Aid for Mutes, Paralytics

Man's Brain Waves Can 'Talk,' Overcoming Speech Barriers

By Howard Simons
Staff Reporter

Persons stricken mute and unable to move a muscle can be taught to speak their minds by turning on and off certain brain waves.

Air Force scientist Edmond M. Dewan, who is neither mute nor incapacitated, has taught himself to communicate this way. Moreover, Dewan has devised a system for sending messages from the brain to recording machines.

What Dewan does, essentially, is to alter the alpha rhythms of his brain. These are normal brain waves present when the human is relaxed and has his eyes closed. Alpha rhythms can be "blocked" or turned off by opening the eyes, or, in many cases, by concentrating on some scene or object.

Once it becomes possible for the individual to master the trick of altering his alpha rhythm pattern it becomes possible to communicate through a simple yes-no or start-stop code, or even to communicate by Morse code.

This does not mean, according to the Air Force Cambridge Research Laboratories scientist, that persons can read each other's minds. But what it does mean is that "by blocking his alpha rhythm in the appropriate manner, its user can send coded signals without moving a muscle."

To record the signals, Dewan has designed a device to pick up the stop and start of alpha rhythms through leads attached to the scalp in much the same way that brain waves are recorded by doctors in an electroencephalograph.

Dewan's interest in brain waves resulted from discussions about epilepsy with the late Norbert Wiener, father of American cybernetics.

Though Dewan is still largely concerned with the theoretical aspects of brain wave communication he nonetheless has been demonstrating his technique to physicians as a way of pointing up its potential value in easing the lot of bed-ridden, muscle-bound patients.

One type of patient in particular — the victim of coma vigil — might very well benefit from Dewan's brand of mental telegraphy.

Coma vigil can result from an accident or a stroke and when it does, the condition robs the victim of all motor control.

In spite of the fact that the victim of coma vigil cannot even blink an eyelid, he is aware of what is going on around him.

Often the mute isolation of coma vigil is as debilitating mentally as is the physical immobility. Hence, Dewan's technique could provide a measure of relief by giving to the coma vigil patient his only means of communications with other persons.

In his demonstration, Dewan attaches several electrodes to his scalp. These are hooked up to the sensitive alpha wave detector which he has developed. The detector, in turn, is hooked up to one of several different switches.

When Dewan interrupts his alpha rhythms, the detector records the interruption which, in turn, activates a switch. In one variation, the switch is used to turn a light on and off. According to one of his colleagues, physicist Dewan "is getting quite good" at "talking" with his brain waves, though it is apparently harder to start the alpha rhythms than to interrupt them.

Thinking ahead, Dewan suggests that the device's output could be hooked to a teletypewriter via a small computer for converting the imperfect code signals into more usable form. Or it could be used to operate a crude grasping mechanism.