the right scapula. A friction sound was also heard. There were crepitations and rhonchi over the posterior and lateral region of both lungs. On the 24th the dulness had extended over the whole lower lobe; the sputum (three ounces) was very tenacious and rusty. On the 25th the dulness had spread all over the right back from the apex to the base and forward to the nipple level. Numerous moist râles were heard everywhere, sharp and consonating over the right back owing to the consolidation. The sputum (six ounces) was deeply blood-stained, viscid, and with a layer of froth on the top. On the 26th the patient was first seen by Dr. Cattle, the condition being as above described. The respirations were 36, chiefly diaphragmatic and laboured. The pulse was 120. The ice-bag, which had been applied from the commencement, was continued to the right back and side. Five minims of tincture of belladonna were added to a quinine mixture for the purpose of diminishing the amount of expectoration; also liquor strychninæ, five minims, every four hours hypodermically and brandy, half an ounce four-hourly, were given. In the evening there was distinct cyanosis of the lips and cheeks, but it was not possible to map out the right auricle by percussion. Six leeches were ordered to be put over the lower ribs; only three took effect, which with the help of fomentations would draw about one and a half ounces of blood. On the 27th the breathing was 48 and the pulse was 124. Dulness had spread to the lower third of the left lung. Dry and moist râles still continued all over. No sputum was saved, the amount spat up being received into rags. A second ice-bag was applied to the left side. Oxygen was ordered to be inhaled from time to time. In the evening the following mixture was given: ten grains of bromide of ammonium, five grains of carbonate of ammonium, 20 minims of liquid extract of cinchona, seven and a half minims of tincture of belladonna, five minims of spirit of chloroform, with water to one ounce, to be taken every four hours. Six leeches, five of which bit well, were ordered to be put to the right side. On the 28th the breathing was 48, the pulse was 136, and the temperature was 102.6° . The patient had been delirious during the night, but could be controlled by a nurse constantly by her side. She had passed urine involuntarily and 36 ounces were drawn off. The amount of sputum was now small, but all sorts of râles could still be heard. Her strength was well maintained. In the evening she was still mildly delirious. There had been very little sleep for several nights. It was quite unsafe to give sedatives, but in the hope of procuring sleep a small ice-bag was put on her head. On the 29th there had been no crisis, the morning temperature was 102° , while that of the evening was 100.6° . There was considerable gaseous distension of the bowels for which a turpentine enema was given and a turpentine fomentation was applied; there had been no action of the bowels for three days. In the evening the temperature was falling and directions were given for the ice-bags to be taken away when the temperature reached 100° . The patient was drowsy. On the 30th the temperature fell to 99.4° , the pulse was 100, and the respirations were 28; the patient was perspiring. During the day the bowels acted three times without purgatives, on the next day there were three evacuations, and on the following day two. By Oct. 3rd the temperature was normal. The lungs rapidly cleared and convalescence, though slow, was uninterrupted. On the 3rd the brandy was reduced to two ounces and soon afterwards it was discontinued. On Sept. 30th the bromide had been discontinued, the strychnine being altered to six-hourly doses and soon afterwards being discontinued. On Oct. 4th a fish diet was ordered.

It will be noticed that the temperature fell by lysis. (See Chart 1.) The other chart (Chart 2) relates to a severe and peculiar attack of pneumonia in a patient, aged 73 years, who suffered from mild chronic bronchitis and slight prostatic trouble. He began with severe shivering and pain in the left side during the night of Nov. 27th, 1904. There is no record of the temperature until the evening of the second day of the attack. The chief points to notice about the chart are the length of the attack (which was longer, indeed, than is shown on the chart), the extreme irregularity of the fever, and the very rare event of repeated rigors. West says: "Rigors, under any circumstances (qualified, however, by a footnote) occur during the first few hours only."¹⁸ This patient had a severe rigor on the sixth day, the temperature reaching 105° , and another on the ninth day, when the temperature was 103.6° ; on the twelfth day

there was a sudden rise of two degrees without rigor. On the day following the rigor in each case the sputum, which had been becoming paler, was more deeply blood-stained and more abundant, so that the rigor appeared to be significant of a definite extension of the disease in the lung. The physical signs were not prominent; there were some dulness and tubular breathing near the outer border of the left scapula which gradually extended into the axilla. On the second day the pulse was exceedingly intermittent and shaky, so strychnine injections were commenced and continued for at least a fortnight but there is no record of when exactly they were left off. Under this treatment the pulse became firm and regular. Oxygen was used but did not bulk largely in the treatment. Neither ice nor blood-letting was employed. No opium was given; pain and cough had to be quieted as best they could. A fair amount of sleep was obtained. Owing to weakness and the recumbent position the catheter was passed occasionally. After the rigors the patient remained very much exhausted for several hours and on more than one occasion seemed on the point of sinking into a semi-comatose condition. He was accustomed to take a little whisky and seemed all the better for the small allowance, which for part of the time was changed to a corresponding quantity of champagne. Another minor difficulty arose from too zealous poulticing by the patient's relatives; in fact, the treatment was carried out before I saw him. In consequence the cuticle separated from a large area on the left flank and left a granulating, suppurating sore. We were henceforth precluded from applying anything to the chest except zinc ointment and a bandage. The bowels were constipated throughout and the patient complained very much of flatulent distension of the stomach and the bowels, which we relieved as best we could. The pulse was very slow in regaining a normal rate, as shown by the chart, and was still about 90 at the end of the third week. The patient is still alive and well a year after his illness.

Nottingham.

THE PSYCHOLOGY OF THE TUBERCULOUS.

By ALFRED S. GUBB, M.D. PARIS, L.R.C.P. LOND., ETC.

PROLONGED observation of a number of tuberculous persons, some of them patients, others acquaintances or friends, has led me to believe that tuberculosis has a distinct and often a well-marked influence on the mentality of its victims. In certain instances, when the disease might be described as latent in the sense that its foci were for the time being circumscribed and inactive, the psychological changes continued their evolution until an explosive recrudescence of the tuberculous process in the lungs or brain brought life to an end. There are presumably two principal morbid processes at work in determining these psychological changes and they require to be distinguished from each other, though clinically it cannot always be possible to establish the distinction in the absence of the anatomical proof. These are (1) changes of mental temperament presumably due to the action on the nervous system of the toxins elaborated by the tubercle bacillus; and (2) modifications of character due to mechanical interference with the cerebral functions secondary to the deposit of tubercle within or upon the brain. Such deposits, according to Dr. F. W. Mott, have been known to cause epilepsy and melancholia and no doubt when less voluminous may determine other manifestations of impairment of cerebral function. Inasmuch as it is by no means uncommon for stray tubercles to form on the meninges in the subjects of tubercle elsewhere, the lungs, for example, only post-mortem examination can enable us to estimate how much of the psychological change is due to intoxication and how much to the mechanical cause. Now post-mortem examination can only be carried out on a large scale in hospital, that is to say in circumstances unfavourable to close persistent observation of the patients' mental peculiarities, while in private life we are often reduced to mere surmise since no pathological evidence may be obtainable to assist us in explaining the clinical phenomena.

The characteristic feature of the general psychology of the tuberculous is instability, feverish activity followed by

¹⁸ See THE LANCET, Jan. 16th, 1904, p. 150, for an account of a remarkable case in which repeated rigors occurred.

periods of intense depression, phases of despair giving place to the elaboration of plans for a distant future, fits of hypochondria, relief from which is sought in intense application to work, a reckless indulgence in sensual pleasures and exaggerated idealism with a tendency to sentimentality and generalisation; in other words, there is a well-marked intensification of cerebral function, the manifestations whereof are subject to the temperamental peculiarities of the individual. During the stage of invasion a certain tendency to refinement is noticeable, both physical and mental, and under its influence the artistic and imaginative faculties are often stimulated to unprecedented feats, doomed but too often to failure by abrupt collapse of physical energy.

The tendency to take a sanguine view of things becomes more marked as the disease advances. When a patient first learns that his lungs are affected he usually displays great anxiety and is depressed. The mental depression, however, gradually subsides until at the terminal period, in spite of overwhelming evidence that his days are numbered, the victim obstinately make plans or initiates enterprises incapable of achievement in the brief space of life that remains. Patients are buoyed up by a hope that knows no contradiction and display impatience or even anger when attempts are made to get them to realise the seriousness of their plight. This holds good of most cases of pulmonary phthisis, though of course it varies in degree according to the fundamental temperament of the subject and the degree of impairment of nutrition. This tendency to take a sanguine view of things manifests itself in other directions. Although their constitution is being slowly undermined the phthisical are often of exuberant spirits and prone to exertions far in excess of their physical powers. The reproductive function is peculiarly active and the fertility of tuberculous couples is almost proverbial. These subjects throw themselves into "life" with a zest which is often assumed to be the cause, instead of the result, of the tuberculous process. These features are specially well marked in cases characterised by a short, acute terminal period. Up to a certain point the exaggerated metabolism appears to provide the necessary supply of nervous energy until the final breakdown comes and the impoverished organism falls an unresisting prey to the tuberculous invasion.

Far more interesting are the changes that occur as the result of mechanical interference with the cerebral functions due to the presence of tuberculous deposits on the meninges or in the brain. I can best illustrate my meaning by relating two cases in the same family in which an initial localised pulmonary lesion was followed by a marked deterioration in the moral being of the victims.

CASE 1.—A lad, aged 15 years, whose father was healthy but whose mother was alcoholic, had an attack of pleurisy with effusion which kept him in bed for a month. Previously a highly intelligent, well-conducted youth, it was noted soon after the attack that he had become untruthful and in many respects untrustworthy—in fact, the perception of right and wrong seemed to have been blurred. He suffered from cough and lost weight considerably, but under suitable treatment he recovered to a certain extent. His mental condition, however, steadily became worse and he became morally irresponsible, though probably not to a degree that would be recognised by a court of law as exempting from punishment. He was ultimately sent to sea but in the course of his first voyage he developed tuberculous meningitis and returned home to die. Post-mortem examination revealed old-standing tuberculous lesions on the meninges and fresh foci at the base of the brain. The tuberculous nature of the pleurisy was evidenced by the spread of the process into the adjacent lung substance.

CASE 2.—The sister of the previous patient had an attack of what was diagnosed to be influenza followed by bronchopneumonia at the age of seven years. This ran a protracted course and after her recovery she began to manifest the same loss of moral tone, was untruthful, eccentric, and addicted to coarseness of language and behaviour. These changes coincided with the development of internal strabismus which was not improved when a moderate degree of hypermetropia was corrected by the use of spectacles. Formerly lively, playful, and fond of lessons, she became listless, indifferent, and would, if left undisturbed, remain motionless for hours immersed in a "brown study." Her intellectual powers were greatly impaired. She could not be taught to tell the time by the clock until she was 15 years

of age, and the simplest problems in arithmetic quite baffled her. At 16 she suffered for some months from goitre which attained such dimensions as to press upon the trachea causing stertor on slight exertion, but this subsided under appropriate treatment. In this case the conclusive proof of the tuberculous causation of the mental disturbance is wanting since she is still living and enjoys fairly good health, so far as the bodily functions are concerned.

Some time ago in an article by M. Camille Maclair,¹ entitled "Watteau et la Phtisie," I found unexpected confirmation of my ideas on the subject. The author ascribes Watteau's transcendental delicacy of perception and execution to the exaltation begotten of tuberculous intoxication and he instances a number of great men whose death was due to pulmonary phthisis in whom the tuberculous infection seemed to have developed their faculties to a previously unattained brilliancy. He describes them as suffering from an intellectual affection which he calls "*la maladie de l'infini*." It is seen, he says, in Schubert; in Novellis, who died when only 29 years of age; in Frederick Chopin, who died at 39 years of age; in Verlaine, Henri Heine, Mozart, &c. Though he uses the term *malady* he is careful to explain that he does not wish it to be inferred that there was anything morbid in their achievements, the physiological influence of phthisis merely accentuating a natural predisposition to idealism. Dr. Mott tells me that melancholia is nearly always met with in insane patients suffering from tuberculosis and that the onset of the mental symptoms often appears to coincide with the development of the tubercle. It is noteworthy that general paralytics are very free from tubercle in contrast with imbeciles, idiots, and the subjects of primary dementia of adolescence who are particularly prone thereto. I am conscious that my contribution can have but a limited value if for no other reason than my inability to adduce sufficient anatomical evidence of the co-relation of meningeal and cerebral tubercle with mental deterioration. The subject, however, is one of considerable interest.

Mustapha Supérieur, Algiers.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL AND THERAPEUTICAL.

A PRACTICAL EXPERIENCE WITH ADRENALIN AS A CARDIAC AND VASO-MOTOR STIMULANT.

BY H. O. BUTLER, M.B. CANTAB.

THE use of adrenalin as a local vaso-motor constrictor is well enough known but I do not think that its general action on the circulatory mechanism is sufficiently recognised. That this action in suitable cases may be of the utmost practical value the following case will show.

The patient, a child aged ten years, was taken ill with measles on Jan. 2nd. She was attended by a most competent nurse and beyond diagnosing the affection I paid no visits. On the 14th without having left her bed the patient contracted pneumonia. The general course of the disease was of interest from three points: (1) the only physical signs during the whole duration were a few crepitations at the left base, a slight accentuation of the stomach sounds, and for two days a small pleuritic rub—a central left-sided and basal pneumonia obviously accounting for this; (2) the high range of temperature, this remaining steadily between 106° and 107° F. except when lowered by sponging and ice packs; and (3) the toxæmic and not local character of the disease. The treatment was symptomatic throughout. The crisis occurred on the seventh day and stimulants were indicated and freely given. 24 hours later I was called and was told that the temperature was 96·8°, the pulse was 60, the colour was bad, and the respirations were inclined to be of Cheyne Stokes type. The child looked when I saw her as if her temperature were decidedly raised, the face being very flushed, but the pulse was of extremely low tension. This appeared to be due to exhaustion of the vaso-motor controlling centre. Stimulants and strychnine, hypodermically as

¹ Revue Méd., August, 1904.