psychic energy from teacher to disciple.

Finding that Rudi's Yoga contradicted his own intuition that the spiritual process is founded in self-surrender rather than any effortful self-discipline, Da Love-Ananda turned to Swami Muktananda for help. After only three days at the Swami's hermitage in India, Da Love-Ananda experienced a state of unqualified ecstasy, known as *nirvikalpa-samadhi*. He returned to India the following year, and during this second stay with Swami Muktananda he experienced a whole range of kundalini and visionary experiences, including the vision of the "blue pearl" that figures prominently in the teaching of the late Swami. All this was confirmed in a letter—a rare gesture for the Swami—that stated that Da Love-Ananda had "attained yogic liberation" and was now qualified to teach others.

But Da Love-Ananda knew that his spiritual journey had not yet come to an end. Nor had he any particular interest in teaching Kundalini Yoga. He felt certain that even the state of unqualified ecstasy he had repeatedly experienced, never mind any of the other visions and psychic phenomena, was dependent on the manipulation of the nervous system. Therefore it could not possibly be the same as enlightenment, or God-realization, which is continuous. So he intensified his practice of self-observation and surrender. Then on September 10, 1970, the following occurred:

> In an instant, I became profoundly and directly aware of what I am. It was a tacit realization, a direct knowledge in consciousness itself. It was consciousness itself without the addition of a communication from any other source . . . There was no thought involved in this. I am that Consciousness. There was no reaction either of joy or surprise. I am the One I recognized. I am that One . . . Then truly there was no more to realize. Every experience in my life had led to this. (1978c, pp. 134–135)

Subsequent to this awakening, Da Love-Ananda experienced a blossoming of spontaneous psychic activity, which continues to this day. It demonstrates his point that enlightenment is not the goal but the foundation of spiritual transformation.

Appendix 1

MICROMOTION OF THE BODY AS A FACTOR IN THE DEVELOPMENT OF THE NERVOUS SYSTEM

by Itzhak Bentov

Introduction

In the last few years, both young and old people in the United States and in Europe have taken up the practice of meditation. Regular practice of meditation has a calming and stabilizing effect on its practitioners (see Wallace and Benson 1972; Banquet 1972; Benson 1975). With prolonged practice, many physiological changes occur in the body. Among them is a change in the mode of functioning of the nervous system. These changes can be monitored by the application of a modified ballistocardiograph to a seated upright subject.

Theoretically, when meditation is practiced properly, a sequence of strong and unusual bodily reactions and unusual psychological states is eventually triggered. The "rising of the kundalini," as described in the classical literature of Yoga, is a stimulus or "energy" activating a "center," or chakra, at the base of the spine and working its way up the spine. The stimulus stops at several centers along the spine, as it rises. These centers are located opposite

the major nerve plexuses in the abdomen and in the thorax, which are also stimulated in the process. Eventually the stimulus ends up in the head. Along its path, it often causes violent motion in some parts of the body, signifying that there is "resistance" to its passage. The rising of the kundalini may happen suddenly or over a period of several years. After entering the head, the stimulus continues down the face into the larynx and the abdominal cavity.

Most meditators realize that these reactions are caused by meditation and do not become alarmed. However, sometimes this mechanism can be triggered in nonmeditators. Our observations indicate that exposure to certain mechanical vibrations, electromagnetic waves, or sounds may trigger this mechanism. It is the purpose of this article to bring this mechanism and some of its symptoms to the attention of the medical profession.

Summary

The ballistocardiogram of a sitting subject, who is capable of altering his or her state of consciousness at will, shows a rhythmic sine wave pattern when the subject is in a deep meditative state. This is attributed to the development of a standing wave in the aorta, which is reflected in the rhythmic motion of the body. This resonating oscillator (the heart-aorta system) will rhythm entrain four additional oscillators, eventually resulting in a fluctuating magnetic field around the head.

Our initial experiments indicate that the five resonating systems are as follows:

1. The heart-aorta system produces an oscillation of about 7 Hz in the skeleton, including the skull. The upper part of the body also has a resonant frequency of about 7 Hz.
2. The skull accelerates the brain up and down, producing acoustical plane waves reverberating through the brain at KHz frequencies.
3. These acoustical plane waves are focused by the skull onto the ventricles, thus activating and driving standing waves within the third and lateral ventricles.

4. Standing waves within the cerebral ventricles in the audio and supersonic ranges stimulate the sensory cortex mechanically, resulting eventually in a stimulus traveling in a closed loop around each hemisphere. Such a traveling stimulus may be viewed as a "current."
5. As a result of these circular "currents," each hemisphere produces a pulsating magnetic field. These fields are of opposing polarities.

This magnetic field—radiated by the head acting as an antenna—interacts with the electric and magnetic fields already in the environment. We may consider the head as simultaneously a transmitting and receiving antenna, tuned to a particular one of the several resonant frequencies of the brain. Environmental fields may thus be fed back to the brain, thereby modulating that resonant frequency. The brain will interpret this modulation as useful information.

This paper presents a preliminary report on the possible mechanism of the so-called "kundalini." The kundalini effect is viewed by the author as part of the development of the nervous system. This development can be elicited by the practice of any of several different types of meditative techniques, or it may develop spontaneously. Research into this area is continuing, and investigation of the kundalini effect by different methods is in progress.

Micromotion Measurement with the Capacitive Probe

Small body motions accompanying the motion of blood through the circulatory system may be measured with a capacitive probe apparatus. A subject sits on a chair between two metal plates, one above the head, and one under the seat, 5 to 10 cm from the body.

The two plates of the capacitor are part of a tuned circuit. The movement of the subject will modulate the field between the two plates. This signal is processed and fed into a single channel recorder, which registers both the motion of the chest due to respiration and the movement of the body reacting to the motion of

the blood in the heart-aorta system. The resulting recording trace (see Figure 2) is very similar to that of a ballistocardiogram (see Weissler 1974), in which the subject lies on a platform, to which are attached three mutually perpendicular accelerometers or strain gauges to measure the body's motion in response to blood flow. But in the capacitive probe measurements, gravitational forces and the elasticity of the skeleton and the general body build play important roles.

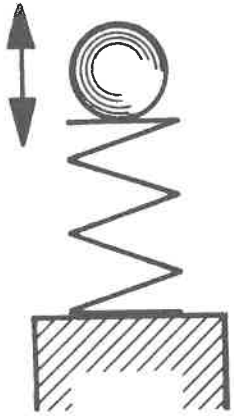

FIGURE 1: Mass on a spring.

As an analogy, a seated subject can be represented by a mass on a spring (see Figure 1): The spring is the spinal column and the mass is the weight of the upper part of the body. Upon the ejection of blood from the heart, this mass is set into motion and starts oscillating at its natural frequency when the person is in a deep meditative state.

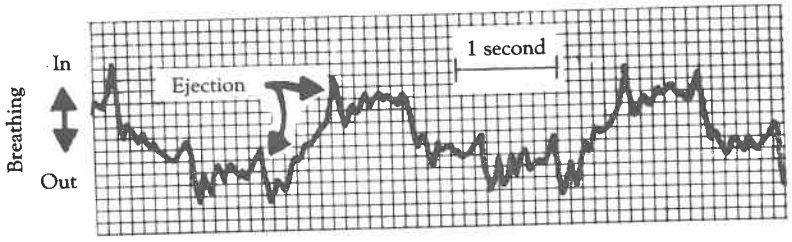

FIGURE 2: Baseline resting state record.

Figure 2 shows a baseline resting state record, in which the micromotion of the body is superimposed over the motion of the chest caused by breathing. These are the large slow waves of about a 3-second period, or 20 breaths/minute. The first 7-Hz wave is caused by the ejection of blood from the left ventricle, which makes the body recoil downward and sets the body oscillating. The second wave corresponds closely to the action of the blood flowing through the aortic arch, lifting the body up. The third wave occurs at about the same time as the closing of the aortic valve and the slight backflow of the blood, called the dichrotic notch. The first and third waves correspond closely to the first and second heart sounds.

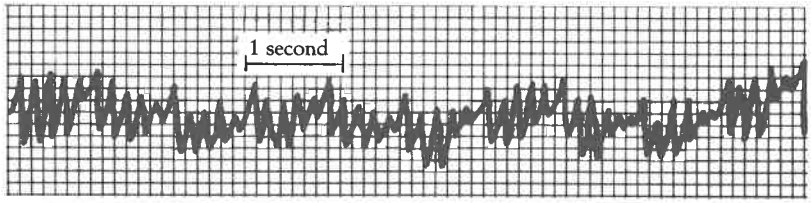

FIGURE 3: Deep meditative state record.

Figure 3 shows a recording in which the subject is in a deep meditative state, a few minutes after the baseline reading. Breathing is very shallow, as shown by the practically even level of the 7.5-Hz waves. The irregularity that characterized the baseline behavior (see Figure 2) is gone. Large amplitude regular waves—practically pure sine waves—are present. An almost pure sine wave is what characterizes this state. The body moves in a simple harmonic motion.

Figure 4 shows the return to baseline of the same subject.

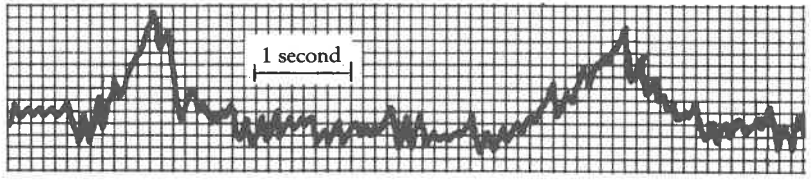

FIGURE 4: Return to baseline resting state record.

Breathing is deeper again; the irregularity of the wave pattern is back, but is not as irregular as before. Total elapsed time for the recording was about 20 minutes.

We have noticed that the regularity in rhythm is obtained at the expense of breathing. The subject can stay in the shallow breathing state for a long time without having to compensate later by deep rapid breathing. This is a state in which the body's demand for oxygen seems to be lowered. If one stops breathing for a while without being in a deep meditative state (see Wallace and Benson 1972), the same regular pattern will be achieved. However, oxygen deficiency builds up quickly and overbreathing will be necessary to restore balance, whereas in the meditative state this overbreathing does not occur.

The Development of a Standing Wave in the Aorta

The regular movement of the body indicates that a standing wave is set up in the vascular system, specifically in the aorta (see Bergel 1972). This is the only feasible explanation of the regular sine-wavelike behavior of the body. This standing wave, as will be shown later, has far-reaching consequences and affects several other resonant systems in the body, which are all driven by this large signal.

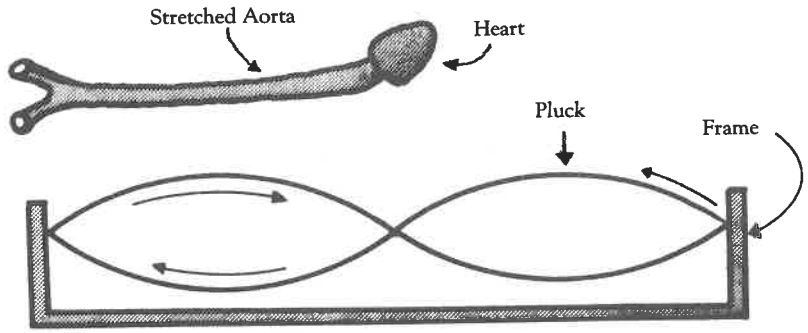

FIGURE 5: Comparison of the aorta to a stretched vibrating string. The length of the stretched aorta is equal to one half the wave length of the string.

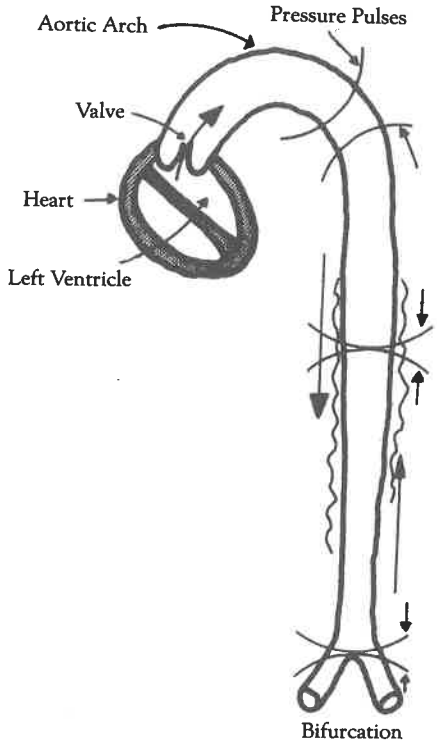

FIGURE 6: Collision of the oppositely traveling pressure pulses causes a destructive interference pattern and vibration of aortic walls.

The aorta is the major artery of the body. When the left ventricle of the heart ejects blood, the aorta, being elastic, balloons out just distal to the ventricle. Under these conditions, a pressure pulse travels down along the aorta. When the pressure pulse reaches the iliac bifurcation, part of it rebounds and starts traveling up the aorta (see Figures 5 and 6). When the timing of the pressure pulses traveling down the aorta coincides or is in phase with the reflected pressure pulses, a standing wave is achieved. This standing wave of approximately 7 Hz will cause the body to move in a rhythmic fashion, provided the aorta is properly tuned. Presumably, a

feedback loop is set up between the bifurcation and the heart, which then regulates the breathing so as to make the lungs and the diaphragm contact the aorta and regulate its impedance. This allows the pressure pulse to be in phase with both the ejection and the dichrotic notch. This is an entirely automatic process during deep meditation.

Acoustical Plane Waves in the Body

The movement of the body is relatively small, 0.003 to 0.009 mm, but the body and particularly the head are very dense, tight structures. By moving up and down, the skull accelerates the brain with a mild impact in both directions (see Figure 7). This sets up acoustical and possibly electrical plane waves reverberating within the skull. The brain may be considered as a piezoelectric gel, converting mechanical vibrations into electrical vibrations, and conversely.

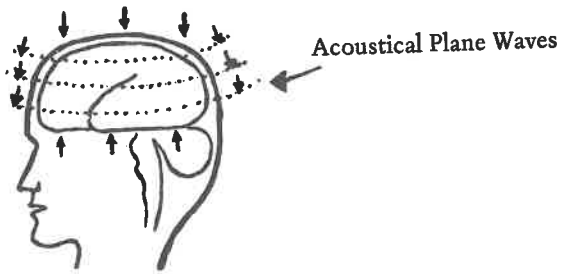

FIGURE 7: Acoustical plane waves moving through the brain.

The acoustical plane waves reflected from the cranial vault are focused upon the third and lateral ventricles of the brain, as shown in Figures 8 and 9 (see Ruch and Patton 1962). High-frequency acoustical waves generated by the heart are also reflected from the cranial vault and focused upon the third and lateral ventricles.

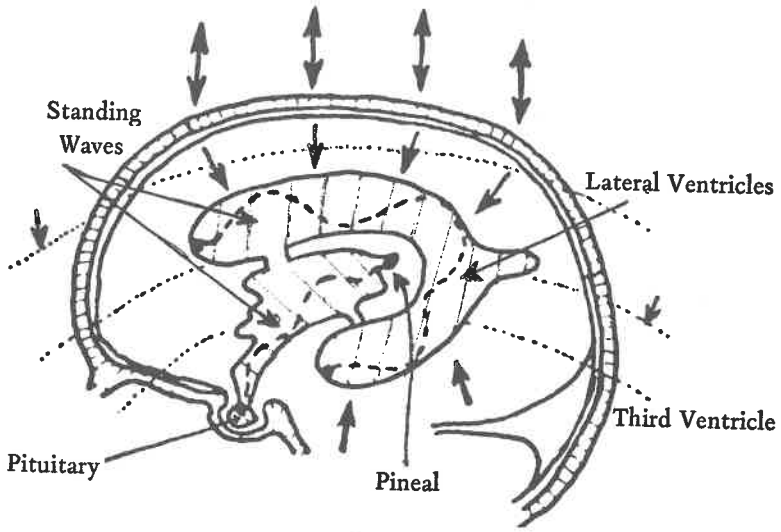

FIGURE 8: Lateral cross section of the brain, showing acoustical standing waves.

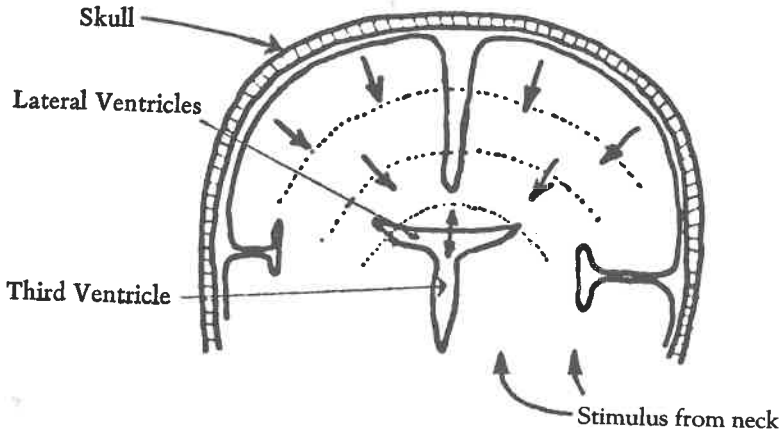

FIGURE 9: Frontal cross section of the brain.

Acoustical Standing Waves in the Ventricles

A hierarchy of frequencies couples the 7-Hz body movement to the higher frequencies in the ventricles.

The body can be considered as a bag of elastic skin containing stiff gel and supported by a rigid armature. The motion of the heart-aorta system sets this gel vibrating in different modes. Assuming the velocity of signal propagation to be 1,200m/sec, the fundamental frequencies for the different parts of the body would be along the vertical axis of the body: (1) the brain, 4,000 Hz; (2) circumference of the skull, 2,250 Hz; (3) the whole body length, 375 Hz; (4) the trunk and head, 750 Hz; (5) heart sounds, 35 to 2,000 Hz (see Stapp 1961). The high-frequency component of the heart sounds, although very low in intensity, may be able to drive the ventricles directly. The stimulus will be conducted by the left side of the neck, up into the skull, and reflected back from the cranial vault to the ventricles.

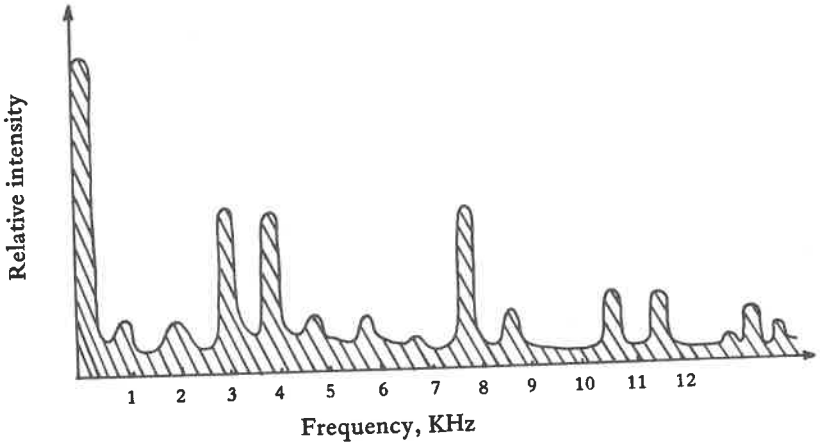

FIGURE 10: Frequency distribution of "inner sounds" heard by meditators.

Frequency distribution measurements of "inner sounds" reported by 156 meditators were made by asking each meditator to compare the sounds heard during meditation with sounds produced

by an audio-frequency oscillator through an earphone in one ear. The subject rotated the oscillator frequency control to match oscillator tones with those heard or remembered as the "inner sound." The frequency distribution is not smooth, but shows several sharp peaks, harmonics of the fundamental frequency, and possibly beat frequencies produced between the third and lateral ventricles of the brain, which are connected by a fluid bridge. In the frequency range below 1 KHz, acoustical standing waves running through the entire body appear, as do the higher harmonics of the heartbeat and the heart sounds.

The Circular Sensory Cortex "Current"

Figure 11 shows a lateral or side view of the brain. A cross section of the left hemisphere, along line AB through the sensory cortex, is shown as Figure 12 (see Ruch and Patton 1962). The labels in Figure 12 show sensory cortex areas corresponding to specific

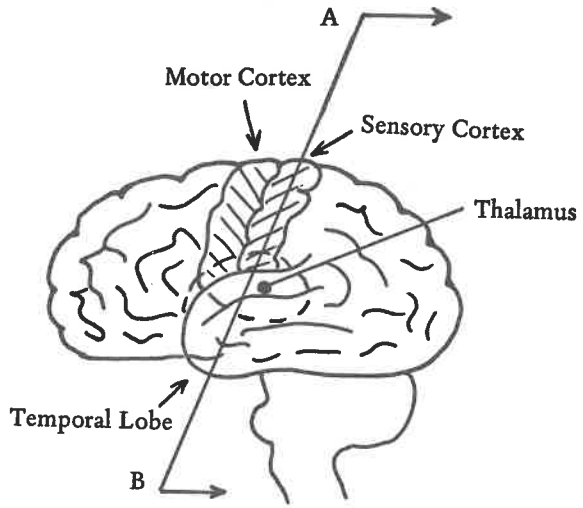

FIGURE 11: Lateral view of the brain, with section line AB.

sensory functions and to three pleasure centers that elicit pleasurable sensations when stimulated. These are: (1) the cingulate gyrus, (2) the lateral hypothalamus, and (3) the hippocampus and amygdala areas.

Just above the roof of the lateral ventricle starts the medial fissure, the cleft that separates the two hemispheres.

When a standing wave is present in the ventricles, the roof of the lateral ventricles acts as a taut skin on a drum that moves rapidly up and down, as shown in Figure 9.

The roof of the lateral ventricles is the corpus callosum, a bundle of nerve fibers connecting the two hemispheres (see Ruch and Patton 1962). The vibration of the corpus callosum and of the brain mass in general may serve as a pacesetter in the phase synchronization that occurs between the two hemispheres during meditation (see Banquet 1972).

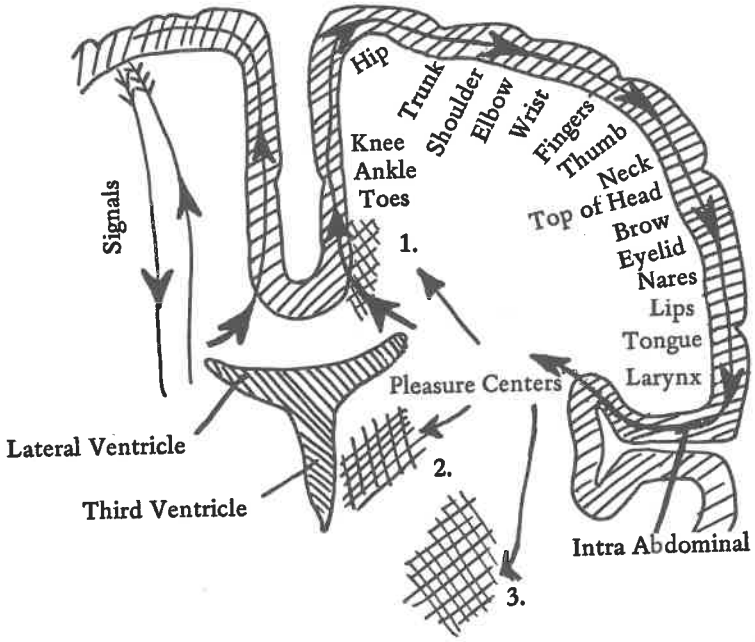

FIGURE 12: Cross section of the left hemisphere of the brain, through section line AB of Figure 11.

When the sensory cortex is stimulated electrically or mechanically, paresthesias occur in the area of the body corresponding to certain points on the cortex. These points are mapped out on the surface of the cortex as shown in Figure 12.

As the roof of the lateral ventricles vibrates, it stimulates first the toes, then the ankles, then the calves and thighs, and, as the stimulus rounds the corner of the hemisphere, the pelvis is stimulated. As the stimulus spreads along the cortex, it will affect the trunk, moving along the spine toward the head.

The cortex has different acoustical properties from the white matter and the cerebrospinal fluid. The white matter consists mostly of myelinated fibers, a fatty substance that will tend to damp out an acoustical signal. The cortex may be viewed as a water-based gel that conducts vibration well.

Thus, an acoustical interface exists between the white matter, the cortex, and the cerebrospinal fluid. The cortex will therefore preferentially tunnel the acoustical signal.

This mechanical vibratory action is assumed to cause electrical polarization of the tissue of the cortex, to allow enhanced conductivity of the tissue to the stimulus moving along the cortex. This moving stimulus may be viewed as a current. According to our hypothesis, this current is responsible for the effects of the "awakened kundalini" on the body (see Bucke 1970; Krishna 1974).

Sensory signals usually come to the cortex through the thalamus and go back the same way (see Figures 11 and 12). It is interesting to note that those parts of the body which are represented on the surface of the cortex facing the cranium are felt more strongly by a person experiencing the kundalini stimulus. Those chakras, or energy centers, are most actively felt, while portions of the cortex which are cushioned and are located inside the folds of the brain are less noticeable to the individual. This may well occur because the arch between the tops of the two hemispheres and the temporal areas are exposed to a double stimulus—one coming up from the ventricles and one coming down from the cranial vault, accelerating the brain downward. The larynx is the last point on the cortex facing the skull, and it is also the last chakra to be activated and strongly felt. Presumably, the stimulus continues inside the fold of the temporal lobe and closes the circuit, as shown in Figure 13.

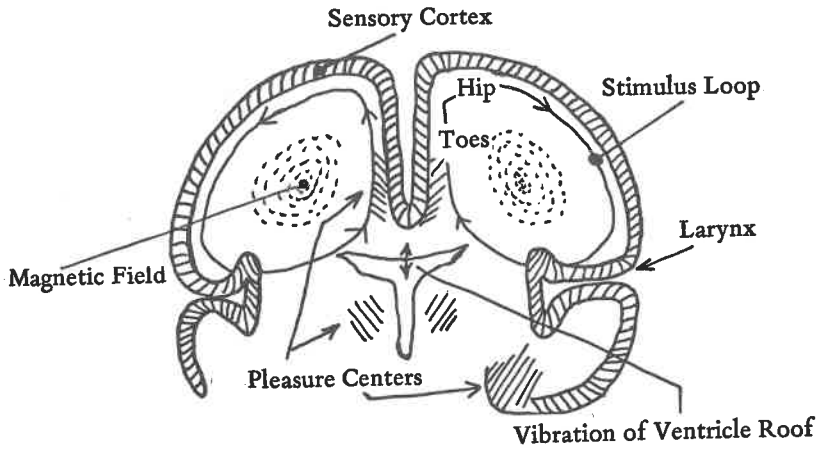

FIGURE 13: Frontal cross section of the brain.

This is shown by EEG measurements, indicating that during meditation there are currents of opposing polarity, relative to the midline, flowing along the sensory cortex of both hemispheres. These occur in both the alpha and theta range of brain wave frequencies.

As the stimulus travels through, it crosses an area that contains a pleasure center. When the pleasure center is thus stimulated, the meditator experiences a state of ecstasy. To reach that state it may take years of systematic meditation, or again, in certain people it may happen spontaneously.

As long as the four oscillators—the aorta, the heart sounds, the standing waves in the ventricles, and the circulating sensory stimulus or kundalini current—are in phase and resonating, all parts of the body move in harmony. The fifth oscillating circuit is activated when the sensory cortex tissue has been finally polarized to the point where there is a circulation of electrical current in the hemispheres and a magnetic field develops inside the core of each current ring, as shown in Figures 14 and 15 (see Cohen 1972).

This magnetic field pulsates in harmony with the other oscillators. The observed "normal" rate of the circulation of the sensory current is about 7 cycles/sec.

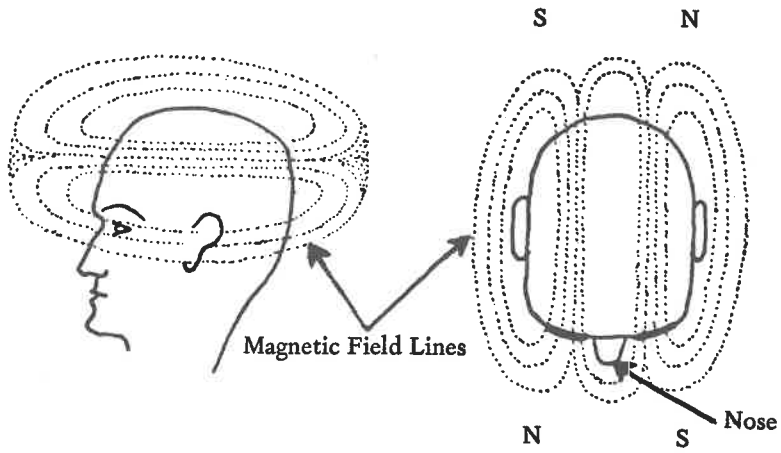

FIGURE 14: Lateral and top views of the head, showing magnetic field lines.

Pulsating magnetic fields of the order of 10^{-9} gauss are produced by the currents circulating in the brain. These currents may be detected by an electroencephalograph electrode on the skin surface of the head. However, they are quite variable (see Cohen 1972). The sensory cortex currents will produce fields of symmetrical shape but with polarities associated with the two brain hemispheres opposing each other, as shown in Figures 14 and 15.

Thus by meditating in a quiet sitting position, we slowly activate five tuned oscillators. One by one these oscillators are locked into rhythm. This results eventually in the development of a pulsating magnetic field around the head. When this occurs, one may simultaneously observe other characteristic and automatic changes in the functioning of the nervous and circulatory systems. It is the purpose of meditation to bring about these changes in order to increase the ability of the nervous system to handle stress and overcome it more easily. The noise level in the nervous system is thus reduced, and the system becomes more efficient and permits a fuller development of the person's latent physical and mental capacities.

Any of the five tuned oscillators can be triggered individually after a short period of stimulation. Any one of them will get the sensory cortex current circulating and will soon lock the heart and the body's motion into an artificial state of meditation. This is a dangerous practice, which may be traumatic to an inexperienced meditator.

Magnetic Feedback

Fifteen subjects sitting upright were subjected to hemispheric stimulation by an externally applied varying unipolar magnetic field of 0.5-gauss maximum intensity measured at the skin surface. The field was produced by a C-shaped electromagnet, with 30-cm pole gap spacing, activated by a voltage-offset sine wave power source, with a frequency of 3.75 Hz, and a stimulus duration of 2 minutes for each subject. The apparatus formed a closed magnetic circuit with lines of force going through the brain. The polarity of the applied field could be reversed. The responses of the subjects in a blind experiment were collected in tabular form (see Table 1).

Subject	Pushed & pulled by field	pain & press. in head	press-ure in eyes	Stimula-tion in back of head	Pulse felt in neck	High-pitched sound in head	Press-ure in ears	Meditates
1	+				+			−
2		+				+		+
3		+	+		+			+
4			+		+			−
5	+							−
6	+							+
7	+	+	+					−
8		+	+	+				+
9						+	+	−
10	+							+
11		+						+
12	+	+		+	+			+
13		+		+	+	+		−
14	+							+
15	+	+						+
	8	8	4	3	5	3	1	

TABLE 1: Summary of responses of 15 subjects to unipolar 3.75-Hz, 0.5-gauss maximum intensity, 2-minute duration magnetic field stimulation applied to one hemisphere of the brain.

More than 50 percent of the subjects tested described sensations of pain or pressure in the head, also a sensation of being pushed and pulled by the applied magnetic field. These results suggest an interaction of the field around the head with the externally applied field.

Discussion

The symptom-sign of this "sensory-motor cortex syndrome," or what has been characterized as the kundalini process in ancient literature, can be quite variable and sporadic. Its complete presentation usually begins as a transient paresthesia of the toes or ankle with numbness and tingling. Occasionally, there is diminished sensitivity to touch or pain, or even partial paralysis of the foot or leg. The process most frequently begins on the left side and ascends in a sequential manner from foot to leg to hip, to involve completely the left side of the body, including the face. Once the hip is involved, it is not uncommon to experience an intermittent throbbing or rhythmic rumblinglike sensation in the lower lumbar and sacral spine. This is followed by an ascending sensation that rises along the spine to the cervical and occipital regions of the head.

At these latter areas, severe pressure-caused occipital headaches and cervical neck aches may be experienced at times. These pressures, usually transient but occasionally persistent, may also be felt anywhere along the spine, right or left side of the chest, or different parts of the head and the eyes. Some individuals will notice tingling sensations descending along the face to the laryngeal areas. The tracheolaryngeal region may also be felt as a sudden rushing of air to and fro. Respiration may become spasmodic with involuntarily occurring maximum expirations. Various auditory tones have been noted, from constant low-pitched hums to high-pitched ringing. Visual aberrations and a temporary decrease or loss of vision has been observed. The sequence of symptoms continues later, down into the lower abdominal region.

Because a particular symptom or sign of the altered sensory and motor systems may occur or persist for months or years, the

sequence of symptoms may not be obvious, nor appear causally connected. Also, only in a few of the known cases will all of the symptoms in this sequence become vividly apparent to each person. Normally, physical and laboratory examination reveals either little or no pathology and therefore, except in rare cases, many of the complaints are probably dismissed as psychosomatic or neurotic symptoms.

Meditation has been considered, here and elsewhere, as a stress removal process (see Selye 1956; Benson 1975). The symptoms noted above are indications that release of stress is taking place. Stress, as defined by Hans Selye (1956), is a "state manifested by a specific syndrome which consists of all the nonspecifically induced changes within a biological system." The intensity of the symptoms is an index of the severity of the stress being released. On the whole, these symptoms should be looked upon as a positive sign of normalization of the body. The unusual aspect of this mechanism is that the release of stress is experienced as a localized stimulation of a particular part of the body, as opposed to the accepted notion that stress is a diffuse general state.

A large percentage of individuals who meditate and who have previously used psychedelic drugs for extended periods of time, or are experiencing unusual stress, are more likely to show these symptoms. These will eventually subside by themselves, without the need for any medical intervention.

It is the spontaneously triggered cases that present a problem, since the individual does not know the cause of these symptoms, and tends to panic. The psychological problems may mimic schizophrenia, and be diagnosed as such by the physician. As a consequence, drastic procedures may be used to alleviate the problem.

An awareness of the existence of the above-noted symptoms and the mechanism triggering them is important, especially in view of the constantly increasing number of persons practicing meditation, who are therefore likely to experience these effects of stress release.

Possible Rhythm Entrainment Effects

Our experiments show that when a person in deep meditation is suddenly called to come out and stop meditating, the normal response is reluctance to abandon that state and a lapsing back into deep meditation repeatedly. This seems to suggest that a "locking in" situation is present. It is well known that the larger the number of frequency-locked oscillators in a system, the more stable the system and the more difficult it is to disturb.

When a situation exists where there are two oscillators vibrating at frequencies close to each other, the oscillator operating at a higher frequency will usually lock into step the slower oscillator. This is rhythm entrainment. When, in the state of deep meditation, a person goes into sine wave oscillation at approximately 7 cycles/sec, there is a tendency for him or her to be locked into the frequency of the planet (see Figure 16).

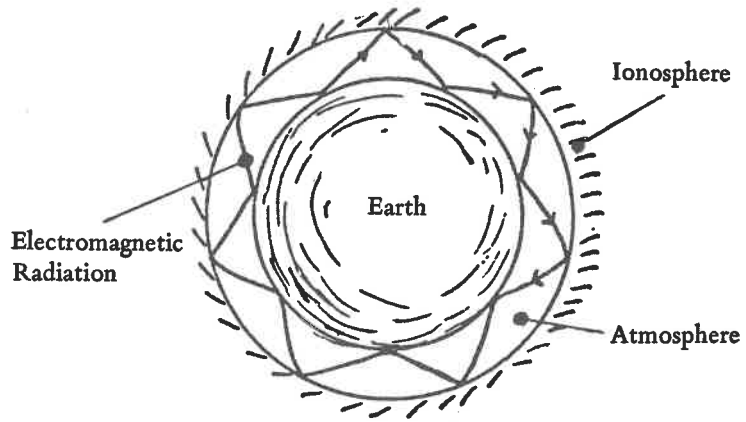

FIGURE 16: The earth's atmosphere is shown as a resonant cavity.

We have talked about resonant cavities and how a stimulus can set such a cavity vibrating at its own resonant frequency. Our planet has a conductive layer around it called the ionosphere, which starts about 80 km from the earth's surface. The cavity between the earth and the ionosphere (the atmosphere) is also a resonant cavity.

Certain types of electromagnetic radiation travel through this cavity, being reflected alternately between the earth's surface and the ionosphere, and vibrate at characteristic resonant frequencies.

In 1957 W. O. Schumann calculated the earth-ionosphere cavity resonance frequencies at 10.6, 18.3, and 25.9 Hz. More recent work by J. Toomey and C. Polk (1970) gave the values 7.8, 14.1, 26.4, and 32.5 Hz. The lowest frequency, 7.8 Hz, is approximately equal to the velocity of electromagnetic radiation divided by the earth's circumference:

$$\frac{2.998 \times 10^8 \text{ m/sec}}{4.003 \times 10^7 \text{ m}} = 7.489 \text{ or } 7.5 \text{ Hz}$$

This is the reciprocal of the time required for a beam of electromagnetic radiation to go around the earth.

Our planet is very much affected by the sun and quite closely coupled to its plasma fields. These two bodies and their interacting fields form our immediate environment. The sun produces energy in a wide spectrum, from powerful X-rays to acoustical signals (see Ewing 1967; Thomsen 1968). The solar wind shapes the magnetosphere and the plasmaspheres of our planet. All these layers contain charged particles produced by the sun. In the Van Allen belt, these particles oscillate back and forth along the magnetic lines of the earth between the north and the south poles. Much of this vibration occurs in the frequency range of 1 to 40 Hz, well within physiological frequencies (see Konig 1971).

There is a strong coupling between these oscillations and the changes in the magnetic field of the earth. These microfluctuations of the magnetic field are on the order of 10^{-5} gauss, about 10,000 times stronger than the fields around our heads. We live within this constantly active natural electromagnetic environment, with the added perturbations of broadcasting television and radio stations (see Becker 1972).

Given these conditions, it would be reasonable to assume that the fluctuations in these planetary environmental fields have affected human evolution in subtle ways over the ages—in ways that are not quite clear to us yet.

Our knowledge of physiology considers the present state of the human nervous system as being at the peak of its development. However, the present discussion suggests a mechanism that may cause changes in the cerebrospinal system. When a fetus develops in the womb, it undergoes changes that mirror human evolution from a fish through the amphibian to the mammal. But our findings suggest that this evolution very probably has not come to a halt with the way our nervous system is functioning at present. The hidden potential of our nervous system may be vast.

The mechanism outlined above describes a possible next step in the evolution of the nervous system, which can be accelerated by the use of certain techniques. We can speculate that this development will have the effect of an increased awareness of the self as a part of a much larger system. We can postulate that our magnetic "antennae" will bring in information about our extended system—the earth and the sun—and will allow us to interpret geophysical phenomena and signals to better advantage.

In this connection the work of Walcott and Green (1974) is of particular interest, since it shows that one of the orientation mechanisms of the homing pigeon depends on the magnetic fields of the earth. Indications are that the pigeon's built-in magnetic field is interacting with the earth's magnetic field. The pigeon's field would be analogous to the magnetic field around our head, when intensified by the sensory cortex "current."

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