to the subcutaneous injections, I again resorted to them as on the previous day.

4th.—Patient still improving slowly but surely, but the spasms are still frequent, though not so severe. Treatment as before.

5th.—Decided improvement; patient can speak indistinctly; emprosthotonos subsiding; spasms not so frequent; pulse better. Did not inject the atropia to-day, but ordered combination of chloral hydrate.

6th.—Patient still improving. Decided to let her try a little food by the mouth, but without success. Injected five minims of solution of sulphate of atropia. Bowels naturally relieved to-day.

7th.—Patient improving slowly; spasms occasionally, but not so frequent or severe.

8th.—I again injected five minims of the atropia solution, and the patient expresses herself as feeling better. The tongue is very foul, and can be protruded about a quarter of an inch.

10th.—Bowels freely relieved naturally; spasms fewer and less frequent; patient swallowed a little food by the mouth.

11th.—Improvement gradual, but sure. Discontinued the injections from this date, but continued the chloral hydrate.

12th.—No spasm for twenty-four hours; tongue cleaning; food entirely administered by the mouth.

The patient got up for the first time on the 15th, and on the following day was convalescent.

Glastonbury, Somerset.

CASE OF ACUTE TRAUMATIC TETANUS

By W. R. G. SAMUELS, M.D., F.A.S., M.R.C.S.

I WAS sent for on June 18th, at 12 P.M., to attend on H. H—, a youth seven years of age, of English parentage. He complained of stiffness in neck and jaws, with difficulty in swallowing. He had been apparently well up to this time. The tongue appeared somewhat swollen. I endeavoured to take a good look into the oral cavity, but was prevented from doing so, the patient being unable to open his mouth more than about an inch. The glands of the neck were somewhat enlarged and tense. He was supposed to have taken cold during the day, which would in part account for the above-named symptoms. I prescribed diaphoretics combined with purgatives; a gargle of chlorate of potash to be used frequently; hot poultices of linseed-meal to the throat, on which was sprinkled some turpentine, and bottles of hot water to the feet. Urinated freely.

June 19th.—8 A.M.: The child appeared somewhat better. I found him sitting at the window almost naked; rolled him in a blanket and placed him in bed. He was still unable to open his mouth any wider than on the night previous; urinated freely. At 1 P.M. I was sent for in haste, and found him much worse, with head thrown slightly back when the paroxysms came on, tonic contractions of the muscles of the neck, while the masseter muscles were hard and rigid. Ordered chloroform liniment to be applied to the throat and neck, with a mixture containing bromide of potash and chloral hydrate, twenty-grain doses to be given every hour. I kept the patient well under the influence of the chloral hydrate, in order if possible to prevent the return of the spasms. The muscles of the abdomen were normal. On my next visit, in company with another medical man, opisthotonos was found to be present to a most alarming extent with each paroxysm. I had frequently inquired whether he had received any injury, and was always answered in the negative. However, I was determined to find out, if possible, the truth of the statement, and on making a superficial examination of the body, I found a spot on the outer and lower portion of the right leg in an ecchymotic state, with some hard substance embedded in the muscle (peroneus). On making an incision, a splinter of red wood (pine) was discovered, which was found on examination to measure an inch and a quarter in length. From this situation I believe that it caused an irritation of the musculo-cutaneous nerve, and, as a natural consequence, by reflex action, produced tetanus, as already described. I made an incision in the direction the splinter had taken, administered brandy freely, with hot poultices of linseed-meal to the wound, and continued the chloroform liniment

as before, with chloral hydrate and bromide of potassium mixture. The mother for the first time now explained that the child had been complaining of a pain in his leg for about seven days; she had, however, taken but little notice of it, having been informed that a splinter had been removed some days previous. While I was present a paroxysm came on more violent than any of the preceding ones, arching his body nearly three-quarters of a circle in a posterior direction, and throwing him completely off the bed. After replacing him, I administered chloroform by inhalation. While under its influence the muscles of the throat and neck were relaxed, but on return to consciousness they were as rigid as before. During all this time he perspired freely, which I thought a somewhat favourable symptom.

20th.—8 A.M.: Muscular irritation and contraction not abated in the least. Slept several times during the night between each spasm, the interval being only a few minutes. Opisthotonos gradually getting worse, I made a V-shaped incision a little above the seat of injury, passing the scalpel completely down to the bone, with a view of dividing the nerve. He was kept well under the influence of the chloral hydrate and bromide combined; and brandy was given every hour. Each movement in the room, touching or moving his body in the least, or the simple rustling of furniture, was immediately followed by a paroxysm. I subsequently used the galvanic battery, directing the current to the masseter muscles; also applied the positive wire to the calf of the leg, while the negative was directed to the cervical spine. During the operation and almost immediately after breaking off the current the muscles were relaxed, but soon returned to their former condition. When the current was directed to the infra-orbital nerve, the mouth could be opened a little wider than before. It is scarcely needful for me to say that when the buccal muscles were operated on, distortion of the face was the result. All this was of little or no avail, the muscles returning to their former abnormal condition. On my next visit, which was in the afternoon, I was informed that during my absence the paroxysms were more frequent and violent until 4 P.M., when a spasm occurred more severe than the rest, and the boy had ceased to breathe; asphyxia doubtless being the cause of death. Had I been present when the last attack came on, in all probability I should have performed the operation of tracheotomy, in the hope of prolonging life.

This I consider to be a case of acute traumatic tetanus; the result of the splinter entering the leg setting up irritation in the musculo-cutaneous nerve, and producing a reflex action on the spinal nerves, as quoted above. I was unable to try the effects of the Calabar bean.

San Francisco.

TETANUS IN A BOY, CAUSED BY THE STINGS OF THREE WASPS.

By ARTHUR TUXFORD, M.D. EDIN.

BENJAMIN R—, aged twelve years, son of a labourer, living at Boston West, was brought to me on Aug. 5th, 1877, suffering, as he said, from a stiff neck, with great difficulty of swallowing. His father told me that four days previously he had been stung by three wasps, receiving one sting under the lower jaw, another near the inner canthus of the right eye, and a third immediately above the right eye. No notice was taken of them until the evening of the 4th, when he complained of the symptoms stated. After examining him I ordered him to have a warm bath, to have the muscles of the neck and back rubbed with an ammonia liniment night and morning, to be followed by the application of a hot bread-and-water poultice; and, the bowels being confined, I administered a brisk purgative, which I afterwards found did not operate.

Next day I was fetched to the lad, who was stated to be as "stiff as a board, and unable to swallow anything." I found him as represented (in fact, he might have been held out by his heels), and with the back very much arched, his jaws firmly clenched, great difficulty of swallowing, hurried respiration, his body bathed in a cold clammy sweat, his legs and feet very cold, and his bowels still confined. I ordered ice-bags to his spine and bottles of hot water to the feet, bags of heated salt to the abdomen (which was very hard), and had a castor-oil injection administered.