months before his death the pain abated, and he found he could hear a grating noise in the neck on slight rotation of the head. On a *post mortem* examination, the two first cervical vertebræ were found to be carious.

Mr. Hilton has recorded the case of a gentleman whom he saw in consultation with Dr. Bright. The patient was twenty-eight years of age, and had suffered from pain at the back of the head for some time. It was thought to be rheumatic. "The cause of the pain was the question to be decided. Dr. Bright entertained an opinion that pain at the back of the head resulted sometimes from the close proximity of the vertebral artery to the suboccipital nerve, between the occiput and the atlas, or to the great occipital nerve, between the atlas and axis, and that the pressure of the artery upon one of these nerves produced the pain at the back of the head; and herein is the chief reason for my mentioning this individual case, because I believe the explanation will not hold good as regards the suboccipital nerve, for that nerve rarely sends normally any filaments to the skin beyond the muscles; indeed, it is chiefly a motor nerve coming off only from the anterior part of the spinal marrow. The great occipital nerve supplied the skin where the pain was felt by this gentleman, and in tracing this nerve towards the spine we came to the cause, viz., disease between the first and second cervical vertebræ. The patient was ultimately cured by continued rest in the nearly horizontal position; the cure, however, consisted in complete ankylosis of the bones, and a fixed neck, with the head turned somewhat downwards and towards the left side. This patient died from pulmonary consumption twelve years after his recovery from his disease of the spine" (On Pain and the Therapeutic Influence of Rest—*The Lancet*, vol. ii, 1860, page 379).

I have noticed occipital pain often enough in cases of nervous and neuralgic headache. When the patient has a mere tingling sensation at the top and side of the head, the pain at the back of the neck may be almost unendurable; it may fix itself over the occipital protuberance and involve the lower half of the bone from ear to ear, so that he feels he cannot support his head. If the pulse be slow and feeble, and there are the symptoms of acute congestion, the cerebellum and the veins in its neighbourhood are probably so full of blood as to act prejudicially on some part of the brain itself.

Professor Hermann Meyer states that the right lateral sinus is larger than the left, and that the blood which flows through it goes on in a quicker stream than that which passes through the left side. This, he says, is owing to the more vertical course of the right innominate vein, which is almost in a straight line with the vena cava superior below it, and with the internal jugular beyond it, the sinus opening directly into the latter vein. The more horizontal position of the left innominate vein probably retards the return of blood from the left lateral sinus (the *London Medical Record*, October 15th, 1878, page 431).

From all that has been said, we shall scarcely overlook the importance of carefully inquiring whether the patient who complains of occipital headache has at any time received a blow at the back of the head, which might be forgotten with the lapse of time. Slight injuries received in early life at the back of the neck, over the spine, have been followed in after years by disease of the vertebræ and the brain itself. Dr. Bastian has recorded two cases of children, aged respectively five and ten, where symptoms, indicative of disease of the cerebellum, followed an injury to the occiput. Dulness of manner, attacks of vertigo, sickness, staggering gait, and severe occipital pains, lasting many months, were the leading symptoms in one case. An improvement took place under iodide of potassium and cod-liver oil. In the second case, the occipital pains were associated with vomiting, and, after the patient had remained in bed five weeks, "she had a sort of fit". She could not support her head, and staggered in her walk. Her sight also began to fail. Similar treatment was adopted to that of the first case, and a year later she was well, except that in walking she kept her legs apart, and slightly reeled (*Ibid.*, page 436). In the first case, Dr. Bastian thinks it not improbable that a small tumour may have formed, and that, in the second, there was a small abscess which had become absorbed, and the cyst shrunken. It would seem to me that, in the absence of fever, epileptic seizures, or rigors, severe congestion or slight inflammatory effusion would be enough to account for the symptoms in each case.

I will consider on a future occasion those varieties of nervous headache attended with a disturbance of vision, and with disordered sensation of the upper and lower extremities.

GLASGOW ABERDEENSHIRE ASSOCIATION MEDICAL BURSARY.—This bursary, of the annual value of fifteen guineas, is tenable for three years by a medical student of the University of Aberdeen. After competitive examination, it has been awarded to Mr. John Gordon, of Aberdeen.

THE TREATMENT OF RINGWORM BY CROTON OIL.

By ROBERT LIVEING, M.D., F.R.C.P.,

Physician to the Department for Diseases of the Skin at Middlesex Hospital.

THERE is no lack of efficient remedies for common ringworm; sulphur, salts of mercury, carbolic acid, chrysophanic acid, iodine, and many more; but there is one essential condition of success in treatment on which everything, as it were, depends, and that is, that the remedy be brought into close contact with the disease; without this, all remedies are equally useless. In illustration of this point, we constantly see a patch of ringworm on the neck cured by a single application of iodine; but it may take years to cure a similar patch on the scalp. The disease is exactly the same in the two cases, and would be just as easily cured in the one as in the other, if only the remedy could be brought into direct contact with the parasites, as indeed readily happens in ringworm of the scalp in infants. The proverb, "You may bring a horse to the water, but you cannot make him drink," is, as it were, reversed in ringworm, for if you can only get him to the water he is bound to drink; the difficulty is getting him there. Now, croton-oil supplies us with just such a remedy as we want, for it has the property of reaching the disease, and setting up a deep seated follicular inflammation which destroys the trichophyton. Although this remedy has long been used in France, we are indebted to Dr. Alder Smith for thoroughly working out the subject in this country; and more especially for pointing out clearly the object to be aimed at, namely, the artificial production of kerion over a small surface. Croton-oil liniment is very useful as an irritant, just as iodine liniment is; but, for the special purpose of setting up a kerion, or deep-seated inflammation of the follicles, pure croton-oil is best. It is now about four years since Dr. Alder Smith called my attention to the subject; and since that time I have adopted the croton-oil treatment in a fair number of carefully chosen cases, and always hitherto with satisfactory results. I would add, however, that it is quite possible to produce a slough, and consequently a permanent bald patch, by the too free use of croton-oil, just as sometimes happens accidentally from the application of other strong remedies in more common use; and further, if croton-oil be used without discrimination, or a due regard to the age of the patient and the extent of the surface involved, it is sure to be brought into unmerited disrepute, the fault being, not in the croton-oil, but in the person who recommended it in unsuitable cases.

I can best enforce this by an example, thus: a typical case for the use of croton-oil, and one which frequently occurs in practice, is that of a boy aged from twelve to fourteen years (when time becomes valuable), who is very anxious to return to school, but is prevented by one or two spots of intractable ringworm. In this case, and in others like it, croton-oil is invaluable, and the little extra trouble it gives is readily borne for the sake of saving perhaps a year at school.

The best way of using the croton-oil is as follows. A single small spot, not larger than a shilling, should be treated first; the croton-oil should be carefully but thoroughly painted on with a small stiff camel's hair brush; a few hours afterwards, a warm poultice should be applied and kept on all night. The croton-oil must usually be applied again the next day, followed as before by constant poulticing; a third and sometimes a fourth application may be necessary to set up the required amount of inflammation; the skin should be swollen, boggy, and discharging freely, like a natural kerion; the production of this is much favoured by warm fomentions and poultices. As soon as this condition is produced, no more croton-oil should be applied; frequent warm fomentation is all that is then necessary; and when, in the course of a day or two, the inflammation has a little subsided, the stumpy hairs should be extracted entire; this is easily done, as they are for the most part loose in their follicles, and can then be removed without pain. If a good kerion have been established, the cure is complete; if only an imperfect one have been formed the process may, after some time, have to be repeated over part of the same area. It is astonishing how quickly the new hair generally grows over the bald patch when the cure is complete. It is true that natural kerion is sometimes, though rarely, followed by a permanent bald spot, and it is conceivable that such an accident might follow from the use of croton-oil, without any error in the choice of the case or in the application of the remedy; I would add, however, that I have never yet met with such a result; if it occurred at all frequently, we might perhaps turn croton-oil to account in the removal of superfluous hair.

Those who wish to use croton-oil with safety and success should adopt the following rules, which err, perhaps, a little on the side of caution:—1. Not to use it for children under ten years of age; 2. Never to apply it at any one time to a surface larger than a florin; 3. To use it

only in chronic cases that will not yield to ordinary treatment; 4. To use it only with the consent of the patient's friends; the nature of the treatment, and the effect of the croton-oil on the skin, being first fully explained. If the last rule be not carried out, parents are apt to think that their children are being over-treated.

MENINGITIS IN TYPHOID FEVER.

By H. TOMKINS, M.D.,

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To those familiar with the morbid processes associated with typhoid fever, it is well known that, of all the anatomical lesions found in that protean disease, acute meningitis is the most rare. Cerebral congestion, with marked oedema of the brain-substance, together with serous effusion into the ventricles and arachnoid space, are common, but the signs of true meningeal inflammation are but seldom seen. The delirium, however violent and prominent as a clinical factor, is no evidence of encephalic inflammation; and the *post mortem* appearances found in the brain in cases characterised during life by the most active delirium are not uncommonly of an entirely negative character. The statistical researches of Louis on this subject confirm these statements; and Hoffman found only four cases of acute meningitis in 250 *post mortem* examinations.

That the most violent psychical disturbances are unattended with any demonstrable anatomical alteration in the brain, is doubtless due simply to the fact that the changes which have occurred in the nervous substance are of that fine and more delicate histological nature, that it is most difficult, with our present knowledge and methods of examination, to demonstrate the existence of definite parenchymatous changes. As an example of the coarser and more rare lesion of meningitis, the following may be of some interest.

Thomas P., aged 47, a milkman of corpulent habit, was admitted into this hospital on October 1st, 1880, suffering from an apparently mild attack of typhoid fever. He had been ailing about two weeks, commencing with vague and indefinite feelings of *malaise*. He lay heavy and disinclined to any exertion, but when spoken to, was perfectly intelligent, and free from any rambling. Pulse 96; respirations 24. The tongue was moist, furred; the urine free from albumen, 1020. There was a scanty eruption. Temperature 102°. The bowels were costive. For the next fourteen days, his general condition remained almost unchanged, with the exception that he became somewhat more prostrate. His temperature remained steady, from 102° to 103°; he took all that was given him without trouble; complained absolutely of nothing but being tired; lay heavy and lethargic, without purging the whole time. On the 15th, he appeared less intelligent, and complained of headache and intolerance of light. On the following day, there was not much change, and the temperature being 103° in the morning, it was resolved to reduce it, as it had shown no signs of remission. For this purpose, he was given 15 grains of sodium salicylate every three hours; this, in twenty-four hours, reduced it to 99°, and, on the evening of the 19th, it was normal. The salicylate of soda was then given in 7½-grain doses only, with the result of the temperature rapidly rising again to 104.4° on the morning of the 20th.

The soda produced the usual physiological effect of that drug, and, until the morning of the 21st, little change was observed, except increasing hebetude and lethargy. It now became apparent that we had to deal with some cerebral complication; he was with difficulty roused or made to comprehend anything, his urine was passed involuntarily, the bowels were not open. The salicylate was increased again to 15 grains, but failed to reduce the temperature below 101.4°, and was discontinued on the evening of the 22nd.

On the morning of the 23rd, he had internal strabismus of the right eye, pupils both dilated, and sluggish in action; semicomatose, and, during the day, became completely so, with apparently right hemiplegia, and died the following day.

The *post mortem* examination revealed a few small ulcers in the lower part of the ileum, none in the cæcum; mesenteric glands enlarged; spleen dark, soft, 11½ ounces in weight. On removing the dura mater from the brain, the latter was found covered with a sero-purulent exudation, especially on the left vertex. On removing it from the skull, the base was covered with a thick layer of purulent exudation, extending over all the under surface of the pons and medulla, and across the fissure of Sylvius on each side. A considerable quantity of sero-purulent fluid was in the base of the skull, whilst both ventricles were distended with a clear serous fluid, free from any lymph or pus.

Out of a total of forty cases of typhoid in which I have had opportunities of *post mortem* examination, this is the only one in which I

have found evidence of a true meningitis. It also illustrates how liable is even the mildest case of enteric fever to some serious complication, for the greater part of the progress of this case presented only the features of an ordinary mild attack of the disease.

INTRAVENOUS INJECTION OF MILK.

By AUSTIN MELDON, F.R.C.S.I., M.K. & Q.C.P.I., M.R.I.A.,
Surgeon to Jervis Street Hospital.

At the last meeting of this Association I read a paper on the "Intravenous Injection of Milk." At that time my experience was derived from five cases; and there were only twenty-two cases on record. Since then, however, I have performed the operation twenty times. And my object in again bringing forward this subject is to give briefly the results of those cases. Twelve of them were performed in cases of phthisis, in all of which the patients had reached an almost moribund condition, with the result that, in every instance, without exception, life has been prolonged. In one, the patient had apparently only a few hours to live, yet, after the operation, he rallied so much that for some months he was able to follow his usual avocations. At the end of that time, when he was rapidly getting worse, I repeated the operation, with the result of improving his condition, although only for a still shorter time. He has since succumbed. In another case, that of a lady, the subject of well marked phthisis, who came from India for the purpose of having the operation performed, I injected four ounces of goat's milk. From the date of the operation she commenced rapidly to improve, and within a fortnight all her worst symptoms were relieved. Three months later, however, they returned; she has since died. A third case was similar to this in all particulars. In all the other cases the patients are still alive. In one of them there was dyspnoea, which was not, however, increased by the operation. Diarrhoea, where it existed, was invariably checked; in fact, it was difficult to free the bowels for a few days after the operation. Perspiration was at first increased, afterwards lessened; cough was always relieved. The general feeling left on my mind was one of disappointment at the very temporary improvement which followed in all these cases; and I fear that in cases of phthisis much benefit cannot be hoped for beyond lengthening life for a few months.

I have operated on four cases of pernicious anæmia, all of which were cured by the injection. In one, the transfusion was performed twice, in the others but once. Two were cases of exhaustion from hæmorrhage, both of which recovered. One was from uterine hæmorrhage, which recovered very rapidly. The second was from recurring hæmorrhage from a wound of the palmar arch which had bled at intervals for four weeks. The patient was so exhausted that he was quite unable to walk across the room, I injected six ounces, and repeated the same quantity on the following day. In three weeks this patient was as strong as before the accident. The last two were cases of exhaustion after typhoid fever. Both were benefited by the operation, one recovered and the other has since died.

Such has been my experience of the intravenous injection of milk. I look upon it as a much better and safer operation than transfusion of blood.

The difficulty in obtaining and defibrinating the blood, and the danger of coagulation in injecting it, in my opinion account for the reason that the operation has not come into general use in cases of emergency. It is quite different with milk. In any place, whether it be town or country, it is easily procured within a few minutes, and with proper precautions the operation is devoid of danger. Some deaths have occurred during or immediately after the operation, but in these cases the milk was either acid or kept for too long a time, or too large a quantity had been injected. The milk of any animal kept in confinement is slightly acid even when it leaves the udder, and as the blood will not tolerate the presence of an acid, it is not to be wondered at that very unpleasant symptoms often develop when milk in that state has been injected. To prevent the possibility of this, I always add ten grains of carbonate of ammonia to each injection. This, besides rendering it certain that the milk is alkaline, prevents that depression which so frequently follows the operation. I invariably use goats' milk, as it is much more easy to bring that animal in close proximity to the patient, thus avoiding any unnecessary delay between milking and the injection. I never use more than six ounces of milk. When time will not allow fresh milk to be obtained, that at hand may be boiled and strained.

This was done in two of the successful cases. In conclusion, I have only to hope that in suitable cases a fair trial may be given to this operation, which seems already to have fallen into unmerited disrepute both here and in America.