interesting to conceive the possibility of vaso-motor spasm producing uræmia; for if, as in the above case, it were present, not only in the extremities, but also in the retina, there seems no reason to suppose its absence in the kidneys. Here, if present, it would materially interfere with excretion, and although this might not be hindered to any great extent if the organs were healthy, yet a continued or frequently recurring condition of vascular spasm might, by producing inflammatory or degenerative changes, or by augmenting pre-existing inadequacy, favour the occurrence of serious uræmic poisoning.

Carlisle.

POST-SCARLATINAL DIPHTHERIA.

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THE problem of post-scarlatinal diphtheria is again attracting the attention of those interested in the management of metropolitan fever hospitals, and it has occurred to me that it may be of interest and value to put on record some observations made thereon at the City Hospitals, Birmingham, during 1893, 1894, and 1895. Diphtheria and post-scarlatinal diphtheria are, as far as one can ascertain, both much less common in the provinces than in London. A better opportunity is therefore afforded of solving the problem in accordance with the general principle that etiology is best studied where disease is least common. Furthermore, in a provincial town all the patients are drawn from a definite area of limited size, and one is, therefore, in a position to compare with some degree of accuracy the conditions obtaining in hospital with those existing among the population from which the patients are drawn.

The following facts are based on observations made from July, 1893, to December, 1895. During that time there was an average of from 300 to 350 scarlet fever patients under treatment. It is extremely important to note that diphtheria was not admitted during that time, but was treated either at home or at the general hospitals. During 1893, 1894, and the first half of 1895 no case of post-scarlatinal diphtheria¹ was met with, and one began to wonder how far this immunity could be explained by the fact that diphtheria was not treated in the hospital. In July, 1895, however, a fatal case of laryngeal diphtheria occurred in a convalescent child. This was followed by secondary cases and by numerous other outbreaks during the rest of the year. How was the difference between 1895 and the previous years to be explained? The condition of things within the hospital was for the most part unchanged, but the state of the city had altered, as shown by the following figures taken from the reports of Dr. Alfred Hill, medical officer of health.

Diphtheria.

Year.	Cases notified.	Deaths.	Case mortality.
1893	322	43	13 per cent.
1894	316	50	16 per cent.
1895	640	163	25 per cent.

In other words, diphtheria had become twice as prevalent and more than 50 per cent. more virulent than in former years. There is also evidence that the increased prevalence and virulence was accompanied by an increased "striking" power. Up to 1895 it had been the custom to treat diphtheria at one of the general hospitals, but in that year it showed such a tendency to spread to nurses, medical men, and others that the managers passed a resolution that they would admit no more cases, and urged the health committee to relieve them of that task.

My contention therefore is that there is nothing special or peculiar in the etiology of post-scarlatinal diphtheria, but that it simply depends on the amount and virulence of the diphtheria existing among the population from which the

¹ Membranous throats were, of course, common among the acute cases of scarlet fever, but these, as shown by Klein, are usually not diphtheria.

patients are derived. Just as when measles and varicella become prevalent outside the hospital we may be sure that sooner or later a fever patient will be admitted while convalescing from or incubating these diseases, so one may expect that when diphtheria is prevalent a fever patient will be admitted suffering from the double infection of scarlet fever and diphtheria. The co-existence of these two diseases is furthermore favoured by the fact that their age incidence is almost identical. Corroboration of this theory is provided by the well ascertained fact that diphtheria bacilli are occasionally present in the acute stage of scarlet fever.² The fact that diffusion in hospital usually occurs among those who are convalescent is mainly accounted for by the fact that personal contact plays a great part in the spread of diphtheria, and even the limited isolation afforded by confinement to bed is sufficient to limit the infection. There is, perhaps, however, some slight resistance to diphtheria during the acute stage of scarlet fever, as laryngeal diphtheria appears to be an infinitely rare complication of the acute disease.

The conclusions arrived at are not without practical value, and the great lesson to be learned is the importance of reducing the size of the ward unit if we want to limit the risk of our patients contracting other diseases while convalescing from the one for which they have entered hospital. With this end in view I have always advocated the erection of double-warded pavilions (with ten beds in each ward) in preference to the large single wards of twenty beds. One also comes to look with grave suspicion on the not uncommon plan of receiving patients into "acute" wards and afterwards drafting them to other parts of the hospital. A far better plan is to have an acute and a convalescent end to each pavilion and so to limit as far as possible the number of sick people with whom a patient is brought into contact during his stay in hospital. An outbreak of measles or diphtheria in a ward of ten beds is sufficiently serious, but strict quarantine can easily be maintained without undue interference with the work of the hospital. With wards or dayrooms for forty, fifty, or more patients it is far more serious. Not only are so many more patients exposed to infection, but quarantine has more often to be prolonged for secondary and tertiary outbreaks, while during all that time a large proportion of the hospital accommodation is no longer available for new patients. Lastly, I may add that all our cases of post-scarlatinal diphtheria were confirmed by bacteriological examination at the British Institute of Preventive Medicine and that we highly appreciated the assistance afforded us in detecting ill-defined and otherwise irreconisable cases occurring among those associated with the more acute and typical forms of the disease.

Chesterfield.

A SUCCESSFUL CASE OF TREPHINING
FOR TEMPORO-SPHENOIDAL ABSCESS
DUE TO SUPPURATIVE MIDDLE-
EAR DISEASE.

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A LAD aged nineteen years was admitted into the Sheffield Royal Hospital on the evening of July 21st, 1895, with the following history. Deafness and discharge from both ears had commenced four months previously. For this he was treated at another hospital, where he had a polypus removed from his left ear. Apart from this he was fairly well until five days before admission, when severe earache set in. He continued his employment in spite of his earache until two days before coming to hospital, when he became delirious and had vomiting. On admission he was wildly incoherent and unable to answer questions. The temperature ranged from 100° to 102° F. The pulse was full and at the rate of 60 per minute. The left ear contained much offensive pus and was blocked by a polypus. The right ear showed a perforated membrane, but was not offensive. He groaned when pressure was made over the mastoids, more markedly when the left mastoid was pressed.

² I have met with one such case, though only a few of our acute scarlet fever throats were examined bacteriologically.