doubled-up fist. I sent for assistance, as the patient became suddenly very collapsed—pale, clammy, unconscious, the pulse at the wrist flickering and uncountable. The uterus was quite atonic, and immediately the hand was withdrawn from its cavity it reinverted. The haemorrhage was now considerable. In the absence of Dr. Weakley, Dr. E. B. Randall attended, and the patient was given a further 1 c.cm. of ergotin and $\frac{1}{2}$ grain of strychnine hypodermically, and 2 pints of saline were infused into the right median basilic vein. Meanwhile the uterus was controlled as far as possible by bimanual compression. The patient gradually recovered from the shock; the uterus began to retract; so that at the end of half an hour the compression was no longer necessary. The patient recovered consciousness and inquired eagerly after the baby. Her pulse-rate at this point was 120. The haemorrhage had now practically ceased.

The placenta was not morbidly adherent at any spot; no difficulty was experienced in detaching it from the fundus; it was of the "battledore" variety, and appeared to be centrally situated on the fundus. The cord was only 13½ in. long, and was coiled once round the child's body.

AFTER-HISTORY.

The foot of the bed was raised on a chair. For the first four hours 1 oz. of brandy was given every hour in an equal quantity of milk. The patient was also encouraged to drink as much water as she could. Later the stimulant was reduced, so that by the third day the patient was taking 2 oz. in twenty-four hours. A mixture was given containing ergot η xv and hyoscyamus. The bowels were opened on the fourth day by $\frac{1}{2}$ oz. of castor oil; ordinary light diet was allowed after that day. The ergot was stopped on the sixth day; later a mixture was given containing ferri et amm. cit. gr. x and tinct. nuc. vom. η v.

The patient's recovery was uneventful; she got up on the twenty-eighth day. The temperature did not rise above 98.8° F. during the puerperium; the pulse-rate after the second day varied between 76 and 84. The uterus involuted naturally; the lochia were scanty, and ceased on the eighth day; they were not otherwise abnormal in any way.

I saw the patient on October 20th, 1908; she was then in her usual good health.

I would call attention to this case for several reasons:

1. Its rarity. Acute inversion of the uterus occurred once in 190,000 labours at the Rotunda Hospital Dublin,¹ and not once in 250,000 labours reported by Braun and Spaeth;² 1 in 180,000 to 200,000 are the figures given by Eden.³

2. The extreme uterine inertia, whereby the uterine walls were so lax that, after the uterus had been replaced, it reinverted if the hand were withdrawn from its cavity.

3. The shortness of the cord, which was only 13½ in. long; it was further artificially shortened by being coiled once round the child's body, giving a "practical" length of about 6 in.

4. The characteristic and excessive shock which occurred immediately after the inversion, before any haemorrhage occurred. The shock was out of all proportion to the amount of blood lost, which was probably less than 2 pints.

5. I would call special attention to the value of bimanual compression as a successful means of controlling *post-partum* haemorrhage while the uterus is regaining its tone.

I would suggest the following explanation of the events that took place. The explanation is based upon the theoretical considerations detailed in Champneys's epitome⁴ of Matthews Duncan's chapter on acute inversion.⁵ When the child was delivered by forceps, the fundus, owing to the extreme shortness of the cord, was unknowingly pulled upon. After the birth of the child the placenta and its site were further introverted into the cavity of the relaxed uterus by the weight of the child's body exerting traction on the cord. When the uterus did contract, the introverted placental site acted physiologically as a foreign body; it was, therefore, expelled by the contraction. The uterus then relaxed again; the placenta was removed, and consequently an ordinary *post-partum* haemorrhage occurred from the relaxed placental site, both before and after its reposition inside the body. This was eventually controlled by bimanual compression. The case would thus fall into the class of "artificial active inversion."⁶

In conclusion, I have to acknowledge my indebtedness to Dr. S. J. J. Weakley and Dr. E. B. Randall, of Forest Gate, for the prompt and successful assistance they gave me.

REFERENCES.

¹ Lusk, *Midwifery*, 1896 edition. ² Loc. cit. ³ Eden, *Midwifery*, 1906 edition. ⁴ *St. Bartholomew's Hospital Journal*, May, 1896. ⁵ *Mechanism of Natural and Morbid Labour*, chap. xx. ⁶ Champneys, loc. cit.

AN EXPERIMENT IN THE TREATMENT OF EPILEPSY.

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THE Bradford guardians decided to remove the sane epileptics from the workhouse to a house, Daisy Hill, in order to test the effect upon them of open-air residence with appropriate occupation, but with entire exclusion of medical treatment or the use of any drugs, it having been asserted that such residence alone would reduce the number of fits, and would probably lead to cure. While still at the workhouse, and on the initiative of Mr. Edward Milnes, the sane epileptics were separated from the rest, and under an attendant set to work in the gardens of the house, with the objects of improving their condition and rendering them useful. When I joined the guardians, at the election of 1904, the method of treating epileptics by sodium bromide as salt with their food, and the exclusion of all common salt (chloride of sodium), had so impressed me, that I proposed the addition of this treatment in lieu of any other medicines for the sane epileptics whom Mr. Milnes had set to work on the grounds. The proposal was accepted and carried into effect by me. This treatment was continued until their removal to Daisy Hill, and with decidedly satisfactory results.

Upon their removal, and in view of the test as to the value of place, all medical treatment was abandoned, the hope being expressed that they would improve without medicine. During this period the personnel of the guardians was radically changed by the election of March, 1907, and Mr. Milnes's excellent supervision as a guardian was gone. Some time afterwards he begged me to keep an eye on the sane epileptics at Daisy Hill, and over a year ago I made systematic visits to Daisy Hill and took shorthand notes of their condition. This supervision I have continued to the present time.

I found that the number of fits suffered by the men had not only largely increased, but month by month got progressively worse; as Chairman of the hospital committee I felt my responsibility for the condition of these men, and I took upon myself the duty of altering that condition. I made up my mind that this state of things and this test of place should at once be put an end to; and through Dr. Spark and Mr. Carter it was determined to see that the bromide salt treatment was strictly carried into effect. Dr. Spark is the accredited attendant at Daisy Hill, and under his supervision the new treatment, when determined upon, was cordially carried out.

The following table and comments show the conditions of things from January, 1907, to October of the same year, at which date I intervened:

TABLE I.

No. of Men.	Date.		Fits.	Increase.
	From	To		
10	Jan. 1, 1907	Jan. 31, 1907	65	
10	Feb. 1, ..	Mar. 12, ..	69	(About 6 weeks.)
10	Mar. 13, ..	Apr. 13, ..	58	
10	Apr. 14, ..	May 11, ..	55	
10	May 12, ..	June 8, ..	80	15
10	June 9, ..	July 6, ..	70	
9	July 7, ..	Aug. 3, ..	90	2
9	Aug. 4, ..	Aug. 31, ..	90	
9	Sept. 1, ..	Sept. 28, ..	100	3
9	Sept. 29, ..	Oct. 26, ..	113	48
9	Oct. 27, ..	Nov. 23, ..	108	
			898	in 11 months.

It will be observed that although from July to November the number of men was reduced to 9, the increase in the

number of fits was progressive from 25 to 48. At this stage—namely, November, 1907—the administration of the bromide salt was begun, and the results are seen in the following table:

TABLE II.

No. of Men.	Date.		Fits.	Decrease.
	From	To		
9	Nov. 29, 1907	Dec. 27, 1907	70	43 from Sept.
9	Jan. 3, 1908	Feb. 22, 1908	25	88 " "
9	Feb. 23, "	Mar. 21, "	30	
9	Mar. 22, "	Mar. 31, "	15	(In 9 days)
9	Apr. 1, "	Apr. 28, "	59*	
10	Apr. 26, "	May 23, "	13	100 from Sept.
10	May 23, "	June 20, "	40*	
8	June 21, "	July 18, "	21	
8	July 19, "	Aug. 15, "	19	
8	Aug. 16, "	Sept. 12, "	9	104 " "
8	Sep. 13, "	Oct. 10, "	4	109 " "
7	Oct. 11, "	Nov. 7, "	5	
6	Nov. 8, "	Nov. 30, "	7	
In 12 months 317—Nov. 1907 to Nov. 1908. Less fits by 581 than 1907.				

It is to be noted that in April and in May-June the number of fits largely increased—this was due to the omission of the salt by the attendant; this man was admonished, but his carelessness was repeated, and he was replaced by another who has proved himself thoroughly reliable, with the result seen at the end of the table. It is also to be noted that the number of epileptics treated fell from 10 to 8, and ultimately to 6, 1 having been removed to hospital for an abdominal operation, but the general and almost continuous fall in the number of fits from 113 a month in October, 1907, to October, 1908, when there were only 4 in the month, sufficiently proves the efficacy of the treatment. The greatest number of attacks, 113, occurred in October, 1907, increasing from the previous July, when only 9 instead of 10 men were under treatment, whereas in Table II when 10 men were again under treatment, that is, from April 26th, 1908, to May 23rd, 1908, the number of fits fell 100 below those recorded from September 29th to October 26th, 1907, before any treatment was begun.

In observing the effects of the bromide salt treatment, it is found that when the epileptics come under its full influence they become rather listless, stupid, and drowsy; this is the expected result, and a result to be attained; it indicates the point of saturation of the system by the salt, the point when the fits become controlled; the dose daily can then be diminished one half, but not altogether discontinued. The drowsy, listless, symptoms soon pass off and the patient is fit again for work. It should be said that the administration of the salt is not confined to giving a definite amount with the three daily meals, but their bread is specially baked for them, the amount of common salt usually mixed with the dough is excluded and is replaced by an equivalent quantity of the bromide salt.

Some eight or ten years ago two French physicians, MM. Toulouse and Richet, discovered that the desired effects from sodium bromide were interfered with when sodium chloride was allowed to be used in the food. When the common salt was excluded from the food, the good effects of the bromide immediately became pronounced; the cause of antagonism was supposed to be decomposition of the salts in the body when taken together. The results were published in the BRITISH MEDICAL JOURNAL, and Dr. Eurich read a paper on the same results in his own practice before a meeting of the Bradford Medico-Chirurgical Society. I immediately thereafter tested the treatment in my private practice, with most satisfactory effects in several cases.

The amount of bromide given by experts to patients largely exceeds the doses given by general practitioners,

Dr. McCallum of Kendal, the medical officer of the Starnthwaite colliery and school for epileptic boys, with whom I corresponded after my visit to Starnthwaite, gives 1 to 2 drachms or even more in a day. Our dose may have been a third or sixth of this in mixture, but now the bromide salt we give at meals and with the bread approaches more to his, as he believes, necessary standard. He pushes the doses to saturation of the system, indicated by the diminution or ceasing of the fits, and some degree of drowsiness and stupidity of the patient; but he alleges that this condition does not in any way impair the ultimate intellectual capacity, which returns when the doses are reduced and the fits subside, but he continues the bromide until assured that the attacks are subdued. It is no use trifling with epilepsy if any permanent results are to be achieved; the treatment must be strong, continuous, and well watched. In some cases the salt produces an eruption, but this can be met by cleanliness and appropriate applications; better the rash a hundred times than the epileptic nerve storm and convulsive spasms of the epileptic fit. There is no proof that the mere place of residence has any influence on the ultimate cure of the disease; change of place does diminish the fits for a time, but they ultimately recur and continue as bad as or worse than before; what is wanted is adequate treatment, not change of place.

ON THE FLAGELLATION OF LYMPHOCYTES IN THE PRESENCE OF EXCITANTS BOTH ARTIFICIAL AND CANCEROUS.

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PRELIMINARY NOTICE.

In a recent paper¹ we have described how the plasmata of patients suffering from carcinoma will excite amoeboid movements in the leucocytes of healthy persons. In another paper,² which will be published shortly, one of us has shown how leucocytes can also be excited by placing a drop of blood on a film of agar jelly containing a mixture of methylene blue and atropine. In yet another paper³ experiments are detailed which show how this atropine excitant can be so modified as to reduce its poisonous effects, and also that by omitting the agar jelly it can be prepared in a liquid form which enables it, still remaining effective, to be mixed with blood. In this last paper several formulæ for making the excitant are given, and among them is one prepared from the following solutions:

1. A volume of Unna's polychrome methylene blue (Grübler) is diluted with an equal volume of water.

2. A neutral solution containing 4.5 per cent. sodium citrate, 1.5 per cent. sodium chloride, and 0.225 per cent. atropine sulphate.

3. A 5 per cent. solution of bicarbonate of sodium.

Of these solutions mix together in a test tube 1 c.cm. of the diluted stain, 4 c.cm. of the citrated solution, 1 c.cm. of water, and 0.2 c.cm. of the sodium bicarbonate solution.

Into a capillary tube draw up a volume of this mixture, and add to it an equal volume of the blood to be examined, freshly drawn from the finger. Incubate the tube at 37° C. for half an hour, and then place a drop of the mixture on to a slide, and cover with a cover-glass, which may be gently pressed down if the blood will not spread. The slide should be examined at a temperature of 20° C.

The granules, but not the nuclei, of the leucocytes are well stained. The polymorphonuclear cells can usually be distinguished by the arrangement of the granules which outline the many-lobed nucleus. The eosinophiles of course have large granules which stain well.

In from a quarter to half an hour these cells will extrude long snake-like pseudopodia identical with those seen when agar jelly is employed, because they have absorbed the excitant with the stain while they were in the incubator.

In the first paper to which reference has been made,¹ we have shown that when a cancer patient's blood is mixed with an equal volume of a certain solution of sodium