secretion, which is even more important than its external one, there cannot be a doubt now. It is, therefore, quite natural that many practitioners have tried the pancreatic liquid extract against diabetes, and especially that peculiar form of it which has long ago been shown by Lancereaux to depend on a disease of the pancreas.

What theory indicated has proved correct in a good measure; injections of the pancreatic liquid have been useful, but no case of cure, to my knowledge, has been recorded. In a case of Dr. Rémond, the azoturia (which is excessive, as well shown by Hédon in cases of absence of the pancreatic internal secretion), became very much better under the influence of injections of the liquid extract of pancreas. Another organic liquid has gone further, and some cures have been obtained, the first of all in the case of a Calcutta Hindu who came to me, and whom I sent to my friend Dr. W. D. Waterhouse, of West Hampstead. That other organic extract is the orchitic liquid, which has considerably more power against any form of diabetes than the pancreatic liquid. I have for some time already recommended the simultaneous use of those two liquids in all cases of glycosuria.

VI. *The Liver possesses also an Internal Secretion, and the Hepatic Liquid Extract might be sometimes Used with Profit.*—The well-known physiological facts relating to the production of sugar, and still more of glycogen, positively show already that that gland has an internal secretion. But has it any other, and especially does it give to the blood principles the absence of which, when the liver is considerably disorganised, produces serious and peculiar symptoms? There are very good reasons to think so, and it is most likely that in many cases of diffuse organic disease of the liver a number of the symptoms depend on the lack of the internal secretion. Unfortunately in mammals there is no conclusion to be drawn relating to that point when we take away the liver or only tie all its blood vessels. In frogs, however, experiments I made long ago, repeated lately by Dr. H. Roger, show that the taking away of the liver is a rapid cause of death after tonic or clonic convulsions. This clearly shows the importance of the internal secretion of the gland.

Certainly it would be well to make use of the hepatic liquid in cases of extensive organic disease of the liver, whether it causes jaundice or not.

[To be continued.]

ON THE TREATMENT OF BRONCHIECTASIS.

By T. GRAINGER STEWART, M.D.,
Professor of Practice of Physic in the University of Edinburgh;
Physician in Ordinary to the Queen for Scotland.

For many years I have taken a special interest in the subject of bronchiectasis, having met with a series of cases during the time that I was pathologist and extra-physician to the Royal Infirmary, which seemed to me to support a theory of the disease different from that which had been generally accepted. The generally accepted theory then was, and to a large extent still is, that the dilatations are produced by the contraction of fibrous tissue in the lungs, and in dense adhesions connecting the lungs with the thoracic wall. This was the view maintained by Sir Dominic Corrigan.

Now, my cases seemed to show that while dilatations do certainly occur, as Corrigan supposed, in cases of fibroid phthisis, that process does not explain many, and indeed the most typical, examples of the disease. For bronchiectasis is often present when there is no cirrhosis, and in not a few instances the fibroid change follows upon it as a secondary consequence. I, therefore, maintained that an atrophic process in the walls of bronchial tubes affords the real explanation, and that, given such an atrophy, the pressure of the air in the respiratory tract leads to the opening out of the tubes, while, as a further consequence, accumulation and decomposition of the mucus necessarily follows, and this gives rise to further anatomical changes in the mucous and other coats of the bronchi, and in the surrounding pulmonary

tissue, and explains the great clinical features of the malady. To this accumulation and decomposition are due the fœtor of the breath and the sputum, and the peculiar attacks of coughing as local results, and the occasional febrile attacks and general disturbance of the system as results of the absorption of the poisonous products of decomposition.

My observations during the twenty-six years which have elapsed since I wrote upon this subject¹ have confirmed the views which were then expressed, and in accordance with this I have been striving to find remedies which might be useful. It was clear enough that we have little in our power in the way of preventing the occurrence of the atrophy, and that except by keeping down cough, so far as that might be warrantable, we could but slightly interfere with the pressure conditions which tend to dilate the weakened walls. But on the other hand, the constant aim has been to prevent decomposition of the sputum and its consequences. And this we have sought to do in many ways. The administration of turpentine, creasote, carbolic acid, salol, and other antiseptics by the stomach, making the patient live in an atmosphere saturated with volatile antiseptic substances, directing sprays and vapour of various kinds into the air passages, have all been sedulously tried with greater or less, but on the whole a very limited and temporary, advantage.

During the past winter I have adopted a plan which has proved eminently satisfactory in the one case in which I have tried it. It consists in the intratracheal injection of menthol and guaiacol with olive oil. The proportions which we used were: Menthol, 10 parts; guaiacol, 2 parts; olive oil, 88 parts. Of this a drachm was injected into the trachea twice daily. The result was a speedy diminution and disappearance of the fœtor, with improvement in all respects.

The patient, J. M., a surfaceman, aged 34, was admitted to Ward 22 on December 5th, 1892, complaining of bronchitis with fœtor of breath. His family history was good, and he had been quite healthy until two years ago, when he had disease of the mastoid cells, and was successfully treated in the surgical wards by Mr. Millis. On leaving the hospital he caught cold, and was unable to throw it off. Soon after it set in he and his companions observed that his breath had become offensive, and that on coughing he brought up a quantity of foul-smelling yellow mucus. These symptoms continued, and gradually became more severe, while he became subject to occasional feverish attacks and exacerbations of cold, and his strength failed.

On admission he was very ill; thin, emaciated, flushed about the cheeks, with a dirty complexion and an oily appearance of skin. His temperature, which was 102° on admission, rose to 103.4° when he had been for a short time in bed, and his expression was very anxious. His breath was very offensive, and he was expectorating large quantities of intensely foetid sputum, which, in spite of carbolic acid being placed in the dish and its vapour freely disengaged on each side of his bed, permeated the whole ward and the vestibule leading to it. On examination his alimentary system was found to be badly deranged, his phlegm foul, his appetite and digestion much impaired, and his bowels constipated.

The hæmopoietic system showed no special change.

The circulatory showed rapid and rather feeble action of the heart, but no evidence of organic change in it or in the vessels.

The respiratory system was much affected. There was considerable dyspnoea and frequent cough. The fits of coughing were peculiarly prolonged, and at first resultless, but ultimately attended by the discharge of a large quantity of grey-greenish-yellow expectoration with an oily look, and the most repulsive fœtor.

On microscopic examination the sputum showed large numbers of pus cells, oil globules, fatty crystals, and on one occasion some fragments of pulmonary elastic tissue, but no tubercle bacilli. The chest was fairly well formed: the percussion note anteriorly was clear throughout; posteriorly at and below the position at the root of the lungs the note was altered, being in some parts dull, in others high pitched and tympanic. This was especially marked on the left side. On auscultation the ordinary signs of bronchitis were audible at almost every point on both lungs, but near the inferior angles of the scapulae behind, the breathing was at several points cavernous, and accompanied by numerous crepitations, fine, medium, coarse, and bubbling *râles*; the vocal resonance being at these points pectoriloquous. Towards the apices and the extreme bases there was no evidence of consolidation.

Excepting for the dusky colour and oiliness, the skin was natural. The urinary, nervous, and locomotory systems showed no changes except those proper to the feverish condition.

The history of the case, as well as the characters of the sputum, made it clear that the fœtor was not due to pulmonary gangrene, and the physical signs made it certain that vomicæ existed in the lung; these vomicæ might have been phthisical or bronchiectatic. That they were not due to phthisis was clear from their position, from the long-standing fœtor, from the characters of the sputum itself, and in particular the absence of the tubercle bacilli, while in all respects both the symptoms and signs corresponded to those of bronchiectasis.

¹ *Edinburgh Medical Journal*, July, 1867.

I pointed out to the students at the time how this diagnosis was justified, and how the very distinct and unmistakable signs of cavity were not associated with any considerable consolidation of lung, certainly no such consolidation as would warrant the belief that the dilatations were due to fibroid contractions.

For some days we tried our old plans of treatment, giving terebene capsules containing 10 minims every four hours, pills containing $\frac{1}{2}$ grain of creasote three times a day, inhalation of creasote vapour, and surrounding the patient with an antiseptic atmosphere; but some days later, in addition, we injected twice daily the menthol and guaiacol, as I have already said, in doses of a drachm twice a day. The result was that the foetor of the breath and sputum rapidly diminished, and in a week was entirely gone; that the sputum gradually diminished in amount, that the temperature speedily fell to normal, the general symptoms disappeared, the appetite returned, and the digestive process became re-established. On admission the patient weighed 9st., Decem-23rd, 9 st. $4\frac{1}{2}$ lbs.; 30th, 9 st. $6\frac{1}{2}$ lbs.; January 6th, 9 st. 11 lbs.; and when he reported himself at the hospital on March 14th he was 10 st. 6 lbs.

The intratracheal injections were continued regularly until he left the infirmary January 10th, 1893; and since that time he has had them occasionally, at first every Saturday and Sunday, and then gradually less frequently. When last examined he was perfectly free from foetor, his respiration was tranquil, and he had little cough. There was little dullness on percussion; the bronchitic sounds had disappeared, and over the seats of the vomica, while cavernous breathing and pectoriloquy remained, the accompaniments had entirely disappeared.

Had this treatment not proved successful, I intended to try operative interference, and I shall briefly relate the facts of a case which was under my care some years ago, and in which such treatment was adopted with good result.

The patient, K. M., aged 27, was admitted to the Royal Infirmary, March 14th, 1887, suffering from cough and profuse expectoration of the most offensive character. About nine years before he had had a severe attack of pleurisy. Before that time he had been healthy, but afterwards his general health suffered. Cough became more frequent; sputum more copious and foetid; and his mental powers, probably never bright, declined until he became little better than an idiot. On admission he was emaciated and generally in bad health; his breath was offensive, and he coughed frequently and expectorated an enormous amount of the most abominably foetid sputum, the odour of which could only be partially disguised by the continual evaporation of carbolic acid and eucalyptus oil in the room where he slept. The left side of the chest was much contracted, and moved less than the right; the percussion note was dull anteriorly and at the apex and base posteriorly; over the middle region of the lung posteriorly the note was more or less tympanitic, and most markedly so just above and internal to the lower angle of the scapula. At this point, too, the auscultatory signs of a cavity were very marked. The breathing was loudly amphoric, with marked pectoriloquy, and there were moist sounds on coughing. These latter were, however, most marked towards the base of the lung, and there, as well as at the apex, the breathing was bronchial. Anteriorly in the third and fourth interspaces to the left of the cardiac area and at the same level in the axilla the breathing was cavernous and the vocal resonance increased. In addition to surrounding the patient with an antiseptic atmosphere, large doses of terebene were given internally, but no real improvement followed, and so, as I had no doubt that we had to deal with a case of bronchiectasis with certainly one main cavity, I resolved to interfere surgically, and requested the co-operation of Mr. Caird.

On April 13th, about a month after the patient's admission to the hospital, the patient having been put under chloroform, the needle of an aspirator was entered below the angle of the scapula, but without result. It was again introduced outside the angle and the cavity was reached. A free incision enabled Mr. Caird to force a pair of sinus forceps alongside of the needle, which was then withdrawn, and the track thus formed was dilated gradually, until by the resection of about two inches of rib the finger could be introduced. A counter opening was made at a lower point in order to admit of free drainage; large sized rubber tubes were inserted and the cavity regularly washed out with warm boracic acid lotion.

From the time of the operation the foetor disappeared, and but for the fact that three smart hemorrhages occurred from the interior of the cavity about a fortnight after the opening had been made, there were no unfavourable symptoms. The patient recovered health and strength, and when I last heard of him was in good health.

My experience in this case seems to warrant the adoption of operative measures in any case where the simple and safe remedy which I am to-day recommending fails.

DR. SANTON has been commissioned by the French Government to study leprosy from the historical and scientific points of view in Norway, Lapland, Finland, Turkey, Asia Minor, Egypt, Greece, and Italy.

CLINICAL LECTURE ON THREE CASES OF MULTIPLE PARALYSIS OF CRANIAL NERVES.

[With 4 Illustrations.]

Delivered in University College Hospital.

By H. CHARLTON BASTIAN, M.D., F.R.C.P., F.R.S.,
Physician to the Hospital, and to the National Hospital for the Paralysed and Epileptic.

GENTLEMEN,—We had during nearly the whole of last winter a man in Ward 7 whom all of you will have seen many times, suffering from multiple paralysis of cranial nerves, and in regard to whom from the first the diagnosis was made that the cause of the man's trouble was a growth in the base of the skull, the growth being probably a sarcoma. This patient, as you know, died a few weeks since, when the diagnosis was verified, except that the growth proved to be a squamous epithelioma rather than a sarcoma. There are several interesting points in connection with this case upon which I desire to speak to you to-day; and I have thought it well to bring to your notice also two other cases of multiple paralysis of cranial nerves which, in past years, have been under my care in this hospital, one of them (also diagnosed during life) being due to a sarcoma of the basilar process of the occipital bone, whilst the other case was of a much more chronic nature, and was suspected to be due to a simple pachymeningitis occupying the same region of the skull. This man remained under observation from time to time for several years, and was then unfortunately lost sight of.

Cases of this type are certainly rare, especially as in neither of them was there any coexisting paralysis of limbs, whether unilateral or bilateral. Apart from new growths in the base of the skull, or simple pachymeningitis, syphilis is by far the most likely cause of such a multiple paralysis of cranial nerves, good examples of which have been recorded in the *Guy's Hospital Reports* for 1863 by Dr. Wilks. When I was a student, I was taught that tubercle was a not infrequent cause of such symptoms, but my own experience leads me to think such a cause to be so rare that it may be almost dismissed from our minds. It is true that we may, and often do, get paralysis of two or three cranial nerves in association with tuberculous meningitis, but such cases could not possibly be confounded with the prolonged non-febrile cases of disease of which I shall speak to you to-day. The mode of diagnosing these cases from tumours of the brain, and even from peripheral neuritis, is, however, a matter of some importance, to which I shall refer after the narration of the cases themselves.

In neither of these patients was there a history of a blow or fall, and in neither could any cause whatsoever for the morbid condition be assigned. It is a curious coincidence, too, that in each case the symptoms commenced in a man about 40 years of age.

I shall deal first with our most recent case, which is also the most remarkable one, on account of the large number of the cranial as well as upper spinal nerves that were involved. It was remarkable, also, because of the very extensive ramifications of the growth through the base of the skull, the bones of the face, and other contiguous parts.

T. H., aged 42, bricklayer, was admitted into University College Hospital on November 7th, 1892, under my care. (House-physicians, Dr. E. G. Rows, and A. D. Heath, M.B.)

History.—Patient's illness began eighteen months ago, in March, 1891. He first noticed a numbness just below the right angle of the mouth, over an area as big as a florin. This feeling spread up over the side of the face, and within three to four months the whole side of the face, ear, and forehead were numb. With this came pain over the lower jaw and side of the head, over the mastoid region, and between this and the occiput. Then about ten months ago (January, 1892) he noticed that his face was drawn to the left. This got worse, and about two months later (March, 1892) the right eyelid began to droop, and the difficulty in swallowing and speaking began. Then, also, he began to lose sight in the right eye, and he has only just been able to distinguish light for the last few months. The trouble in swallowing and speaking increased quickly, and has been just as it is now for six months. He had a bad pain over the right eye occasionally. For three to four months he has not been able to move the head far from side to side, and to the left less than to the right. For three months he has been unable to open and close the jaw well, and could not chew his food. His food has collected on the right side of the