Clinically, the dangers of bromide of potassium and of chloral have been recognised; and thus, in our text-books, we find the statements that the presence of grave adynamic symptoms contraindicate chloral and bromide of potassium. Opium, on the other hand, in such adynamic states, frequently appears to lend actual support. The results of definite experiment we find to accord with the results of clinical experience; and the value of the former lies in that they confirm, and by their definiteness must tend to enforce, the teachings of the latter.

The choice of a drug is, however, no simple matter; an advantage here may be outbalanced by a disadvantage there; and practical men may object that they would gladly give opium, but that the disordered stomach, blunted appetite, inactive liver, and torpid intestines, more than outweigh the advantages of opium administration. This clearly is a matter for consideration in the individual case under treatment; and the decision will have to be according as one or other element, asthenia, or derangement of the digestive, etc., powers, is most to be feared.

These objections to opium, on the one hand, and chloral and bromide of potassium, on the other hand, raise the question as to whether, in very many cases, a drug, at present rather extensively used, especially in America, viz., bromide of sodium, might not with advantage be substituted in their place. The salts of sodium generally contrast very markedly with those of potassium; for the chlorides, bromides, and iodides of these two metals, the lowest figure would represent the potassium as ten times as active as the sodium. These precise numbers refer to action on the ventricle of the frog's heart;* but on all hands the evidence is forthcoming that, whilst salts of potassium are very poisonous, those of sodium are very slightly so. One of the marked points of contrast between the two sets of salts is to be found in respect of inhibition; potassium salts inhibit the frog's ventricle strongly, sodium salts scarcely at all. Here, however, we are considering drugs as to their cardiac effect; and, in respect of this, sodium bromide would rank far ahead of bromide of potassium, chloral, or opium, as to innocuousness. The objections holding for opium would not apply here, for sodium salts are generally very little disturbing to the tissues. With these advantages the general verdict of clinical experience is to the efficacy of bromide of sodium as a hypnotic, and, indeed, as a substitute for bromide of potassium; and should this position but be maintained, it is clear that bromide of sodium will be in very many cases the sedative above all others to be selected.

In conclusion, it remains for us to consider briefly one or two points, and to show that the statements with reference to the effect of the drugs on "latent period" and "period of diminished excitability" bear on the question of depressant action. Clearly this is so; for, if a stimulus be longer manifesting itself, this, all other things being equal, corresponds to a lessened or depressed condition of the tissues; and the same applies to the "period of diminished excitability;" for if, *ceteris paribus*, the cardiac muscle is longer recovering from the effects of an antecedent contraction—longer returning to a condition of excitability—that, again, is a form of depressed function. Both of these forms of depressed activity are observed to a very marked degree for morphia; whilst yet spontaneous action may be but little affected, and whilst the height of the contraction may have scarcely appreciably suffered. These morphia effects are very noteworthy; for it would thus appear that certain functions of the tissues may be very profoundly modified, whilst yet others suffer but slightly. They must also be remembered for the sake of contrast with the bromide of potassium and chloral; the former produces effects like those of morphia, but these do not become apparent till the value of the beat has suffered appreciably; the functions of the tissue, at such time, are therefore more profoundly depressed, the vitality is more affected. The opposite effect of chloral on the diminished excitability may be remembered as a point of contrast with the other two salts, if its further meaning be not very apparent. The dilution-experiments are of considerable interest; for, whatever the nature of the changes taking place in the tissues, and constituting toxic action, we perceive that, of the three drugs, chloral is the one from which recovery is least ready, whilst potassium-bromide is that whose effect is most readily removed. The recovery-experiments are those from which we learn most here, for they indicate that the degree of change constituting toxic action in such cases cannot be very profound; indeed, the functions of the tissues at such times are more properly considered as simply suspended: they return

with the restoration of the antecedent conditions. Chemical action, of any degree of intensity or stability, would scarcely be compatible with this ready restoration. The further consideration of this point cannot, however, now be entered on.

A CASE OF RECURRENT HÆMATINURIA.*

By W. JONES-MORRIS, M.R.C.S. Eng., L.R.C.P. Edin.,

Local Secretary Collective Investigation Committee.

I HAVE the pleasure of bringing before your notice to-day a case which was of great interest to me for some months, and one that is comparatively speaking unusual, and therefore not unworthy of our consideration. It is a case of Recurrent Hæmatinuria, a term perhaps novel, but I think justified by the history and symptoms.

The disease hæmatinuria has been described under various names by different writers on the subject, *e.g.*, Intermittent Hæmatinuria, by Harley and Dickinson; Paroxysmal Hæmatinuria, by Greenhow; Intermittent or Paroxysmal Hæmatinuria by Sir William Gull, Legg, Begbie, and our countryman, William Roberts. The object of the different writers in their nomenclature has been to convey the idea of the presence in the urine of hæmatine or hæmato-globuline; and that occurring paroxysmally or being of an intermittent character, such intermittency varying in the several cases related, from a few hours to a few days. But, in the case I will lay before you, the hæmatinuria only occurred for a few days in every four weeks: so that the term "intermittent" or "paroxysmal" is hardly appropriate, and I have designated it recurrent or remittent, as I think one of those terms conveys the peculiar nature of the case better than the others mentioned.

T. J., aged 10, an intelligent well-developed and healthy looking lad, had been suffering, September 27th, 1877, for some days from a partial suppression of urine, so little being passed that his mother became alarmed, and owing to its continuance called me in. He had slight puffiness of the face, especially under the eyes, no dropsy or swelling of the feet, complained of no pain in the lumbar region, or in fact anywhere; the conjunctivæ were quite clear, and there was nothing icteric in his complexion, and no swelling of or pain over the liver. The urine was high-coloured, and contained albumen to the extent of one-fourth.

The only cause that could be ascribed for the symptoms was, that he had a few days previously got a wetting while sailing some model yachts, a pastime of which he was fond, and, as may be imagined, he often became wet and was repeatedly sitting for hours with wet feet.

As the suppression was the leading symptom, he was ordered to bed; fomentations were applied to the loins, and an effervescent citrate of potash mixture given, with benefit; but, before the kidneys were restored to their normal activity, he was seized on the 29th with convulsions, which, under chloral-hydrate in ten-grain doses, every two hours, were stopped.

On October 5th, his urine became of a very dark colour, almost suddenly, but was voided in natural quantity; and with this he complained of great pain over and around the umbilicus, but none over the loins, even on firm pressure. In three days after this a most extensive crop of petechiæ appeared on the legs and thighs, but not on the body, more marked on the legs and knees than on the thigh, and on the knees being almost scarlet and seemingly coalescing, so that when closely examined they resembled minute arterioles on the skin. After their appearance, the urine began to regain its normal colour, although darker; and subsequently to this return towards the normal state of the urine the petechiæ disappeared, but the pain around the umbilicus continued along with flitting pains in the joints, particularly the shoulders and knees, but unaccompanied by any swelling.

The urine during the attack was of a dark mahogany colour (No. 9 Vogel), was alkaline, of specific gravity 1022, and albuminous to the extent of three-fourths to one-half, and contained, under the microscope, some granular matter, oxalates, and one or two faint granular tube-casts, but no blood-corpuscles. He was given Easton's syrup, in the hope that the iron, by its hæmostatic powers, would prevent

* See *Médecine-Chirurgicale Transactions*, vol. lxx, concerning the action of the salts of potash, soda, and ammonia on the frog's heart.

* Read before the North Wales Branch.

hæmaturia to deal with; but little benefit resulted, as the urine was still considerably darker in colour than normal, and the proportion of albumen, although decreased, was still one-eighth to one-fourth.

In the beginning of November, the urine again became darker in colour, and eventually to 9 Vogel, again followed by a petechial crop, and, as a consequence, a diminution of the hæmatin. When examined microscopically, it retained the characteristics already mentioned, and still no blood-corpuscles. His medicine was now changed to seven minims of spiritus turpentine every four hours, which seemed to be acting well, as in about ten days after this treatment was adopted the urine became normal in colour, but a faint trace of albumen was still present.

At the beginning of December, he was again similarly attacked, with the same development of the petechial crop, for a few days, and, with its cessation, an improvement in the urine.

On January 1st, 1878, the urine again returned to its abnormal state, the petechiæ successively appearing and disappearing with diminution in the colour of the urine.

I now changed his medicine to five grains of the chloride of ammonium four times a day, this drug being much lauded by the late Dr. Warburton Begbie in hæmaturia. In a few days, his urine became almost normal in colour, and a very scanty precipitate was the result of the addition of nitric acid.

On February 3rd, the urine again became darker in colour, but not nearly so marked as in the former "attacks"; this was not followed by the petechial crop; the attack, if I may so call it, only lasted two or three days. He was advised to continue the medicine, and he has not had any recurrence of the symptoms, and in June 1878 was as strong and healthy as ever he was, and his urine in a perfectly healthy condition.

In the immediate and hasty history narrated, you will observe the disease appeared as the result of a cold, which is regarded as one of the exciting causes of this, as of almost every other, disease; but, although the onset may be fairly attributed to it, the subsequent course and recurrence of the disease cannot, as during the whole time he was under treatment he was confined, for the most part, to his bed, and most rigidly to his room, which had a fire lit night and day, so that the chances of his fresh "taking cold" were reduced to a minimum. Another cause assigned for this disease is hepatic derangement; as in a case of Dr. Harley's, whenever the urine assumed a darkened colour, a congestion of the chylipoietic viscera, of a transient and periodic character, was the precursor; but, in this case, there was no trace of any complication of the liver whatever. A third, and one on which Dr. Wm. Roberts lays great stress, is ague, and he clearly traces two out of four cases narrated to malarial origin; but, in this case, there was no trace whatever of it, not even the invading rigor peculiar to diseases arising from cold.

Dr. Begbie, however, in his able article,* says, "According to our present knowledge, unquestionably defective, I think it very probable that in paroxysmal hæmaturia the primary morbid change takes place in the blood. The kidney, however, speedily suffers;" and further on he states, "that the renal function should be so seriously, although only temporarily influenced, so as to determine the passage of either albumen, blood, or blood-colouring matter, it may, I think, be presumed, and more particularly in the latter case, that some morbid change in the blood itself, although it has as yet eluded detection, has existed, probably, some product of faulty hepatic function being the *fons et origo mali*," thereby coinciding to some extent with the experience of Dr. Harley.

Of the symptoms demanding a passing notice are the following.

1. Pain in the joints has been mentioned by Dr. Roberts as having occurred in one of his patients, but there was, accompanying it, swelling which was not present in this case; there is no doubt it was of neurotic, or what amounts to the same thing, rheumatic character.

2. Pain over the loins was almost a constant symptom in the cases quoted, but in this case there was a marked absence, even at the time it would have been most expected; viz., before the outbreak of hæmaturia, although undoubtedly the pain around the umbilicus was analogous to it, and dependent on the kidney-affection, as all medicaments to relieve the bowels were worthless.

3. The presence of excessive colouring matter of the blood in the urine was the chief symptom in this case, and is the crucial and distinguishing symptom of the disease. The urine was of a dark portwine colour during the height of the attack, and contained no blood-corpuscles, but only granular matter with urates and oxalates.

4. There was one symptom in connection with this case which throws some light upon it, viz., the petechial eruption which generally appeared two or three days after the onset of the attack, and was followed by a diminution of the blood colour in the urine. The presence of petechiæ opens a doubt whether this was really a case of hæmatinuria, or whether it was not a symptom or concomitant of purpura; the presence of both symptoms no doubt lead one to infer that the disease is really of a purpuric origin, but there were in this case none of the manifestations of purpura, such as spongy gums, epistaxis, or melæna, that would have been expected in such a condition.

If Dr. Begbie's view be adopted as to the causation of the malady, hæmatinuria is essentially of a blood-origin, and that the circulatory system is surcharged with effete material that, under normal circumstances, would have been eliminated by the kidneys, and they, having too much stress or pressure brought to bear upon them, fail to excrete the excrementitious matter. The blood according to Dr. Begbie, relieved itself by throwing out some portions in the form of petechiæ, one would, however, have expected that, in such a case, they would have been general and not confined to the lower extremities; and the non-selection of the mucous surfaces, where purpuric extravasation invariably takes place, is an important diagnostic mark to the exclusion of purpura. The microscopic appearances allay any doubts on this point, as in purpura there is, along with the other symptoms, blood in the urine, whereas here we had only the blood-colouring matter.

Treatment.—All remedies seemed to be of no avail, except the chloride of ammonium, which Dr. Begbie recommends; and the good effects he had seen following its administration in relieving neuralgic affections, warranted him in concluding that it would exert a beneficial influence on a disease in which he considered that a disturbance of the blood and nervous system co-existed.

NOTE, January 1883.—This lad has been in good health ever since, and follows the precarious occupation of a sailor; but, notwithstanding the inclemencies incident to his vocation, he has not had any return in any degree of the symptoms detailed.

A NEW OPERATION FOR SPINA BIFIDA.*

By A. W. MAYO ROBSON, F.R.C.S. Eng.,

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KNOWING the pathology of spina bifida to be deficiency of the neural arches of the vertebræ, with a projection of the spinal membranes through the cleft, it has seemed to me that the methods of cure hitherto adopted have been either dangerous or uncertain, or both, and have all been wanting in scientific aim. These methods are: ligature; elastic ligature, leading to gradual removal; injection of tincture of iodine, or of iodine and glycerine; simple excision; and removal by the clamp. But their value may, perhaps, be best judged of by the following paragraph, taken from Holmes's *Surgery*: "Viewing, then, the great danger of any effectual surgical treatment, it seems better to watch the case carefully, and not to interfere, unless the tumour is growing."

More than a year ago, I thought over an operation, which, however, I have had no opportunity of performing until a few weeks since. The following account of the case I am about to show will serve to illustrate the method I advocate.

Mrs. S. consulted me concerning her child, a few days old, which was the subject of a spina bifida in the lumbar region, of the size of a tennis-ball. She told me that, during the early part of her pregnancy, she had been very much "out of sorts," and had eaten very little. This, I think, may possibly have had something to do with the deformity in the child—just as underfeeding a pregnant mother may produce hare-lip in the infant.

The tumour had such thin walls that, in certain parts, as may be seen in the specimen on the table, it was perfectly transparent. There was a distinct impulse on coughing or crying; and the communication between the dilated sac and the spinal canal could be felt to be more than an inch in length, and over half an inch wide.

I advised an operation, but suggested that it should be done after a month or two, in order that the child might gain strength; but,

* *Edinburgh Medical Journal*, vol. xxi, 1875.

* Paper read, and Child and Specimen shown, before the Leeds and West Riding Medico-Chirurgical Society.