and for perfect ventilation, consistent with due regulation of temperature. The inmates of the school, in number a little above two hundred, are the sons of gentlemen, on whom every attention as to clothing, good food, exercise, and personal cleanliness is bestowed. The ages of the patients ranged, with two exceptions, from ten to sixteen. These two exceptions were the youngest boy in the school, 7 years of age, and one adult, a teacher. The moment that any boy sickened he was put to bed, and duly attended to. Of rather more than two hundred inmates of the school, one in five was attacked with the disease, but only a single death ensued. "None are included in the forty-one cases of Scarlatina who did not exhibit the eruption characteristic

of the disease, but there were cases of sore throat and swelling of the neck, without any eruption, existing simultaneously with those of manifest Scarlatina. These cases were few in number, and a survey of the medical condition of the school during the previous twelve months, will shew my reason for not classing them with the epidemic.

“From an early part of the year, fully eight months before the appearance of Scarlatina, which first shewed itself in October 1846, there was an unusual prevalence among the boys of glandular swellings of the neck, especially of those glands most frequently affected in Scarlatina. In the month of August, influenza pervaded the establishment, and continued to prevail till Scarlatina appeared. This influenza had, associated with it as part of the disease, a good deal of swelling and inflammation of the fauces and tonsils. I regarded the prevalence of these slighter epidemics, as examples of what I have often observed before the appearance of any great visitation of disease, viz. that disorders, analogous in many respects, extensively prevail, previous to the outbreak of the severer epidemic. The very unwonted prevalence of bowel complaints prior to the invasion of the cholera, will no doubt be well remembered.

“That the results of the epidemic in this school were much more favourable than amid patients taken miscellaneously from a town population will readily be conceded. A portion of the advantage may be reasonably ascribed to the patients having

attained an age, when life is held by a firmer tenure than in mere infancy, yet I cannot help suspecting, and in this you will yourself concur, that the result would not have been nearly so satisfactory, had they been dispersed through a large town, and subject to the influences of such a position. If this view be correct, then the value of these cases consists in their showing, what is even yet scarcely enough attended to, that much of the malignancy of Scarlatina, and probably of all epidemics, depends, less on the disease itself, than on the pernicious accessories by which the patient is surrounded. Crowded apartments, defective ventilation, deficient food, ill regulated temperature, and unsuitable diet, all combine with want of cleanliness, and of attention to the first signs of indisposition, to render those cases, which would otherwise have been mild, most malignant and dangerous to life."

I here take the opportunity of expressing my warmest thanks to those of my medical friends, who so kindly seconded my endeavours to obtain information on the subject of this essay. Amid the numerous answers I received to the questions circulated, there was not one which did not contain important particulars, and though some were brief, on others an amount of labour and attention had been bestowed, that could hardly have been looked for from gentlemen engaged in the arduous routine of general practice. For obvious reasons I have rarely mentioned the names of any of my correspondents, save when some important fact, or new

mode of treatment might induce others to seek for further information. My object has been to illustrate the excellent advice of Martinêt. *When measles or Scarlatina occur epidemically, it is highly important to study well the character of the epidemic, and to modify our plan of treatment according to the influence of remedies over it.*

TABLE OF CASES OF SCARLET FEVER

*Treated at the Newcastle Dispensary, from August 31, 1845, to February**28, 1847.*

Months.	Total Admitted.	Had Dropsy.	Total Cured.	Total Dead.	Died in the Febrile Stage.	Died of Dropsy.	Died of other Sequelæ.	Adults Admitted.	Adults Cured.	Adults Dead.
1845.										
September	3	„	3	„	„	„	„	„	„	„
October	12	„	12	„	„	„	„	„	„	„
November	16	3	16	„	„	„	„	3	3	„
December	6	1	5	1	1	„	„	„	„	„
1846.										
January	9	„	8	1	„	„	1	„	„	„
February	18	„	16	2	2	„	„	1	I	„
March	18	„	15	3	2	„	1	1	I	„
April	4	„	4	„	„	„	„	„	„	„
May	11	„	10	1	1	„	„	„	„	„
June	15	„	15	„	„	„	„	„	„	„
July	36	13	30	6	2	2	2	2	2	„
August	28	9	23	5	1	2	2	„	„	„
September	67	17	56	11	9	„	2	1	1	„
October	69	10	54	15	12	1	2	3	2	1
November	66	9	57	9	7	1	1	3	3	„
December	39	7	35	4	4	„	„	1	1	„
1847.										
January	20	8	19	1	1	„	„	1	1	„
February	9	6	8	1	1	„	„	„	„	„
Total	446	83	386	60	43	6	11	16	15	1



