



Marjorie Kawin-Toomin

Western man is growing increasingly concerned with exploring, understanding, and controlling his inner world. His search is leading to paths which unite the science of the west with the mysticism of the east. These paths include the knowledge that man's physical and mental states are inseparable; that man can, by his will control all aspects of his being including those previously thought to be "involuntary." Conscious control of these functions may be acquired if immediate bio-feedback is available.

There are frequent reports in the literature that an increase in alpha productions is generally found in meditative states . . . These brain wave patterns become stronger with the years spent in Zen training and parallel the degree of the Zen disciple's mental states. Zen meditation (or any for that matter) involves "concentration without tension" in the inner mind. . . .

There is wide agreement on the research literature reviewed that the alpha rhythm represents

some kind of synchrony in the firing of neurons in the cerebral cortex in the area around which the electrodes are placed. Eleanor Criswell (1969) speculates that "if we reduce cortical activity and still the mind, we are allowing more primitive brain structures to have more free play . . . more unification." Deikman (1963, 1966) use the term 'automization' to describe what seems to be a process of brain synchrony. He suggests that clearing the mind of its habitual patterns of perceiving and thinking leave it free to take in information in a fresh manner possibly to re-process cognitive and sensory stimuli in new and creative ways.

Empirical evidence to support the above theoretical assumption comes from the similarities involved in meditation exercises and alpha training procedures. Both limit the subject's perceptual field, reduce stimuli entering the brain particularly cognitive content), focus on repetitive tasks and encourage passive awareness of internal and external events. With this "stilling of the mind" comes synchronous firing of cortical neurons. When the

subject engages in active processing of stimuli (thoughts, feelings, perceptions) goal-oriented attitudes and energetic problem solving activities, desynchronization occurs. The alpha rhythm is blocked and other patterns—most often high frequency, low amplitude beta waves—predominate. Stilling the mind to the point of no longer attending, even passively, is accompanied by the drowsiness of the low frequency theta waves and eventually the delta waves of sleep.

The first way in which to use alpha control is to enjoy it. The alpha state is pleasant, relaxed and rewarding to experience. Learning to know and control parts of one's being previously mysterious and apparently involuntary, is exciting. With feedback, individuals are able to discriminate the kind of thoughts, feelings and attitudes which represent an easy flowing with the environment and with their inner selves (the synchrony of the brain). It is possible to learn to function at this level more often, thus generally making life more comfortable.

The possibility of using alpha control to reach "altered states of consciousness" is an exciting one. Alpha is a normal brain pattern. To manipulate alpha is only to alter the occurrence of a natural state. This, apparently, is one of the things meditators do after years of training. The voluntary control of thoughts, feelings, attitudes, and body states associated with meditation may be more efficiently and more quickly acquired by the use of an alpha feedback device such as the Toomin Alpha Pacer. Both meditation and alpha production require passive attention, physical relaxation, and a feeling of flowing with both the inner and outer world.

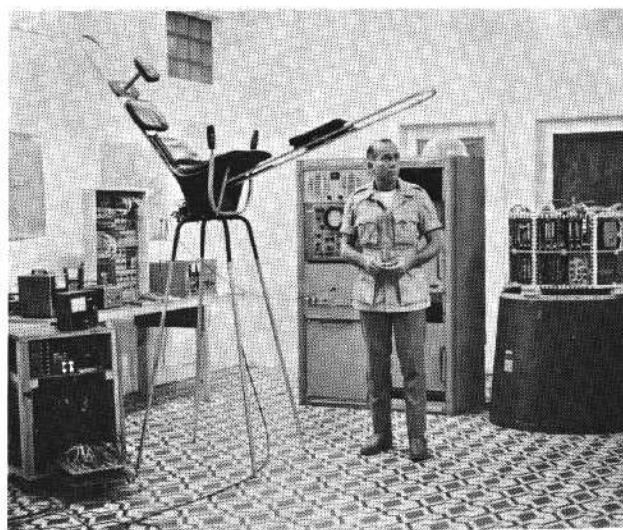
It is tempting, but perhaps naive, to think that because high alpha amplitude and marked changes in frequency into the slow alpha or theta ranges are typical patterns produced by experienced meditators, that training such patterns by the quicker, easier bio-feedback methods will provide the same total subjective experience.

The Tooming Alpha Pacer has been found to be a particularly useful device for those who wish to facilitate their progress in meditation. The tone of the Toomin Alpha Pacer may be used as an effective mantra. The sound is pleasing and repetitive, and its presence or absence allows the meditator to know immediately "where he is." The calibration of both amplitude and frequency of alpha and theta activity is a unique feature of this instrument. In the Toomin Laboratories, two experienced meditators with well-established high amplitude alpha rhythm were able to raise and lower the frequency of their brain waves in a matter of moments by following the pacing device on the Toomin Alpha Pacer. They experienced excitement, a feeling of well-being, a sense of one-ness with the universe and great joy as they moved into higher alpha frequencies—up to 12 Hz.

This is excerpted from a pamphlet distributed by Toomin Laboratories, Inc., 41 W. 71st St., N.Y.C. 10023, which accounts for the product bias. There are many people making alpha wave detectors, some of which are listed in the Last Whole Earth Catalogue.

We've talked to Adam Crane of Toomin Labs., and he says that a good Alpha Theta wave pacer costs between \$150 and \$275 at the least. He claims the cheaper ones aren't accurate nor do they incorporate the variable controls necessary to really use the machine for increasing mental control. We tried their pacer (\$275) and it worked well but we're still not convinced that the yoga discipline can be replaced by a machine feedback system. Also the price seems a little high but maybe you pay for what you get (or is it the other way around).

vital sign integration



By John Sowaal

This Vital Sign Intergration System permits an interacting traveler to focus attention on four vital signs as they reflect feedback changes. It was developed as a subsystem for the Comfort Maze and certain of its characteristics will be used in later models of the Maze as well as in a new system that is still in the planning stage.

Most of the biofeedback experiments we hear about adopt a closed form design for all systems even when the system has manifest open form properties. This kind of thinking goes well with the objectives of conditioning as behaviorist use the term. The alpha rhythm fade exemplifies the mode. Generally the claims you hear suggest direct access to a rosy state of consciousness. Descriptions of alpha control then link up with tales of Zen and Yoga and the whole business begins to sound like another capsule relief, a murti-bing or soma trip.

If you can excuse the unguarded moments of professional experimenters while describing their projects or the aims of hungry pilgrims looking to buy some real estate in their own minds—then no one is to blame. But the tasks that lie ahead in merely mapping human feedback systems make all the jazz about alpha control into another leaky promise. The significance of living feedback systems derives from an interrelatedness with other systems. Even the exquisite control of a subset of systems fails to provide anything close to clean information about the total organism.