In this connexion it appears surprising that even in the most up-to-date collieries there is, as yet, no indication of electric light being used throughout the workings. We are satisfied that if such precautions were taken and electric light installed in all working places in collieries, or electric lamps capable of giving light for at least eight hours supplied to all underground workers, miner's nystagmus would soon be unknown, while serious accidents to workmen and consequent loss to employer would much more rarely occur.

Treatment.

The curative treatment may be summed up in a single sentence, "Rest, strychnine and the correction of refraction errors."

ANEURYSM OF THE ANTERIOR CUSP OF "THE MITRAL VALVE IN A CASE OF STAPHYLOCOCCAL ENDOCARDITIS.

BY

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T. L., aged 16 years, was admitted under me into the hospital on April 8th, 1912. He was an apprentice fitter, and stated that he had always been of good health till the onset of the present affection. There was no history of rheumatic fever. Six weeks before admission he complained of headache, palpitation, sickness, and pain in the infrasternal notch, and he was compelled to stop work.

On admission he looked pale and thin; his teeth were good, the tongue was furred, but otherwise the alimentary system was normal. There were fine and medium râles at the base of both lungs. The urine showed some phosphates, no albumen, and no sugar. The left ventricle was hypertrophied, and a systolic

Conclusions.

1. There are certain important contributory factors in the production of miner's nystagmus, such as inadequate light, refractive errors, and muscular strain.

2. Nystagmus is a menace to the miner working underground, as it may prevent the early detection of flaws in the roof and falls result. An illustration of the gravity of this danger is the fact that one of our cases was a colliery examiner.

3. We are convinced that the preventive and remedial measures suggested would, if carried out thoroughly, soon make miner's nystagmus a very rare complaint, and greatly facilitate the detection of the small blue cap which indicates the presence of fire-damp.

slight improvement. However, after the lapse of another week, when I was considering the advisability of a third dose, the embarrassment of the heart became more marked, the temperature fell, the pulse rose, his weakness increased, and he died on May 11th.

Post-mortem Examination.—The heart was found hypertrophied and weighed 17 oz. It was opened by a sterilized knife and a minute piece of the vegetation from the mitral valve removed and planted in broth; a staphylococcus was grown, but the growth became contaminated by the *Bacillus subtilis*. An abscess was found in the upper part of the spleen, which gave a pure staphylococcal growth. The right side of the heart was normal; in the left there was stenosis and thickening of the semilunar valves; there was a small growth of vegetations on the auricular surface of the left or posterior flap of the mitral orifice; the anterior or septal presented a large aneurysmal sac ballooned back into the auricle, no doubt from the greater pressure in the ventricle; the orifice of this aneurysm on the ventricular aspect was large enough to admit the tip of the little finger; the cavity was partially filled with blood clot.

Several interesting problems are suggested. Could

Stereoscopic photograph of aneurysm of the anterior cusp of the mitral valve in a case of staphylococcal endocarditis. (Taken by Messrs. Lizars.)

thrill was felt over the mitral area; there was some difference of opinion as to the presence of a presystolic thrill; a loud, blowing murmur was heard over the precordial area generally, perhaps loudest towards the base, but also conducted round into the left axilla; it masked or replaced the first sound in the mitral area. A diastolic murmur of feeble intensity, but of the ordinary character, was heard along the sternum and also in the mitral area, where its character was indefinite and rumbling; this murmur was diagnosed as a "Flint's." The pulse was regular, soft, and varied between 84 and 132; it was generally between 112 and 120. The temperature was 99° to 100° F. in the morning, 101° and 102° in the evening. The blood count a few days after admission gave 3,000,000 red and 14,000 white, haemoglobin 60 per cent., thus giving an index of 1.

Suspecting an infective endocarditis, I drew off 8 oz. of blood from a vein and obtained a pure culture of staphylococcus in broth, and from this in agar. Dr. Wilson, Queen's University, kindly made me a vaccine, and on April 24th I gave the patient 20 million; this upset him and was evidently too large, but he seemed somewhat better on the third day after the vaccine; the improvement was not continued. A week later I gave him 10 million; this slightly upset him, and again there seemed a

such hypertrophy take place in ten weeks in a lad poisoned with a staphylococcal toxin? Had there not evidently been some old-standing heart trouble? Again, the question of the entrance of the poison into the system is one of great difficulty and interest. Not very infrequently we meet with cases in which presumably a local infection becomes from some trivial cause generalized. Thus Dr. Henry of Belfast had treated a case of acne in a lad of about 20. He improved and relapsed. About a fortnight after the last dose of vaccine he fell while jumping, and two days afterwards developed pain in the region of the left hip. This condition got worse, and in a few days during which I saw him septicaemia set in, probably with endocarditis, which became intensified, and death ensued so rapidly that a full bacteriological examination of blood or spinal fluid could not be made. A *post-mortem* examination was not allowed. A somewhat similar result followed a slight wrench of the

elbow in a man subject for the previous year or so to boils.

The course in these cases might be compared to the breaking down of adhesions in a case of peritonitis, and the onset of a fulminant type of generalized peritonitis. But this had gave no previous history throwing light on either onset or course. He may not have remembered or not have attached any importance to events which in the light of the subsequent catastrophe were of great moment. The case illustrates also the necessity for a much earlier diagnosis than is dreamt of at present. With such a valve, what vaccine could possibly have been of any service? In the future, the early examination of the blood by cultural methods may help in similar cases.

The use and the dosage of vaccines in these cases of septicaemia furnish another problem. One would think that the microbe circulating through all the tissues would stimulate them to respond more than a vaccine in one small spot. Again, the difference in dose between a few hundred million used in a case of acne or of boils and one million, the dose recommended to me by Dr. Houston of this city, after my second dose, is very remarkable.

Aneurysm of a valve is mentioned by most authorities, but the literature is not very full. I suppose there is not much to be said about it.

A CASE OF ULCERATIVE ENDOCARDITIS.

BY

A. HOULGRAVE, L.R.C.P.LOND., M.R.C.S.ENG.

I WAS sent for to see Miss —, aged 55, towards the end of February.

She was in bed lying on her back, her head and shoulders supported by several pillows, her lower limbs drawn up, the soles of her feet resting on the bed. Her face was of an earthy, dusky hue, the alae of the nose were working, the lips apart, and the angles of the mouth drawn back. She complained of her throat, which she said pained her on the left side at the angle of the jaw, which was worse when she swallowed, and of a very acute pain at a spot on a line drawn from the tip of the tenth rib, which would meet the horizontal at a level of the umbilicus, and of acute pain in the metacarpal joint of the left thumb. The joint was swollen, red, hot and painful; pain much worse in movement. The temperature was 103°, the pulse 120, and the respirations 40. The tongue was moist, with a creamy brown fur; the fauces congested and swollen, left tonsil enlarged, white matter at the orifices of several of the crypts, no enlargement of lymphatic glands. The chest expanded well. The heart's apex by feeling and percussion was in the nipple line; systolic bruit at apex. No great enlargement of the right side, by percussion; no dullness above the third rib. A systolic murmur at second left intercostal space. First sound over aortic area not clear. No friction or thrill felt. Lungs and pleura nothing abnormal found front or back. Urine acid; no albumen, no sugar, specific gravity 1030, lithates. Over the spot indicated above in the abdomen she complained of great pain; the muscles, in that region especially, were tonically contracted, and prevented further examination.

Warmth was applied to the abdomen, the thumb was bathed in hot water and wrapped up in cotton-wool and bandaged. The throat was rinsed with warm salt and water, and swabbed with powdered boracic acid. This was done as often as the pain got worse. As to diet, she was ordered to have no milk curds, and nothing that would not go through a fine sieve, to be taken in small quantities, and not more than 2 oz. at a time; 1 grain of calomel was given followed by castor oil.

The symptoms gradually improved. Her blood was examined at the Pathological Laboratory of the University of Liverpool, with negative results.

In about a month she had a severe rigor, and it was followed by an attack of pleuropneumonia. She gradually got better of this and was sitting up. One day I found her sitting up in an armchair, leaning forward with her arms resting on the arms of the chair, gasping for breath. She had an ashy, earthy complexion, was bathed in a clammy perspiration, she could scarcely speak, and one could scarcely feel her pulse. The usual remedies were applied and she came round. This attack was followed by blocking of the right saphena vein. She was kept in bed with the limb bandaged and gradually got better, and then she had another rigor. This was followed by plugging of some vein in the lower third of the left calf of the leg. The same treatment was adopted, and she gradually came round.

Then one day she was out for a walk and sat on a seat. This was followed by chill and fever, but no local cause could be discovered.

By way of treatment, as soon as I felt pretty safe that there was not any acute intestinal inflammation, as appendicitis, etc., to deal with, she was given a mixture of 5 grains

of quinine sulphate, 10 grains of salicine, and 5 minims of dilute sulphuric acid, three times a day, and occasionally 1 grain of calomel followed by castor oil, but the remedy was oxygen, given for ten to fifteen minutes every hour, about sixty to ninety bubbles coming through the water per minute. Her temperature varied from 103.5° the highest, to 96° the lowest. The chart was typical of pyaemia.

I am thankful to say she is now in her usual health.

The oxygen was made in a generator the same as is used in the French Army, and supplied by Messrs. Oppenheimer and Son, London.

A CASE OF ABNORMAL PULSE RHYTHM.

BY

WILLIAM JOHNSTONE, M.B., CH.B.GLAS.

TRANENT.

THE following case exemplifies rather an unusual condition and is of interest on account of the fact that the patient to all intents and purposes is a healthy man. He is aged 65 years, of robust build and regular habits, but inclined to be stout; he has always enjoyed good health, but was told when presenting himself for life insurance about thirty years ago that he had an "intermittent" pulse.

A tracing of his pulse taken with Dudgeon's sphygmograph showed a pulse partaking of the nature of a pulsus trigeminus but exhibiting a further abnormality. A long pause occurred after the three systoles and another full systole then occurred, followed by another fairly long pause, this in turn being succeeded by the trigeminal condition again.

The most unaccountable fact was that on our continuing our observations the pulse took on an apparently regular rhythm, as exemplified in the third tracing. The explana-

Fig. 1.

tion of these phenomena is not very clear. The only answer which seems to me feasible is that the cause has to do with the nervous mechanism of the heart. I cannot find a similar condition recorded.

Mackenzie in his *Diseases of the Heart* (1908) has some tracings on page 143 which exhibit "extra" systoles after two, three, or four beats. But these extra-systoles are not of the same volume as the regular beats themselves, as

Fig. 2.

the solitary beats are in this case with a long pause before and after.

The cardiac condition of the patient was good for a man of his years, and there was no evidence of arterio-sclerosis in the vessels, as far, at least, as could be determined by examination of the accessible arteries.

On taking his blood pressure, however, we found it to register 195 mm. Hg systolic and 120 mm. Hg diastolic, with a pulse-rate of 68.

Fig. 3.

He has been put on a course of nitrites in order to determine whether the rather high blood pressure is of any etiological significance in eliciting the apparent vagary of the pulse rhythm.

The urine was examined and found normal. Dr. Thorne Thorne, in the *BRITISH MEDICAL JOURNAL* of June 12th,