Mathematics, Philosophy, and Yoga

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Last evening there was an unusual manifestation of what we call "Field Consciousness." The term comes from field physics, and I think it is very good. I've otherwise called it Consciousness-without-an-object. It was present in unusual degree most, if not all, the evening, and in force. I saw its effect upon a very large proportion of the audience. It can produce a condition such as a light trance mixed with the ordinary consciousness. What this is, is the *presence* of the "numen" itself—not an emanation of the numen, but the *presence* itself. Those who have second sight may have the experience of perceiving the numen as a Radiant Being typically in a human-like form, but this is not the essential fact concerning the numen, for remember the words of Sri Aurobindo, that the Divine appears to man in the form for which he is prepared, but that form is not the essentiality. The essentiality is the consciousness which we have called Field Consciousness, capable of indefinite extension, for it is not conditioned by objective space. The Great Beings can be found in their essentiality here, now, wherever you are, by the appropriate rising in consciousness. Thus, the Buddha is not a person who died 2500 years, but a living *presence* anywhere; and he may be realized by a fusion of consciousness. The essentiality is both individual and universal. If you've caught the meaning of the symbols I drew from the mathematics of the transfinite, you will have some means of mentally grasping this fact.

Now, it is far more important to have even the smallest experience of the numen than to have all the learning in the world. What we do with our conceptions is like a play of a secondary consciousness upon this Field Consciousness, and the two become interrelated; and the primary office of the play of conceptions is to invoke the Field Consciousness as an immediate experience in as many as are susceptible. I saw that many were receptive last night. I also saw tears in the eyes of several, and there was nothing that was sad. Again, we turn to Aurobindo to get the meaning of this. In his terminology there is that which is called the "psychic being." The word is not to be confused with other usage; it's a restricted usage with him. And the psychic being is defined as that portion of the Divine which is in the evolution and is located in the heart behind the heart in each human being, usually veiled deeply unable to do much in guiding the life and thought of the individual. The great aspiration of the psychic being is the reaching out to the Divine in what we might call this Field Consciousness, and rarely if ever can it arise in a person when it has long been veiled without the evocation of tears. This is not vital feeling. Vital feeling can be a barrier, but the feeling that is of the psychic being is most precious. And do not be ashamed of such tears.

Now, our concepts that we deal with we may regard as relatively like toys, and we'll proceed somewhat to play with these toys. I wish tonight to introduce the content of a premonitory Realization that occurred sometime either at the close of July or the beginning of August 1936, preparatory to what I spoke of last night and a very important

preparer of the way. I was at the time engaged in certain work on El Dorado Creek, a tributary to the north fork of the north fork of the American River in the Mother Lode Country of California. I was quite alone, had been so for some days, had abandoned all organized plans, and was living by spontaneous impulse. I had with me one book, *The System of the Vedanta*.[1] And I ate when the impulse came. I slept when the impulse came. And I worked by the impulse. And I read by the impulse. Being completely alone and several days from any help if an accident had happened, the condition was most favorable for the sense of the *presence*; for when your dependence for security is upon the *presence* alone, beyond your own normal capacities to meet situations, that *presence* comes near. There's a great opportunity in complete solitude for the seeker of the way.

As I remember it, I was standing one day on the bank of the creek looking upward above the mountains at the sky, northward as I remember, when suddenly it dawned upon me that our search for the real was oriented in the wrong direction. We normally seek the *real* in the content of our experiences of the sensuous world—and that means all cognized through the senses—or through the concepts of the mind in their own immediate pointing. The thing that came to me is that the real is there in the voids between the images and the concepts. Where for conception and sense perception there seemed nothing, there was the real; and that where there seemed something, in reality there was a void. The objects we see—be they planets, stars, or other sidereal objects, or be they these more intimate objects around us—are not substances but relative voids. What seems to our normal consciousness as void, in reality is full; and what seems to be full, the apparent, is in reality empty, or, rather, relatively empty. The more tenuous the conception, the more tenuous the vision, the more of reality there is. The grosser, the heavier, the more massive—such as the heavy stars of which it is said the mass was so dense that a portion as large as a pea would weigh a ton—there is deep void. This is an inversion of our normal valuation. It took expression in a form that is somewhat reminiscent of the statements of Sir Isaac Newton: *substantiality is inversely proportional to ponderability*, or *reality is inversely proportional to appearance*. It dawned upon me very readily that here we had a statement which could be put into mathematical symbolic form very readily. And that I will do.

Let us take the form, *reality is inversely proportional to appearance*—we don't have as much chalk as we did—and substitute letters: R (standing for reality) equals 1 over A (standing for appearance): $[R = 1/A]$. That's a mathematical way of saying the same thing. And then in the original statement the 'is' is called a copula; and ordinarily such a statement: reality *is* inversely proportional, and so forth, would be a proposition you could not convert simply. Those of you who know logic know what I'm talking about. It is to be understood as a proposition that can be converted and then you can use the equals sign. Immediately, if you apply algebra, you get $AR = 1$, by multiplying both sides by A. And one who has had coordinate geometry or analytic geometry will recognize that these two being regarded as variables, it's an equation of the equilateral hyperbola referred to its asymptotes as axes. There's a mandala up here. It will come down later. Now, I suppose that's perfectly clear now to everybody. We're just playing now you know with our toys.

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[1] Paul Deussen, *The System of the Vedanta*, (Chicago: Open Court Publishing Co., 1912).
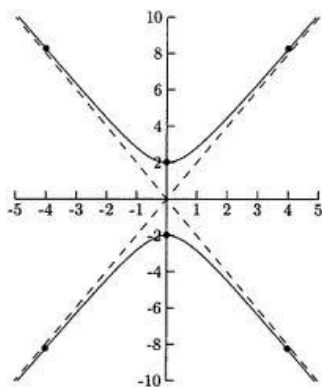
Let those be the—now I'll have to tell you what an asymptote is presently—and your curve takes this form. Now, those curves don't look very good, so what the mathematician does is to say let this be an hyperbola even if it doesn't look like it. You know, mathematic professors are very jolly and casual fellows. They may come into the class some day, put a line on the board, and say let that be the line at infinity. It has happened. Now, just as when God said let there be light, there was light; so when the mathematician says let that be the line at infinity, it is the line at infinity. And any student who has qualms at this point had better change his course. So in that sense, we say let this be a hyperbola even though it doesn't look like it; for after all, it isn't the visual image that's important, it's only a focal point for a concept. Now, the nature of this curve is such that it approaches closer and closer to these lines which we call asymptotes and become tangent to those lines at infinity. You've got to learn to be casual with infinity when you deal with mathematics. So on down here, up here too.

Now, another very interesting fact is that though this is going in this direction to infinity and that is going in that direction to infinity, both arrive at the same infinity. That's straight mathematics. And you may think of this continuing back through this, and it becomes a curve that embraces infinity. And it's going to become very important in our symbolism later.

Now, as that's not the usual way of presenting an asymptote, we don't generally orient it to its asymptotes as lines of reference, we'll use the formula for swinging it through $\pi/4$, what you engineers would call 45 degrees, but pure mathematicians have no use for degrees because radians are their normal measure of angles. And what we'll then do is realign ourselves. Take an *x* and *y* axis, draw bisecting this point another line, and these diagonal lines now are the asymptotes, and the curve will take this more familiar form. Now, this is perfectly symmetrical but my drawing won't be. There are certain important points called "foci" here, and so on.

Now, what does that mean? I'll let you think of it awhile. We'll go on with it a little later. But there's a certain application of that formula: *reality is inversely proportional to appearance*, or, this time, *substantiality is inversely proportional to ponderability*. An application came to my mind rather early. It happens to apply to the theory of trituration in homeopathy. Those of you who are acquainted with the theory of homeopathy know that by an examination through "provers," many substances have been checked for the symptoms they would produce if taken by healthy human beings, and those symptoms written down. There's a large book of them. And if an ill person comes along with a certain group of symptoms, there's no question as to identifying the disease

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by name or pathology, but simply a taking of a symptom picture. And a search is made for a drug substance which if taken by a healthy person would produce something very similar. Often it can't be absolutely the same, but you get as near as you can; and that's why it's called homeopathy—a treatment of like by like.

Now so far there's no particular difficulty, but they apply to this a process of trituration. You take a portion of your substance, which may be organic or mineral; you combine it with, say, ten times as much of a neutral barrier, sugar or milk commonly; you mix it up thoroughly; and you do it again; and you do it a third time; and then you have one of the lowest potencies of all which even amateurs can use without much trouble, or getting into much trouble. Now, if you'll notice, those three triturations mean that only one one-thousandth of the substance you have is the original drug. The rest is a neutral barrier. But suppose you do that thirty times, and the amount of your original substance is one over one with thirty zeros after it—and that is not a high potency. There's even a probability that you won't have any of the drug in a dose. But they go on up to a thousand-fold trituration, ten thousand, a hundred thousand—even more. And there isn't a chance, practically, that in any dose there will be one molecule of the original substance, and yet experience has shown that carelessness with these high triturations is dangerous. I've never found a homeopath who would attempt a rational explanation. They merely know empirically that it works, that it is so. But how in the world it could be so, I've never found one who would offer a rational explanation. But here is one: if you assume that any appearance—which might be, say, a drug plant—that that appearance is inversely proportional to its ponderability, and that its other is the diametric opposite of its appearance, when you reduce the *appearance* to nothingness, actual *substance* remains—substance that was hidden behind the appearance. When you triturate beyond the point of there being even one molecule of the original drug, you're removing hidden veils, and in the end you have something which if wrongly used could be dynamite—an application of the principle that *substantiality is inversely proportional to ponderability*.

I'd been looking for many years for some means of reconciling the universal illusionism of Shankaracharya and the universal realism of Sri Aurobindo, and only recently realized that I already had the key. Now, when men of Realization write philosophies and you find that those philosophies appear to be incompatible with the philosophies of other men of Realization, the appropriate approach is not that of dialectic annihilation—attempted dialectic annihilation of the other side—a process that is very common in ordinary philosophical seminars in ordinary philosophies. Remember what I said about the nature of dualistic consciousness characterizing this field in which we live and as contrasted to the consciousness beyond, which is, ultimately at least, nondualistic. Speaking from the level of a nondualistic insight, the formulation in dualistic terms, if complete, must be paradoxical, but there may be an emphasis of one aspect or the other—the emphasis being designed to produce an effect needed at the time and place—and thus the statement may be one sided. The challenge that faces one when he faces such statements coming from the fount of Realization is to search for the integrating conception.

Now, such integrating conceptions are not strange to science. Thus, for instance, we could say concerning the earth that it is falling into the sun because of the gravitational pull of the sun; but at the same time, the earth is flying away from the sun because of the inertia due to its motion in an orbit—falling into the sun and flying away

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from the sun at the same time. Ah, contradiction. Don't know. Its flying away for instance is tangential, and you have therefore the reconciliation in the parallelogram of forces. The earth flying off this way and the earth pulled in that way with a certain force. Draw your parallelogram and the actual path is that line, the integration of the two forces, each of these lines being proportional to the pull. You take parallelograms that are very small in calculus and you get the actual curve. There's an integration of two apparently contradictory concepts. And that occurs in ordinary science. What we propose is to do the same thing, but with a more difficult subject matter.

Now then, suppose one moves towards the *apparent* content of sensuous perception or towards the *apparent* content of conceptual cognitions, he moves towards a *maya*, or illusion. And in that sense Shankara is correct. The image before one—conceptual or perceptual—does not give or lead to *reality*. Therefore, in yoga, destroy it; destroy the *maya* and the *real* comes forth. But in this formulation, we do not say that the apparent is unrelated to the *real*. Note the distinction. Pure *Mayavada*, by itself, would say it has no relationship whatsoever to the *real*, just a barrier to be destroyed. But we say that it stands in the relationship of *inversion*. And this is an extremely important principle in all yogic progress—inversion of consciousness. The apparent is inversely proportion to the *real*. You can reverse it, as you can anything that is a proposition that's represented by an equal sign. Having thus a relationship, it becomes possible to reach the *real* through the apparent provided you apply the principle of inversion. If you do not apply the principle of inversion, it's pure *maya*. Do you get the point? It may be a little involved, but not too much.

Now, I'll ask you to use your imagination. Imagine an infinite space completely dark and that you are identical with that space and that that space is a plenum, fullness, not an emptiness. Everything is in complete equilibrium, balance, nothing lacking, no strain. Consciousness, dimly stirring, seeks to be born; and a process is set up whereby zones are formed in which a group of aspects are neutralized by their complements thereby producing voids, or partial voids, in the fullness. Thus we have the appearance of stars and worlds and all other objects. These voids constituting strains, as it were, in the fullness stir the latent seed of consciousness in the particularized sense. Consciousness thus stirs because of the pain of the voids, the emptinesses—a process in outer time taking ages, in subjective time, perhaps instantaneous. There is gradually evolved the power to be aware first of apparent objects in consciousness and then slowly to be aware of Consciousness, itself, without an object. And when consciousness has reached the point where it becomes conscious of Consciousness, the dark space is known as Light, which it in point of fact was all along. And thus it is that absolute unconsciousness symbolized by the black, dark space, and absolute Consciousness symbolized by the light space are both the same with this difference, that in one case Consciousness has become conscious of itself. This is brought forth by the travail imposed by the voids in the Fullness, the delight of Fullness comes when there are no more voids. Here we picture evolution not as a process of addition, multiplication, increase, but as a process of subtraction, division, diminution, for the purpose of awakening consciousness of Consciousness, a matter of very great subtlety. The domain of completion, the *summon bonum* is the return out of the evolution into the totally non-diminished Fullness.

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Now, I'm going to bring in some more material before we present the mandala because there's another point that's going to be important. A little mathematics this time, it's one of our toys.
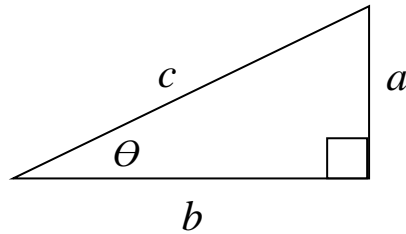

Most of you won't need this, I have no doubt, but some will. We're going to take up, very little, trigonometric functions—sine, cosine, tangent, cotangent, so on, but we'll be concerned with only one, sine in this case. And we'd say, s i n e—but usually written abbreviated 'sin', the angle a, this angle, equal $^a/_c$. cosine is $^b/_c$; tangent $^a/_b$; cotangent $^b/_a$. We're not concerned with those. I want to get to a curve.
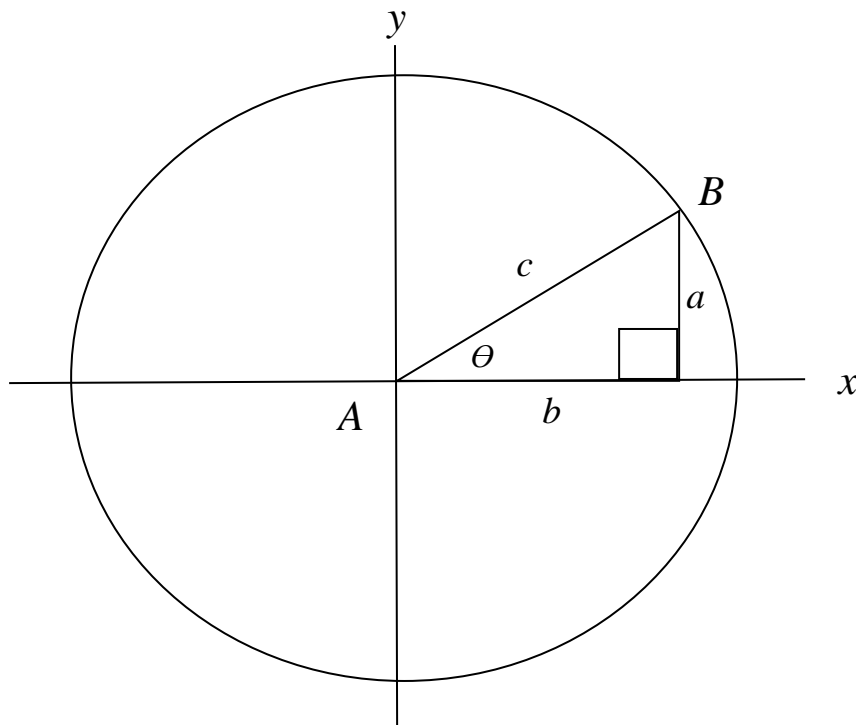
Now let us put around this a circle. Wait a minute. Wait a minute. Again say, let that be a circle even though it doesn't look like it. Conceive of this distance A to B as 1. We measure angles altogether by radians, which are the radius laid along the circumference, and it takes exactly 2π radians to make the full circumference. Now, let this line in here start rotating around. And because this line is 1, the $^a/_c$ which is the sine becomes $^a/_1$, which means that the sine is just a. It makes it simple. And as this rotates, you get into other positions when a becomes longer. Ultimately it reaches the value of 1 up here. Now, we have the convention that the vertical direction is positive, and the direction to the right is positive, direction to the left negative, and down negative. Now, as this line rotates around, we have the value of the sine increasing and then decreasing to

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0 at this point, then becoming negative going to –1, then increasing again to 0, and going on around. We imagine it circling forever.
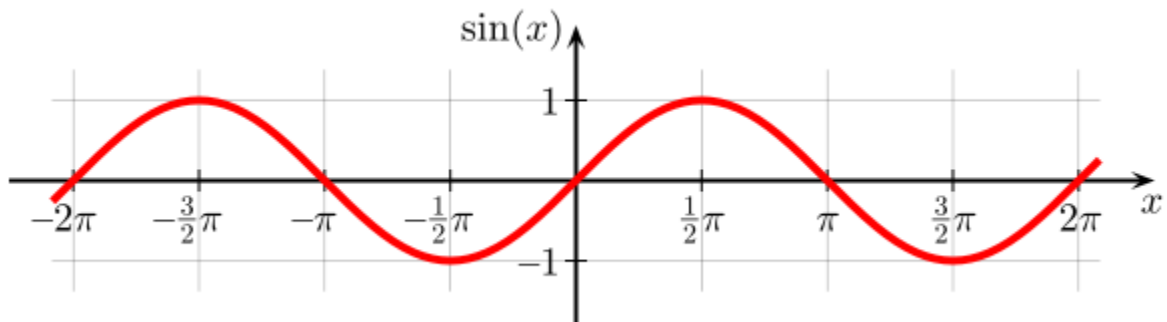
Now, we project a curve by taking these values of the sine, and we get something that is what we are after—a curve that represents all periodicity, and is so used. You might say it's the curve that represents the second fundamental of *The Secret Doctrine.* Put in our lines of reference. And we found the sine was 0 when the angle was 0. It starts up this way, arises to a value 1 at the highest point; descends to this line again at 180 degrees, which is just π radians. Now, this point here is π. This point 0. It descends, negative side, comes up again, and this is 2π. That represents a movement to 360 degrees, or 2π. But our arm is swinging indefinitely, and it becomes a curve that reaches into the illimitable past and the infinite future, no end.

This curve is used for representing periodicities as a matter of fact right along. But we're going to apply it to one thing—life: the point of birth, the point of death, the point of rebirth, and so on. We're going to be concerned only with psychical birth and psychical death. We'll ignore completely the physical body. It's just a nuisance hung on. In that connection, I have a great sympathy for the point of view of Plotinus, who was ashamed that he had a physical body, and of Shankara, who had a real thoroughgoing *vairagya*. He says, what is a physical body? Why, it's a sack—consists of skin, and bones, and sinew, and it's filled with odour, urine, and phlegm. Why be detached [2] to a thing like that? I think our modern anatomists and physiologists would say it was too brief a description, but it made his point. He wanted to arouse a *vairagya*. *Vairagya* means disgust. If you have disgust for the world of appearance, and an aspiration for the world above, you get the benefit of both a kick and a pull, and it helps you a great deal; the aspiration pulling you up and the *vairagya* giving a kick from below. Well that was the point then. We'll ignore that completely.

Now, this is the psychical process we're concerned about. Consciousness rises here oriented to the world about us as we know it; and behind it, below it, there's a vast world which we call the unconscious—affecting us, to be sure; speaking to us a little in dreams and hypnogogic visions, and other less discernable ways, but not in the foreground of our consciousness. The so-called point of death is simply a point of inversion where that which was in the foreground of consciousness now enters into the background, and the former unconscious, or part of it, is in the foreground. Now, we've been through this many times—a thousand—but usually a person becomes a bit tired before he has gone through it a googol of times, and he'd like to know how he'd break

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[2] Wolff obviously meant to say, "Why be attached to a thing like that?"

out of that vicious cycle—no progress, just an endless movement from the illimitable past into the equally illimitable future—round and round and round. You want to break out.

Now, yes we'll have room. Would you let this down now? Yeah, that'll hold all right. This is what emerged.
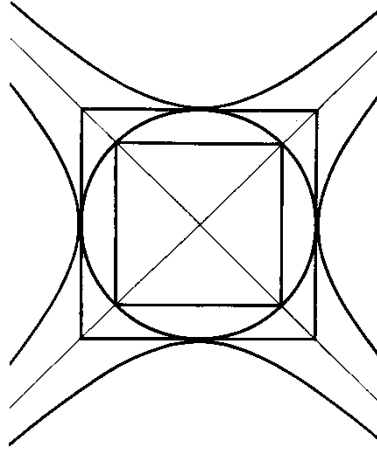
This was drawn for me by one of our associates who was a professional draftsman. The original curve was this and this. There seemed to be a demand to produce symmetry, and that is to put in what are known as the conjugate hyperbola. And then putting in a square that was tangent to the apexes of the hyperbola and a circle tangent to it, and a square in the circle, and then I felt satisfied. Now, that's the way a mandala grows. If you'll notice, it meets the conditions of a mandala—fourfoldness and circularity. But, whereas, it is a rule that a mandala is an aesthetic projection—painted, or as Jung says, even danced—this is not aesthetic, but conceptual. The drawing only points to the concept. And that makes it atypical—a conceptual mandala, a theoretical mandala, not an aesthetic one. But the way it grew over, oh, a period of years, until I was satisfied is typical of the process. It represents an integration. Aurobindo, or not Aurobindo, but Carl Jung speaks of it as usually meaning the emergence of the Self in a transformation process; and whatever was the trouble beforehand, the healing effect comes when out of the patient there is drawn a mandala.

Now, I wish you to note the relationship between the inside square and the circle: the inside square typifying complete determination by a finite number of specifications, concepts completely defined, complete measurement; the circle representing what it did in the Great Pyramid, and elsewhere through the symbology, as that which lies beyond conceptuality, the heaven worlds of old, the domain of the inconceivable. But there's a square around that, meaning that we have evolved a subtler conceptuality of the type of the determinate-indeterminate concepts that renders thinkable what formerly was not thinkable; and that in turn is no longer bounded by a circle, but by the equilateral hyperbola, the orientation of which is to infinity, and in…[3] hence, embracing infinity, whereas the circle demarked a limited portion of space. Here then, we orient to the illimitable infinitudes, the trackless, illimitable infinitudes of the Beyond.

Now, just as the circle has these trigonometric functions which produces a curve that merely goes on forever, there are hyperbolic functions—functions of the equilateral

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[3] Apparently something is missing on the tape here.

hyperbola that take a very different form—and it ascends indefinitely—no periodicity, but ascension, and descent; but when you're dealing with spatial consciousness, descent and ascent have the same meaning. You've broken out of the vicious circle, and that is the meaning of Liberation, here symbolically portrayed. Thus, is offered something to what I spoke of last night as the nondeterminate-theoretical continuum—Western yoga in process of becoming, and not the forms of old that belong to other people and to other natures, but this that belongs to Western theoretical man.

There is a question that often arises in the minds of students, if there are illumined or freed men, Enlightened, are they about in this world? They can be, but you would have to have a feeling for the consciousness that they have to recognize them. They could be, indeed, in any city or any place, even here, and perhaps even especially here in Phoenix, but it takes the inner eye to recognize them.

I think now I have finished what I had planned to say for these six lectures. Much of it has been pretty rapid. I've sketched concepts very fast. You may not have followed them, particularly if you've had no mathematical background or philosophic background, but the most important thing of all is that we should have some contact with the Field Consciousness, and it has been here, and that is the *presence* of the numen—a power that can direct and guide the thought of men once it has made correlation with his consciousness—thought with a skill far outreaching the resources of the most brilliant unillumined intellect. It speaks not in the ordinary language, but it moves by influence that's unseen but very effective.

Tonight I will shake hands with all of you because we are through and I do not have to hold myself in preparation for further lectures. I've been glad to know you. You make a very good orchestra. You made much possible that would not have been possible if you were not what you are. It's been our common achievement. And shall we rise and say our closing words?

Let there be peace within the universe.
Let the power of the warriors of light be made manifest.
Let wisdom guide us and love protect us throughout our lives.

Peace be with you.

And with you, peace.