Miliary Sclerosis. By J. W. Plaxton, M.D., Medical Superintendent of the Asylum for the Insane, Colombo, Ceylon.

Is Miliary Sclerosis a fore-death change? Most of us have believed it so: many of us doubt, myself amongst the many. As to the grounds of my unbelief, they are briefly these:—

1st. The rarity of its absence in brains examined by me since I entered the tropics.

2nd. No one has ventured to say he could link this change with phenomena seen in the living.

It was a relief to one in this doubting state to hear that in the Pathological Room of the West Riding Asylum the same doubts had entered.

Not only so, but one of the men best able to guide us, we of the ruck, was to investigate the matter. (See Dr. McDowall's paper in the "Journal of Mental Science," January, 1880.)

Time passed, and no sign was made—we know with good reason.

With scepticism strengthened, and with inquisitiveness whetted by delay, in April last, a season of comparative leisure, I overhauled my bottles.

I found I had pieces of 22 brains.

Brains of insane dying in the lunatic asylum ...	20
Presumed normal brain	1
Brain of bat (Pteropus)	1

I submitted them all to the microscope, with this result:—

Miliary Sclerosis absent	1
Miliary Sclerosis present	21

It was present in the normal brain, and present in the bat's brain.

Casting about for a reason for its absence in the one brain, the note I had made that no spirit was used in hardening in this single instance seemed a clue worth following. My usual custom was to take a bottle of spirit with me to the post-mortem room, and then and there place the desired piece of brain in it as soon as removed from the body. In this case my custom had not been followed, and I had made a note of it.

As to the other 21 brains, I have written a note of its use in eight human brains, and I know it was used with the bat's

brain, making nine brains with which its use was certain. The hardening was in all cases completed by some chrome fluid.

It remained for me to test the hypothesis that the use of spirit influenced the production of Miliary Sclerosis.

To this end, brains of four patients dying here were used.

Two portions were taken of each brain; one portion placed at once in a solution of bichromate of potass, one portion placed at once in spirit.

I have just completed the examination of these brains, the result being:—

Spirit portions—Present in	3
Spirit portions—Absent in...	1
Other portions—Present in	0
Other portions—Absent in	4

I have also examined an additional two brains which had passed through spirit. Miliary Sclerosis was present in both.

The outcome of my inquiry stands thus:—

Individual brains examined	28
Brain passed through spirit—	
Certainly ... 15 } Total	27
Probably ... 12 }	
No spirit used in	5

Where no spirit was used—Miliary Sclerosis absent in all.

Where spirit was used—Miliary Sclerosis absent once, present 26 times.

The number of cases is too small, and the conditioning of the cases too imperfect, to warrant any certainty, but, to say the least, they are suggestive of this, that spirit determines the appearance of Miliary Sclerosis.

In the "Journal of Mental Science," July, 1882, mention is made of Dr. Savage's paper on this same subject of spirit-made changes in nervous matter. His experience would seem to march with my own, but unfortunately I have not seen his paper, nor one by Spitzka previously advocating the same view.

Dr. Batty Tuke, in reply, as it were, shows that this is no new thing, having had to lay aside as valueless a large number of slides in which, working with spirit, deceitful appearances were present. These appearances were not found when his method was changed.

The changed method is, if I mistake not, to limit immersion in spirit to 24 hours, and then harden it in some chrome fluid.

Dr. Mitchell strengthens Dr. Batty Tuke's case by the

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observation that Miliary Sclerosis is less recognisable after the prolonged action of spirit.

The inferences from these observations just quoted are:—

First. Prolonged immersion in spirit causes the appearance of, at least, a pseudo-Miliary Sclerosis in nervous tissue.

Secondly. It veils true Miliary Sclerosis.

Thirdly. Twenty-four hours is not a "prolonged" immersion.

How do my cases tell for or against these propositions? Conclusively as to none, for all but one of my brains were in spirit 48 hours or more.

The exception was in spirit three hours only. In this case the *sectio cadaveris* was made five hours after death; the part to be preserved was placed in spirit six hours after death, was in spirit three hours, was hardened in bichromate of potass and chromic acid for ten weeks, and was nine months in spirit before examined for the above purpose.

Unless it be argued that the Miliary Sclerotic change undeniably present was the product of the second immersion in spirit, I, in the light of my other cases, am driven to conclude—

Either (1) a shorter immersion than 24 hours will give rise to the change, miliary or deceptive, whichever it may be.

Or (2) the change is due not to spirit alone, but to spirit with some influencing accessory.

The accessory which at once puts itself forward is heat, my work-room the year round, night or day, rarely rising above 85° F., and as rarely sinking below 75° F.

If the argument from microscopic examination is unconvincing as to its origin in point of time, what is the argument from the living? It has been seen oftenest in cases in which during life the nervous system has suffered. True, but these are also the cases in which the brain has oftenest been examined.

Is it recognisable as (during life) being connected with any train of symptoms?

Is it the unvarying accompaniment of nervous disease?

I think not. Dr. Long Fox, quoting Dr. Kesteven, gives a list of 21 diseases, all diseases in which grave disturbance of nerve function was present, but some, certainly, in which it must have been present as a bye product.

It can scarce be said to have been the cause of idiocy, yet, in the case quoted, Dr. Kesteven counted 25,000 granules of Miliary Sclerosis in the square inch.

If not the cause of idiocy, we must either suppose it did or did not cause recognisable disturbance of function during life.

It can hardly be doubted that such a dislocation, to say nothing of destruction, of nerve elements as the intrusion of 25,000 foci of Miliary Sclerosis per square inch of surface would cause, could exist without some manifestation other than idiocy to mark its presence; yet no note is made of such.

Again, quoting Dr. Fox:—"It can be seen to exist in a large number of cases in which the mental faculties have scarcely suffered at all—in spinal diseases not at all."

Yet, again, I find it present in the brain of a man dying without trace of brain defect, and I find it present in the brain of a bat shot by myself, whose brain was lodged in spirit two hours after death. True in these cases the brains lay long in spirit—the man's 49 hours, the bat's some weeks—but then the same change is present in a brain three hours only in spirit, and which is safe in chrome fluid nine hours after death. This brain, though, was that of an insane patient.

To conclude. From clinical observation we have little or no reason to believe this change due to disease.

From the microscopic examination of brain and the observed effect of spirit, we are certain that deceptive changes are brought about by the use of spirit.

I myself would go farther, and say *there is strong reason for doubting the reality of Miliary Sclerosis as anything but the effect of post-mortem change, however it may be induced.*

I have assumed that the changes I have seen are really what I believe them to be, the Miliary Sclerosis of Dr. Batty Tuke, or, as others prefer to say, Miliary Degeneration; but even if they be but the simulacrum of the disease, I shall not have ventured on unaccustomed ground in vain, if he will quieten our mental unrest by showing us the simulacrum side by side with the true.

Forewarned, we shall then be forearmed.

I should like to watch on the stage of the microscope the effect of spirit, at differing periods, on a section of fresh brain, but unfortunately in the tropics the freezing of brain would be a difficult matter.

I would like to suggest as matter for proof the effect of different strengths of spirit and the correspondence or not of the effect of methyl or ethyl alcohol.

I have not found the change influenced by moderately long keeping of the brain. The same brain kept until decomposition had undoubtedly begun gave almost identical result as when it was transferred early to spirit.