

joy and clarity may be noted. This is a state especially conducive to the practice of meditation. At this point the internal energy is experienced as moving more centrally, closer to the axis of the body. One is said to have "opened" the third or central channel (nadi) called *sushumna*. At such a time one is counseled to involve himself neither actively nor passively with the world: "Do neither harsh nor mild acts at that time, both will be fruitless."<sup>20</sup> This is, instead, a time for turning inward.

### SWAR SWARODAYAM: THE STUDY OF ENERGY

The notion of a pervasive energy phenomenon that underlies the tangible, material world, seems to span many cultures and ages: "The Chinese called the energy *Chi*; the Hindus, *Prana*...; the Polynesians, *Mana*; and Amerindians, *Orenda*. In modern times it has been called *Orgone* (Wilhelm Reich)...and *bioplasma*"<sup>21</sup> (Russian researchers). Paracelsus, often considered the father of Western medicine, describing this energy, stated, "The vital force...in man...radiates within and around him like a luminous sphere...."<sup>22</sup> More recent investigations of a contemporary neuro-psychiatrist have found "a 'vital energy body or field' which substands the dense physical body, interpenetrating it like a sparkling web of light beams."<sup>23</sup>

Other prominent medical doctors have also described such "energy fields." Galvani, a professor of anatomy and one of the first discoverers of electricity, described an energy underlying biological functioning, a "life force" which was different from ordinary electricity, but which still ran "like a circuit from one part of the animal to the other."<sup>24</sup> Later, Mesmer, one of the most famous teachers of hypnotism in Europe, postulated a magnetic force ("animal magnetism") in the human body, which ran through all of nature. More recently in research at Yale University School of Medicine, electrodynamic field shifts have been documented during hypnotic states, "inadvertently resurrecting... Mesmer's animal magnetism, now more suitably based on the laws of modern physics."<sup>25</sup> Freud, who learned hypnosis from Mesmer's student, Charcot, formulated his notion of this energy mainly in sexual

terms, applying to it the term "libido."

None of these concepts of biological energy has ever met with wide acceptance by Western science. Their subtlety has made them difficult to verify through observation and measurement. Moreover, each has been a partial theory, explaining only a limited aspect of the total spectrum of energy phenomena. Such diverse concepts as libido, psychic energy, mental energy, sexual energy, bio-energy, and even *orgone* are currently used. Each emphasizes a model which looks at psychological and biological functioning from a particular limited perspective. We stand in need of a unifying and comprehensive understanding of energy in the biological and psychological realms. Our current understanding of energy is similar to our understanding of chemistry before the periodic table was discovered. There has been no overall integrating system.

By contrast, the study of energy in yoga is more comprehensive. Here a unitary concept is employed which has sufficient breadth to encompass manifestations of energy both within the person—biological and psychological—and in the external world. There is no parallel discipline in modern science. Western theories tend to reduce the human to a variety of systems such as the circulatory system, the nervous system, or the mind. These are studied individually, each in terms of its own dynamics and energy properties. Yoga tends instead to study the subjective effects of the totality of these systems working in concert. This notion of energy, however, may be obscure and difficult for the Westerner. Not only is it framed in symbols unfamiliar to him, but it's based on a study which is experiential and introspective. In yoga, energy is studied as it is sensed during the inward focusing of the attention, a practice not usually cultivated or developed in the West. The result is a sort of constantly evolving "internal map" of experiential "energy patterns" as they are discovered during one's personal exploration of inner space.

### Field Theory and Energy Patterns

The concept of electro-dynamic fields has become increasingly important in current atomic physics. The old notion of electrons, protons and other such particles being assembled like so many tinker toys to



make up an atom of matter seems to be giving way to an emphasis on fields.

As Dr. H. S. Burr has pointed out, the organization of sub-atomic particles "is, to a considerable degree, a function of such fields." The characteristics of matter from this point of view, are "determined by the interplay of electro-dynamic fields" and the particles contained therein. But electrical phenomena underlie biological processes too. Therefore, electro-dynamic fields are also present in living systems. It is then, reasonable to extend the field concept into the biological realm. Potential fields and polar differences exist in living systems. The fields they create relate "the entities of the biological system in a characteristic pattern."<sup>26</sup>

Carrying this perspective into our approach to experiential energy, we can begin to understand how a pattern of "pranic" or energy flow becomes apparent to the student of yoga. Each organ system, like the circulatory system, the digestive system, etc., though it may have its own organization, involves a certain amount of energy. When the potential fields and polar differences from the various systems are experienced as they summate, then an appraisal of the total situation results. Any attempt to sum and calculate the total effect of the various physiological energies working in even one small area of the body would be nearly impossible.

Although it's not feasible to calculate mathematically such a combined effect, it is obvious that the various forces cancel each other and combine in various ways to create some total effect. But this overall summation is not static; it is constantly changing. At one moment the most intense energy will be experienced in one area, at the next moment it will have shifted slightly to another area. As it varies through time, a pattern of energy "flow" comes into awareness.

If we look, for instance, at the nervous system, and focus on a large nerve as it courses through the upper arm, we will find that as a result of electrical impulses moving through this nerve there are changes in electric potential. If we examine another organ system in the body, the circulatory system, which operates in close parallel to the nervous system, we find that it also has its own energy properties. The movement of blood through the vessels involves energy and pressure operates to create the flow. Meanwhile, tiny nerves supply the walls of the vessels,

and to make matters even more confusing, tiny vessels supply the nerves! It is this totality of the energy state as it changes through time which is studied during the internal experience of prana.

To make this summation principle clearer, we might use an analogy from basic physics: The course of a boat on a windy river is the combined effect of a number of forces such as wind, motor propulsion, and water currents. But it is only the resultant of these which is experienced as the boat moves. The interrelation of the various energy shifts taking place in the different organ systems of the body is a similar resultant pattern of energy. But it is much more complex.

Dr. Burr and his co-workers at Yale have been able to measure electro dynamic fields, or "L-fields," in and around the body which seem to reflect the summation of some of these forces. But their measurements are limited by the range of phenomena the instruments can pick up. The overall pattern of energy flow sensed by the inward explorer, the yoga student, is probably broader and includes more elusive and subtle forms of "energy."

### Prana: A Unified Theory of Energy

The yogic notion of energy is unitary and includes not only those energies involved in the physical processes. It also includes what is called "mental energy." Both are included in the yogic term for energy, prana. In this context, *pra* means "first unit" and *na*, "energy." Prana is the energy which underlies all activity, physical and mental.

In psychoanalysis, mental energy or libido is said to be invested in objects or persons toward which one turns his attention or affections. Originally, Freud coined the term to designate sexual energy, which he saw as "dammed up" in neurotics. The inability to direct and regulate such energy, he felt, led to the symptoms of emotional illness. This "hydraulic" notion of sexual energy, as something almost material that could be "blocked," was widely criticized. Eventually, orthodox psychoanalysis came to use the term in a much more mental sense, to designate the tendency to relate oneself to persons or objects.

Meanwhile Reich, one of Freud's most brilliant but controversial students, held onto the original sexual meaning of Freud's energy concept, and in his hands it became even more physiological and nearly



tangible. Its flow could be blocked by muscular tension, its escape from the body prevented by such devices as the orgone box, and it could be measured with mechanical devices. He came to feel that attention to the energy was more important than to the mental content, and eventually shifted from talking therapy to more physical maneuvers, such as breathing exercises and the manipulation of body parts in an effort to reduce what he saw as "muscular blocks" to the flow of energy. In the words of one critic, he "pushed psychoanalysis to the utmost biological extreme, reducing all of psychic life to a manifestation of bodily streamings and spasms."<sup>27</sup> He called this energy "orgone."

The bioenergetic therapists have followed Reich's lead, while orthodox analysts have made of libido a primarily mental phenomenon. Yet Freud's earlier notion of libido is broader in its scope and closer to the Eastern notion of prana. He saw it as an energy that was readily expended through relatedness, especially of a sexual nature, but which can also, at least potentially, be shifted and transformed (sublimated) so that it becomes the force behind less gross, more mental and creative (sublime) activity. All attempts by Western science or psychology to integrate this sort of concept with the prevailing notions of physical energy have been unsuccessful. The more "scientific" psychologists have therefore found it necessary to reject notions of mental energy and libido. In yoga, however, this is more easily placed in perspective. The entire spectrum of energies is included. The internal energy pattern which is experienced results from the merging of mental energy with the physical energies which we have discussed. The two find a common meeting ground in the phenomenon of prana.

The fusion of the mental and physical energies creates that level of existence known in yoga as the "pranic sheath" or the "energy body." Where mental and physical energy come together, the total energy state is reflected. From the perspective of yoga, most Western concepts of biological energy have proved unsatisfactory because they have encompassed only one fraction of this totality. For example, Reich's orgone energy was more physical, in contrast to Freud's libido, which became more mental in nature. In a similar way, the concepts of Mesmer, Galvani, or current researchers on Kirlian photography, appear to be fragmentary. Each seems to be related to the area of experience to which the writers have had access.

Where the total energy state is reflected might be called the level of pure energy. The level of pure energy is this pranic level or "sheath." This energy manifests in both the mental and physical spheres, though their basic nature is different. The basic nature of the physical level is matter and that of the mental level is thoughts.<sup>28</sup> However, the pranic or energy level which connects or relates consists purely of energy.

There is a hierarchy of such levels in yogic theory. They form a sort of continuum. At each there is a higher degree of consciousness than in the previous. On the lowest level exists the physical body, on the next level is the energy make-up of the person and on the level above that is the mental plane.

Because of this interrelationship between the three, the total energy situation may be changed, either through inputs from the mental sphere or inputs from the physical level. Thus, one may do a certain posture or breathing exercise which physically increases or shifts the focus of energy, altering the total energy picture. He may, on the other hand, employ certain mental exercises by concentrating attention on a certain point in the body, thereby shifting mental energy and altering the total balance. Many of the meditation practices used in yoga might be viewed from this perspective.<sup>29</sup>

The energies involving the movement of the limbs and the grosser physical processes are found in the practice of yoga to be "noisier," that is, the sensations produced by these movements are more easily noticed and can "drown out" the sensations of subtler energy shifts that may be taking place. For this reason, one who wishes to study prana and its movements within himself must first assume a quiet, relaxed, and steady position. This is another way of looking at what is accomplished by the yoga postures that were discussed in the first chapter: when the body and muscles are relaxed, the "grosser" pranas are quieted. When the situation is calm in this way, the subtle sensations inside that normally may not be noticed come into awareness.

But in unusual circumstances, they may also be noticed anyway when, accidentally, they are accentuated enough. An example is the feeling of intensity in the chest that comes with "opening one's heart" to another with compassion. Another is the experiencing of "butterflies in the stomach" with stage fright. The experience that ensues when one aspect of the subtle energy suddenly comes into awareness



## PRANAYAMA: DISCIPLINE OF ENERGY CONTROL

The study of energy shifts and movements within the field of awareness is a preliminary step. It is only after one studies these energy patterns within himself and, in some personal terms, maps them out, that he is able to begin to learn to control them. Even before that, however, preparation is necessary to reach the degree of sensitivity which will allow the perception of such internal states.

### The Role of Breathing Exercises

There are certain breathing exercises which are used to sharpen this acuity. One aspect of this is accomplished through an exercise called "kapalabhati." It is a bellows-like pumping of the stomach muscles which flushes the lungs with air. The result is removal of carbon dioxide and other wastes from the blood which, if allowed to remain, would dull sensitivity. Another technique is rhythmic breathing, alternating between the left and right nostrils. This practice is done seated, pressing one nostril closed while breathing slowly through the other. It is called *nadi shodhanam* which literally translated means "clearing the pathways (nadis) through which energy flows" (see figure 2d).

This alternately traces a path of energy movement along the left side of the body and then the right. The repetition of this pattern gradually establishes a smooth and consistent course which becomes increasingly well-defined. This retracing of the same path then "illuminates" or "lights up" the nadis just as repeatedly tracing a letter in the palm of the hand makes it more vivid. In this way the nadis are more easily sensed and mapped out in the internal consciousness. One's usual breathing, by contrast, is jerky and variable from breath to breath so that no consistent flow is discernible and the picture is murky. This is analogous to the difference between discharges of static electricity and its flow through a wire. The erratic flashing of lightning in one part of the sky and then another involves movement of electrical energy, but its course is haphazard. By contrast, in a wire the electrons move in concert, flowing in a directional path, and an electrical current is detectable.



FIGURE 2D: Nadi Shodhanam is done by pressing one nostril closed while breathing slowly through the other.

### The Conservation of Energy

Breathing exercises have even been recommended as a means of helping the psychotic to deal with the chaotic energy situation with which he is struggling. Without a return to stabilization and balance, energy is constantly depleted and this can result in the "burned out" picture which is often seen in schizophrenics who have been hospitalized for many years.

Such breathing exercises may also be helpful in "reducing the static" of a system which has been disorganized through the use of



can be organized. To this end, such terms as nadi, chakra, ida and pingala have evolved in the yogic tradition.

The study of such a vast field of experience necessitates a very complex system of symbols for its conceptualization. Since these symbols and terms refer to an area of experience that has not had a counterpart in Western culture or science, it is understandable that attempts to translate them would often lead to misunderstandings and distortions. Western science has had no symbols which represent experiences of internal energy. In order to interpret such symbols from other traditions in our own terms, we must resort first to mental and then to physical approximations, both of which are necessarily misleading. The use of physically oriented terms, for example, has led to confusing the energy pathways with anatomical structures. For instance, the nadis are often mistakenly equated with nerves. It is almost like learning a new language. There is a complete vocabulary and a set of grammar principles which govern its use. But learning the words is not helpful unless the phenomena they represent have been consciously experienced. The Eskimo's half dozen or more different terms for snow are incomprehensible to one who has always lived in the tropics. Not only must one learn the vocabulary and grammar, he must be absorbed in the environment where it has meaning.

As prana enters with the breath, it becomes divided into five subsidiary energies. Each of them has its own characteristic distribution and peculiar function. These are *prana vayu*, *apana vayu*, *vyana vayu*, *samana vayu* and *udana vayu*. Their functions are respectively: respiration, excretion, coordination and integration, digestion and providing body heat, and speech and communication. When one goes a step further and develops control of these pranas, he gains the ability to energize directly any mental or physical aspect of himself that he chooses. Once the "language" is mastered, it becomes an effective tool.

In this context, disease is seen as a disturbance in the balance of prana. In a series of tests the subject studied by Dr. Karagulla was able to accurately diagnose physical disorders through her sensitivity to the energy patterns of patients. Since the energy imbalances preceded physical maladies, she could predict illnesses. "The energy web or body showed the condition clearly many months before it became apparent in the physical body." When the energy becomes deficient, excessive,

or poorly modulated in a body part, disease occurs. Regulating the pranic flow is said to return the system to balance and cure the disorder. The function of acupuncture stimulation, which seems to at least temporarily affect some of the grosser pranas, is said to be: "primarily to take energy out of one limb of the circuit and put it into another—to shift these energies around so that one obtained a balanced system."<sup>35</sup>

### Mental Energy and the Study of Mind

We see, then, how prana serves as an intermediary between body and mind. The current of prana is the "currency" of the psychophysiological system: it is the medium of interchange between mental and physical worlds. Its role is analogous to that played by money in the conversion of ideas to physical work. One may not be able to think a house into existence but he can sell a poem or an idea and have the house built. Money is the "green energy" that serves as the link, just as the pranic sheath links the mental to the physical. Through money or through prana, the forces at one level can be converted into energy and fed into another. The degree of control possible, then, is a function of the amount of energy available, just as what can be done in the world is partly dependent on how much money one has at his disposal.

Energy is tied up on different levels through inefficient operation. We've seen, for example, how muscular tension traps significant quantities of energy. In working with the body through hatha yoga exercises this is released and made accessible. But energy is bound not only by muscle tension. It is consumed by mental tensions as well. When there is a preoccupation with fears and anxieties, vast quantities of energy may be wasted. Even when the fears and anxieties cannot be clearly identified, one may notice and complain of a drained, tired-out feeling. Habitual ways of handling such tensions may become so much a part of the fabric of one's life that they can no longer be perceived. In addition to the energy they unobtrusively consume, further energy is expended in keeping them outside the field of consciousness. This vast world of mental tensions that lies outside our awareness represents enormous quantities of energy that are potentially available. Much of the practice of yoga revolves around gaining access to, and control over, this energy.



Ultimately it becomes evident that the immediate control over the energy level of prana is exerted by the mind. Yet the mind itself is notoriously changing. It is given to conflict, confusion and contradiction. At this point the student of yoga realizes that he is confronted with the question of how the mental world can be regulated. This dilemma can only be solved through a careful and systematic study of the mental field, bringing into awareness and integrating its disparate parts. First, the conscious mind must be studied and understood. Then, gradually, the areas that lie outside awareness can be approached and brought into sight. This is the next step in the science of yoga.

## THE MIND: ANCIENT AND MODERN CONCEPTS

*But other than the sheath that consists of vital breath to it is the sheath that consists of mind. The one is first, the other. The first has the likeness of a man and because of the likeness of a man, the second follows it and itself has the likeness of a man.*

Taittiriya Upanishad

WE ARE, ACCORDING TO THE TRADITIONS of yoga, composed of a series of bodies. Until now we have discussed the physical body, which is operative on the physical plane, measurable and studied by anatomy and physiology. We have also discussed the energy or pranic body which is approached in yoga through the control of the breath but whose study has, until now, been outside the orthodox scientific establishment. We now turn to the mental field or "mental body," which can be examined by focusing inward toward the workings of the mind.

Just as calming the body makes possible the quiet study of breath and energy, in the same way, regulating the mind brings the mind into focus. When the grosser levels