signs of dyspnoea, but not so severe though of longer duration. The last attack was of five hours' duration and ended with the death of the patient. For a few days preceding this there were noted to be ptosis of the left eye and an occasional strabismus in the right eye.

At the post-mortem examination the body was seen to be much emaciated, and there was general atrophy of the internal organs. The heart was small but was otherwise healthy. The liver was also small and greatly atrophied in its left lobe, which had a cicatrix in its anterior surface extending deep into one of the portal areas. This might have been the result of a syphilitic gumma, but the healing was so complete that one could not be certain. The kidneys and spleen were small but quite healthy. The stomach and intestines were atrophied and the intestines showed a considerable general catarrhal condition of their mucous membrane. The brain and cord presented to the naked eye perfectly healthy appearances.

The pons, medulla, and cord were fixed in formol (10 per cent.), and later parts were transferred to Müller's fluid. Sections were stained by (a) Weigert's method, (b) Nissl's method, and (c) with hæmatoxylin and eosin. With Weigert's staining sections from different levels of the pons, medulla, and cord were carefully examined, but these all seemed to be perfectly normal. There was no suggestion of any degenerative change in any of the motor or sensory tracts or in any of the anterior or posterior nerve roots. With Nissl's stain the results were practically the same. Special attention was paid to the third and fourth segments of the cord (which contain ganglion cells of the spinal accessory and phrenic nerves), but no abnormality was to be found. Throughout the whole cord the motor ganglion cells stained extremely well and only a very small proportion of "ghost-cells" was to be found. On counting the cells in the various groups of the anterior horns there was doubtless a diminution of about 30 per cent. in their number. This, however, did not affect one group more than another and seemed to be the same for all levels of the cord. In my experience it is usual to have in old people such a diminution in the number of ganglion cells, and therefore I think that for the case under consideration it has no special significance. Many cells contained yellow pigment granules. This was most marked in the lumbo-sacral region, where quite 50 per cent. of the ganglion cells were pigmented and where many had their Nissl granules almost entirely replaced by the pigment. The pigment was faintly yellow and was made up of very fine granules (the granules were finer and the yellow colour was fainter than is usually found in ganglion cells). This pigmentation was less marked in the cells of the dorsal and cervical regions. In the pons and medulla the appearances corresponded to those in the cord. The ganglion cells of the twelfth, tenth (motor), seventh, and fifth (motor) nuclei seemed to be perfectly normal. Of these the cells of the seventh were the only ones that contained any considerable amount of pigment. The section stained with Nissl's method did not include the third, fourth, and sixth nuclei. The cells of the motor cortex showed no definite abnormality. In the sections stained with hæmatoxylin and eosin there was little that was abnormal to note. The vessels seemed unduly dilated (this may have been due to the fixing in formol), and many showed a distinct colloid degeneration in their walls. In some sections, too, there seemed to be a slight dilatation of the perivascular spaces, but there was no apparent exudation from the vessels, and there were no hæmorrhages.

It will be observed that none of the peripheral nerves were examined. This was unfortunate, for though the intermittent nature of the symptoms did not point to a neuritis yet the case is incomplete without a histological examination of the nerves. The affected muscles, too, should have been examined, especially in regard to the nerve-endings. The case clinically, however, presents a typical example of the so-called asthenic bulbar paralysis, or, perhaps more correctly, myasthenia gravis. This, I think, will be evident to anyone who is familiar with that condition; and for those who are not the admirable "digest" by Dr. Harry Campbell and Dr. Edwin Bramwell in the Summer Number, 1900, of *Brain*, will give an ample account of this interesting disease.

In conclusion, I have to thank Dr. Steven for his kindness in placing at my disposal the clinical notes of this case and for permission to publish it. I am likewise indebted to Dr. C. Workman who also placed at my disposal for microscopical examination the brain and spinal cord.

Glasgow.

DURATION OF RESIDENCE IN SANATORIUMS FOR PULMONARY TUBERCULOSIS.

By THOMPSON CAMPBELL, M.D. GLASG.,

LATE PHYSICIAN TO THE CONSUMPTION SANATORIUM, BRIDGE OF WEIR, N.B.

WHILE the question of the erection of sanatoriums is being discussed in various parts of the country a point which calls for some consideration is the length of time during which patients suffering from pulmonary tuberculosis will require to be kept under treatment to give some reasonable prospect of restoration to health.

Naturally, the earlier the stage of the disease at the time of admission the shorter will be the period of residence necessary. Among the working classes, unfortunately, the seeming necessity for pursuing their employment as long as possible militates against their receiving institutional treatment before the disease has made considerable inroads, and until they recognise the fact that it will be greatly to their advantage to cease from work immediately the nature of the disease is made known to them by their medical attendants directors of sanatoriums must be prepared to prolong the period of residence considerably beyond the usual hospital term. Another fact which calls for as extended a period of treatment as the circumstances of the sanatorium permit is that a number of the patients will return to home surroundings which are not ideal in their conditions, though if properly trained and impressed with the necessity of continuing to follow out the important details of the regimen they will improve these conditions as far as lies in their power. To fix a limit of six weeks is to confess that the aim of an institution is merely the amelioration of the patient's condition, and would result in filling the "State on dismissal" column of a sanatorium report with the word "Improved"—not a very valuable or substantial benefit in the case of a disease which we propose to combat on the assumption that it is, within certain limits, a curable malady.

The shortest period of treatment—that is, in a case in which the physical signs give evidence that the disease is in an early stage—will by most sanatorium physicians be fixed at three months. Thus a patient may present such signs as diminution of percussion resonance at one apex, prolongation of expiration, increased vocal resonance, and a few small clicking râles accompanying the breath sounds; and with a small quantity of expectoration, a moderate pulse-rate, and no great evening exacerbation of temperature, a good result may be secured after three months' sanatorium treatment. Unfortunately, however, only a small percentage of patients belonging to the working classes seek treatment at a time when such a period would suffice, and the majority admitted are found to have one lung affected in an intermediate, and the other in an early, stage. The physical signs, therefore, may be found to comprise dulness to percussion over the upper lobe of one lung, bronchial breathing, marked increase of vocal resonance, and a series of medium-sized clicking râles accompanying inspiration and expiration, with diminution of percussion resonance over the other apex, prolonged expiration, and a few small clicking râles. In such cases a period of treatment less than six months will not be found to give an approach to recovery, and this should therefore be the average limit, taking into consideration on the one hand the maximum benefit to the individual and on the other the pressure on the accommodation which exists in most charitable institutions. Thus, each bed could on an average accommodate only two patients in a year, and in making provision for consumptives this factor should be kept in view by public bodies and the directors of sanatoriums for the poorer classes if their aim be to restore sufferers to the position of wage-earners. It need hardly be said that a longer residence would be beneficial in a number of cases, but until the meagre provision which exists at present is largely extended a period of six months may be looked upon as a fair limit.

The question may, however, arise whether it is advisable to retain patients who are not found after a certain interval to be making satisfactory progress towards recovery; but if care has been taken to debar from admission cases which

are in an advanced stage this point will only infrequently call for decision. If after strict confinement to bed for about six weeks, it appears that the individual does not come up to the standard of those who are permitted to rise from bed, it may be accepted as a fact that at the end of six months it would not be possible for that patient to resume his employment with a prospect of being able to follow it for any length of time, and a decision must be come to accordingly. Generally this want of success is due to a considerable degree of pyrexia which resists all treatment and is attributed in many quarters to "mixed infection."

The duration of residence thus creates a standard for the admission of patients, and some of the points which assist in determining the acceptance or rejection of patients may be here noted. One feature in a case which would negative the admission of a patient is the presence of a habitual evening exacerbation of temperature to the extent of from 102° to 104° . Of course a temporary condition such as this, especially at the onset of the disease, would not be a barrier to a hopeful prognosis, but if it were habitually present in a patient with the disease only in an intermediate stage, it would, in my opinion, debar him from admission. In some cases, too, there is found to be a marked prostration of the vital powers at a time when physical examination of the chest does not reveal a marked lesion, which gives little hope of treatment proving of any avail; and this is especially the case in some who possess the vulnerability of tissue included in the term "hereditary predisposition." Undoubtedly cases with a marked proclivity, evidenced in a bad family history, sometimes run a more acute course and gave rise to greater difficulty in overcoming the morbid process. A moderate pulse-rate—not exceeding 100 when the individual lies quietly in bed—is a point in favour of admission; and a patient with a quiescent cavity, whose pulse may run at 84 per minute, will in all likelihood prove amenable to treatment. The presence of laryngeal tuberculosis, if more than slight in degree, complicating the pulmonary affection would weigh against the probability of acceptance; and the existence of albuminuria, if considered to be dependent on the morbid process in the lungs, would also militate against admission.

Thus on the early recognition of the presence of tuberculosis in the lungs the duration of residence in a sanatorium and the success of treatment largely depend, and therefore the establishment by public bodies of laboratories to which specimens of sputum can be sent by medical practitioners for examination free of charge will prove an invaluable boon. Still, it may be asked what advantage arises from the early diagnosis of a case if a period of six months must elapse ere a patient can be admitted owing to lack of accommodation; and this emphasises the demand for the erection of a sufficient number of sanatoriums to deal with cases when they really are in the early stage, for a shorter period of residence would then suffice, the cost per patient would be correspondingly less, and we could look forward to a larger number appearing under the heading "Disease arrested" in the records of sanatoriums.

A Mirror

OF

HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proemium.

ST. THOMAS'S HOSPITAL.

A CASE OF STRANGULATION OF THE STOMACH.

(Under the care of Dr. HECTOR MACKENZIE and Mr. W. H. BATTLE.)

FOR the notes of the case we are indebted to Mr. H. H. R. Clarke, Mr. T. Burfield, and Mr. Ibbetson (clinical clerk).

The patient, a Spanish newspaper correspondent, aged 30 years, was admitted, under the care of Dr. Hector Mackenzie, into St. Thomas's Hospital late in the night of April 15th, 1901. He was then in a state of extreme collapse and it required the injection of three pints of saline fluid with

brandy into his veins to revive him. He was of somewhat cadaverous aspect, with black hair and eyes; the eyes were sunken and the body was emaciated. He complained of pain in the upper part of the abdomen and was frequently sick, bringing up small quantities of watery fluid. His thirst was great. On examination of the abdomen this was found to present a curious appearance, being boat-shaped and the wall being retracted throughout. There was some tenderness in the epigastrium, especially to the left of the middle line. The bowels had not acted for six days. There was a scar over the left side of the chest in the anterior axillary line.

The history, which was obtained with some difficulty, was a rather tragic one. It was stated that the patient had fought five duels, all of them apparently on account of libellous paragraphs by the correspondents of other newspapers; rapiers were used but not until the last occasion was he wounded. His opponent in the duel which was last arranged thought that it would be wiser to fix things beforehand and so save undesired risk to himself. Accordingly he hired a man to stab the patient, and this was done with a poniard in the left side at the point marked now by the scar. It was said that "the lining of his stomach was exposed," and he was laid up for some weeks. This occurred some seven or eight years ago, and no trouble was experienced until three years afterwards when he was seized with an attack of pain in the left side of the upper abdomen and severe vomiting. Three years before he had an attack like the one from which he was suffering on admission, there being vomiting, great collapse, and pain in the wounded region. He had also had slighter attacks of vomiting off and on since. Seven days before admission, when crossing the Channel, he suffered much from sea-sickness and had vomited almost constantly since. Before coming to the hospital he was seen by a medical man who gave him a subcutaneous injection of solution of strychnine to rally him but who was afraid he could not live many hours.

The patient was far too collapsed for any operative measure to be thought of on the night of admission, but on the following day Dr. Mackenzie asked Mr. Battle to see him. The vomiting and thirst continued, he was excited and restless, placed his fingers in his throat to make himself more sick, and asked for a large quantity of water to aid the vomiting. The reason he did this was because he had found that in the less severe attacks of pain and sickness the use of the finger in this way with the effect produced would usually result in relief. The temperature was 96° F. and the pulse was hardly perceptible. There appeared to be some fulness under the left lower ribs but no dullness. The chest was well formed and the ribs showed prominently owing to the great loss of flesh. The note on percussion was resonant all over and the breath sounds were normal. There were a few crepitations at the base. The cardiac dullness began at the fourth rib and did not extend to the right beyond the left edge of the sternum. The apex beat was in the fifth interspace, one inch internal to the nipple line. The sounds were normal. Urine was very scanty, of specific gravity 1020, and contained no albumin or sugar. The tongue was fairly clean, having a slight white coating.

The condition of the patient was a desperate one, but it was thought best to give him the chance of operation, although another saline injection of three pints was required before his state appeared to admit of anything being done. This injection rapidly improved the pulse.

An incision was made under the left costal margin commencing two inches to the left of the middle line and extending outwards for four inches. All the intestines, both small and large, were found to be collapsed and were empty with the exception of the colon and sigmoid flexure in which scybalous masses could be felt. The stomach could not be felt at first. The descending colon was found to pass upwards beyond the spleen and was traced to an opening in the diaphragm from which it was easily withdrawn. To the margin of this opening the omentum was adherent and none of it could be pulled away. After a continued search for the stomach the pylorus was felt to the inner side of the opening in the diaphragm and the greater part of the organ which had passed through the opening was released and reduced into the abdomen by alternate traction on different parts. There was a distinct mark of constriction where the stomach had been nipped by the margin of the opening and the part which had been involved in the hernia was thickened, cedematous, and congested. No incision was required and the stomach showed no tendency to re-enter the space from