surface, the colour resembling that of degenerated tracts above a transverse lesion of the cord, when the specimen has been hardened in Müller's fluid. In the lowest lumbar region no changes could be detected, but in the middle lumbar region the median thirds of both posterior columns (external and median) were slightly paler than the rest of the cut surface of the cord. In the upper lumbar region the change in

Case 2.—Naked-eye appearances of the spinal cord on section after hardening in Müller's fluid. Changes in the posterior columns; normal white matter shaded, parts of white matter affected are pale; 4, cervical region; 5, upper dorsal region; 6, upper lumbar region.

colour was more distinct and the pale area more extensive (see Diagram 6). In the lower dorsal region there was a very pale streak in each postero-external column. This was especially well marked in the upper dorsal region, and extended over the whole of each postero-external column (see Diagram 5). In the lower cervical region the postero-median columns presented this pale appearance. In the upper cervical region only the posterior halves of these columns were affected (see Diagram 4). The direct cerebellar tracts and other parts of the white matter appeared normal in all the regions of the cord.

Microscopical Examination.—Sections were stained according to the same methods as in Case 1. In the pale tracts in the posterior columns numerous swollen nerve fibres were seen. Only a very narrow rim of the myelin of these fibres was stained black in the Weigert's specimens; no other changes were detected. Nerve fibres (branches of the anterior crural nerve) to the rectus femoris (left) appeared normal on microscopical examination.

I have examined the spinal cord in three other cases of diabetes, but the appearances above described were not met with.

The changes in the posterior columns in the above cases were probably the result of the toxic diabetic blood condition. Slight changes in the posterior columns of the cord, in diabetes mellitus, have been described by Sandmeyer¹ and also by Leyden.² Somewhat similar changes in the posterior columns, more marked to the naked eye than on microscopical examination, have been reported by Minnich³ in three cases of pernicious anæmia. Tooth⁴ has pointed out that on the sixth day after section of the cord in animals, tracts of secondary degeneration are well marked to the naked eye (by their light colour) on hardening in bichromates, whilst the microscopical changes at this date after section are very slight, and consist chiefly in swelling of the axis cylinders and nerve fibres. Probably tracts of degeneration can be recognised by the naked eye, after hardening in bichromates, before any microscopical changes occur, and Tooth considers that the naked-eye changes are due to a preliminary chemical alteration in the nerve fibres. The condition of the posterior columns in the cases of diabetes recorded above, would appear to correspond closely to the early stage of degeneration described by Tooth.

In the second case the knee-jerks were absent, and slight naked-eye changes were found in the lumbar region of the cord. As the peripheral nerves (fibres of the anterior crural to the rectus femoris) were normal, it is possible that these changes were the cause of the loss of knee-jerks. Eichhorst has found degeneration changes in the peripheral nerves in two cases of diabetes in which the knee-jerks were lost; but in other cases the peripheral nerves have been normal.⁵ The absence of knee-jerks in some cases of diabetes may be due to changes in the lumbar region of the cord, such as those slight described above.

¹ *Deutsches Archiv für klinische Medizin*, Bd. 50.

² *Wiener medizinische Wochenschrift*, No. 21, 1893 (society report, p. 925).

³ *Zeitschrift für klinische Medizin*, Bd. xxii, 1893.

⁴ *BRITISH MEDICAL JOURNAL*, 1889, vol. i, p. 754.

⁵ Eichhorst (and Nonne, quoted by Eichhorst), *Virchow's Archiv*, Bd. cxxvii, p. 1.

A PSEUDO-HYPERTROPHIC FAMILY.

By FREDERIC C. COLEY, M.D.,

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THE accompanying illustrations are reproduced from photographs kindly taken for the Children's Hospital by Messrs. Taylor, photographers to the Queen. They represent two

James R., aged 16.

members of a very interesting family, in which four individuals are affected by pseudo-hypertrophic paralysis in a very marked degree. I have not been able to discover any-

James R.—Back view.

thing noteworthy in the history of previous generations, but the present one comprises the following members:

James, the eldest, aged 16, affected as shown in the first illustration.

Alice, aged 14, entirely unaffected.

Tom, aged 11, shown in the second illustration.

Annie, aged 7, slightly affected.

Kate, aged 7, affected rather more than Annie.

Joseph, aged 4, has not yet shown any symptoms.

All the affected members of this family are accustomed to

Tom R., aged 11.

describe the subjective symptoms of their complaint as "stiffness." It was first noticed in each of the elder boys when they were 4 years of age. Annie had never complained of any subjective symptoms, and was apparently unaffected when examined at 6 years old. Now, though still free from

Tom R.

any obvious weakness she presents well-marked enlargement of the muscles of the calves and the thighs. The arms are

perhaps slightly affected. Kate began to be "stiff" when she was a year old, but improved afterwards, and has now hardly any subjective symptoms; but there is very marked enlargement of the muscles of the calves and thighs and the gluteal regions. The muscles of the back and shoulders and the pectorals are also obviously enlarged. Lordosis is well marked in both these girls, but more in the younger.

But both the subjective symptoms and the objective signs of the disease are more marked in the two elder boys than in either of the girls. When the boys were first brought to me (now about six years ago) the ordinary symptoms were well marked. They could not go upstairs without great difficulty, helping the weakened muscles of the legs by their hands on their knees; and they could only get up from the ground very slowly, "climbing up themselves" with a very characteristic action. The enlargement of the muscles of the calves and thighs and back was quite as well developed as now, and that of the shoulders more so. Especially in the elder boy, the enlargement of the pectoral muscles was so great that when they were contracted the appearance resembled that of a half-grown mammary gland. This may be still recognised, although it is much less marked now than some years ago. Compare, in the figure of the elder boy, the pectoral muscles on the two sides, relaxed and extended. The characteristic lordosis was well-marked when the cases were first seen, and continues to be so, as the figures show.

Since these boys have been under treatment a very remarkable improvement has been observed in the symptoms. Neither of them finds now any difficulty in going upstairs in the erect position. They play football, and can even jump a fair height. At times they both find a variable amount of "stiffness" in the legs.

The treatment has consisted simply in the continuous administration of dilute nitric acid, with tincture of nuxvomica in small doses, and friction with lin. camphoræ was used more or less.

All the members of this family are somewhat undergrown and look younger than they are. I noted that the height of the eldest when he was aged 14 years and 2 months was only 4 feet 5 inches. He has grown a little since that. They all appear to have intelligence quite up to the average, and are very bright and cheerful.

There are several points in connection with these cases which are of special interest. The occurrence of several cases in one family is not very unusual. But when this happens the girls are commonly spared. In the largest number of recorded cases the calf muscles, or the muscles of the calves and thighs, only have been affected. Hypertrophy of the muscles of the back and still more of those of the shoulder and of the pectorals, is somewhat exceptional. It is remarkable that this occurred in all my cases, except that enlargement of the pectorals could not be detected in the girl who was on the whole least affected. But perhaps the most remarkable circumstance of all is the great improvement which has taken place in the symptoms of the two boys. Whether this is due to the treatment adopted is of course open to question.

RIGHT BRACHIAL MONOPLÉGIA AND PERVERTED SENSATIONS DUE TO TRAUMATIC ABLATION OF THE ARM-AREA IN THE LEFT CORTEX CEREBRI: RECOVERY.

By J. LYNN THOMAS, F.R.C.S. Eng.,
Cardiff.

THIS case was shown at a meeting of the South Wales and Monmouthshire Branch of the British Medical Association held at Newport on November 2nd, 1893. It came under my care whilst house-surgeon at the Cardiff Infirmary, and I am much indebted to Dr. Thomas Wallace for allowing me to treat and to record this interesting case.

History of Injury and Treatment.—G. G., aged 44, an engine driver on the Taff Vale Railway, was admitted on May 28th, 1891, on account of a compound comminuted fracture of the skull due to his being knocked down by a train whilst he was attending to his own engine. He was stunned