that out of 23 cases of secondary syphilis in which no treatment had been received 21 cases gave a positive reaction (91·3 per cent.), compared with 52 out of 61 cases (85 per cent.) of secondary syphilis in which treatment had been received.

The one negative tertiary case was that of an ulcerated larynx, which improved under mercurial injections, and was diagnosed as syphilitic, though the patient denied having ever had syphilis.

Of 77 cases of non-syphilitic disease, 66 gave a negative reaction, and included gonorrhœa (16), pneumonia (11), tubercle (8), scarlet fever (7), measles (6), enteric fever, diabetes, influenza, soft sores, and carcinoma. Of eight healthy surgical cases (hernia, fracture, &c.) all were negative, as were also all the cases of tubercular infection, gonorrhœa, and carcinoma.

Of the 11 non-syphilitic cases that gave a positive reaction seven were cases of post-critical pneumonia (specimens taken before the crisis being all negative), one was of scarlet fever, one of measles, one of pernicious anæmia, and one of mastoid disease in a boy, aged 14 years. In this last case the serum was 74 days old, and at that time I did not know that a complement-fixing substance may develop in normal decompensated sera on keeping for some time, which, according to C. H. Browning and Ivy McKenzie, is lost on reheating to 57°C.; this loss on reheating does not occur with the complement-fixing substance in syphilitic sera. It is, of course, impossible to be absolutely certain that some of these patients may not have had syphilis at some time, although in every case such infection was denied.

Of 29 cases in which the clinical diagnosis was uncertain when the blood was taken, the serum reaction and subsequent clinical diagnosis agreed in 18 and disagreed in four which were diagnosed later as syphilitic and in which the serum diagnosis was negative. Of these four three were primary sores with under six weeks' history and one was a case of ulceration of the larynx. In the other seven cases the clinical diagnosis is still uncertain. In two cases of sores on the penis (63 and 149) and one of papular rash (118) the diagnosis was considered possibly syphilitic but the serum diagnosis was negative, and later the cases turned out clinically to be non-syphilitic. Two cases of leucoderma-cervicis with no other syphilitic symptom gave a positive reaction.

That a positive reaction was only obtained in seven out of ten cases that had undergone two years' or more treatment (70 per cent.) suggests that there is a possibility of using the reaction as a test as to when an infected person is completely free of the disease, and I hope shortly to be able to test the reaction of 20 patients who have received regular treatment under continuous supervision for from two to three years.

In conclusion, I have much pleasure in recording my thanks to Professor Dreyer of Oxford both for his help and advice and for sending me the heart extract that I have used; to Dr. Charles Slater, director of St. George's Hospital laboratories, for his help and kindness in going through all the tubes and checking my results; to Mr. Arthur Shillitoe, Mr. Charles Gibbs, and Mr. E. C. Hughes, surgeons to the London Lock Hospital; to Dr. W. L. M. Goldie, resident medical officer to the London Fever Hospital; to Mr. W. J. C. Keats, medical superintendent to the Hammersmith Infirmary; and to Dr. H. D. Rolleston, Dr. Cyril Ogle, and Dr. Arthur Latham, physicians to St. George's Hospital, for their courtesy in permitting me access to their patients. I also have pleasure in acknowledging my indebtedness to Dr. R. A. Gibbons's Research Fund for a grant towards the expenses of this work (received March 29th, 1909).

PS.—Since writing the above I have determined the reaction in 50 more sera, including 8 cases of locomotor ataxia, in 4 of which there was complete inhibition of hæmolysis (= 50 per cent.), 16 cases of cancer, 10 normals, 5 pneumonias, 5 measles, and 5 phthisis, all giving a negative reaction; and 1 case of certainly congenital syphilis, which gave a positive reaction.

Brook-street, W.

MERCHANT TAYLORS' SCHOOL.—The Merchant Taylors' School has now been added to the list of institutions which have been granted full recognition (in chemistry, physics, and biology) by the Conjoint Board of the Royal Colleges of Physicians of London and Surgeons of England.

A NOTE ON TRACHEOTOMY CASES IN THE COURSE OF WHICH THERE WERE LONG PERIODS OF INABILITY TO DISPENSE WITH THE TUBE.

BY DUNCAN FORBES, M.D. EDIN.,

AND

RICHARD M. COURTAULD, M.D. CANTAB.

CASE 1.—The patient, a female, aged two years, suffering from diphtheria, was admitted to the Brighton Isolation Hospital on March 19th, 1908, the tenth day of illness. Tracheotomy having been performed on admission, the tube was first removed on March 22nd; but it soon had to be replaced owing to the breathing becoming difficult; and subsequently, for a period of seven months, dyspnoea always supervened, sooner or later, whenever the tube was removed. During this time, the dyspnoea being thought to be due to laryngeal spasm, various expedients were resorted to—viz., removing the tube while the patient was sleeping, gradually cutting off the air entering the tube, and removing the tube and plugging the tracheal opening for gradually lengthening periods. But no improvement resulted from these measures. Next, on the hypothesis that the tube was causing irritation in the larynx, a low tracheotomy was performed on June 24th, and the original opening was allowed to close. As there was still no improvement, the patient was next placed deeply under chloroform with the view of abolishing any spasm, but her breathing, when the edges of the wound were approximated, was as bad as ever. Finally, on Oct. 9th, after a period of over three months during which no remedies were tried, the tube was once more removed and the opening was covered with a dressing, no attempt being made to keep the tracheal opening patent. There was huskiness with slight dyspnoea at first, but this steadily diminished. In three or four days from the removal of the tube the breathing was nearly normal, and in ten days from the removal of the tube the patient was discharged. She has since that time remained well.

CASE 2.—The patient, a male, aged four years, suffering from diphtheria, was admitted to the Brighton Isolation Hospital on Dec. 23rd, 1901, the fifth day of illness. He underwent tracheotomy soon after admission, and was obliged to wear a tube during the whole time that he remained in this hospital. On April 18th, 1902, he was transferred to another hospital, where he was under treatment for the next 14 months, sometimes as an in-patient and sometimes as an out-patient. The treatment consisted in the removal of granulation tissue. In June, 1903—that is to say, about 18 months after the tracheotomy—he underwent an operation, still with the object of removing granulation tissue, and at about the same time his tonsils and adenoids were also removed. These operations were followed by a gradual recovery.

A similar case, in which tracheotomy was performed in June, 1901, and the tube not finally removed until early in 1902, occurred at the Leith Infectious Diseases Hospital.

In the three cases mentioned above feathers were used for the removal of membrane and secretion from the trachea. One has heard of no case of prolonged retention of the tube in which these were avoided and tracheal forceps used. After operation neither feathers nor tracheal forceps are likely to be required if a sufficiently large tube be used: the smaller the tube in relation to the lumen of the trachea the less the effective power of the cough.

The histories of, and the experience gained from, the above and other cases indicate: (1) that considerable patience must be exercised in the treatment; (2) that if the patient remains in hospital there is every hope of his final recovery; (3) that it is doubtful if active interference has any beneficial result; (4) that the amount of obstruction varies from time to time, and that the removal of the tube should be undertaken when this is at a minimum; (5) that only occasional attempts to find out the degree of obstruction should be made (not more than once in three weeks or a month in prolonged cases); (6) that the principle of early removal of the tube is right (an attempt to remove finally should be made some 48 to 72 hours after the operation); (7) that the use of feathers should be avoided; (8) that no

advantage seems to be gained by the replacement of the metal by a rubber tube; and (9) that fenestration of the tubes allowing of the passage of air through the larynx is not found to lead to improvement.

Brighton.

Medical Societies.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE.

Beri-beri.—Pneumonic Plague.

A MEETING of this society was held on May 21st, Sir PATRICK MANSON, the President, being in the chair. The discussion on Beri-beri (published in THE LANCET of April 24th, p. 1180) was continued.

Dr. C. W. DANIELS said that the etiology of beri-beri was one of the most difficult subjects in tropical medicine, and that on account of a large number of considerations which complicated the issues it had been almost impossible to do any constructive work. The question of the preparation of rice had been prejudiced by the use of antitoxic serums, and it must be remembered that there was a great difference between fresh rice and husked rice. So-called Indian rice did not grow in India nor was it prepared or cured in the same way as rice was in India. It was steamed and heated for seven or eight minutes and during the process was never warmer than a hot poultice. This preparation took place after a lengthened soaking in water during which the grain often sprouted. The result was certainly not sterilisation. With reference to the question of beri-beri in ships, he thought that those of them who had heard Professor Holtz speak at the Epidemiological Society were quite unconvinced by his arguments that beri-beri was a form of scurvy. Whatever beri-beri might be in the Norwegian ships there was no doubt that the beri-beri which was seen in the London docks was true tropical beri-beri. It often appeared on board ship within a month after leaving the port. Rice flour was often used as an adulterant of white flour, and the bread and biscuits consumed by sailors were sometimes largely composed of rice although they did not know it. Uncured rice, which Braddon alleged to be the cause of the disease, was used everywhere in England, on board ship, and all over the world, and if Braddon's views were true it ought to be excluded from their households. The question was one of great importance, and feeding experiments under rigid conditions in which there would be absolute control of the food were essential to the settlement of the true causes of beri-beri.—Sir WILLIAM TREACHER said that his experience as a layman left him with an open mind on the subject. The feeding experiments certainly supported the rice theory, but most of them would remember instances in which beri-beri affected one community living amongst others and eating the same food. One usually was affected and another was not, although both got their rice-supply from the same sources.—Mr. T. P. BEDDOES said that on the Amazon where no rice was eaten beri-beri was prevalent and that the type was malignant.—Dr. W. HARTIGAN said that in different schools in Hong-Kong in which the food was exactly the same there had been a wide variation in the incidence of beri-beri.—Mr. HAROLD MCFARLANE (Hong-Kong) said that at St. Paul's College in Hong-Kong there were outbreaks of beri-beri among the students almost every year and that all sorts of rice had been tried without effect.—Professor RONALD ROSS said that other experiments conducted on more exact and searching lines should be initiated.—Sir PATRICK MANSON said that the weight of opinion amongst those who had spoken in the discussion was opposed to the rice theory of origin. Until they had more facts at their disposal his own position was one of suspended judgment.—Dr. F. M. SANDWICH, at the request of Dr. A. T. STANTON, who was now working at the subject of beri-beri at Kuala Lumpur, drew attention to the original account of that disease by Bontius, and showed copies of the first Latin editions of this author, in addition to an English translation published in London in 1769. James de Bondt, better known to librarians as Jacobus Bontius, took his medical degree at Leyden in 1624 and three years later left home for Java, where the Dutch had already planted themselves. He seems

to have been the first physician appointed by the Dutch East India Company, and though he unfortunately died after only four years in the tropics, he left behind him valuable writings, which contain the earliest information accessible to Europeans of the natural history and diseases of Java. Bontius wrote a chapter "On a particular kind of paralysis which the natives call Beri-beri," and tells us that he himself, his wife, and son all suffered from that malady. Dr. Stanton finds that one of the plants recommended by Bontius, *Vitex trifolia*, is still used by the natives of Malaya in the form of a vapour bath for rheumatism and beri-beri.

A paper on the Epidemiology of Pneumonic Plague was communicated by Captain C. A. GILL, I.M.S., Lahore. The writer considered that primary pneumonic plague in all its stages was intimately associated with the bubonic variety. When occurring as an original infection it was associated with a preceding rat epizootic in the same way as bubonic plague. It rapidly tended to die out as such with or without being succeeded by a bubonic outbreak. Its mode of spreading was "direct" from man to man, but owing to the readiness with which rats became infected it was liable to give rise to a further rat epizootic, which in turn gave rise to a bubonic plague epidemic. In estimating the effect of pneumonic plague on the general spread of the disease its power of producing bubonic outbreaks required to be taken into consideration. Pneumonic plague played a definite though variable part in the specific septicaemia called plague, of which, perhaps, it formed the expression of an unusual or "exalted" degree of virulence. If these opinions were confirmed by further experience it would be seen that it was easy to underrate the influence of that form of the disease and incidentally the part played by man in the spread of plague. The introduction of one case might be followed by the most serious consequences, and it was impossible to say where plague infection existed that it would not burst forth with redoubled intensity, as was the case in London at the time of the Great Plague in 1665. That did not seem particularly likely in India, but it was of interest to remember that the cases of plague (fortunately at present very few) which occurred at intervals in Glasgow and Liverpool were of that variety. Moreover, it appeared to him, in regard to the question of the reappearance of plague in Great Britain, that it was that form of the disease which was most likely to occur if unfortunately it should do so at all. Finally, if he might hazard an opinion founded on the conclusion that pneumonic plague was an expression of an "exalted" degree of virulence of the plague organism, he would say that a decrease in the prevalence of pneumonic plague was likely to be one of the earliest signs of the decline and final disappearance of the plague epidemic in India.

BRISTOL MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on May 12th, Dr. J. Michell Clarke being in the chair.—The meeting was devoted to a discussion on Treatment by Ionisation or Cataphoresis.—Dr. H. P. Tayler (Bradford-on-Avon) gave an account of the Clinical Application of Ionic Medication in General Practice, quoting eight cases of rodent ulcer which he had treated by the introduction of zinc ions with most encouraging results; also various other conditions benefited by ionisation, such as granular lids, brachial neuritis, trigeminal neuralgia, and diphtheritic ulcer of the external ear. He described the technique adopted for ionic medication in general, and the particular modifications necessary for the different metallic ions or acid radicles which were employed.—Dr. Lewis Jones (St. Bartholomew's Hospital) gave a short description of the Theory of Ions upon which this treatment depended, illustrating by practical demonstration the migration of ions in an electrolytic solution, showing how in a solution of sodium sulphate particles of copper from a copper electrode penetrated into a pad of porous paper from the positive electrode, while the hydroxyl group was collected at the negative. He continued to deal with various theoretical considerations connected with the introduction of different ions into living tissues, and concluded with instances of the applicability of specific ions to numerous diseased conditions.—Mr. J. W. McBain (Lecturer on Chemistry, University of Bristol) said that on the physico-chemical side ionisation had assumed very great importance and had led already to valuable results. He foresaw a great field of usefulness for this method of treatment in medicine. Both theoretically and