A NOTE ON THE TREATMENT OF LOCOMOTOR ATAXY BY PRECISE NERVE-VIBRATION.

By J. MORTIMER GRANVILLE, M.D.

I DO not think the evidence collected, up to this point, is sufficient to justify the assertion, that locomotor ataxy can be certainly cured by nerve-vibration; but the large measure of success I have recently obtained in dealing with some very advanced cases of this truly terrible disease, seems to render it incumbent upon me to place the facts before the profession. The cases I have had have all been clearly marked, with entire absence of patellar tendon-reflex, and with the characteristic impairment, in some instances amounting to almost complete loss, of the power of co-ordination. It is not my intention to report these cases at present, as I am anxious to extend the area of observation, both as regards the number of cases and their duration, before committing myself to a final judgment. Meanwhile, there are certain clinical facts which may be helpful to others, and ought, therefore, to be communicated. I will try to state them as tersely as possible.

1. In every instance, I find exaggerated reflex irritability on application of the percussor to the periphery. For example, when it is applied over the anterior tibial nerve, the foot is drawn forcibly up, which never happens in the case of a healthy subject. In some instances, the irritability is so great that the legs and feet may be turned or drawn in any direction at pleasure, by vibrating the appropriate branches of the nerves supplying them. No effect is produced by percussing the muscles: the effect follows only precise vibration of the nerves.

2. This reflex irritability, or excitability, seems to me to be the real hindrance to the walking; the loss of sensation, which is incident to the malady, being of comparatively secondary importance as regards the disability for locomotion. It is almost invariably confined to the nerves supplying the extensors. I have not in any instance met with more than a slight tendency to cramp, in the flexors, and that rarely.

3. By persisting in the vibration of the irritable nerves, their excitability becomes exhausted; and, in proportion as this happens, they obey the mandate of the will, and voluntary movements, in short, locomotive acts, are possible. Not unfrequently, some debility of the nerve-power and depression of energy in the centres follow immediately upon the exhaustion of their irritability; so that, for a few hours, or it may be days, the patient complains of stiffness, and, although he may have lost the jerky feeling in his limbs, he cannot move them more readily. They are heavy and powerless. This, however, quickly passes away, and the case is found to have made decided progress. The walking is easier and steadier, and control, generally, more direct and precise. At this stage, not earlier, it may be advantageous to percuss over the spines of the vertebrae, with the view of vibrating the nerve-centres. I do not think it is easy, or in many cases possible, to excite the centres except through the afferent nerves; but after the reflex irritability has been reduced, it then often happens that vibrations, which could not at first be propagated along the motor nerves, can be sent from the centres by percussion immediately, or as nearly as possible, over the latter. I believe it will be found that the mechanical vibrations excited in a nerve by percussion, invariably pass in the direction of its normal activity—in the sensory branch, towards the centre; in the motor, towards the periphery. There often seems to be a block, as it were, in the course of a nerve, whether motor or sensory, and, while this lasts, the impulse or impression is diverted, sometimes producing very curious results under vibration by percussion. When the block is broken down by mechanical vibration, the wave again passes in the normal direction. Practically, I do not find much amiss with the sensory nerves. The motor chiefly are at fault.

4. I have collected almost, though perhaps not quite, enough evidence to show that the syphilitic form of locomotor ataxy, or that which undoubtedly follows syphilitic disease, is not a localised, but a local affection. It is a specific inflammatory extension from the penis along the sheaths of the nerves to the proximate centre, and thence by particular fibres to other parts of the cord. The loss of sexual power which occurs, and which is rapidly followed by the indications of deficient nutritive action in the organs of generation, is the immediate consequence of an interruption, more or less considerable, in the nervous connections, consequent on the affection of the nerve-sheaths. The impairment of control over the bladder and the sphincters, causing either diarrhoea or constipation, is contingent on the local progress of the disease, which may generally be traced by the anatomical and physiological communications. It is intensely interesting to work out the details of a case of this class clinically; and no

two cases, in my experience, have been alike, although as a rule they have surface-features of typical resemblance. For example, there is nearly always something wrong with one of the ulnar nerves, not as an accident of disseminated sclerosis, but as a specific extension along particular fibres. I am convinced that these cases of syphilitic ataxy ought to be studied apart, and treated as distinct, from the mass of ataxic disease. The two maladies have little, if anything, in common beyond the name; and that is, as regards both, I think, a misnomer. Moreover, the sensory fault is by no means the primary one, as generally supposed.

5. The sclerosis which occurs in the cord in the syphilitic disease, I believe, to be simply inflammatory thickening of a specific character. I do not think we need talk of "gummata" or "disseminated sclerosis." The malady consists in a direct extension of the local disease along the sheaths of particular nervous tracts. Syphilis is, of course, one of the blood-diseases; but I doubt whether syphilitic "ataxy" falls into that category. The interval which occurs between the healing of a chancre and the appearance of ataxic symptoms may be great; but, if we inquire carefully into the history of cases, we find that there have throughout been local symptoms—very slight it may be—of local nerve-disturbance. Nerve-vibration, unquestionably, does much for these cases; and among other effects which it produces, and for which it is well to provide, is that, in the course of the treatment, it every now and again revivifies the syphilitic virus, and thus at once renders it possible, and necessary, to treat the malady *de novo*, even in cases of very long standing, where there has been no thought of active syphilitic poison for years. Whether the mechanical vibration of the nerves with their thickened sheaths throws off particles of poisonous exudation which find their way into the current of the blood, as in the breaking down of an old cicatrix which has entangled the virus of rabies, I can only conjecture.

It seems possible that the nerve-fibres, which have been mechanically blocked by the exudative processes of the specific disease may be, as it were, shaken loose from their entanglement, and thus become again vibratile. Perhaps it is in the course of this breaking up of the "block" *débris* are thrown into the circulation. However the revival of the original specific disease may be explained, it undoubtedly every now and again occurs.

I have thus jotted down briefly, and in no formal sequence, the leading facts which I desire to place on record, and to which I think the attention of the profession ought to be directed. One word only, in conclusion; nerve-vibration by percussion is undoubtedly a most useful adjunct to the ordinary treatment of many maladies, and of especial value in the diagnostic study of disease. It will be monstrous if this method be degraded to the level of a "cure", by placing percussors in the hands of patients, and allowing them to use them for themselves. Great harm will be done in some cases, in others there will be disappointment, and nerve-vibration will be discredited. It is an agency for professional use exclusively; and against its employment by laymen, whether alone or under medical advice, I must most earnestly protest.

THE SOY BEAN.—Professor E. Kinch, writing on the subject of the Soy bean (*Soja hispida*) in the July number of the *Agricultural Students' Gazette* (Royal Agricultural College, Cirencester), says: This bean, of which there are a dozen or more varieties known in the East, is very largely used as an article of food in Japan and China, where it is manufactured not only into soy, now exported in considerable quantities to Europe, but also into bean cheese and other forms of food. The soy bean, in its proximate composition, approaches more nearly to animal food than any other known vegetable production, being singularly rich in fat and in albuminoids, and it is therefore a valuable adjunct to the food of the almost vegetarian Japanese. Of late years, especially since the Vienna International Exhibition, many efforts have been made to acclimatise this bean in various parts of the European continent, chiefly in Hungary and Germany. France and Italy have also attempted it, and some of the experiments have been fairly successful. *Nature* states that Professor Kinch is trying to grow some of the varieties in the botanic garden at Cirencester, and though our climate is probably too uncertain, and the temperature often too low, for most of the varieties to attain perfection, still if any of them could be acclimatised, a valuable leguminous cross would be added to our present list. A detailed analysis is given of the bean as grown in different countries, of several of the foods made from it, of its straw, which is a useful fodder, and of the ash of the bean and straw.

PRESENTATION.—On Friday, the 15th inst., Mr. J. Dysart McCaw of Portlennone, Belfast, was presented by his neighbours and patients with an illuminated address, a horse, Stanhope gig, harness, saddle, and bridle, as a mark of their confidence in him as a medical practitioner, and their esteem and regard for him as a personal friend.