## Science report

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# Psychology: Ergonomics of brain

Information distributed between the two halves of the brain can be processed more efficiently than information fed simultaneously to both halves. Recent experiments which have helped to establish this were carried out by two psychologists in Cardiff and are an extension of the work of Dr Roger Sperry, the American neurologist.

Dr Sperry and his collaborators have studied the effect on intellectual function of surgical bisection of the cerebrum, which constitutes the bulk of the human brain. This operation is sometimes undertaken as a drastic measure in debilitating cases of epilepsy, where the source of the abnormal activity in the brain which leads to convulsions is in one cerebral hemisphere. By severing the nerve bundle (commissure) which connects the two hemispheres it is possible to confine the abnormal activity to one side without actually removing any tissue.

The patient seems to be left apparently normal, but effectively with two brains, each of which can function, think and learn independently of the other, although there is some specialization: speech, for example, is normally a function of one hemisphere only, the other (usually the right) being dumb.

Dr Sperry's studies have shown that in certain tasks these so-called split-brain patients react more rapidly than normal people. The operation apparently gives them the advantage of being able literally to do two things at once, one, as it were, with each half of the brain.

Dr Stuart Dimond and his colleague, Dr Graham Beaumont, at University College, Cardiff, have tried to give normal people the same advantage by means of an apparatus for projecting test images separately to the two halves of the brain.

Their apparatus consists of two sets of screens angled in such a way that the experimental subject, seated in the middle with his head in a clamp, receives images from one set of screens in his left cerebral hemisphere only and from the other in his right hemisphere only.

Twelve first-year undergraduates were seated in front of the screens and tested for ability to perform simultaneously two simple tasks. One was to read out a succession of pairs of digits projected on the screens, and the other was to sort out a collection of nuts and bolts, placed where they could not be seen, with both hands.

The undergraduates' performance on these tasks was compared when both of the paired digits were projected to the same hemisphere and when one was projected to the right and the other to the left. When the digits were projected to one hemisphere only, they were more efficient using the left hemisphere than the right. Dr Dimond and Dr Beaumont believe this is because the undergraduates had to respond orally and this can only be done with the left hemisphere.

The most efficient performance, however, was achieved with the digits fed separately into both hemispheres. This implies that the brain is capable of processing information in parallel, which has interesting implications for theorists and may have practical applications in some industries.

But it does not mean that we should all be better off with bisected brains. In normal circumstances both hemispheres in any case receive the same information simultaneously. But if discrepancies were to arise the bewildered individual might find himself in a state of conflict with himself, one half of his brain reacting appropriately according to its input and the other struggling to respond to some different stimulus.

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**By Nature-Times News Service.**