Germany, and among our American kinsmen: we shall, I hope, be a strong support to the *Dermatological Journal*, which is already so admirably edited; and we shall, I trust, form a committee of reference, for the United Kingdom at least, which may help in some degree to fix the nomenclature of this department. Our credit and usefulness depend upon ourselves; and since we include all, or almost all, the dermatologists of this country, the result is scarcely doubtful. We meet in the home of other societies, to which most of us belong, and hope to rival them in the high standard of professional conduct we maintain, the liberal and scientific spirit we foster, and the value, the thoroughness, and the interest of our Proceedings. May we become as numerous, wealthy, and dignified as the Royal Medical and Chirurgical Society; as accurate and objective as the Pathological; as brief and practical as the Clinical.

It depends upon us, gentlemen, to maintain and increase the reputation of the British School of Dermatology, and with the support of those who meet to-day, I cannot doubt that we shall abundantly succeed.

BONE-MARROW IN THE TREATMENT OF PERNICIOUS ANÆMIA.¹

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ALTHOUGH this communication deals with only one case of pernicious anæmia treated with bone-marrow, the curative effect seems sufficiently evident to justify the publication of the case, especially as an opportunity occurred for testing in it the value of the chief remedies hitherto used in the treatment of this disease.

The patient, A. R., a gardener, 60 years of age, entered the Royal Infirmary on September 30th, 1893. His symptoms were frequent vomiting and diarrhoea, œdema of the feet and ankles, moderate and irregular pyrexia, dimness of vision, retinal hæmorrhages, anorexia, dyspnoea, and, latterly, complete prostration. The illness had existed for about four months.

Although I was desirous at once to treat this patient with bone-marrow, the condition was so serious a one that, in the absence of experience regarding the therapeutic value of bone-marrow, I considered it advisable to administer, in the first instance, some of the remedies usually employed in pernicious anæmia. Only after they had failed in producing benefit was bone-marrow given.

For the sake of brevity, I shall divide the history of the patient into eight periods, which correspond with the treatment adopted in each period (see Diagram).

First Period, two weeks, no medicinal treatment. During this period, the hæmocytcs of the blood varied from 1,860,000 to 1,460,000 per cub. mill., and the hæmoglobin from 28 to 30 per cent., the specific gravity being 1038. There was great distortion in the shape and variation in the size of the hæmocytcs, which did not form rouleaux. Retinal hæmorrhages were present in both eyes.

Second Period, two weeks and a-half; ferrous chloride 6 to 12 grains daily. The hæmocytcs and hæmoglobin steadily fell to 900,000 per cub. mill. and 20 per cent., respectively, and the specific gravity to 1036.

Third Period, eight days; arsenic (15 to 30 min. of liquor arsenicalis daily) was given in addition to 12 grains of ferrous chloride daily. Still further deterioration occurred in the hæmocytcs and hæmoglobin, the former falling to only 843,000, and the latter to 18 per cent.; but the specific gravity remained at 1036.

Fourth Period, three weeks; arsenic and iron were continued in the above doses, but ox bone-marrow was now also given by the mouth, uncooked, and in the quantity of 3 ounces, daily.

An almost immediate improvement occurred, so that at the

end of this period the hæmocytcs numbered 1,800,000, the hæmoglobin amounted to 35 per cent., and the specific gravity was 1042. The patient now began to recover strength; he could remain out of bed for several hours each day, and the appetite was greatly improved.

Fifth Period, twenty-six days; ox bone-marrow, arsenic, and salol (15 to 30 grains daily). The improvement was continued. The hæmocytcs rose to 2,470,000, the hæmoglobin to 55 per cent., and the specific gravity to 1047. The patient felt much stronger, and his complexion was distinctly pink, and had almost entirely lost its original yellow hue. He had also gained in weight.

Sixth Period, thirty-two days; ox and calf bone-marrow and salol (30 grains daily).

The improvement was still further continued, so that the hæmocytcs reached an absolute maximum of 4,130,000, though they afterwards fell to 3,400,000; the hæmoglobin rose with the hæmocytcs to 75 per cent. and also fell to 70 per cent., and the specific gravity became 1058. The blood had now a healthy appearance. It could flow readily from a small puncture, it formed fairly good rouleaux, and the red cells were more uniform in size and fewer of them were distorted.

The patient was now able to do light work in the ward without fatigue; the alimentary system was perfectly healthy; œdema, pains, headache, pyrexia, and the venous *bruits* in the neck had disappeared; and the skin had a healthy appearance.

Seventh Period, one month; ox and calf bone-marrow and ferrous chloride (6 to 12 grains daily). The hæmocytcs remained, with some oscillations, at about 3,400,000; the hæmoglobin averaged from 70 to 75 per cent., on one occasion reaching 80 per cent., and the specific gravity remained steadily at 1059.

The patient felt strong, and enjoyed assisting in ward work, such as carrying coals up a long flight of stairs. He remained out of bed all day, there were no subjective symptoms even on considerable exertion, and "hæmic" venous and cardiac *bruits* were no longer audible. Ophthalmoscopic examination of the eyes showed that all traces of retinal hæmorrhage had disappeared.

Eighth Period, not concluded (when this paper was communicated to the Congress); ox bone-marrow, iron, and salol. The improvement was maintained, so that the hæmocytcs reached 4,000,000, the hæmoglobin 85 per cent., and the specific gravity 1060. The patient was now practically in a normal condition. His appetite was good, and his appearance that of a healthy man.

An examination of the graphic representation of the progress of the case (see Diagram) shows that no benefit was obtained—that, indeed, deterioration occurred—during the prolonged administration of iron and arsenic in both medium and large doses; but that the remarkable improvement which occurred was produced only after the administration of bone-marrow had been commenced, while it continued to be produced during periods in which neither arsenic nor iron were being administered.

The demonstration of a curative influence by bone-marrow may appear to be somewhat obscured by the introduction of salol into the treatment, and a further examination of the therapeutic value of this substance in pernicious anæmia appears, indeed, to be suggested. The introduction of salol was due to the urgency of the case requiring that no description of treatment should be neglected in whose favour any theoretical or experimental evidence had been advanced. Since, however, this communication had been made to the International Medical Congress, the patient was treated with only bone-marrow for a period of twenty-seven days (Period x), and the improvement was well maintained to the end of this period.

He was discharged from the hospital because of his urgent wish to return to work as a gardener, for which he declared himself more able than he had been for the last five or six years; and, to use his own expression, he felt "as if he had been made over again." On the day when he left the hospital (May 19th, 1894), the hæmocytcs numbered 3,900,000 per cub. mill., the hæmoglobin was 78 per cent., and the specific gravity 1058; the hæmocytcs were nearly uniform in size, only a few of them showed slight "tailing," and no

¹ Abstract of a communication to the Eleventh International Medical Congress, held in Rome, April, 1894

The greater part of Period VIII and Periods IX and X represent the progress of the case after the date on which the paper was communicated to the International Medical Congress

megalocytes were present; there was no excess of leucocytes or of blood plates; and good rouleaux were formed on the microscope slide.

It may be worthy of note that before medicinal treatment had been commenced, and in the earlier periods of treatment when the patient was receiving large doses of iron and arsenic, the blood plates were conspicuously deficient in number; while soon after the administration of bone-marrow had been commenced, a great increase occurred in their number, which was followed by a reduction to a moderate number during the later periods when the blood had been restored to a nearly normal condition.

The frequent failure of therapeutic measures in pernicious anæmia confers an interest upon any remedy which appears capable of controlling this malignant disease, even although the evidence is derived from one case only, and notwithstanding the circumstance that temporary improvement occasionally, though very rarely, appears to occur spontaneously. The facts now stated appear to justify the hope that bone-marrow will be found to have a remedial value in some at least of the cases of pernicious anæmia.

It is with much satisfaction that I express my obligations to Mr. D. A. Welsh, M.B., C.M., resident physician in my wards, for the efficient aid he has given me in conducting the numerous microscopic and other observations that were made in connection with this case, and to which only a general reference has been made in this abstract.

ACUTE DISSEMINATED MYELITIS.

[WITH COLOURED PLATE.]

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ACUTE myelitis, according to the situation, distribution, and extent of the affection, is divided into poliomyelitis, when the affection is confined to the grey matter of the anterior horns; and leucomyelitis, when the white matter is chiefly implicated; of the latter we distinguish again between transverse or circumscribed myelitis, diffuse myelitis, and disseminated myelitis. (As in many cases of leucomyelitis the grey matter is also involved, this term, which was introduced by Vulpian, is now rarely used.) The terms diffuse and disseminated myelitis are not always used in the same sense by different writers—thus, while some, like Ross, include under acute diffuse myelitis all acute inflammations of the cord with the exception of the systemic diseases, others use the terms diffuse and disseminated myelitis as synonymous; while others, again (Leyden), group diffuse myelitis with transverse or circumscribed myelitis. Both from an anatomical and from a clinical point of view the classification of Gowers is to be recommended. He divides myelitis into—transverse myelitis, when the whole thickness of the cord is affected in a small vertical extent; diffuse myelitis, when an extensive area of the cord is inflamed in continuity; focal myelitis, when one small area is affected; and disseminated myelitis, when there are many foci contiguous or distant.

Of the different varieties of acute myelitis, the disseminated form is one which presents many points of interest, both on account of its etiology—it being frequently observed after infectious and toxic diseases—its symptomatology and its relations to other spinal diseases.

As but few cases of acute disseminated myelitis with *post-mortem* records have as yet been described, I wish to record the following case:

J. R., aged 23, was seen by me on May 20th, 1893, in consultation with Dr. Harris and Dr. Rigby, of Chorley.

History.—He had enjoyed good health and had been very fond of athletics; he had been very regular in his habits and there was no history and no sign of syphilis. Several members of his family had died of tuberculosis. Whilst outshooting in the middle of April, 1893, he fell into a pond and had to walk two miles to change his garments. About ten days after the accident he suffered from severe pain on the right side of the forehead and rapidly lost the sight of the right eye. He consulted Dr. Little, of Manchester, who found pronounced optic neuritis of the right eye. He improved under treatment and regained vision to some extent. About the middle of May he had much pain and swelling in the right leg, for which he was confined to bed for a few days. The pain and swelling subsided but on attempting to get up he found that he could not use the left leg. Soon after both legs became weak, he complained of numbness and cramps in the legs, and shortly after the left leg became

completely paralysed and the right very weak; he had pain round the body in the region of the ensiform cartilage. Incontinence of urine for one night was followed by retention necessitating the regular use of the catheter. Constipation was also present.

When I saw the patient, I found him to be a muscular, well-developed youth; he was in bed and unable to walk or stand, and with some difficulty could raise himself in bed. He did not complain of any pain then. The vision of the right eye was very much diminished, the pupil dilated and sluggish in its reactions, and the optic disc greyish in colour and showed marked swelling; its outline was indistinct and its vessels were hyperæmic. The fundus of the left eye was normal. All other cranial nerves appeared normal. The upper extremities were normal, both as regards motion and sensation; the radial and triceps reflexes were increased, there was no inco-ordination of the upper extremities, and the muscular sense was intact; the upper part of the trunk appeared normal. About 2 inches below the ensiform cartilage there was a line of anaesthesia on the right, of paraesthesia on the left side; the anaesthesia on the right side affected the whole of the right half of the abdomen, right half of the scrotum and penis, and the whole right lower extremity; the anaesthesia was complete for tactile impressions, for pain, and for temperature; on the left side the loss of sensation was not quite so marked, but some patches both on the abdomen and on the left lower extremity appeared quite insensible. There was complete loss of power of the left leg and thigh and marked weakness of the right lower extremity; the superficial and the plantar reflexes were diminished on both sides, the knee reflexes increased, cremaster and abdominal reflexes were absent, and the epigastric reflexes increased on both sides. The chest and abdominal organs showed nothing abnormal; the pulse was 80, fairly strong, the temperature normal. There was retention of urine, but it was free from pus and mucus, and in other respects normal.

Diagnosis.—The motor and sensory symptoms left no doubt that we had to do here with acute myelitis affecting the lumbar region of the cord, and extending almost across the whole thickness of the cord. The optic neuritis in the absence of other cerebral symptoms except a localised pain was looked upon as either due to meningitis, or as due to an inflammation of the optic nerve. As optic neuritis had been noticed in several cases of disseminated myelitis, I ventured upon the diagnosis of disseminated myelitis, and expressed the fear that the disease would extend. The cause of the affection remained obscure, for there was no history of syphilis, and the patient had not suffered from any acute infectious disease. The symptoms having come on soon after the immersion in the ditch, it was thought that this probably might have acted as the exciting cause.

Treatment.—Iodide of potassium, mercurial inunction, salicylate of sodium, and liquor strychnine.

Progress.—The patient was removed to Manchester and placed under the care of Dr. R. Wild, with whom I saw him several times. The symptoms rapidly got worse and the affection spread, as will be seen from the following short extracts from Dr. Wild's notes:

May 26th. Complete paralysis and anaesthesia of both lower extremities; knee-jerks absent, no ankle clonus; band of hyperæsthesia about 2 inches broad passing all round the body at the level of the ensiform cartilage, and the patient complained of girdle pain in this region; the skin of the abdomen below this line completely anaesthetic; complete retention of urine; the rectum anaesthetic; the bowels were moved by an enema.

June 1st. The urine drawn off by the catheter contains blood, pus, and mucus; the temperature 100°, pulse 90, tongue furred; bed sores began to form on the heels, back, and over the left trochanter.

June 16th. Sensation has partially returned over the whole of the abdomen and part of the right thigh; the left leg and thigh remain anaesthetic. The symptoms of cystitis have disappeared; the bed sores are healed.

June 23rd. Can move the right foot and also the right thigh slightly; complains of painful spasmodic twitchings in both legs.

June 24th. Headache over left side of forehead and in left orbit; the sight of the left eye is rapidly failing, left optic disc very much swollen.

July 4th. Vision of left eye slightly improved, pain over right side of forehead and orbit, total blindness of right eye with increase of papillitis, condition otherwise the same except that there are signs of beginning contractures in the lower extremities, the knees slightly flexed and pressed together.

July 21st. The spastic condition of the legs more marked. The patient now complains for the first time of a hot feeling in the left arm with occasional numbness and tingling. Motor power in both arms still very good.

July 22nd. Marked tremor in the left arm and hand when any movement is attempted, the grip of the left arm is weaker, the right arm shows marked hyperæsthesia, and is painful on the slightest touch.

July 23rd. Tremor and weakness in left arm more marked, and there is slight rigidity to passive movement; the reflexes in left arm are much increased. In other respects the condition the same, patient more emaciated.

July 24th. The right arm is now almost completely paralysed, but still hyperæsthetic; a band of hyperæsthesia passes across the chest at the level of the third costal cartilage; complete anaesthesia and motor paralysis below this level except intercostal muscles which act, but somewhat feebly; the diaphragm is contracting feebly, the upper part of the chest moves well, the lower intercostal muscles, are nearly paralysed; speech and deglutition not affected. The lower extremities are completely paralysed and rigidly contracted. The temperature is slightly raised, pulse quickened. The patient is quite conscious, and there is no affection of any of the cerebral nerves except the optic nerves; he is now completely blind.

July 26th. The respiratory movements are gradually failing, face and lips are cyanosed.

The patient gradually sank and died from asphyxia on July 27th.

Briefly summed up we had here the case of a young man who, in the midst of good health, was suddenly seized with optic neuritis of one eye, followed by a gradually ascending