injection. We believe that in this case the intravenous injection of salvarsan saved the patient's life.

CASE II.

A doctor, aged 34, sent to us by Mr. Craig Dun. The primary infection was in January, 1908, and, in spite of treatment carefully carried out from the beginning, there was early ulceration and repeated relapses. He had been treated with hydrarg. cum creta by the mouth and intramuscular injections of grey oil in the most thorough fashion, but, in spite of this, his history was one of constant relapses, and from the time of infection he was rarely free from some manifestation of the disease. He was referred to us in March, 1911. His chief symptom then was nocturnal headache, sufficiently severe to prevent him from sleeping, with boring pains in the bones of the face, also worse at night. He gave a well-marked positive Wassermann reaction.

On March 27th, 1911, at 12.30 p.m., we administered an intravenous injection of salvarsan. He kindly made notes for us of his subsequent progress, from which a quotation may be of interest:

"At 6 p.m. and 9 p.m. the bowels were moved. The usual headache, which started between 8 p.m. and 10 p.m., never arrived, and I fell asleep waiting for it. March 28th. Woke this morning with sense of relief; ate breakfast, and swallowed with no discomfort whatever."

It seems almost like a fairy tale, but from that day till December, 1911, when we last saw the patient, he had no further headache nor any other symptoms of syphilis. In May he gave a negative Wassermann reaction, but it had changed to a slight positive in December, 1911, and on that account we gave him another full injection of 0.6 gram.

He promised to let us know at once should there be any further symptoms, and, as we have not heard from him, we take it no symptom has appeared.

CASE III.

A ship's captain, aged 43. Primary twelve years ago, and had had no objective symptoms for eleven years. About fifteen months before he was seen by us he had a temporary paresis of the right arm and of his speech centre. When seen by us in October, 1911, the knee-jerks were absent; he had lancinating pains in the legs, the Argyll Robertson pupil, and the other cardinal symptoms of locomotor ataxia. Wassermann reaction positive. On October 21st he received an intravenous injection of 0.6 gram.

On October 25th he volunteered the statement that he felt much better, and was more certain of his legs. He had had no lancinating pains since the day after the injection. He had to return to sea, and was instructed to carry out mercurial inunction. On December 27th he returned, and reported that he felt very much better. He had lost all pains in the legs, though there had been a slight return after he had been exposed for forty-eight hours on the bridge in a storm. His speech had improved, his gait was better, he had more control over his limbs, and said "he could dance the Highland fling." Wassermann reaction being, however, still positive, we gave him on January 2nd, 1912, another injection of 0.6 gram.

CONCLUSIONS.

1. In salvarsan we have a unique and potent remedy for the lesions of syphilis.
2. It is a remedy that is efficacious at every stage of the disease.
3. It can bring about healing in lesions that have resisted mercury and the iodides.
4. The ideal treatment is a combination of salvarsan and mercurial treatment, beginning with an intravenous injection of salvarsan, and following it with vigorous mercurial treatment, and, if necessary, repeating the salvarsan injection. Treatment should be controlled throughout by the Wassermann reaction.
5. If properly administered to suitable patients there is no more danger attendant upon the administration of salvarsan than on the use of any other powerful remedy.
6. The intravenous injection is better than the intramuscular one.
7. Though Ehrlich's original idea of accomplishing the complete destruction of every spirochaete in the body by a single injection has not been fulfilled, he has given us in salvarsan the most powerful antisyphilitic remedy that has been discovered in our time.

THE Australian Institute of Tropical Medicine has been granted an increased endowment by the Commonwealth Government. A grant of £4,000 a year has been made from January 1st, 1912. This will permit the immediate erection of new laboratories and the enlargement of the staff, thus enabling the institute to widen the scope of its work.

C

CASES OF CHRONIC PURPURA WITH AND WITHOUT CUTANEOUS LESIONS.*

BY

F. H. EDGEWORTH, M.D., D.Sc.,

PHYSICIAN TO THE BRISTOL ROYAL INFIRMARY; AND PROFESSOR OF MEDICINE, UNIVERSITY OF BRISTOL.

THE existence of purpura haemorrhagica as an acute transient disease is well known and recognized. Another type—a chronic form in which the lesions continue for months or relapse again and again—has attracted less attention among English writers,† and it is the object of the following paper to record three of these rarer cases.

The occurrence of such cases has been recognized, particularly by French physicians, ever since a paper on the subject by Racle in 1844.¹ Bensaude and Rivet, who had been making observations for some years, summed up their experience in a most excellent paper in 1905.² They recorded the histories of 14 cases personally observed, and of 20 other cases which they had collected from medical literature. The continued form is the rarer, the intermittent the more common; in the latter the attacks are sometimes preceded for months or years by frequent isolated haemorrhages. The duration of such cases may be as great as twenty years, and the intervals between the crises may vary from a few months to, in one case, seventeen years. The termination is variable; 5 of Bensaude and Rivet's own cases and 4 of those they collected ended in death.

As regards diagnosis, Bensaude and Rivet point out that whereas haemophilia is congenital and hereditary, chronic purpura haemorrhagica is neither. In haemophilia the blood shows a considerable diminution in coagulability, but the clot once formed contracts; in chronic purpura haemorrhagica coagulation takes place normally, but the clot does not contract. Further, in haemophilia there is no considerable diminution in the number of blood platelets; in purpura haemorrhagica this is a marked feature.

E. H., aged 46, was admitted as an in-patient at the Bristol Royal Infirmary on January 24th, 1902, under the care of Dr. Shingleton Smith, to whom I am indebted for permission to record the case. She was suffering from pains in the stomach and limbs and bleeding from the mouth. There was no family history of bleeding. Fourteen years previously she had had bleeding from the mouth and a purpuric rash on the skin, an attack which came to an end in about a week. Since that time she had repeatedly suffered in the same way, having had, as far as she could remember, an attack every year. The present one had begun two days previously with bleeding from the nose and mouth, and spots on the trunk and limbs. On examination, it was found that there were numerous discrete purpuric spots scattered over the whole surface of the body; they were mostly small, but on the deltoid region of the right arm many confluent spots made a discoloured area as large as a five-shilling piece. Numerous petechiae were present on the inner surface of the lips, on the fauces, and on the posterior pharyngeal wall. There was no vomiting, and no blood with the motions. The abdomen was normal and the liver and spleen were not enlarged. The urine contained a trace of albumen, but no blood. No fever was present. The patient rapidly got well, and went out in a little over a week. I have ascertained lately that the attacks recurred at intervals during the following five years and then ceased. The disease thus lasted for nineteen years.

J. B., aged 17, was admitted to the Bristol Royal Infirmary under my care on October 3rd, 1904, suffering from pneumonia of four days' duration. No previous illness of any note had occurred; and, in particular, he had never suffered from bleeding, nor was there any family history of bleeding. The lower lobe of the left lung was found to be consolidated. The temperature fell by crisis on the seventh day, and the pulmonary condition rapidly cleared up. During the fever the urine contained a trace of albumen, but no blood. On October 10th the boy vomited, had pains in the cervical region of the spine, and was found to be unable to straighten either arm—a condition caused apparently by contracture of the flexors of the elbow-joints. The biceps and triceps jerks could not be obtained, the knee-jerks and plantar reflexes were normal. The flexion of the arms lasted a week, until October 17th, and then slowly disappeared. On October 23rd an extensive purpuric eruption appeared on the legs and thighs, and the lower end of the right thigh became tender on palpation, but was not swollen. No leucocytosis was present. On October 25th there was some abdominal pain and vomiting, and the urine became smoky in colour and contained blood corpuscles. No renal casts were present. The purpuric rash slowly faded, no fresh spots appeared, and the urine contained, day by day, less blood, so

* A paper read at a meeting of the Bath and Bristol Branch on October 25th, 1911.

† For example, it is not mentioned by Mackenzie in Allbutt's System.

that on November 22nd—the date of his discharge—only a few red blood cells could be seen in the urine after centrifugalization.

During the year 1905 the boy remained well. He was readmitted on January 18th, 1906, with a slight bronchitis. The urine was free from blood and albumen, and no purpuric rash was present. On January 25th an eruption—partly erythematous, partly purpuric—appeared on the legs and thighs, and there was a second crop on February 3rd. He went out on February 15th quite well. He was again admitted on March 21st, 1906, passing blood in the urine. No renal casts were present. The haematuria soon cleared up, and he went out on April 7th. There has been no recurrence since that date.

The purpura in this case was intermittent, that is, it consisted of two haemorrhagic crises, separated by a year of good health.

I have not seen any record of the occurrence in cases of purpura of the peculiar contracture of the flexors of the elbows which this boy presented; it may have been due to haemorrhage into the spinal theca.

The origin of the purpura was most probably an abiding pneumococcal infection. It is well known that a purpuric eruption may complicate pneumonia, generally in the form of petechiae, and, exceptionally, pneumococci may be found in the blood in cases of purpura without pneumonia. The following is an instance:

Thomas G., aged 53, was admitted to the Bristol Royal Infirmary, under my care, on May 18th, 1911, suffering from purpura. Three weeks previously he had "caught cold," and, a week subsequently, spots came out over the body. It was found that the whole surface of the trunk and limbs were covered by purpuric spots, varying in size from a pin's head to a five-shilling piece. No bleeding was taking place from any internal surface; the eruption was confined to the skin. There were a few rhonchi to be heard at the bases of the lungs, but no physical signs of pneumonia. The temperature was 100° on the day of admission, normal subsequently. The red blood cells numbered 4,860,000 per c.mm., haemoglobin 80 per cent., white blood cells 7,812 per c.mm.; a differential count gave polymorphonuclears 75 per cent., small lymphocytes 20 per cent., large lymphocytes 4 per cent., and eosinophiles 1 per cent. A blood culture on May 19th, by Professor Walker Hall, showed the presence of pneumococci, and on May 23rd they were again found "degenerating." The purpuric rash faded, no new spots appeared, and the man went out on June 7th.

The man was again an in-patient of the Bristol Royal Infirmary, under the care of my colleague, Dr. Charles, from November 20th to December 5th, 1911, suffering from a recurrent attack of purpura. Only the legs were affected. The bacterial content of the blood was not determined. The disease has thus lasted in his case at least six and a half months.

Here, the only symptom of the pneumococcal invasion was the purpuric rash, which was confined to the skin. Invasion by pneumococci may thus cause pneumonia or purpura, or both phenomena; if both, the purpura may occur at the same time as the pneumonia, or subsequently; and it may recur and so become of the chronic type, as in the case of the boy whose case is recorded above.

The haemorrhages in the cases recorded by Bensaude and Rivet were various in seat, but in no one were cutaneous lesions absent. In one case, however, spontaneous cutaneous haemorrhages were absent during more than a year, though epistaxis and haematemeses took place, and ecchymoses occurred on traumatism. In one case of Owen's,* cited by Pratt,³ a girl aged 11 "had haemorrhages for twelve months, first from the bowels, then from the nostrils, and afterwards from the left ear. There was no history of bleeders in her family, no arthritis, and no purpura."

In a case of Osler's,⁴ a patient who for six years suffered from recurring gastro-intestinal crises—colic, vomiting, and diarrhoea—with fever, delirium, and erythema multiforme, had no skin lesions for two years with the attacks.

Pratt concludes from such evidence that "there are some cases of the haemorrhagic diathesis which present the clinical picture of purpura haemorrhagica, except that cutaneous haemorrhages are absent. There is no hereditary or congenital tendency to haemorrhage, and hence they cannot be classed under haemophilia." The following is an instance of this very rare form:

Annie B., aged 18, came under my care in January, 1904, suffering from a painless profuse haematuria, which had begun suddenly without known cause a few days previously. There was no family history of bleeding, and the girl had previously enjoyed fair health. The urine, of normal amount and passed at the usual intervals, was bright red in colour owing to intimately mixed blood. No renal casts were seen on micro-

scopical examination. The temperature was normal. On examination, a movable, slightly tender, right kidney was discovered. As the haemorrhage persisted, and as it seemed possible that the blood was coming from the right kidney, my colleague, Mr. Paul Bush, kindly saw the patient with me, and subsequently took her into his ward at the Bristol Royal Infirmary for further observation, and possibly operation. The blood in the urine was found to be inconstant in occurrence; it varied in amount, and on some days was absent. On April 29th the patient vomited, and the vomit was streaked with blood. This was the only occasion on which haematemeses occurred in 1904.

On May 4th the right kidney was explored by lumbar incision. It was absolutely normal in appearance, and neither neoplasm nor stone was there. Nephropexy was performed. The haemorrhage persisted in much the same fashion as before the operation. In June the bladder was examined with the cystoscope, with negative results. In the late summer and early autumn the haemorrhage very gradually ceased, and the patient went out in October.

In January, 1905, there was a recurrence of the haematuria, and the girl was again an in-patient for a month. During the rest of the year 1905, the year 1906, and the year 1907 (until October), she remained fairly well, though having slight haematuria from time to time—not enough to make her keep her bed.

In October, 1907, an acute haemorrhagic crisis occurred; large quantities of bright red blood came from the rectum and in the urine. The rectal blood was passed partly independently of the motions, partly covering them, it was not mixed with them. After the haemorrhage had lasted some days, turpentine in 20 minim doses was given every two hours, with the result of stopping the bleeding. The slight intermittent haematuria persisted until January, 1908, when another haemorrhagic crisis occurred; she vomited blood, passed bright red blood per rectum, and in the urine in large quantities. Turpentine again stopped the haemorrhage. The patient nearly died in each of these attacks.

A few weeks subsequently I found by Wright's tubes that the coagulability was normal. Liq. arsenicalis in 5 minim doses ter die was now given, and its administration persisted in. The haematuria gradually lessened, and ceased within a month. The drug was then given during the first week of each month for the following eighteen months. The patient found at first that if she did not take the medicine the haemorrhage recurred, though in slight amount; later on, that she could safely leave it off. There has been no recurrence since July, 1909.

On reviewing the details of this case, it is seen that three haemorrhagic crises occurred in the course of four years—in the first haematuria, in the second haematuria and rectal haemorrhage, in the third haematuria with gastric and rectal haemorrhage. These attacks were not isolated—haematuria of variable degree was almost constantly present in the intervening periods and followed the last attack. No haemorrhage took place in the skin, or from the nose or mouth or pulmonary tract, and menstruation was normal in amount. The coagulation time of the blood was normal. Turpentine controlled the violent outbursts of bleeding; and arsenic, apparently, brought about a cessation of all symptoms. These phenomena may be grouped together, with a diagnosis of chronic purpura without cutaneous haemorrhages.

I did not observe whether the blood clot did or did not contract, nor were any observations made on the number of blood platelets.

Chronic purpura of Henoch's type is not common, but cases of the purely haemorrhagic variety, such as are recorded above, are probably still rarer. Their recognition, however, is of practical importance, as it seems possible, at least in some cases, to bring about a cure of the condition.

REFERENCES.

- ¹ Racle, *Annales des maladies de la peau et syphilis*, 1844, t. ii.
- ² Bensaude and Rivet, *Les formes chroniques du purpura hémorrhagique*, *Arch. gén. de méd.*, 1905, t. 195, 1, pp. 193-216.
- ³ Pratt, in *System of Medicine*, ed. Osler and McCrae, vol. iv, 1908.
- ⁴ Osler, *On the Visceral Complications of Erythema Exudativum Multiforme*, *Amer. Journ. of Med. Sci.*, vol. ex, 1895.

AN exhibition organized by the Coal Smoke Abatement Society was opened at the Agricultural Hall, Islington, on March 23rd. Though a considerable proportion of the exhibits are illustrative of modern methods of diminishing the emission of smoke by factories, a large number are of domestic interest. The Gas Light and Coke Company, for instance, shows various ways in which the direct use of coal for household purposes may be avoided. The defects of early appliances for this purpose have stood in the way of the use of gas for warming and cooking purposes, but more recent methods are very much superior. The exhibition includes some striking models illustrative of the amount of soot that falls annually in London, and of the detriment caused to public buildings by the acids evolved by imperfect combustion of coal.

* The reference is not given by Pratt.