distinct from one another. Specimens from the neighbourhood of the rent presented fibres with the striation in some absent, in others indistinct, all containing more or less fatty granules, the fibres themselves being much less distinct than in the more healthy specimens. Specimens from the whitish tissue of the apex, teased with difficulty, presented no trace of muscular fibre, and consisted of fine white fibrous tissue with here and there fatty granules.

REMARKS.—This case then is a well marked example of five different pathological cardiac conditions, without any history of heart trouble till the day of death: 1. Atheroma of aorta, aortic valves, and coronary arteries; 2. Chronic myocarditis; 3. Chronic endocarditis; 4. Fatty degeneration, probably the result of the diseased coronary arteries; 5. Rupture of the left ventricle.

Living an easy life, in charge of an opium receiving ship, having no stairs to climb, no hill or even incline within thirty miles of Shanghai, it is probable that the patient's heart had never been severely tried. I may add that he told me he had had "a good stool the first thing in the morning as usual"; but whether this was before or after the onset of the pain, I neglected to inquire.

The microscopic specimens were mounted in Farrant's solution, and, on examination a week later, had almost ceased to be distinctive of fatty degeneration, having been perfect demonstrations when freshly put up. I understand that there is no known method of preserving the microscopic appearance of this change.

NOTES ON INTERMITTENT BREATHING.

By S. WILSON HOPE, L.R.C.P., Petworth.

IN the following notes, intermittent breathing is considered (a) as co-existent with senile bronchitis, (b) with hysteria, (c) with inhalation of anæsthetics, (d) with cardiac dropsy, and in view of its clinical importance—hardly second to that of intermittent heart. Some inquiry is made into its causation.

a. There is a lean old lady, upwards of eighty years old, whose pulse has rarely been regular any time when I have felt it during the past seven years, who caught a cold; and a bad cough, with spitting of a good deal of frothy, and later of sticky, mucus, came on, and great weakness. Before the attack, she used to spend her nights sitting more or less propped up in bed, till sleep overcame her, when she usually fell over to one side, lying sleeping with the head quite low. During the early part of her illness, her nights were very restless, as were the days too; but later, for many hours during the day, through many days and weeks, she lay, taking but little notice of anything or anybody, though showing at intervals by a remark that her mind was quite clear for the moment. Very early in her illness, her niece, who nursed her, had to remove the phlegm from her mouth when she coughed; medicine had to be given up, and threatening bed-sores to be treated by a water-bed. Soon the breathing became labouring and still by turns, rhythmically; the pauses, or quasi-pauses, growing so long, that once or twice her nurse thought she had ceased to live; and then food of all sorts began to be avoided, and death calmly awaited, indeed desired by her. So day after day passed, till at last a turn for the better took place; and now, though she is too weak to walk alone, her mind is as active as ever, and her breathing and pulse as before her illness.

In the same way, an old man of eighty-four or five had an illness marked in part by this peculiar intermittent breathing, which ended in recovery of his usual health; though he, too, had a very irregular and intermittent heart.

b. Many women and some men are occasionally seized in some way that they fall usually backwards, when, if watched, it will be seen that for a time the breathing is stopped, and there is quiet of muscles generally; then a period of struggling follows; then a deep drawn sigh, or several, along with incoherent talking, crying, etc.; and then either the person goes on breathing better till respiration is natural, and health is regained; or, more commonly, another pause occurs in the breathing, and a fresh attack often runs through a similar course. If we almost anticipate the pause in the breathing, and excite an inspiration, as by pouring or dashing cold water on the face just at the right time, we may often cut short an attack of this kind.

c. Again, it is curious to mark how closely this kind of fit mocks the early effects of inhaling chloroform or ether: there are the pauses, sometimes even fatal; the strugglings, and the incoherent talking, crying, etc. But the best of this class of cases is, that it seems to suggest a good working hypothesis for the whole, viz., that direct irritation of the terminal fibres of the superior laryngeal nerve is the cause of the temporary or permanent stoppage of the breathing during the inhalation of anæsthetics. But of this presently.

d. We often find cases of cardiac dropsy marked by this rhythmical succession of breath-pause and breath-struggle. On watching, it is seen that the first breath drawn is followed by a rising series, in which each breathing is deeper than the foregoing till a deepest is reached; then come a falling series of shallower and shallower breathings, till the respiratory movements cease for a while. These cases, too, end sometimes in the dropsy disappearing, and the patient's getting about again.

Now, with respect to the causation of intermittent breathing, it seems to me obscure, and in want of experiments; but, adopting the method of exclusion, we find, first, that it is not caused by the cardiac disturbance, though often associated with it, because an intermittent and irregular heart is often seen in trifling cases of indigestion, where the breathing is natural; and conversely, the pulse may be steady and regular, as in some cases of apoplexy, which become marked by pauses in the breathing, though never, so far as I know, of the same peculiar rhythm. Nevertheless, they go to show that no causal connection exists between the heart and breathing troubles.

Secondly, the pauses are clearly not instances of true apnoea, that is, in which for a time the blood is saturated with oxygen; as we have only to look at the lips of our patients to see that such an idea is absurd.

Thirdly, it does not seem to run with ordinary notions that this peculiar respiration, made up of pauses and hard breathings following each other in regular order, could be a sign of some organic change in the respiratory centre; inasmuch as such fundamental things as respiratory cardiac and vaso-motor centres, though thought liable to be stopped somehow at death, seem in themselves to be treated as above disease, just as they transcend in their effects common notions of matter and organisation.

Fourthly, it is not easy to hit upon a scheme of reflex nerve-action which will account for this breathing. Hering's experiments, showing that distending the lung with air excites fibres in the vagi, which so act on the respiratory centre as to stop respiration, hardly helps us to explain the pauses, much less their rhythm; because, though truly the hard breathings fill the lungs with air, they do not overfill them as in Hering's experiments.

Fifthly, the canon "that the activity of the respiratory movements varies inversely as their oxidating effect on the blood" does not enable us to see our way through the rhythmic hard breathings.

Enough has been said to show that the subject is obscure, and I shall be glad if this paper should lead someone to let in a little more light upon it.

A CASE OF ADDISON'S DISEASE, ASSOCIATED WITH TUBERCULOSIS OF THE LUNGS AND KIDNEY.

By HERBERT E. WRIGHT, M.R.C.S., L.R.C.P., etc.

HENRY C. B., aged 8, came under my care on April 17th, 1880. His father and mother were quite healthy; there were also six brothers and sisters in good health. His mother's family were remarkably phthisical—her mother, sisters, brothers, and one or two uncles having died of phthisis.

The patient had enjoyed good health up to three years ago, when he began to suffer from cough, night sweats, and loss of flesh, for which he was treated in Liverpool for about nine months, with little benefit. About two years ago, he began to suffer from pain in his right loin; shortly after a swelling appeared at this spot. This gradually increased in size, and became painful; on account of which the patient was taken to another medical man, who ordered the swelling to be poulticed, which was continued for three months, when the swelling burst, and discharged a considerable quantity of pus through four openings. Three of these sinuses healed up after about two months, but the fourth never healed completely, but still continued to discharge pus. The patient now began to improve considerably; his appetite returned; he regained flesh; and, with the exception of a slight cough and expectoration, he appeared to be quite well. His mother told me that the boy continued to improve in health until six weeks before he came under my charge, when he accidentally received a kick in his right loin, which reopened the sinuses, and caused them to discharge pus freely again. His urine at this time was thick, and offensive. His cough now became more troublesome, and he rapidly began to lose flesh. He never spat blood, but he had occasional attacks of diarrhoea.

When I saw the patient on April 17th, 1880, he was extremely emaciated, and very tubercular-looking. I noticed about a dozen small pigment-spots scattered over the face, which, the mother informed me, had made their appearance during the last three months. The skin of the face was not much darkened; but the neck, the backs of both hands