earthly aid could do no more, was he still there, fervently imparting spiritual assistance to the dying man.

"The names of many officers of lesser worth, we do not hesitate to say, have been brought to public notice by high official friends: but we will introduce into our humble cottages, with grateful recollection, for many years to come, the name of Dr. Johnston Fyffe."^{*}

And who is Dr. Johnston Fyffe? He was a short time since a student of this college; a short time since he sat where you sit now. May I, a short time hence, from off the present benches, draw like examples for future illustration!

Clinical Lecture

ON

SCARLATINA,

AND ITS

RELATIONS TO RHEUMATISM, CARDITIS, AND ALBUMINURIA.

By W. HUGHES WILLSHIRE, M.D.,

ASSISTANT-PHYSICIAN TO THE CHARLING-CROSS HOSPITAL, &c.

GENTLEMEN,—For some months past we have had in London an epidemic of scarlet fever. It was lately on the decline,—at least so far as my own experience would testify,—and about the hospital measles appeared to come forward in its place. In some other parts of the metropolis, according to the Registrar-general's Reports, the disease is yet very prevalent. I cannot say that the malady, so far as I have seen it, has shown more than its ordinary characteristics. I do not know that it has been unusually malignant; that dropsy has been more frequently its sequence; or that any other intercurrent or secondary affection has been met with above the general average. Nevertheless, I should say it has certainly not been a mild epidemic. I have seen it twice fatal from diphtheritic cynanche and croup, twice from dropsy with effusion into the pleural and pericardial sacs, once from suppuration, ulceration, &c., with their attendant evils, of the sub-maxillary glands and the surrounding infiltrated and hardened cellular tissue, and once from the direct depressing poisonous operation of the virus in a malignant form, where gangrenous cynanche with ozæna happened. I take this opportunity, however, of referring to scarlet fever, for the purpose of drawing your attention to a particular complication of the disorder, a case of which is now in the hospital—viz., rheumatism. If I find that I have time, I shall also make a few observations on the case of Sculthorpe, who has just been discharged after suffering marked involvement of the kidneys and albuminuria, consequent upon scarlatina.

The following is a short history of the first case:—Clara M—, aged ten years, admitted the 29th of October. On the 22nd, the rash, sore-throat, and *malaise* of scarlet fever made their appearance. On the 23rd, she was brought as an out-patient to the hospital. For six days nothing more was heard of her, but on the 29th her mother returned to say her daughter was very unwell, and that the day previously her limbs and joints had become very painful and seemed swollen. The child was admitted into the wards the same afternoon. On admission, the right knee and ankle-joint were swollen, slightly reddened by a blush, and painful; the tongue was coated, the bowels rather costive, and she looked a little puffy about the face; urine said to be passed in sufficient quantity. She was ordered the nitrate of potash mixture and compound powder of jalap. The urine to be preserved for examination.

On the 30th, she complained very much of pain; the limbs were too painful to be moved, and she lay on her right side, with the knees up towards the chin; the respiration was accelerated, the heart's action increased in frequency, and a slight bruit was heard, diffused, as it appeared, over the precordial region. The bowels had been slightly operated on. No urine free from admixture could be obtained. Four leeches were

ordered to be applied over the heart, and the bleeding to be somewhat encouraged, the compound jalap powder to be repeated, and the wine of colchicum to be added to the nitrate of potash mixture. Alkaline fomentations to the affected joints.

On the 31st, the patient seemed much better; the heart's action lessened, but the bruit was plainly to be heard. The countenance was more cheerful, and the position in bed could be changed. To continue the medicines as before.

November 1st.—Still improving; the pain of joints nearly disappeared; and cuticle freely desquamating. Could lay on right or left side indifferently. Complaints of soreness of mouth. The tongue was red, with aphthæ upon it, and stomatitis was present; there was also a slight herpetic eruption about the lips. She was ordered the chlorate of potash mixture, and the application of the mucilage of biborate of soda to the mouth. Up to the 5th of November she went on improving, the skin freely desquamating, and the urine was found to be non-albuminous.

On the 5th, one of the wrist and ankle joints again became painful and swollen, the heart's action increased, and the countenance somewhat anxious. At the base of the heart a sort of reduplication of the first sound was plainly to be heard, and over the apex a distinct systolic sawing souffle. Ordered to return to the nitrate of potash and colchicum mixture; to have a blister on the right side of the chest.

On the 8th she felt again better, the bruit over the apex continuing. Ordered to have two grains of mercury with chalk, and three of soda, every four hours. She went on generally improving; complained of no pain over the heart; no difficulty of breathing, or of pain of the limbs; the countenance was full of vivacity, but a loud sawing souffle beneath the nipple, and a slight roughness with the first sound at the base continued.

9th.—Improves; apex sound as before, that at base less evident. Repeat the mixture.

10th.—Much better, but the pulse rather small; apex bruit as before, roughness at base less evident, but a reduplication as before heard of the first sound. To continue the mercury, but to take also cod-liver oil.

11th.—Improves; up and dressed; skin yet desquamating. To have a warm bath; and orders were given to the sister to have her skin well scrubbed.

12th.—Urine examined; not albuminous. To leave off the mercury, and to take cod-liver oil and quinine.

13th.—Was crying yesterday because not allowed to leave the hospital, being, she said, "quite well." Bruit at apex continues; skin still desquamates. To repeat the warm bath.

Now I know that you will be amply informed in your books about most of the complications of scarlet fever, but that you will not receive much information concerning this rheumatic or arthritic one. Hence I have selected it for to-day's clinical illustration. Although a complication I say, but cursorily alluded to by writers in general, yet it seems to be one that has been known for many years, since an author who is sometimes said to have first hinted at the necessary separation of scarlet fever from other exanthems, but wrongly so, (for he referred it to measles *ad morbillos*), takes notice of an affection of the joints accompanying this disorder. This writer was Sennertus, who wrote in 1619, and from whom a German writer makes the following quotation: "*In declinatione materiæ ad articulos extremorum transfertur ac dolorem et ruborem ut in arthriticis excitat.*" Döring is said also to have made mention of it; and, in modern times, Murray, Rush, Wood, Kreysig, Pidoux, Bird, Trousseau, and others, have not failed to remark upon it. In 1851, attention was very prominently drawn to the point before us by Betz, of Heilbronn, who went so far as to hint at an essential relation between, if not an identity of cause of, many cases of acute rheumatism in the child and scarlet fever. He implied, at least, that an arthritic affection in young children often could not be told from the exanthem in question. That he had seen albuminuria and desquamation of the skin in acute rheumatism in children who had shown no exanthematous eruption; and, on the other hand, that the eruption was not an *essential* symptom of scarlet fever, leaving it, therefore, a very difficult, if not impossible, case in which to arrive at a differential diagnosis. In 1853, M. Trousseau stated that he had very frequently met with the complication we are speaking of; that the arthritic disorder sometimes, though but rarely, became generalized, and attained a high degree of intensity, accompanied by delirium and other nervous symptoms, terminating in death. In 1854, I myself read a paper before the Medical Society of London on Rheumatism in Children, and in which I adverted to its union with scarlatina, (reported in THE LANCET, 1854, vol. i., p. 138;) and, a few months afterwards, Mr. Haydon, of Bovey Tracey, communicated some very interesting facts to THE LANCET, in

* Dr. Fyffe was at this time assistant-surgeon of the 30th Regiment.

reply to a commentary, as it were, upon my paper. You will find Mr. Haydon's communication in the first volume of that journal for last year. This gentleman has had some very corroborative experience, and states, that although he cannot coincide in the views I have detailed of Betz, he admits there is a remarkable analogy between the phenomena, especially the secondary ones of the two diseases; and that so closely does he consider the two to be related, that he makes it a rule, on the decline of the rash in scarlet fever, to administer lemon juice. I strongly advise you to read Mr. Haydon's remarks, and then to turn to Betz's paper, which you will find in the eighteenth volume of the *Journal für Kinderkrankheiten*. In both essays you will find how easily certain cases of the two affections—I say certain cases, mind—might be confounded together.

If we were to take extreme forms of the two diseases—viz., on the one hand, an almost universally bright-red child, with sore-throat, strawberry tongue, who had been known to have been with other children similarly affected, and on the other hand, a pallid, scrofulous child, without any cynanche, with a white-coated, moist tongue, and swollen and painful joints, there could certainly arise, I should say, no difficulty about the matter. But you must recollect scarlet fever is not always of this characteristic appearance; the sore-throat may be next to nothing, or absent; the rash only evident about the joints, which may be a little puffy and painful; the tongue but moderately and simply coated, and the child not known to have been directly exposed to the zymotic virus. On the other hand, if what is stated be true, albuminuria may be temporarily present in rheumatism, as also, according to Betz, desquamation of the cuticle. Now, in a case presenting such equivocal signs as I have hinted at as possible, I do not know that from these signs alone, and from these only, the differential diagnosis could be perfected. But this I must believe, from my own experience up to the present, that the further course of the malady, together with the commemorative history of the patient, would fully help me out of the difficulty. The difficulty, in truth, has not yet occurred to me; but let me tell you that in India and in America a somewhat analogous one has happened to others, and from this, and what you will glean from Dr. Betz and Mr. Haydon, it is not impossible we might hereafter have a case occur amongst us, or an epidemic disorder, which should have such a mixture of the symptoms of rheumatism and scarlatina that we should be much puzzled to give it a satisfactory name.

Our present patient, M—, had been surrounded by the scarlatinal poison; she had sore-throat, diffused red efflorescence; the tongue and even breath were those of scarlet fever. The rash subsided, desquamation just began around the neck, when pains of the ankle and wrist-joints came on; the parts were swollen and shining, and a kind of secondary fever was lighted up. Now, whatever might be thought of this latter affection, the former was clearly *not rheumatism*. That there is some obscurity about the exact nature of a disease occasionally attacking not only children, but adults, and marked by arthritic pain and tension often of a severe character, accompanied by a scarlet rash, is plain from the accounts given by some American and East and West Indian practitioners. For instance, in 1824, 1825, and 1847, outbreaks of a disease like the one I have just mentioned, occurred in the East Indies. In the summer of 1828, the malady appeared epidemically in some of the southern cities of the American Union, after having previously prevailed in some of the islands of the Gulf of Mexico. In Charleston it spread with great rapidity, ultimately attacking almost the entire population. In this latter city the last occurrence of it that I have found recorded was in 1850, and is alluded to by Dr. Dickson, of South Carolina. In Calcutta, again, during the hot and rainy season of 1853, a variety of the same affection prevailed, and has been well discussed by Dr. Goodeve in the first volume of the "Indian Annals of Medical Science" for that year, and to which I must refer you. Now, this disease has been called *scarlatina rheumatica* by Cocke and Copland, *exanthesis arthrosia* by Nicholson, and the strange cognomen of *dengue* has been popularly bestowed upon it. I have said that the first account of this disease goes not further back than 1824; but it is proper I should mention that Dr. Dickson, of Charleston, writes as follows: "I recognise Rush's 'breakbone fever' of 1780 in Philadelphia as the first notice of a malady such as I have called dengue;" and Dr. Waring, of Savannah, alludes also to dengue under the title of "eruptive breakbone."

I cannot go into the details of this peculiar disorder; indeed, I have only alluded to it to show you that there occurs a fever, accompanied by arthritic pains and a red exanthem, whose true relations to scarlet fever yet require clearing up. How-

ever, I may just remark, that Dr. Dickson regards dengue as a distinct contagious disease, giving immunity from second attacks, and that it is *not* scarlatina; whilst Mr. Goodeve states that most of the symptoms characteristic of the latter affection found expression in some of the cases occurring in Calcutta. He says, "the fever eruption, reddened mucous membrane and tonsils, desquamation of cuticle, swelling of hands and feet, state of the tongue, albuminous urine, are all such as go to make up scarlatina; but it would be premature to assert that the cause is identical with that of scarlatina. I should say that it would require a longer series of observations of several epidemics, with careful examination of all the attendant circumstances, before we could pronounce the diseases to be identical." Again: Dr. Copland affirms, that the disease called dengue "was not a form of scarlatina is shown by the severity of the rheumatic or neuralgic symptoms," &c.; and "that it was not a rheumatic fever was shown by the undoubted propagation of it by infection," &c. I see that in some later observations by Dr. Mackinnon, in the third number of the "Indian Annals," he doubts whether any of the epidemics of India described as attended by red efflorescence of the skin can be identified with any of the varieties of the scarlatina of Europe, denies the disease we have referred to to be contagious, and for which, he says, the name of "the red fever" is as good a name as any other.

On reviewing the different accounts given by Indian and American writers of this puzzling affection, the disease appears in certain places, and epidemics, to have had more the characters of rheumatism; whilst in others it has had more those of scarlatina. Our own case of M— may be said to illustrate, so far as my own experience extends in respect to the relations between scarlatina and rheumatism, one form of the arthritic complication—namely, that occurring early in the course of the exanthematous disease. When it so occurs, the specific inflammation about the joints terminates, like primary or idiopathic rheumatism, in resolution or delitescence. But it may take place at a later period of the disease, when all has been thought to be over. It occurs after desquamation has made some progress, and then may terminate in the suppurative crisis. Now, this is peculiar about the rheumatic inflammation generally of young children; unlike in adults or older children, it may lead to purulent effusions into joints, and also about them. I have known this to occur in several instances, and it is more liable, I believe, to ensue in the secondary rheumatism of scarlatina. This is a fact well known to others. If I recollect aright, Dr. Kennedy, of Dublin, has published something upon it, and Trousseau, I know, states that scarlatinal rheumatism is often more dangerous when localized to a single joint, than when attacking several articulations at one time, as it is then more inclined to terminate in suppuration, and even eventually to result in caries of the articulating surfaces. This circumstance, however, of the arthritic inflammations of infants and young children, not unfrequently terminating in the formation of matter, has led some pathologists to deny the true rheumatic nature of the disease in question. I must confess, too, it does seem to me not improbable that the results of pyohæmia, or purulent infection, of phlebitis, umbilical or otherwise, may, along with other forms of abnormal action, have been occasionally placed to the credit of ordinary rheumatic inflammation. But Mr. Henry Lee, who has paid great attention to the subject of purulent infection, states that he has seen, as the result of the absorption of sero-purulent fluid from an ill-conditioned abscess, very severe rheumatism, affecting, in some instances, the pericardium and dura mater. In these cases, there was occasionally more fluid secreted than in ordinary rheumatism, but in milder examples there was no such distinctive mark; they are said to have been "in every sign and symptom apparently identical."

I have undoubtedly seen cases in children, which I should not have known from rheumatism, terminate in the suppurative crisis. If it be said, then such cases therefore could not have been rheumatism, the argument is of course settled; but it appears to me only so by a *petitio principii*. In adults, again, rheumatism does occasionally, however rarely, terminate in the formation of matter. In M—'s case some mischief has ensued certainly to the mitral, if not also to the aortic, valves. It may be but slight, still there it is, and may lay the foundation for changes in after years connected with the walls of the heart's chambers. The abnormal sound (which some of you have listened to) at the apex is very loud, but this you know is not proof of the amount of structural mischief at the mitral, for there may be much noise and slight change, and but little noise and great alterations. The former, I hope, is the case here; but from the pulse being so small at the wrists, my hope

is not to be too much trusted to. A German pathologist affirms it to be a general thing in scarlatina for the first sound of the heart to be aspirated or blowing, and which is a result of the altered state of the blood, and not of the valves, and is a proof that scarlatina and all its complications arise from one common blood disorder. I presume he must mean to refer only to the sound at the base, and not at the apex, (where our worst one is,) of the cardiac region. Sounds at the base, you know, may be of hæmic origin, but at the apex they are, I believe, always of structural derivation.

The liability of the heart to become affected during scarlatina has been known for some time. Roux in 1819 and Krukenbergius in 1820 are said by Rilliet and Barthez to have referred to the occurrence of pericarditis in connexion with scarlatina and measles. Trousseau says Bouillaud pointed it out; but certain it is Mr. O'Ferrall, in 1835, detailed to Dr. Graves, of Dublin, how he was obliged to have recourse to leeching, calomel, and James's powder, to overcome acute pericarditis in connexion with scarlatina. Several later writers, as Burrows, Willis, Joy, &c., have noticed this complication; and not long ago M. Trousseau stated it as his belief that "many cases of organic disease of the heart, which only become evident at an after period, have had their origin in scarlet fever." But, so far as I know, we are most indebted to Dr. Scott Alison for prominently bringing this matter before our notice, though it has been said that the frequency of the complication has been somewhat exaggerated. You will find Dr. Alison's original paper in the *Medical Gazette* for 1845. The present case of M—— makes the third one of heart complication during scarlatina that I have seen, and you perceive here it has occurred in connexion with an arthritic affection. One might, *à priori*, suppose the sequence of the phenomena would always thus present themselves, but it seems that it is not so, as the involvement of the cardiac organ is alluded to by writers, as well as seen by myself, without the arthritic affection having preceded or accompanied it. I find it remarked that in the Stuttgard collection of papers on "Children's Diseases" the occurrence of purulent collections in the pericardium during scarlet fever is mentioned by Von Ammon, whilst effusion of pus beneath the periosteum and in the substance of muscles has been recorded by others. It is, therefore, possible that the rheumatism in M——'s case had, in one sense, nothing in itself to do with the cardiac affection, but that both were but effects of one same and common cause, and that this cause was the same condition of the blood which gave rise to every other manifestation of the scarlet fever.

But you will observe it said that the rheumatism occurs, like the dropsy, from unnecessary or incautious exposure of the child to cold; whereas, in the latter case, we find the disease will come on where no such exposure was known to have taken place. We frequently find this secondary rheumatism occur without any cardiac involvement arising, while the primary form, in children, is very far more apt to include the central organ of the circulation within its grasp than at other periods. Had it been my intention to treat of scarlatina or rheumatism substantively, I must, when speaking of the nature of these maladies and their complications, have said much about uric and lactic acids, of urea in the blood, of a specific poison, of the necessity of that poison being eliminated from the system, of the peculiar irritative action of urea or some other poison in the blood upon the serous membranes, of an elective affinity in scarlatina for the kidneys, and many other topics of a like nature. But I should have felt it my duty to have impressed upon you at the same time, that these would but have helped us to hypothetical and very obscure explanations of points which it must be confessed an exact and valid pathology is not as yet able to include within its grasp. All that I now lay stress upon, therefore, is a certain observed sequence of phenomena—*Scarlatina, Rheumatism, and Heart-Disease*; a sequence observed sufficiently often, and under such intimate relations of time and place, to warrant us in associating these phenomena in causal connexion, however the true relations of this connexion may be afterwards definitely fixed. I would also, in conclusion, recall to your memory, that whilst we have had recorded experiments on animals, in which the kidneys have been removed, or the ureters tied, &c., and cases related where the secretion of urine has been suppressed from stoppage of the ureters by calculi and new formations, and which cases and experiments have been followed by vomiting, dryness of the tongue and mouth, &c., intense thirst, altered or husky voice, serous profluvia, great perspiration, convulsions, deep stupor, and death. I am not aware that dropsy, affections of the synovial membranes, of the pleura, or of the pericardium have followed, as in scarlet fever.

CONTRIBUTIONS TO PRACTICAL SURGERY.

By JOHN ERICHSEN, ESQ.,

PROFESSOR OF SURGERY AT UNIVERSITY COLLEGE, AND SURGEON TO THE HOSPITAL.

II.

ON TOPICAL MEDICATION OF THE LARYNX.

(Concluded from page 490.)

2. *Sensations of the Surgeon.*—The little reliance that can be placed on the mere sense of touch in many explorations of the mucous canals is well known to surgeons. It often happens, for instance, that in the attempt to relieve retention of urine from enlarged prostate, the catheter is supposed to be lodged in the bladder, when it has only reached the dilated sinus of the urethra: so also in passing bougies up the rectum, that the instrument has entered the sigmoid flexure, when, in reality, it has curled back upon itself. Those practitioners, however, who believe in the possibility of passing the sponge probang beyond the vocal cords rely much on the sensations communicated by its passage through this narrowed portion of the larynx. They say that in passing the instrument to the proper depth, a certain sense of obstruction is felt; against this, which is believed to be the vocal cords, the sponge is firmly pressed for a moment, when the obstacle yields, and the instrument passes onwards into the air-tubes. On the withdrawal of the probang, the same feeling of constriction is experienced by the sponge being drawn up against the cords. These sensations are undoubtedly experienced. I have many times felt them myself, and, had I judged by them alone, could have been almost certain that I had passed the instrument between and below the vocal cords, and this belief would have been strengthened by the circumstance that in many of the instances in which this constriction was felt the *laryngeal* symptoms were manifested. I soon found, however, that this was by no means uniformly the case, but that it not unfrequently happened that the *pharyngeal* symptoms only were induced, and that consequently, in accordance with what I believed to be the proper state of sensibility of the larynx, the interior of that tube could not have been traversed by the caustic sponge. Finding also the same sensation often experienced in the introduction of bougies and tubes into the œsophagus and stomach, it was clear that it could have nothing to do with their progress through the larynx, and I was led to conclude that it was occasioned by the passage of the instrument through that narrowed portion of the end of the pharynx, or the beginning of the œsophagus, where the cartilages of the larynx, projecting backwards, give rise to a certain amount of constriction, compressing the gullet, as it were, against the spine. Here the instrument meets with a certain degree of obstruction, which is partly mechanical and partly occasioned by spasm of the constrictors of the pharynx, and, on this being overcome, passes on with a sudden slip, again to meet with a degree of constriction on being withdrawn.

In numerous experiments on the dead body that I have made on this point, I have very frequently found that the instrument had passed into the œsophagus, when, from the sensation it gave, those who had introduced it felt confident that it had entered the air-passages. In fact, the shape of the sponge probang, as it is always sold, (see fig. 1,) is such that it cannot be made to enter the larynx, and to pass beyond the vocal chords in the dead body, without the employment of a considerable degree of force, and by means of those manipulations which are alone admissible in the living patient. A probang, with a short curve, such as those that are uniformly employed, has a natural tendency to take the direct passage, as it were, down the œsophagus, instead of turning forwards to enter the larynx. When the curve is much increased, as in an ordinary catheter, the sponge may during life be passed between the lips of the glottis, but it cannot even then be made to pass between and below the vocal chords, in consequence of the curve being too large to be admitted into the diameter of the trachea. The evidence of the New York Academy Commission fully warrants this statement; for the reporters remark, that notwithstanding the most persevering efforts with the whalebone slightly bent, as used by Dr. Green, and with patients who quietly submitted to the test of experiment, the results were entirely negative. In no instance did it enter the trachea. In two instances, with the whalebone curved like a common catheter, the sponge was thought to have entered the larynx, but with repeated attempts it could not be forced between the vocal chords, and the suffocation was so great that it was necessary to withdraw the instrument.