Fever Hospital would be inexplicable. And, even elsewhere, diphtheria was stated to have almost always occurred as a sequel to the scarlatina, hardly ever to have been synchronous with it. Some recent experiences, having perhaps a somewhat contrary tendency, at the Metropolitan Asylums Board hospitals, were to be preferably discussed under another heading, namely, that of the aerial diffusion of the contagium of diphtheria. The relation of diphtheria to faulty sanitary circumstances was then fully entered into. As regards water-supply, it was held—and much confirmatory evidence was appealed to as to this—that no prevalence of diphtheria had ever been definitely traced to polluted water, or even to water covered with fungoid or other allied growths; whereas there was, on the other hand, abundant evidence, necessarily of a negative character, in the opposite direction. As to sewerage and drainage, the matter was not to be so easily disposed of.

Many observers who did not as a mere matter of course regard two concurrences as being related to each other as cause and effect were decidedly of opinion that such defects as led to contamination of soil and air by sewage did cause and tend to diffuse diphtheria. On the general question, it was pointed out that the last twenty years, during which diphtheria had been increasing in our midst, was of all periods the one in which most progress had been made in improving conditions of sewerage and drainage, and that hand in hand with this there had been diminution of general death-rate and diminution of rate of death from such diseases as typhoid fever. Especially had progress been made in this direction in our towns and cities; and here, too, the same diminution of death had taken place, whilst diphtheria, on the contrary, was steadily laying hold of our large urban communities. But notwithstanding these general considerations, it was admitted that careful inquiry had at times associated grave sanitary defects of the sort referred to with grave and sustained prevalence of diphtheria; and typical amongst such occurrences was the story embodied in Mr. Spear's report on diphtheria at Aylesbury. This report was carefully entered into, and the main contention of the author seemed to be that recurring localisations of diphtheria could only be accounted for by the localisation of specially grave drain and filth conditions at those spots. The story was, however, one of extreme complication, for there had been an earlier diphtheria epidemic about eighteen months before, which was associated with school attendances, and there had been a vast number of sore throat attacks in the interval that might easily be regarded as links between the two prevalences. But Dr. Thorne felt that instances of this sort did afford some evidence of a relation between the conditions referred to and diphtheria, and this went beyond mere increase of fatality owing to unhealthy surroundings. The explanation, he believed, lay very largely, if not entirely, in the circumstance that the faulty conditions in question often produced sore throat, apparently of a benign character; and that, just as in the case of such diseases as scarlatina and measles, the abraded surface of the throat afforded the very soil suitable for inoculation by the diphtheria organism when present in the air, as it unquestionably was at the time in Aylesbury. In such a case it would be difficult to say whether other causes were not at work leading to the development of some special specificity in type amongst the prevailing throat affections; but it is unquestioned that these attacks of so-called tonsillitis do at times become infective and are communicable within the same household. Drains, too, may possibly retain a diphtheria contagium received through the sputa and dejecta of the sick. But the main influence of drain effluvia in relation to diphtheria was held to be the preparation of a soil by means of a morbid surface of the fauces, ready to receive and promote the development of the wandering specific organism.

Much the same line of argument was applied to another story based on a valuable report by Mr. Matthew Adams, of Maidstone, who had pointed to the existence of a relation between diphtheria and variations in the level of the subsoil water. The occurrences in question were illustrated by means of a large chart, in which the amount of diphtheria could be compared year by year, and even week by week, with variations in the ebb and flow of the subsoil water; and Mr. Adams's main contention was that so long as the ordinary single autumnal rise and summer fall of subsoil water took

place, even a filth-laden soil was so far washed clean, and the diphtheria contagium was so far drowned out that no material mischief resulted; but it was explained to be otherwise when, owing to abnormal meteorological conditions, continual oscillations of subsoil water kept the soil damp, favoured decomposition of its organic contents, afforded a breeding ground for specific organisms, and at frequently recurring intervals expelled from the soil into the atmosphere above an air laden with these organisms. Mr. Adams's report was also specially referred to as an example of the admirable and exact record of facts which not infrequently resulted from investigations made by local health officers, and which afforded such excellent material for the elucidation of difficult problems in preventive medicine. In conclusion, Dr. Thorne discussed the influence on the human system of drain effluvia in their relation to specific disease in the light of the recent researches of Klein and Achille Monti on the concurrent inoculation of different infections; and he referred also to those of Oertel, which go to show that diphtheria is primarily a local disease manifesting itself solely at the point of inoculation, whether this be effected aerially as on morbid and abraded fauces, or mechanically on a cornea or elsewhere, and that the general disease is altogether a secondary one due to infection of the system owing to changes at the seat of the primary lesion.

A RARE SEQUELA OF SCARLATINA.

By HUGHES REID DAVIES, L.R.C.P. LOND., M.R.C.S.,
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On the morning of November 10th, 1890, F., S., aged 9 years, at the end of the third week of an attack of scarlatina, in the free desquamation stage, awoke apparently in the best of health at 7 A.M., and was playing with his brothers and sister, all of whom were convalescing from the same disease. At 9.30 A.M. of the same day he ran crying to his mother, complaining of violent pain in his lower limbs, which were described as being "cold, puffy, and very tender to touch." "Spots" then first appeared on the shins, both calves, and the dorsum of the left foot.

The father and mother's history was good, except for the following facts:—The maternal grandfather died of small-pox and "bleeding" (? hæmorrhagic small-pox); "nose had to be plugged." The family on the maternal side bled easily. Two years ago, F. S. was attending at the North-Eastern Hospital for Children suffering from "general debility." He was always pale. He had measles and chicken-pox about four years ago. His nose used to bleed on the slightest provocation; general health at time of contagion good.

Nothing worthy of note occurred during the course of scarlatina in any of the six children. F. S.'s attack seemed rather more severe than any of the others; the rash was well developed, lasted about six days, desquamation commencing almost immediately afterwards.

At 1.30 P.M. on November 10th I saw the patient, and noted the following condition:—He was anæmic, desquamating freely, clear headed, chatty, and in capital spirits. Temperature, bowels, and urine were normal; the pulse about 100, rather "irritable"; the lower extremities, from knees downwards, were slightly cedematous; the surface was warm; there were ecchymoses about both ankles, generally scattered, but in some places merged. Both calves were covered by bluish-black subcutaneous hæmorrhagic patches, surrounded by narrow zones of inflammation, and were very tender on touch.

On the following day, November 11th, at 9.30 A.M., I again saw the patient, and made sketches of the lower extremities and of the left elbow. The patient had passed a fairly restful night; the temperature was normal, the skin moist and very pale; the urine scanty but normal; the pulse quicker, 120; the extremities were warm.

The ecchymoses were now completely merged into patches of "raven-blue," surrounded by inflammatory zones; the symmetry of the patches was remarkable; the legs were slightly less cedematous but still exceedingly painful, the child shrieking if they were moved or roughly handled. New centres of ecchymoses were appearing on the legs, and one

of about the size of a five-shilling piece on the right hip from pressure. The appearance of new patches was always heralded by great pain; there was no enlargement of the joints.

At 1 P.M. the patches were stationary, except those on the right hip and the dorsum of the left foot, which were spreading rapidly. A bruise-like ecchymosis had appeared on the point of the left elbow, which was very painful. There was no swelling of the joint proper, although it was moved with pain and great difficulty. The patient was still very clear headed, and took great interest in each new patch, which he exhibited for my inspection on every visit. The limbs were warm; there were no feverish symptoms.

At 4.30 P.M. the patches were spreading rapidly, and there was considerable swelling of the left elbow-joint, with marked purpuric discoloration. The joint could not be moved, actively or passively, without intense pain. Slight feverish symptoms were developing; the pulse was about 140.

At 7.30 P.M. the patient was removed with every care to Homerton Fever Hospital. The father informed me that removal had been borne capitally, and that the child was quite clear headed and in good spirits. He also stated that the patches were still spreading, new centres forming in other parts, and that swelling of one ear had been noticed. The patient died on November 12th about noon.

For the following *post-mortem* notes I am indebted to Dr. Alexander Collie, Medical Superintendent, Homerton Fever Hospital: "A *post-mortem* examination was made at 12 noon, November 14th, forty-eight hours after death. Some blood-stained fluid in each pleural cavity, most in right cavity. Lungs anæmic, otherwise normal. Heart contained no clots; walls somewhat thin and flabby. Liver and kidneys anæmic. Spleen not enlarged. Intestines very anæmic, walls very thin, contained a little feculent matter. Bladder contained only a few drops of urine. No fluid in peritoneal cavity. No extravasations of blood in any internal organ, and no abnormality except anæmia. Mouth and throat examined; tonsils congested in patches. Brain removed and examined; arachnoid milky, convolutions somewhat flattened, small quantity of serum in ventricles; nothing further detected."

REMARKS.—I believe I am right in deeming such a sequela of scarlatina one of the rarest of occurrences. Dr. Reginald Southey¹ exhibited a case of "symmetrical gangrene" in many respects similar to that which I relate, in some dissimilar. Dr. Southey's case presented the marked external anæmia of mine; the small, wiry, "irritable" pulse; absence of elevation of temperature; perfect consciousness; pain heralding advent of ecchymosis, and absence of pain except when pressure was placed upon the seat of discoloration, together with the fact that the ecchymoses seemed considerably determined by pressure, and also the marked symmetry of their distribution. In Dr. Southey's case there was no joint effusion; in mine I noted enlarged left elbow-joint. Dr. N. Moore's report of the *post-mortem* examination of Dr. Southey's case can be read with great interest, and compared with that made by Dr. Alexander Collie. In the former stasis and extravasation are noted in skin and connective tissue; in the latter no report is given of a similar condition, nor of the condition of the cellular tissue noted in Southey's case. Marked anæmia of the internal organs was present in my case, while in Southey's they were reported as normal in appearance.

I must also call attention to the fact of F. S. being in the third week and desquamating stage of scarlatina, thus differing from Dr. Southey's patient, a child, aged 2½ years, who was attacked by febrile purpura in October, 1882, only on December 2nd of the same year developing the true gangrenous patches. But in both instances the rapidity of course towards a fatal end seems the same. Hæmophilia, as a cause, Dr. Southey thinks might be excluded in his case; in mine I must leave it an open question.

MEMORANDA: MEDICAL, SURGICAL, OBSTETRICAL, THERAPEUTICAL, PATHOLOGICAL, Etc.

REMOVAL OF A PEA AFTER LODGMENT IN THE EAR FOR 5½ YEARS.

A YOUNG gentleman of 18 complained of earache of six weeks' duration; it had been worse for five days; there was no discharge. On examination I found the external meatus apparently filled with wax. Repeated syringing removed the wax, but left a rounded body of a greyish, moist appearance, about the middle of the meatus, nearly the whole of which was occluded. I looked upon this as a polypus with a deeply placed pedicle. A subsequent syringing removed what was evidently the inside of a pea in two deep brown hemispheres, and after these came the altered husk, which I had mistaken for the polypus. The tympanic membrane was left much thickened and somewhat retracted, while almost the whole external meatus was greatly contracted. Hearing is still slightly deficient but will probably improve. Of his own accord the patient then told me that when he was 12½ years' old a schoolfellow shot a pea into his ear with a peashooter; that he never told anyone of it but could not remove it, and soon forgot all about it, and had had no trouble from it till the present time. ARTHUR FOXWELL, M.B., M.R.C.P., Physician to the Queen's Hospital, Birmingham.

¹ Trans. Path. Soc. Lond., vol. xxxiv.