

rapid and uninterrupted, there being no repetition of the abnormal pulse condition.

Here I think the dyspnoea was the active cause, but so long as the arterial tension remained fairly good no paradoxical pulse showed itself; however, on the occasion of the tension dropping and the pulse becoming soft, then the dyspnoea was able to produce a definite effect, the result being the *pulsus paradoxus*.

CASE 2.—A man, aged 40 years, was admitted into hospital on Feb. 8th, 1899, suffering from broncho-pneumonia complicated by pericarditis with effusion. He had been ill for four days previously to admission. His condition was critical and he had an irregular temperature ranging between 99° and 104° F. The pulse-rate was 130 and the respirations were from 40 to 60 per minute. Under treatment he improved considerably up to Feb. 21st. From that date he slowly began to lose ground, his most prominent symptoms being marked restlessness, a very troublesome cough, considerable dyspnoea, and inability to sleep in the recumbent posture; towards the end he became delirious. His temperature remained a little above normal, the dyspnoea increased, and he died suddenly on March 26th. The definite improvement in the general condition up to Feb. 21st was associated with the gradual clearing up in the lungs. Following this, however, the pericardial condition and the cardiac changes accompanying it became the main factors in the case and were the direct cause of death. On March 13th I made the following note: "The patient is still suffering greatly from dyspnoea, cannot lie down, and is occasionally attacked by great difficulty of breathing, the number of respirations increasing to 70 per minute. During these attacks he becomes almost frantic. They are not associated with marked cyanosis. The præcordial dulness is increased in area, extending two inches to the right and five and three-quarter inches to the left of the middle line, together making a transverse dulness of seven and three-quarter inches. There is dulness in the first left interspace extending one and three-quarter inches from the middle line. No friction rub is to be felt on placing the hand over the præcordium, and only an indefinite cardiac pulsation. The apex beat cannot be seen or felt, and the heart sounds are practically inaudible. There is occasionally a short systolic murmur in the fourth and fifth spaces. There are râles to be heard in the chest, more particularly over the lower lobes, and a pleural friction rub over the right middle and lower lobes. There are definite signs of fluid at the right base, the dulness reaching as high as the ninth spine. The liver is eight and a quarter inches in nipple line and is enlarged and tender. The spleen measures four inches in long diameter. The veins of the neck and arms are tense and engorged, but there is no definite cyanosis." The left pupil was dilated and larger than the right, a condition which I have noticed in several cases of acute pericarditis with effusion. His radial pulse was soft, frequent, and varied rhythmically with the respiration.

Tracings Nos. 4, 5, 6, and 8 in the diagram show well the "*pulsus paradoxus*." They were, with the exception of No. 6, taken with the patient breathing quietly. During the time that No. 6 was taken the patient was asked to breathe more deeply. The five tracings all show a condition of low arterial tension, Nos. 4, 5, and 6 being distinctly hyperdicrotic. It is noticeable that where the paradoxical condition is most marked, as in No. 6, there the pulse is most hyperdicrotic.

On March 15th 63 ounces of clear fluid were withdrawn from the right pleural cavity. This was followed by considerable improvement in breathing and the patient passed a comfortable night. Pulse tracing No. 7 was taken on the evening of March 15th following the thoracentesis and shows a definite improvement. There is certainly a distinct respiratory curve but otherwise the tracing might pass for that of a normal pulse of low tension.

The above alteration in the pulse was undoubtedly brought about by the removal of the fluid from the chest and although the fluid did not re-accumulate, so far as can be judged by physical signs, the paradoxical condition of the pulse returned as markedly as ever.

Tracing No. 8 was taken on March 23rd, three days before the man's death; he was breathing quietly, though rapidly. The above tracings are all from the right radial artery; others were taken from the left radial artery presenting the same condition. It was impossible to obtain any tracings from the anterior tibial artery on account of the œdema about the ankles and feet. Unfortunately no necropsy was permitted.

I would like here to express my indebtedness to Dr. Nathan Raw, as it is through his kindness that I am able to publish these cases.

## Clinical Notes:

### MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

#### HEMIATROPHY OF THE TONGUE.

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THE following case is of interest not so much because of the condition of the tongue as on account of the unusual cause to which it was due.

The patient, a man, aged about 50 years, complained that one side of his tongue was growing smaller. He had no other trouble whatever, but he could not quite understand why this should be, and so he had sought medical advice. The condition present was simply atrophy of one side of the tongue. The only point in his personal history bearing on the case was that some years previously he had had a serious injury to his head, resulting in fracture of the base of the skull. Now, the causes of an unilateral atrophy of the tongue are disease of the hypoglossal nucleus or disease of the same nerve. Supranuclear disease is not accompanied by wasting, or, at any rate, only to the slightest extent. Facial hemiatrophy is sometimes accompanied by hemiatrophy of the tongue, but here this need not be discussed, for there was no hemiatrophy of the face. Nuclear disease is almost always bilateral and is generally accompanied by disease of adjacent nuclei, giving rise to labial paralysis. But every now and then in chronic degenerations, such as locomotor ataxia or progressive paralysis, of the insane, this affection is unilateral. Here, too, other nuclei are generally affected and other symptoms characteristic of the disease (tabes or progressive paralysis) are present. If the lesion is below the nucleus it may be (1) within the medulla, and then there is paralysis of the leg and arm of the other side; or (2) outside the medulla, then the nerve may be damaged within the skull by meningitis or new growths, or outside the skull by wounds, cellulitis, tumours, neuritis, or caries of the highest cervical vertebræ. There are no symptoms in this case of tumours, meningitis, caries, and so on, and I think this hemiatrophy is due to injury of the nerve in its passage through the anterior condyloid foramen at the time of the fracture of the base of the skull.

Hove, Sussex.

#### OCULAR PHENOMENA ASSOCIATED WITH CHEYNE-STOKES RESPIRATION.

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THE following case is, I think, worthy of record inasmuch as the ocular phenomena observed, so far as I have been able to ascertain, have not hitherto been placed on record.

A man, aged 61 years, short, dark, and thick-set, came under my observation two and a half years ago, when I found him to be suffering from a mitral systolic murmur, considerable hypertrophy of the left ventricle, and some amount of albuminuria. Dilatation of the ventricle gradually ensued and this was followed by pulmonary and hepatic congestion, increase of the albuminuria, and, finally, general anasarca, so that it may be said that the patient was more or less waterlogged for the last two years of his life. Eight weeks before his death uræmic convulsions set in and continued off and on down to ten days before the end, when he became suddenly hemiplegic, after which the convulsions ceased. The patient was now paralysed on the left side and had in addition loss of control over the sphincters. Three days before his death

coma accompanied by marked Cheyne-Stokes respiration supervened, which continued till his decease. I noticed that each cycle of this type of breathing averaged about a minute in duration, the intervals varying from 12 to 15 seconds and the respirations being from 28 to 33 in number. On examining the eyes I noticed that during the interval both pupils remained stationary and somewhat contracted. After the onset of the first four or five respirations each pupil began to dilate, and as the respirations increased in volume and rapidity they each became more and more dilated until finally they became widely dilated and remained stationary during the height of the cycle. As the respirations subsided during the decline of the cycle each pupil gradually contracted more and more until eventually, just before the respirations ceased, they became contracted somewhat and remained stationary till the onset of the next cycle.

I do not know that these ocular phenomena can be said to be a sign of diagnostic value of the disease under consideration; nevertheless, I deem it worthy to be placed on record, partly because it is an interesting piece of clinical evidence and may afford others the opportunity of being on the lookout for similar rhythmical pupil changes in cases of Cheyne-Stokes respiration, and partly because the whole phenomena of Cheyne-Stokes breathing is involved in obscurity. Many theories have been advanced to account for it, but none of them are quite satisfactory. Therefore, any side-light brought to bear upon the subject may possibly be of interest to those scientists who are interested in this matter. Sir W. Gowers, in his work on "Diseases of the Nervous System," says that the pupils may contract during the interval in Cheyne-Stokes respiration, but he is silent concerning any rhythmical action of the iris coincident with the rhythmical respiratory act such as I have stated above. Gowers, too, in speaking of Cheyne-Stokes breathing says that the respirations in each cycle never exceed 30 in number. In the case quoted above I frequently counted as many as 33 respirations.

Torquay.

### LARGE DOSES OF CARBOLIC ACID IN EQUINE TETANUS.

BY FRANCIS EVELYN PLACE, B.Sc., M.R.C.V.S.

DR. J. MITFORD ATKINSON'S case of bubonic plague<sup>1</sup> is of much interest, and as during the last two years I have been treating tetanus in horses by means of hypodermic injections of carbolic acid I send a few notes which may form an appendix to that case. The mode of procedure is to inject in the neighbourhood of the neck and shoulders one drachm of carbolic acid (British Pharmacopœia) every two hours for the first 32 hours of treatment and less frequently as occasion may arise afterwards. The result is that within an hour there is a large swelling at the seat of injection which gradually subsides during convalescence, and there is no trace of it left after 14 days in the case of those injections made during the virulence of the disease. Sometimes, however, in the case of the injections made during the subsidence of the disease there is a loss of hair. This occasionally persists for weeks, but in no case have I found it to be permanent. The largest amount used in a single case has been 36 fluid drachms in 84 hours, the patient being an Arab horse, 14 years old, which recovered and resumed work on the twenty-second day after the attack. I have never administered less than 16 drachms in a successful case and as in two cases I have seen horses die after the administration by the mouth of half an ounce of diluted carbolic acid given for pneumonia I can only conclude that in tetanus there is a specific tolerance of the acid and, judging from Dr. Atkinson's case, that the same seems to be the case in plague. Details of some of the cases I have treated may be found in the Transactions of the Bombay Medical Society for 1898, having been reported by the courtesy of Colonel W. G. Henderson, R.A.M.C., who has successfully adopted the treatment in human practice in relatively large doses.

Bombay.

<sup>1</sup> THE LANCET, Dec. 9th, 1899, p. 1583.

## 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. Proœmium.

### SHEFFIELD ROYAL INFIRMARY.

A CASE OF TRAUMATIC TETANUS WITH RECOVERY.

(Under the care of Dr. W. DYSON.)

THE following case is a very good instance of a somewhat severe attack of tetanus ending in recovery. The long incubation period of 12 days was in itself of fairly good prognosis, for the chance of recovery increases with the length of time that elapses before symptoms appear. No antitoxin was injected, so we must attribute the satisfactory result to the excision of the wound and the administration of the bromide and chloral. The symptoms were so characteristic that we need have little hesitation in admitting the accuracy of the diagnosis, even though no tetanus bacilli were found. For the notes of the case we are indebted to Dr. Noel D. Bardswell, house physician.

A girl, aged 15 years, was admitted into the Sheffield Royal Infirmary on July 26th. There was a history of a cut on the right hand 17 days before admission and of its contamination with garden mould. The tetanic symptoms commenced somewhat insidiously 12 days after the accident with severe pain in the back, stiffness of the muscles of the neck and throat (causing dysphagia), spasmodic contraction of the jaws on attempting to eat or speak, and stiffness of the fingers and hand of the injured limb. During the next few days these symptoms increased in severity and she was then sent to the infirmary.

On admission all the muscles of the neck were in a condition of tonic spasm, the head being slightly retracted. The face was anxious-looking, the angles of the mouth were drawn downwards and outwards, and the pupils were widely dilated. Spasmodic closure of the jaws occurred incessantly, frequently biting the tongue, which was furred and much excoriated at its edges by the teeth. There was a slight degree of opisthotonos; the abdomen was unaffected. The legs were extended and stiff to move and all the muscles of the right arm, forearm, and hand were in a condition of tonic spasm, the fingers being firmly clenched and the arm flexed. On the right thenar eminence was a nearly healed healthy-looking cicatrix about an inch long. The paroxysms of spasm, which the least irritant would excite, occurred several times a minute, except for brief intervals, during which the patient dosed. During the paroxysm the distortion of the face became more pronounced, presenting a typical risus sardonicus; the jaws were tightly closed; the back was arched; the legs became rigid and slightly over-extended with the heels drawn up; and the contracture of the right arm and hand became more intense. The paroxysms were accompanied by great pain in the affected muscles and by profuse sweating. Respiration was unaffected, but the pulse was quickened during the paroxysms. The temperature on admission was 99° F.

The patient was kept in a darkened room; the cicatrix was freely excised, the removed tissue being kept for examination, and 20 grains of bromide of potassium and 10 grains of chloral were given every four hours. Under the influence of chloroform the spasm completely disappeared and the paroxysms were less severe for some hours following the administration. During the first week after admission she remained in much the same condition. There was slight irregular pyrexia, varying from 99° to 100°; the opisthotonos became more marked and tonic in character, and the muscles of the abdominal wall and left arm were contracted during the paroxysms, in addition to the muscles already mentioned. The constant biting of the tongue was the most distressing symptom and she kept a large piece of lint between her teeth day and night, which, she said, saved her tongue during the spasms. Sleep was greatly interfered with, difficulty was experienced in passing urine, which was reduced in quantity