MIRROR WRITING.

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A STUDY of the subjective phenomena of left-handed or mirror writing may help to throw light on the nerve processes concerned in writing and other complex co-ordinated actions. The faculty of mirror writing is probably not at all rare. It may be possessed more or less by most persons, but may remain unobserved. It is apt to be discovered for the first time when some nerve disease renders normal writing difficult or impossible; the patient then falls back on the resource of left-handed writing. Thus mirror writing is often a symptom of nerve disease; but the disease need not be the cause of the existence of the faculty, but only the cause of its discovery. At all events in my own person the faculty of mirror writing has existed from childhood. I discovered it accidentally about my thirteenth year, when, on making the first attempt, I was able to write backwards with the left hand without error or hesitation. Ever since that time I have been able to write left-handed without practice.

The most noticeable subjective phenomena are the following:—

(1) It is very easy to write in mirror fashion with chalk on a black board, co-ordination seeming to be perfect in the movements of the left arm and wrist. But when using a pen with the left hand, there is a slight difficulty in some of the movements. There is (in the latter case) no hesitation as to the formation of the letters; but occasional awkward movements will produce distorted lines, and there is special difficulty in keeping up a smooth onward movement, “the movement of alignment.”

(2) Writing is only a little slower with the left hand than with the right. In the fastest possible mirror writing there is no error in the form of the letters—only such want of neatness and distinctness as occurs in writing too fast in the ordinary way.

(3) The following actions are quite easy :—

(a) Writing the same thing simultaneously with both hands.

(b) Writing backwards with the left foot, *i.e.*, scratching on sandy ground, as one sometimes does with the right foot.

(c) Using the deaf and dumb finger alphabet in the reversed or left-handed manner.

(4) If I learn a new alphabet with the right hand, I can write it with the left; it is not necessary to learn it separately with the left hand; the nervous system, after being trained to any kind of writing with the right hand, is able to send its co-ordinated messages almost equally well to either hand.

(5) The assistance of sight is not necessary in mirror writing. Indeed, sight may even impede it: and although it is easy to write left-handed, it is difficult to read what one has written. When I look at my own mirror writing, it sometimes conveys no meaning to me, and I experience sensations which are probably much the same as those of a person who is word-blind, but retains the faculty of writing. In order to decipher such writing, it is necessary to run the eye along the lines, and so reproduce the sensations which accompany the act of writing. I find considerable difficulty in reading print reversed by means of a mirror, but hardly any difficulty in reading a book held upside down.

It may be necessary to state that I have no tendency to be left-handed, though I might almost be called ambidexter.

The sensations accompanying all kinds of writing, whether with right hand or left hand, right foot or left foot, are so similar as to suggest that in all cases the messages start from the same region of the brain; but it seems as if a series of commutators existed at a lower level,

whereby the impulses could be turned into different channels leading to analogous but sometimes heteronymous groups of muscles. This supports the view that the true graphic centre is not coincident with either of the motor centres, but superior to all of them.

I append some words written both in mirror and in ordinary writing; the features may be compared with the assistance of a mirror.

guiting - varish
Mirror - writing

FIG. 1.

virtuousness & love
Broca's Convolution

FIG. 2.

grobarnik to know
Journal of Neurology

FIG. 3.