Chapter 3

Basic Notions of Ch'an Cultivation

1. Ch'an Cultivation

We have observed in chapter two that, if a person dwells on marks in his environment, his original "understanding-all" and "knowing-all" mind becomes distorted and, subsequently confused. He then mistakes this confused mind as his original one. However, the original mind possesses a subtle restoring force which works continuously to bring this confused one back to its original state. We may recognize the existence of this original mind, but we lack the freedom to use it. So, we must contemplate the marks, trace their source, and cut off the dwelling forces acting on them in order to allow the subtle restoring force to manifest itself and bring the confused mind back to its intrinsic state. This is Ch'an cultivation. Hence, Ch'an cultivation is simply the process of finding the source of marks, particularly anxiety and affliction, so that one will see his intrinsic self-nature.

To see one's intrinsic self-nature, one has to stop dwelling on all marks, not just some. If one eliminates some dwelling and permits some to remain, his anxiety and affliction may even be intensified. If he continues cultivating until the last dwelling is terminated and does so without any thought of the termination, he will suddenly become enlightened to a state which he was not aware of before. This is why it is said that although cultivation is gradual, enlightenment is sudden. The simple, yet the best, physical example illustrating this piecewise continuous process is the buckling phenomenon of a slender rod under an axial load. When the load is less than the critical load, the rod is continuously shortened but without lateral deflection (buckling), once the load reaches the critical load, the rod suddenly buckles.

Enlightenment which is the manifestation of the subtle restoring force of the intrinsic nature, and the intensification of afflictions can be illustrated by a man hanging on a frame made by many ropes. Let us call it the death-frame. The ropes represent his dwellings on marks which become his death-frame. The gravitational field which always acts on the man to pull him down to the ground corresponds to the original mind-field which produces a subtle restoring force to save the man from the death-frame. However, if the man does not cut off all the ropes, the gravitational force will not save him at all. If he cuts off only some ropes and leaves a few, his pain will be intensified because the load is the same but the contact area decreases and thus, increases the stress or the intensity. Only when he cuts off all the ropes will the gravitational force pull him to the ground. The gravitational force may be so subtle that he is oblivious to its existence; even though we all know that, without this subtle force, he cannot come back to the ground. In short, the subtle force of the original mind is like that of the gravitational field

which acts on us all of the time bringing us back to our original state. Buddha is always there to help us become enlightened, it is we who do not want to be helped.

2. Life Transformation of Human Beings

It has been pointed out in chapter two that Ch'an cultivation is simply the transformation of human freedom from one body to another along the human transformation sequence. Because of its importance, it will be further examined in detail. The wave-body (energy-body) can be further broken into two parts: the conscious body and the subconscious body which will be denoted by the C-body and the S-body, respectively. Therefore, the life transformation sequence of human beings is as follows:

 $(Ego-body) \rightarrow (Physical body)$

$$\rightarrow (C-body) \rightarrow (S-body)$$

$$\rightarrow (Mind-field) \rightarrow (Heart-space)$$

The collection of all ego-bodies forms an ego-world, as do the collection of all physical bodies form a physical world, etc. Therefore, we have a transformation sequence of human worlds:

The mundane world in which we live spans three worlds, each to a certain degree: the ego-world, the physical world, and the C-world. Most people may recognize the existence of the S-world, but do not have the freedom to reach it and control it. The separation of the C-world and the S-world is just for the completeness of the correspondence in the two transformation sequences. The world which contains the C-world and the S-world is called the wave-world or the energy-world. The more familiar name for the wave-world is the spirit-world or the soul-world.

The hierarchy of the transformation sequence is the following: the wave-body is the master of the physical body, the mind is the master of the wave-body, and the Heart is the master of the mind. Hence, the Heart is the real master of a human being. One usually needs to understand each level of the

sequence before progressing to enlightenment, however, the Ch'an principles teach us that it is possible for a human being, ordinary or holy, to assume his true or ultimate master position in this life without passing through the intermediate positions. This is a physical truth or reality which has been proved by many Ch'an cultivators. But it is of little use if one has not proved it himself. Life is real and experimental; but one has to run this experiment for himself.

With the acceptance of the life transformation sequence, there is seemingly no room for doubt that the Heart is the ultimate master of a human being. But man mistakes his physical body as proof of his existence, and hence he takes his physical body as the master and his ego-body as his judicial territory or decoration. He takes his C-body as a slave, his S-body a dream, and his Heart an unknown. With such an incorrect view, he attaches firmly to his physical body and his human freedom is associated with the physical body only, and hence, limited by it. When the physical body stops functioning, he dies because he has completely lost his human freedom in the physical world. Do not wrongly believe that when one dies and loses his human freedom, his energy-body will disappear. His energy-body actually becomes a slave and his destination is determined by his past deeds because he does not have much freedom in the new world he just entered. The conducts of his energy body (soul) in the energy-world without much human freedom can only follow the causes and conditions. That is: the environment determines the pattern of his behavior. Hence, he (his soul) is not much different from a rolling stone on the mountain in this physical world. With bad karmas his pain, distress, and grief are intensified because he has no freedom and no ability to alter his environment. This unpleasant environment he lives in is called hell or prison by definition. Hell is not a fixed, confined place like the jail is in this world, but it is simply an unpleasant and painful environment in the spirit-world. Since the spirit-world is formed by thoughtwaves, hell is created by our minds and in our minds. Therefore, once in hell we are in that state wherever we go until our retribution is over according to the principle of intensification and nullification.

In the above paragraph, the term "soul" has been used. This word has many meanings resulting from many points of view. The following example clarifies the meaning of soul as we intend to use it in this book. Let a person in this mundane world be called Mr. A. He has been told and also believes that he has a soul, yet that he has no freedom to assume the soul. Therefore, he thinks about, and talks about himself and the soul as two separate entities. However, in the spirit-world after his death, it is inevitable that Mr. A discover the following: Mr. A is the soul and the soul is Mr. A. This is a fact which has been proved experimentally by many Ch'an cultivators. Anyone who practices Ch'an cultivation can prove this for himself. Prove it now and not wait until you die when it is too late.

It has been pointed out that if one becomes attached to his physical body and loses his freedom, with bad karmas he will live in an environment which is called hell. And in this hell his pain, distress, and grief will be greatly intensified. Let me explain this a little further for clarification.

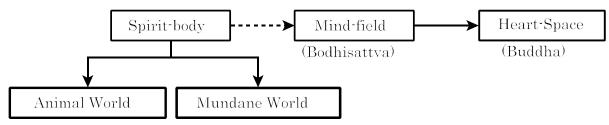
The pain, distress, and grief may have causes in the physical world, but they are not entities of the physical body; they are the entities of the energy-body. They result from many causes but mainly from

three poisons: cupidity and greed, anxiety and anger, ignorance and stupidity. Let us take greed for an example. We know that greed is a thought; therefore, it is a conduct of the wave-body. To be specific, we assume that Mr. A is greedy for money in this mundane world, and his happiness is measured by how much money he collects from his business. We all know that greed has no upper bounds and money is limited in its availability. Hence, complete satisfaction is unattainable. We may have bursts of excitements in our lives, but genuine happiness is impossible to attain. Nevertheless, if Mr. A works hard, he may get a certain degree of satisfaction, because there is a supply of money available. When Mr. A enters the spirit-world, greed as a thought-wave enters it with him. But in that world there is no material object called money; therefore he can never obtain it no matter how hard he tries. Hence, his greed cannot be satisfied in any degree and his unhappiness is intensified. He lives in his own hell.

3. Life Transformation of Living Beings

In the previous section we learned that in our present life, we can transform our freedom to any body in the life transformation sequence, or spread the freedom over several bodies. For example, most people are unions of the ego-body, the physical body, and the C-body, with the human freedom being distributed to each body in certain degrees. When we ponder the transformation sequence, we may have certain false thoughts and determine that Ch'an cultivation is not urgent or even necessary. Our reasoning may be similar to the following example: Mr. A enjoys his present life with all the money he wants. Hence, there is no reason to transform himself to another body and live in another world. After shedding his physical body, he automatically enters the spirit-world. Even though his life in the spiritworld is hard, the cause and condition will carry him back to this world again. Then he can live another "happy" life, since he has learned all the tricks of making money.

It is a false and dangerous thought to conclude that returning to the physical world is the only route. Many possible routes exist for a spirit-body after he leaves the spirit-world. They are shown as follows:



A route to the mind-field is called the Bodhisattva's route. The dotted line on the diagram indicates that the spirit-body can arrive at the mind-field is much harder than we can, since we all enjoy more freedom to choose our path. After death, the behavior of a spirit-body is determined by the cause and condition and his nature. If we cannot break the bondage to the five sensual desires and take the Bodhisattva's route in this world when we have complete freedom, how will we take the route in the spirit-world

when we have less or no freedom? Now you must make a choice: to take the Bodhisattva's route in this life or to wait until after death. Think it over and make a decision. Your decision should be firm without hesitation. If this is not the case, you are still tangled in your sensual desires. While our sensual desires dissipate our life energy, we kill ourselves gradually without any warning.

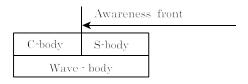
A spirit-body can take the Bodhisattva's route only if he knows of its existence. Therefore, anyone who reads this book has learned the Bodhisattva's route and should practice it diligently so that, if he is not enlightened in this life, he will not forget the way of cultivation after his death. This requires very strong determination. Otherwise, he will be scared to death when death comes, and forget all the methods of Ch'an cultivation.

At this point, one may think that it is impossible for a human spirit-body to be transformed into an animal. This doubt results from dwelling on forms and the false belief that form determines nature. We should realize that, when the spirit-body is transformed into a physical body, it is the nature of the spirit-body which determines the form of the physical body, not the other way around. Therefore, if a spirit-body has a dog-nature, he will be transformed into a dog.

4. Functions of the Energy-body.

From the life transformation sequence we can see that if one wants to assume the mind-field he has to shed the ego-body, the physical body, and the energy-body. This is sudden enlightenment. It is in your power and under your control to shed your ego-body and physical body. That means if you want to do it you have the complete freedom to do so. It is difficult in practice, but possible in theory. Its success depends on your determination and the expedients you use. But shedding the energy-body is much more difficult than shedding the ego-body, because one has no freedom over the S-body which is part of the energy-body. One can cut off all the attachments to the C-body, yet cannot do so to the S-body which is the subconscious part of the energy-body. Then, how can we cultivate, so that we can cut off the attachments to it?

The energy-body is a "physical" union or collection of thoughts. The part of this collection of which one is aware is the C-body; and the other part which has been accumulated in this life and all past lives and one is not aware of is the S-body. The C-body and the S-body are divided by one's awareness. Let us call the boundary between the C-body and the S-body the "awareness front" like a wave front. The concept is shown in the following figure.



The awareness front is not fixed but can be shifted toward the S-body through Ch'an cultivation. In other words, if one does not become attached to the C-body, his awareness will be increased. As the awareness front is pushed to the ultimate position of the S-body a simple suggestion or an otherwise meaningless sound might awaken the cultivator to the source of the thoughts -- the mind itself. This is sudden enlightenment. The Ch'an cultivator Shiang Yian is a typical example. He was a very quick and intelligent person and had ten answers for every question until one day when the Ch'an Master Gwei Shan asked him if he knew anything about himself before his birth. He was stunned and could not say a single word. Then he made up his mind and gave up all the learned principles, retired to Nan Yang Jur Temple and passed his time without a single thought. One day when he was sweeping the yard, a piece of broken tile struck a bamboo trunk and produced a strange and sharp sound. This mere sound enlightened him, and just this sound transformed a common monk into a great Ch'an master. One may try to find the sound which will enlighten him. It may or may not be possible, but it is definitely not recommended or even suggested. The bamboo sound struck by the broken tile is only a small part of the whole, or only the final touch to a great artistic piece. Without the long, hard, and sincere cultivation, the final touch would not have made Shiang Yan a great Ch'an master.

To understand how the awareness front can be shifted toward the S-body so that the condition for the enlightenment can be well perceived, we will examine the functions of the wave-body. It is known that the wave-body is separated into the C-body and the S-body. The C-body is further divided into the fifth and the sixth consciousness; and the S-body is further divided into the seventh and the eighth consciousness. The eighth consciousness is the part which consists of all thought-turbulence accumulated in this life and all previous ones. The fifth consciousness receives information directly from the environment through the five senses and sends it to the sixth consciousness. Hence, its function is like a faithful transformer which transforms the information without any distortion. The sixth consciousness processes all the information received and performs activities like thinking, reasoning, associations, and judging. The function of the seventh consciousness to the eighth, and the subconscious information of the eighth consciousness to the sixth. These relations are depicted in the following diagram:

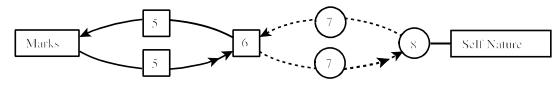
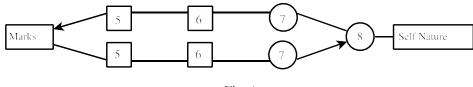


Fig. 3

The solid lines form an external operation cycle or an external bio-feedback process which we have the freedom to use. The dotted lines represent the internal operation cycle or the internal bio-feedback process which we have no or very little freedom to use.

Arcs with one arrow denote the commanding routes and arcs with two, the storing routes. It is these two cycles that direct and adjust our conducts (of the physical body) and thoughts (conducts of the energy-body) to produce the desired results. Because we have been deeply attached to the desired results for a long time, we have lost the awareness of the mind itself. If we are mindful of the turning points that occur in each consciousness of the cycle and do not become attached to either the results or the processes which have no nature, we will be able to realize the mind itself.

From Fig. 8, we can see that the six consciousness obstructs the flow of information from the environment to the eighth consciousness and distorts its real nature or meaning. For an enlightened person, the mind operates in the following unobstructed cycle:





Since the awareness of an enlightened person is present throughout the whole mind, the separation of the mind into many divisions is no longer necessary. And therefore, the names of the fifth, sixth, seventh, and the eighth consciousness no longer represent a reality. The Sixth Patriarch explained these cycles and the method for cultivation very clearly in the Platform Sutra, saying:

"Five, eight, six, seven Effect and cause both turn; Merely names to be used These are without real nature. If, in the place of turning, Emotion is not kept, You always and forever dwell In Naga Concentration."

I have divided the mind of an ordinary person into many divisions based on a variety of sources. According to the persons's awareness, the mind is divided into the consciousness and the subconsciousness; according to the size of the thought-waves, it is divided into the thought-wave and the thought-turbulence; and according to the functions, it is divided into the fifth, sixth, seventh and eighth consciousness. But for an enlightened person, these separations are meaningless; they do not exist. Since ordinary people are attached to their senses, the functions of the mind have many divisions. And therefore, these people can only realize the functions of the parts, not the function of the whole. If one does not become attached to the functions of the parts, he will realize the essence of the part; and from this realization, he can realize the whole. When he realizes the essence of the whole mind, he is enlightened. Hence, the functions of the mind are no longer divided; the eyes can hear, and the nose can see, and so forth. Therefore, a person will alter his entire perception of the world.

Generally, when one encounters his environment (external or internal), he will attach to it or parts of it. Attachments are thought-waves which carry energy -- the life energy. Therefore, the mind has a out-flow of energy. The consequences of this out-flow are many: one becomes less intelligent, the mind is confused and has stress, the life span is shorter, and so forth. If one removes these attachments through cultivation, instead of losing life energy, it is conserved. When this conserved life energy reaches a certain level, heat will be produced. This heat produced by the thought-waves can be easily felt by the cultivator during Ch'an sittings. When one reaches an advanced level, internal luminosity will result. It was said by many Ch'an masters, "When the internal luminosity occurs, the door to the great vehicle opens."

5. Ch'an and Science - I

Ch'an is basically the study of the self-nature of human beings. This is a static definition of Ch'an or simply replacing one word for another. As long as we are not enlightened to our self-nature, this definition is useless. Therefore, it is necessary to include an approach to realize our self-nature. A parallel situation exists in science. Science is basically the study of the nature of the physical world. In order to know the nature of the physical world, it is also necessary to include, in the domain of science, methods to reveal this nature. Therefore, both science and Ch'an are searching for the nature of something, albeit, different "physical" objects. Since these objects are in the same universe, they are obviously not isolated. Hence, if we want to show the relationship of these two studies, we can broaden the definition of science and Ch'an, widening their domains in the following way: Ch'an is a branch of science whose main concern is the nature of the human mind; and science is a branch of Ch'an whose main concern is science and science is Ch'an. There is no separation, and there is no need to separate them.

Through this book, we have observed many similarities between Ch'an doctrines and physical science. The Karmic Law in Ch'an is equivalent to those of the constitutive and field equations in science; and the mind-field is equivalent to the gravitational field, and so forth. These equivalences are not accidental, but natural consequences as stated in one of the Ch'an doctrines: "All three realms are from the Heart, and all dharmas are from the consciousness." In other words, the whole universe is created from the Heart, because consciousness is simply thought-waves of the mind, which is the distortion of the Heart. Due to this relationship, these two branches -- Ch'an and science - are even more closely related from a practical point of view. The importance of Ch'an for a psychologist is very obvious. Without understanding the mind itself, how can a psychologist understand his patients' behaviors?

There are many important teaching methods used in Ch'an schools which are invaluable in today's education. The major function of a Ch'an master is to stimulate and guide his students to become

independent thinkers, researchers, and experimenters. There are plenty of expedients used in Ch'an schools which would benefit the teaching and learning in colleges. Of course, the reverse is also true. An understanding of basic scientific theories, methods, and developments would also nourish the understanding of Buddha's doctrines.

Let me mention one of the scientific developments which inspired me to start exploring the Ch'an doctrines. We know that Newton proposed a law of motion which is valid in a reference frame which is "fixed in space", the so-called inertial frame. But on the other hand, it can be shown that Newton's law of motion is also valid in other frames which move with a constant velocity relative to the fixed one; hence, they are also inertial frames. Therefore, Newton has divided the inertial frames into two kinds: those fixed in space and those moving with a constant relative velocity. This is an internal contradiction or an impotence because by using Newton's law of motion, there is no way to distinguish a fixed frame from the one moving with a constant velocity. This internal contradiction did not bother anyone, except Einstein. Furthermore, there is another contradiction. Newton's law of motion is invariant under the Galilean transformation but not under the Lorentz transformation; while Maxwell's electromagnetic field equations are invariant under the Lorentz transformation but not under the Galilean transformation. Invariant property is a very basic requirement for all physical quantities and laws. Therefore, if the Lorentz transformation is accepted as the basis, Newton's law must be modified. If the Galilean transformation is accepted as the basis, Maxwell's equations must be modified. Since the Lorentz transformation contains the Galilean as a special case, no one can modify Maxwell's equations such that they are compatible with the experimental results and at the same time invariant under the Lorentz transformation. It is again Einstein who modified Newton's law of motion into the relativistic equation of motion which is invariant under the Lorentz transformation. The special theory of relativity was born and the meanings of space and time have been overwhelmingly altered.

According to relativity theory, the space in which we are living is not Euclidean, but Riemannian. Many phenomena and facts verified and pointed out by Buddhas are unacceptable and unbelievable according to Newton's viewpoint; yet they become natural consequences according to the theory of relativity. For example, an enlightened person can see past events. According to Newton's viewpoint, this is impossible. But according to the theory of relativity, this phenomenon is just like being able to see a person standing in front of us either at one yard or a hundred yards. One may ask, "Why can't I see?" There are two possibilities: One is that the relativity theory is wrong, and the other is that you have a poor set of instruments -- your eyes. Since the relativity theory is a well-established theory according to all experimental indications and theoretical considerations, it is most likely that the eyes which we have are poor. You may ask: Is it possible that Ch'an cultivators told a lie? Nothing is impossible. This is the last question you should take firm action; otherwise, the problems of your life can never be solved.

I have reported this scientific development in detail with a hope that you may wonder about your own life problems. There are two particular points which I want to point out:

- A) The reason that Newton's law of motion was modified is not because it was not practical or useful, but because it had internal contradictions. By removing these contradictions, Einstein's special theory of relativity which is closer to reality was established. Similarly for human beings, each person lives according to a set of codes or principles. Over a period of time examine these principles for all matters in your life and see if there is any contradiction. If there is, then your set of codes does not represent reality, and consequently, confusion and suffering result. The Ch'an doctrine is the set of principles without internal contradiction.
- B) Any physical law or quantity must be an invariant under a wisely chosen coordinate transformation. In other words, a law or any quantity which is not an invariant does not represent reality, perhaps it is an approximation at best. Now each of us should examine our set of living codes and see if it is an invariant in all environments and over all time. Otherwise, the code is unreal. The Ch'an doctrine is the set of principles which are invariant in all environments and over all time. And that invariant is self-nature or the Buddha Nature, the Heart or the Buddha Heart.

6. Ch'an and Science - II

Many people claim that science is objective and Ch'an is subjective; and therefore, Ch'an is not a science. These people can be divided into two groups: the first group contains those who are scientists but do not understand Ch'an; the other group contains those who are Ch'an cultivators but do not understand the basic principles of science. There is a third group which contains people who are neither scientists nor Ch'an cultivators. Many people who belong to this group claim that Ch'an is superstitious. However, their opinions will not be addressed here, because it is of no use and even harmful to argue a theory with people who cannot understand even a part of it. If a person does not know but wants to learn, he can be taught. However, if a person does not know but wants to argue, just bow to him but do not argue with him because if you bow to him, he will be happy. He may change his mind and want to learn later. But if you argue with him, he will be angry; and he may never come back even to think of that problem.

Now, let us examine the extent of objectivity in science. Let's take Newton's law of motion as an example. Newton did not have any special recipe to formulate his well known law of motion. He took a set of M experiments, abstracted the common nature of all these M experimental results, and wrote down, by his wits, the relation F = dp/dt. If another person had been given the same experimental results, he may not have been able to write down the law of motion. Therefore, from the M experiments to the relation F = dp/dt, Newton's mind is in operation and links these two together. This is a subjective process. If another person called N_j checks Newton's relation and finds that it is true within certain allowable experimental error, then Newton's relation is not only true to Newton (denoted by N₀) but also true to N_j. If (N_j) is a set which contains all persons N₀, N₁, N₂, ..., N_m, then Newton's relation

is said to be objective relative to this group of people. If m goes to "infinity", then Newton's relation is objective. If Newton's relation is not only valid for the M experiments but also expected to be valid for many others, then the relation becomes a law. We now notice that the objectivity of scientific laws is only subjectivity relative to a larger group of observers or believers. Absolute objectivity is unobtainable.

With an understanding of the meaning of subjectivity, objectivity, and their relation, it is not difficult to see that Ch'an principles are subjective and also objective relative to a group of people because Ch'an principles are experimental results obtained by all Buddhas, Budhisattvas, and many sages. Therefore, Ch'an and science are both subjective and objective in the same sense.

Another topic I would like to discuss is the belief that Ch'an is irrational. This belief was first raised by D. T. Suziki and widely spread by his followers with misunderstandings. This kind of statement only makes Ch'an a little mysterious. Without a true understanding of this statement, it is more harmful than helpful. If one takes Ch'an to be self-nature, then Ch'an is a reality and has no relation whatsoever to rationality and irrationality because rationality and irrationality are simply the judgment made according to a chosen set of propositions. Self-nature is a "physical" reality, so how can a physical entity become irrational? Does anyone say that the gravitational field is irrational? Does anyone think that the chair which he is sitting on is irrational?

One may take Ch'an as a set of principles observed by many experimenters, Bodhisattvas, and Buddhas. Even in this case, one still cannot say that Ch'an is irrational because these principles are simply the representations of experimental results. Experimental results are observed facts; they can be relative but can not be irrational. A similar case happened in science.

In the eighteenth century, light was primarily treated as a beam of particles according to the Newtonian point of view. This treatment of light is called the geometrical optics. It was later discovered that, according to Maxwell's equations, light is a wave. Many people were frustrated about these apparently contradictory characteristics of light, but they were soon consoled by the following belief: the characteristic of light as a beam of particles is simply an approximation of a wave as its wave length is very short. That is: a wave behaves as a particle when the wave length is short. This belief did not last very long, because both the particle and wave characteristics of light are approximations of the quantum nature. Does quantum theory represent the ultimate truth of nature? No one can or will say yes. Because such an affirmation has no place in science, it can only hinder the progress of science. We do not know what the ultimate truth is; we can only remove or modify the falsities.

It is the same in Ch'an. From the above example, we have learned not to say that one theory is more rational than the other. We can only say that each theory in science or Ch'an has its own domain of application. This is particularly important for Ch'an cultivators because of the following bad habit. People like to quote or interpret a speaker's statement with no attention to the audience. This is a big mistake even in daily conversation and very dangerous for Ch'an cultivation because all Dharmas spoken by Buddhas, Bodhisattvas, and sages are prescriptions for a particular group of Ch'an cultivators

who have a specific mental disposition and disease. If one does not understand the domain of application of that particular prescription but takes the medicine, he will get sicker.

In addition to Ch'an being a set of principles representing experimental results, it is also possible to take Ch'an as a cultivation method. In this case, one may say to a particular group of cultivators with great care that Ch'an is irrational in order to correct a specific mistake. For example, if a cultivator tries to understand his own intrinsic self-nature by pure reasoning which is based on his learned logic system without running his own experiment, he should be told that Ch'an is irrational to encourage him to practice and not to reason. This is a correct usage to break the cultivator's mental bondage. However, it does not imply that Ch'an is irrational in comparison to other logic systems. One should keep in mind that all logic reasoning and systems have their own limitations and impotence.

7. Ch'an and Mathematics

Many mathematical expressions and equations have been found to represent physical realities in different branches of science. This part of mathematics is called applied mathematics. It has also been found that mathematics helps a Ch'an cultivator understand many concepts more clearly and easily. In this section, the meaning of a function will be explained and its implications in our lives will be shown.

In mathematics, a function is a mapping which relates one set of objects to another set in a specific manner. One of the two sets is called the domain and the other the range. The function or mapping is an independent concept. This may not be clear to laymen or even to engineers who usually write : y = y(x) as the standard, instead of y = f(x) as it should be. For example, both curves $y = (1/4)x^2$ and y = $\sin(\pi x/4)$ may have the same domain and range, say (0, 2) as the domain and (0, 1) as the range. However, they represent two different curves because the relations between the domain and range are different. Therefore, a function is a concept which is independent of the domain and range, even though they are closely related to each other. Untrained people do not understand how the above mathematical concept relates to their lives; consequently, confusion and suffering result. So let me translate this concept into a familiar situation. Most people will agree that love is an essential and important concept of human beings. For an individual, love is a particular way in which he relates himself to other human beings. Therefore, we can call it a function. If love is a particular given function, then the statements: "Mr. A loves his children," and "Mr. A loves all human beings" have an equivalent meaning because the function is the same and the only difference is the range. In other words, "For any member of the human race, Mr. A loves that member," is a meaningful statement. From what we have just learned we know that "love" is a function and an independent concept. However, this is not the case for mundane people. When one says, "I love X", the X does not mean any member of the human race, but a particular member or a restricted group based on his personal choice. Therefore, the entities "love" and "X" cannot be separated, and love is not an independent concept. Mundane people, then, do not know how to love, but only know how to love X, a particularly chosen group, at a certain time. The range of

love for the mundane person is only restricted to those whom he classifies as good and useful according to his own reference. Therefore, the word love uttered from many people's mouths is simply an extension of I-and-mine. A Ch'an cultivator should only nourish the love whose range embraces all living beings. This love is an independent entity, a nature. This love without a restricted range is called "great love" or compassion. Helping all living beings to be enlightened so that they will have no suffering and no birth-and-death is indeed the great love, a nature, the Buddha nature. Anyone who wants to be enlightened must realize the Buddha nature. Hence, he should practice this great love (compassion). Otherwise, he can never be a Buddha.

At this place, I will point out that this great love is a nature and not a responsibility imposed by others or by the society as a whole. Therefore, all Buddhas love and help everyone without any partiality. The Buddha helps you as much as when you do not believe his principles as when you do. And Buddha helps those of you who do not believe in him as much as those of you who do. But if you believe in his principles and cultivate, you will be enlightened. If you do not believe his principles and, of course, do not cultivate, you cannot be enlightened. If you feel that there is any incomparability, think it over and over again.

Now I will discuss a property of a continuous function which may help those who search for sensual pleasure in this mundane world. Let f(t) be a continuous function in a given interval. There is a theorem which states, "If there is a maximum of the function in the interval, there is also a minimum." Let us look at the relation between this theorem and human life. A human being has feelings and those feelings have variations. If we represent the feelings by a continuous curve, then some parts of the curve are associated with happiness and others unhappiness or sufferings. By use of the above theorem, we obtain the following conclusion: "Whenever there is happiness, there is unhappiness." Happiness and unhappiness are like the positive and negative charges of a dipole, or the north and south poles of a magnet. We may call this principle the dipole-principle of happiness.

One may object to this principle by saying that when one is happy, he is obviously not unhappy. Although this is true, one must realize that the maximum and the minimum of a function do not occur at the same time. When the happiness shows, the unhappiness is already hidden in one's mind. This is because the happiness is formed by comparison with other experiences which are classified as unhappiness. At the time of happiness, one may not realize the existence of the unhappiness. But this hidden unhappiness will bubble up at some other time; it cannot just disappear since it is in one's own mind. One may think that this is a painful theorem to know, and it is. But one must realize that it is always painful to discover the truth when the truth is undesirable. We often hear the phrase, "I don't want to know the truth." Knowing the truth is indeed painful sometimes, but it is always beneficial to know the truth in the end.

The dipole-principle of happiness may be considered in the following way. Happiness is caused by marks which are parts of the environment. But the environment always changes, hence, happiness varies accordingly. When happiness varies to a certain degree, happiness becomes unhappiness. Therefore, the

only way to attain eternal happiness is to not be attached to the environment. In such an environment, one free from attachments, happiness comes from one's own self-nature. Self-nature is an invariant, and so is happiness. In this case, happiness and unhappiness have no demarcation; they are just names but refer to the same reality. Such a non-differential happiness is usually referred to as a peace or serenity.

8. Ch'an and Psychology

I have pointed out that Ch'an is a psychological science; however, it is not the kind of psychology offered at a university. A Ch'an cultivator searches the mind itself by direct cultivation, while a psychologist studies human behavior and mental processes. If a Ch'an cultivator is enlightened to his own mind, he is his mind and his mind is he. He is an invariant relative to all environmental transformations. However, this is not the case for a psychologist because the human behavior and mental processes which he studies are human responses to the environment which change from person to person and time to time. Thus, psychology cannot have any basic principle for all human beings or for all time. That means that psychology cannot have true field equations. On the other hand, psychology is concerned with the mental processes, yet it has no knowledge about the nature of the mind itself. Therefore, it cannot have correct constitutive equations. In order to establish a correct knowledge of the nature of the mind and its processes. And only in this way, can a psychologist help others in the right way.

The success and glory of physical science has been witnessed not only by scientists but also by laymen. The moon landing is understood by everyone. Other achievements like the discovery of new elementary particles in modern physics, DNA in bio-chemistry, and so forth, may not be understood by everyone. Yet, the advances in these areas cannot be doubted. Then what is the status of psychology? Progress, yes; glory, no. Many intelligent psychologists admire the glories enjoyed by the physical scientists. Thus, they have also borrowed some mathematical and scientific methods to apply in psychology with a hope that they would perform the same miracle. But they fail to understand the basic difference between a physical body and a human mind. Thus, their approach is, at best, a gamble. Useful results for limited cases may happen, but general constitutive and field equations can never be obtained. Eternal truth has no affinity with gambling.

In physical science the subjects of investigation are material bodies. Human beings are only observers, and their relations to the subjects of investigation can be assumed negligible. While in psychology human beings are not only the observers but also the subjects of investigation. If the observer and the subject of investigation are the same person, he is basically a Ch'an cultivator. If the observer and the subject are two different persons, the results of observation cannot be a basic psychological law, because the human freedom of the subject does not play a direct role in the experiment, and also the relation between the observer and the subject cannot be neglected any more.

There is a similar case in mechanics.

The linear constitutive equation of a homogeneous, isotropic, and thermoelastic materials can be written in the following well-known form:

$$\sigma_{ij} = \lambda e_{kk} \delta_{ij} + 2\mu e_{ij} - \gamma T \delta_{ij}$$
(8-1)

where σ_{ii} and e_{ii} are the stress and strain tensors, respectively,

T is the absolute temperature,

 λ , μ are the Lame' moduli,

 $\gamma = (3\lambda + 2\mu)\alpha$ and α is the coefficient of linear thermal expansion.

The above equation is only valid for linear thermoelastic materials. At one time, some people proposed to modify the above equation in the following form so that the equation would also be valid for nonlinear thermoelastic materials:

$$\sigma_{ij} = \lambda(T) e_{kk} \delta_{ij} + 2\mu(T) e_{ij} - \gamma(T) T \delta_{ij}$$
(8-2)

where λ , μ , and γ are not constants any more but functions of temperature. This approach did yield some useful results for a limited range of temperature, but it could never provide a general nonlinear constitutive equation, because the temperature loses its character as an independent variable as it should be. It is the same for the methods currently employed in psychology -- human freedom does not play a direct and independent role in the experiments. Thus, the results can only have limited uses and cannot lead to a general law. Sometimes, even the usefulness of such results is questionable; many times the results are even harmful to the understanding of ourselves.

There are some psychologists who use animals as subjects of investigation and then generalize their conclusions to apply to human behavior. It is an insult to human dignity. The basic differences between a human being and a rat are many, but the major ones are wisdom and compassion which are the manifestations of human freedom. It should be clear that the psychological law, if any, obtained from such an approach cannot be applicable to human beings. Any psychologist who applies such an approach either satirizes his fellow man as unwise and uncompassionate or is just ignorant of the existence of the human freedom which is a key variable in the human constitutive equation.

There is an example in mechanics which we should pay attention to and from which we may learn a lesson. It is the simple-tension test. In linear theory of elasticity, the constitutive equation for a homogeneous and isotropic material contains only two material constants -- Young's modulus and Poisson's ratio. Under a simple-tension test, measurements of the elongation and contraction of a rod are sufficient for the determination of the two constants. There are many other loading conditions which can be used for this purpose. The reason for choosing the simple-tension test instead of others is because it has the simplest loading condition.

Let's look at the analogy between the simple-tension test and Ch'an cultivation. We know that thoughts are waves of the mind. Wave propagation performs momentum and energy transfers, and thus, stresses are produced. Therefore, thoughts are stresses of the mind which are responses to external

events. Under a stressed condition, a corresponding "deformation or strain" of the mind occurs. It is difficult, if not impossible, to understand the mind correctly under a complex loading condition (environment). Suggested from the simple-tension test in mechanics, we should study the mind by simplifying the environment and eliminating thoughts so that the mind is reduced to its simplest configuration. That is the single-minded state. Only when one reaches such a single-minded state, is an understanding of the mind itself hopeful. In analogy, this may be called a simple-thought test of the mind. However, this is not the road which the psychologists take. The road they take is like determining the material constants in mechanics by twisting a torus. It cannot be said that it is impossible, yet no one has been able to yield an exact solution due to the complexity of the geometry. Ch'an cultivators are simply those psychologists who perform the simple-thought test of their minds. Even further, they have to remove the last thought so that the mind will reveal itself. This is enlightenment.

9. Ch'an and Religion

It has been emphasized that Ch'an is the science of the human mind. Hence, it concerns everyone of us. And all of us can cultivate Ch'an to find the true self so that we will not be lost in the ever changing environment. However, there are many who hesitate to practice Ch'an principles merely because of their religious designations. Therefore, I again clearly state that Ch'an is not a religion according to the following definition:

Religion is a system of beliefs conferring on a supernatural being who is called God. After death, human beings will be judged and punished or rewarded by God according to his will. God is all-powerful, just, and loving; and a human being can never become God.

This is not a general definition of religion. As a matter of fact, a general definition just does not exist and should not exist. My purpose is not to formulate a general definition of religion, but to try to convince those people with such a religion that Ch'an is not a religion. Therefore, they can practice Ch'an with a peaceful mind. Through cultivation, if he finds the truth in his own mind, that is the only truth. After reaching this stage, he is an independent person. He has then freed himself from his religion and all religions. He can call the truths he finds from his own mind Ch'an or any other name. Name? Who cares about the name? It is the reality behind the name that counts. At that moment, he can just gaze at and read from his own mind in which the whole universe is embedded.

10. Meaning of Reality

If a person senses or knows that he may sense the effects of an event through his five sense organs then the event is real, relative to that person. If an event is real to all persons in a universe then the event is real in that universe, and it is absolute. Let the universe contain many worlds. An event which is not real in one world may be found real in another world. That is: reality is relative. Therefore, one has no reason to argue the validity of another person's reality. They are simply in two different worlds at that

time. The only real argument that may occur would be a result of these peoples' honesty, not the reality of that event itself. One must realize that reality relative to a person may also change from time to time due to the change of his understanding. An event which one does not believe at one time may be found real at another time. Therefore, a scientist should never claim that his finding is the ultimate truth of reality. The well-known example of this kind of mistaken claim is Newton's law of motion. This law was believed to represent the truth of the real world for two centuries, yet it was modified by Einstein's special theory of relativity and its basic concepts of space and time was completely cast away by Einstein's general theory of relativity. From this lesson, no one including Einstein himself has claimed that the theory of relativity is the ultimate truth of the real world. Instead, we can only say that relativity theory is a better approximation.

There are people who believe that life is terminated at death. They think that the only thing they have to do is to struggle through this life and after death there are no more problems. These people mistake the physical body and life as the same and do not believe that they have a human nature which is independent of the physical body. If one believes or proves that he has a human nature, how can a nature die? If a "nature" can die, it is simply not a nature because a nature must be an invariant. An example is the gravitational field which may be considered a nature for all material bodies. When a material body changes its shape and composition, its gravitational field will not vanish or die. When a giant star becomes a "black hole", we may say that the star dies, yet its gravitational field still exists.

Here it is appropriate to present proof that life and the physical body are two different entities, not one. If they are one, then they cannot have any different characteristics, but this is not the case. Although the physical body can be divided into pieces, we all know that life is not divisible. For example, a person's legs could be cut off but his life would still be intact. Therefore, life and the physical body are two, not one.

Some people claim that all phenomena are false and unreal and, therefore, no cultivation is needed. According to this false belief, they enjoy themselves by using every means to entertain their physical bodies in this world. These people are called hedonists; they are not only ignorant but also dangerous. They will find that after death their energy bodies are still tortured between happiness and suffering. The existence of the energy body in another world has been proven by many Ch'an cultivators. You must prove it to yourself by following Ch'an cultivation. Because it is your own life, no one else can live it for you; likewise no one else can die for you.

Let me give some simple examples to demonstrate the relative meaning of reality. In the physical world, when a person bumps into a wall in the dark, it hurts. Although he cannot see the wall, it is real. The reality or the existence of the wall is due to the obstruction of his motion. But if he sheds his physical body and assumes his energy body, the wall will not obstruct his comings and goings. Therefore, the wall will no longer be real to him.

The relativity of reality can also be illustrated by another example which is familiar to all parents. When parents watch their children playing house, one child pretends to be the husband and the other

his wife. They imitate their parents in a very vivid manner. Fascinated by their vividness, the mother tells the father, "Look, how genuine and interesting it is." The father answers without taking his eyes from the television, "It is just child's play, it's not real." Yet, to those children, it is real, as real as when one bumps into the wall. They have happiness and sadness. They argue and they laugh. Only when they grow up will they realize that playing house is child's play indeed. Similarly, an ordinary citizen may not be able to understand a politician's activities and think that a politician's life is just play, a game, and not real. But to the politician, it is real, as real as yours and mine.

Another example which we have all experienced is dreaming. In a dream, all the human emotional excitements may be replayed: happiness and suffering, sweating and screaming. We cannot say that it is not real during the time of dreaming. Yet, when we wake up we forget the dream. If a scene of the dream does occur in our mind occasionally during the day, we may then tell ourselves, "Oh, it was just a dream. Why bother!" However, if a person attaches to the scenes of his dream, he will be maneuvered or affected by his dream. If this is the case, we say that the person is living the dream.

It is a proper time to stop and reflect on some of the things we may have acquired during our lives: fame, power, and wealth. Everyone knows that no one can take these with him at the critical moment which we call death. Therefore, life in this physical world is also a dream, a longer dream compared with the ones we have had at night. If we become attached to the events in this life, we will never be able to wake up to see the truth. If we want to wake up and find the whole picture of life, there is a way --Buddha's Way. Buddhas and Budhisattvas were just ordinary people like you and me a long time ago. They have awakened and shown us the Way by which everyone else can also awaken from this long dream. Buddha has shown us the Way, but we ourselves have to walk through it. Everyone has to live and die by himself; there can be no proxy.

11. Habit and Environment

To search for the ultimate truth, a Ch'an cultivator must be completely free. If he is restrained and conditioned, the truth he finds is also restrained and only valid under that condition. Such a restrained truth cannot be the ultimate one because the restraints come from the environment which is always changing. There are many kinds of constraints, but the major one is one's own physical body. Mundane people take life and the physical body to be one and the same thing. Therefore, when the body stops functioning, they think they will die. They have been consciously and subconsciously prisoned to their physical bodies for uncountable years; they have made their physical bodies the main center of interest.

For survival and security, society and organizations are formed. Therefore, an individual's conducts and thought patterns are shaped by the trend and the norm of society. And, in turn, the trend is forged by people's desires. Thus, one learns and then he teaches. This is called education. He may deviate from the norm of the society because of human freedom, yet he is not completely free because he attaches to his physical body which is tied to the physical world. His freedom is constrained and limited, he is

confined in the physical world which is recognized by his five senses as three dimensional and Newtonian.

It is not my intention to devaluate education at all. But after being educated to a certain point or age, one should stop and ponder on the real meanings of what he has been taught and what he has learned, the sooner the better. One should, particularly, examine the restraints and conditions under which he was taught. In other words, one should start to unlearn. A Ch'an cultivator must have the determination to examine and reexamine himself thoroughly from time to time with all restraints demolished. Only under such a void-environment, can the ultimate truth be found. In such a voidenvironment, a cultivator may first feel insecure and uncertain. This is not unusual. And it is at this time one has to strengthen himself to break the cultivation barrier. This is also a time at which one needs a Ch'an teacher or a learned Ch'an friend for guidance and encouragement. The cultivation barrier may be short or long; this depends on one's vigor in cultivation. The cultivation barrier is dangerous because it may cause the Ch'an cultivator to retreat from cultivation. On the other hand, it is also a good indicator of one's progress in cultivation. After each cultivation barrier, one will find that he enters another new state of life. He sees and feels things in this world differently, though the things haven't changed. In general, a cultivator becomes more alert and calm after each cultivation barrier. After he has passed the last barrier to enlightenment, he can then live under any condition, good or bad, happy or sad, without a slightest trace of obstruction. It is just like water flowing freely along the river bed. Detours, yes; headache, no.

To examine oneself in a void-environment is not just for anyone, it requires courage, wisdom, and compassion. A sage is a sage because he has corrected all his errors. A Buddha is a Buddha because he has removed all the impurities of human nature. A man who claims or thinks that he has no error nor any impurity is a foolproof fool.

The constraints from society are easily recognized by the cultivator because they are considered the externals. But the constraints from his own habits can easily cause him to deceive. Thus, the major difficulty a Ch'an cultivator has to overcome is conquering himself. This is because the entity which is named as himself is actually false and unreal.

A habit is a personal preference of doing certain things or thinking in certain patterns repeatedly so that it becomes autonomous and the doing and thinking can be done without conscious analysis and guidance. In most cases, a person's habits are done without regard to other people. Unless a habit bothers others, one may not even realize that he has a particular habit. Needless to say that he has never considered the habit having anything to do with Ch'an cultivation. However, on one hand, a Ch'an cultivator must be free in order to find the ultimate truth, and a habit is a very strong dwelling force in one's environment which restricts the freedom of the cultivator. And on the other hand, the unawareness of one's habit is the most dangerous foe a Ch'an cultivator can have. Therefore, a cultivator must be mindful of every word he utters, and every act he does. In this way, the cultivator trains himself to be his own master and aware of his existence at all times.

When one realizes his habits and decides to change them, although it is difficult it is not an impossible thing to accomplish. If one cannot change his habit, it is, in most cases, because he really does not want to change it. In this case, he really does not want to be his own master, free from the constraints, and independent of the environment. In sum, he is confused and has internal contradiction. As a consequence, he suffers.

To be a slave is not desirable, but it does offer some short-term comforts to the human weaknesses which we all have. To be a master is great, but it does take responsibilities which may not be always pleasant or desirable. That is one of the reasons why we do not want to be the master of our doing, speaking, and thinking; instead, we complain and place blame on others.

A personal experiment on habit is reported here for reference. I used to be a heavy coffee drinker, at least two cups in the morning and three cups in the afternoon during every working day. As a result of this, my hands started shaking. On an early day in May, 1977 when I was drinking coffee as usual in my office, the question suddenly floated into my mind: "Why do I drink so many cups of coffee a day?" The answer after much pondering was, "I need it because of my diabetes mellitus." But then I thought, "That is not the real reason. If it was, then just plain water would be sufficient. Therefore, coffee must taste good." I then started to verify my conclusion. One sip after another, I tasted it with my lips and tongue slowly and thoughtfully. The conclusion after many trials of this experimentation, not from reasoning and habit, was: coffee tastes a little bitter, very acrid, and rough; and can hardly be considered good. Since that day, I have not sipped a single drop of coffee.

A physical habit is difficult to change, but it is much more difficult to change one's thought pattern which is a thinking or mental habit. A thinking habit is formed by repetitive use of a certain "logic" system. This logic system is abstracted from one's experiences during the whole history of his life. One may not be able to state explicitly the relation between these two, or even to be able to define his logic system. However, the existence of such a logic system cannot be denied, since any reasoning process is based on a logic system as its foundation. Different logic systems produce different results and consequences. It is well known that changing the basic hypothesis of the parallel axiom in Euclidean geometry leads to various Non-Euclidean geometries which were established by Guass, Bolya, and Labatschesky; and later they were united by Riemann as the Riemann geometry. If one lives in a logic system of Euclidean geometry as the eternal truth, there is no way that he can see the validity of the Riemann geometry. Therefore, if one finds himself in a logic system which is unsatisfactory, of internal contradiction, and even has a dead end, he should be brave and open-minded enough to explore other logic systems. We all have experienced the logic system of the mundane world as unsatisfactory, full of internal contradiction, and having a dead-end. It leads to affliction, suffering, and death. The main purpose of this book is to offer another logic system for everyone to examine and ponder. Examining and pondering can lead to better understanding, but they cannot directly benefit one's real life; one has to live accordingly. There are many brave men in this world fighting and killing for power, fame, and wealth; but when they face the gate of death slowly and suffering, brave men are very few. An

enlightened Ch'an cultivator takes death as a release, a natural phenomenon; he leaves this world in a manner as he pleases. Is this type of death desirable?