of time. Fortunately it was very promptly controlled by means of the icebag, and care was taken not to allow it to reach anything like such a height again. I have great confidence in the icebag for controlling pyrexia in children, and in this case it acted promptly and never failed in bringing about the desired effect. The intracerebral method of injecting the serum has been used in many cases in adults, on the ground that the remedy is more quickly and more effectually brought into contact with the nervous system. Full accounts of cases are given by Dr. Semple¹ and Dr. Gibb.² The operation could have been easily performed through the open fontanelle of the infant.

REFERENCES.

¹ BRITISH MEDICAL JOURNAL, January 7th, 1899, p. 10. ² *Ibid.*, April 15th, 1899, p. 895.

A NOTE ON THE KNEE-JERK IN CHOREA.

By W. GORDON, M.A., M.D.CAMB., M.R.C.P.LOND.,
Physician to the Royal Devon and Exeter Hospital; Physician to the West of England Eye Infirmary.

THERE is a peculiar modification of the knee-jerk very common in chorea, which, although it has attracted no attention, has, I think, some value in the diagnosis of slight and doubtful cases. It is not present in every case, it is not constantly present in the same case, but when it is present it is, so far as my experience goes, peculiar to the disease.

With the patient recumbent, if one raises the knee, allowing the heel to rest on the couch, making sure that all the muscles of the limbs are relaxed for the time being, and if one then tests the knee-jerk in the usual way, the foot is found to rise more or less smartly, but, instead of falling back immediately, it remains suspended for a variable time—hung up as it were—and then slowly sinks back to its initial position.

There are also variations. Sometimes the peculiarity amounts merely to a sluggish descent following an ordinary ascent, sometimes an ordinary knee-jerk is obtained, but just as the foot is beginning to fall again, it is caught in mid-air—is, as it were, hung up by after-thought—and held for a time or even raised to a higher level than that reached in the first jerk. Sometimes the knee-jerk passes at once into an active more or less persistent—even apparently voluntary—rigid extension of the limb. And between all these varieties there is every gradation. Mild cases show the effect best, as in them it is not interfered with by frequent and extensive movements. In "hemichorea" we find it only on the choreic side, provided the movements on the other side are practically *nil*.

I have looked for this knee-jerk in many cases of chorea, in many cases of other nervous diseases (especially in children), and in healthy people. In chorea, as I have said, I have found it common. In non-choreic cases I have never once seen it. In chorea, as Professor Osler says:—"The condition of the reflexes has not often been studied," and whilst recent writers have either altogether ignored the subject or devoted themselves to tabulated lists of increased, decreased and absent knee-jerks, Dr. Risien Russell alone makes any reference to the condition I describe. "In some cases," he says, "the resulting contraction of the quadriceps extensor is unduly sustained."² This, however, I venture to think, is not quite the whole case, and the peculiarity is one, it seems to me, which deserves more than a passing notice.

First, in its bearing on our conception of choreic movements generally, some interest may fairly attach to it, seeing that we have still no very clear conception of the evolution of choreic movements. The hanging up of the foot when it has risen in the knee-jerk is not merely due to the substitution of a long contraction of the extensors for the ordinary short one, such as one might be led to attribute to some change in the muscle irritability. The cases in which it is hung up by after-thought, that is, when there is a distinct interval between the summit of the knee-jerk and the subsequent suspension, and still more the cases in which this suspension passes into or is replaced by a definite active extension, show that the knee-jerk itself has evoked an involuntary movement.

I cannot but think that the textbook descriptions of choreic movements lay far too much stress on the interference of

"spontaneous" involuntary movement with attempted voluntary movement, and do not give sufficient prominence to the actual origination of involuntary movement in what seems a sort of overflow of impulses. Consider, for instance, the effect of the attempt at voluntary movement itself. No one can watch attentively for long a case of moderate chorea—that is, a case with well-defined but not quite bewildering movements, without seeing that at least many involuntary movements grow out of voluntary effort, and that obvious voluntary effort may actually call into existence a whole series of disturbing involuntary actions. If we were to assume that the nervous centres in chorea (I purposely use a vague term), are in a roughly similar condition to the cortical areas of an animal when the electrodes have been applied to them for some time—so that stimulation of a given area no longer produces the movement special to that area, but the nervous impulses overflow into neighbouring areas—we might perhaps more easily account for the phenomena of the complaint. That such an overflow can occur in chorea is capable of demonstration, and indeed furnishes us with a very delicate test for the presence of the disease. Let a patient in whom suspected chorea exists raise both arms vertically with the hands open. There may or may not be slight occasional choreic movements of thumb or fingers, or both. Now tell him (still keeping the arms up) to put out the tongue. At once existing movements of thumb and fingers are intensified, or if previously absent are now evoked. Here we have cortical centres closely neighbouring on each other, and voluntary movement initiated in one overflowing into involuntary movement due to impulses communicated to the others. The hung-up knee-jerk seems to point in the direction of overflow of impulse.

Secondly, in its bearing on diagnosis, I venture to think this reflex merits some consideration. A small boy was recently brought to me with the single complaint that he sometimes gave way at the knees without warning, and landed on the floor. I admitted him to hospital, and watched him for some time without arriving at any conclusion. The rest, care, and feeding seemed to prevent his falls. On his return home the symptoms recurred, and on readmission I found a very slight tendency to involuntary movement. His right knee-jerk was hung up in the manner I have described, and on testing him with his hands up and the tongue put out, it became clear that he was suffering from chorea. This diagnosis was borne out by the satisfactory results of treatment adopted in accordance with it.

I do not think that cases so doubtful will commonly occur. Quite the contrary. But when they do it seems to me that the sign may occasionally be of value. My friend, Dr. Peacocke, of Dublin, to whom I mentioned this form of knee-jerk some years ago, has told me he has found its presence a help in diagnosis.

If Osler can sum up, as he does,³ our present knowledge of the nature of chorea in the old words of Bouteille, namely, "Tout est extraordinaire dans cette maladie; son nom est ridicule, ses symptômes singuliers, son caractère équivoque, sa cause inconnue, son traitement problématique," it may not perhaps be thought unnecessary to bring forward even the most trifling contribution to its symptomatology.

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¹ On Chorea and Choreiform Affections, 1894. ² Chorea, *Albutt's System of Medicine*, vol. vii, 1899, p. 846. ³ *Op. cit.*, pp. 64 and vi.

NOTES OF A CASE OF CONGENITAL HYPERTROPHY WITH STENOSIS OF THE PYLORUS.

By AGNES BLACKADDER, M.A.St.AND.,
M.B., Ch.B.Glasg.,
House-Surgeon, Belgrave Hospital for Children.

W. M., aged 8 weeks, was admitted to the Belgrave Hospital for Children on January 24th for wasting and vomiting. He was put under the care of Dr. Ewart, to whom I am indebted for permission to publish the case.

History.—The parents are healthy. The patient was the first child, and there were no miscarriages. The child was born at full time without instrumental aid, and was "a beautiful baby," weighing 8 lbs. The first symptom which attracted the mother's attention was extreme constipation. Usually there was no movement of the bowels for three days at a