Godhead is light. Nescience is darkness. Where there is Godhead there is no nescience.

# BACK TO GODHEAD

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# CAN CREATION COME FROM CHAOS?

**A challenge to the prevailing scientific view that life comes from a chance combination of material elements.**

Edited from an original paper by Mādhava dāsa, Sadāpūta dāsa, and Svarūpa Dāmodara dāsa.

Although scientists would like to assume that in the past, inert chemicals combined to produce life, as yet no one has ever observed such an event. In addition, although scientists have many theories about how life is working inside the cell, they have not been able to combine the constituent chemicals to form living cells, even in controlled laboratory settings. Thus, the claim of molecular biologists that life has come about by evolutionary development—beginning from a primordial environment of methane, ammonia, and water sparked by an electromagnetic or thermal stimulus—has never been substantiated by experimental evidence. Although scientists have found traces of amino acids (the building blocks of biological molecules) in reaction chambers filled with ammonia, methane, and water, the formation of these simple amino acids does not prove that life evolved by a chance combination of chemicals. Amino acids are a very long way from a living organism, so there is really no substantial justification for concluding that this common laboratory experiment proves life originated by chance in a "primordial chemical soup."

Nor have the biologists found a chemical which, when injected into a dead organism, will restore life. In fact, they are having a difficult time explaining the activities of the living cell by chemical equations. Physicist Louis de Broglie has commented, "It is premature to reduce the vital processes to the quite insufficiently developed conceptions of nineteenth and twentieth century physics and chemistry." And even if the microbiologist does try to analyze a living cell in the detail necessary to discover its exact chemical activity, he would have to kill it, obliterating with his instruments the very principle of "life" he was seeking in the first place. Consequently, many scientists are now looking for new concepts beyond chemistry and physics to explain how life works. These new attempts are called holistic approaches, which consider the living organism as a whole and view life as complementary to matter.

Nevertheless, most materialistic scientists reject this idea. They ignore the fact that living systems defy the second law of thermodynamics, which strictly governs inert matter. According to this law, no complex system of chemical reactions can maintain itself indefinitely. Yet living systems *do* maintain themselves, generation after generation, without any loss of complex order. Therefore we can safely say that life does not act according to the laws of chemistry and physics, and that it is perfectly scientific to talk of life as a principle separate from matter.

Also, from the point of view of mathematics and logic, we can see that complex living organisms cannot arise spontaneously from unorganized matter; there must be the touch of higher intelligence. Suppose we have a collection of short rods (as pictured in *A* below). If we then pass them through a box that combines the rods two at a time, at right angles to each other, we shall arrive at *B*.

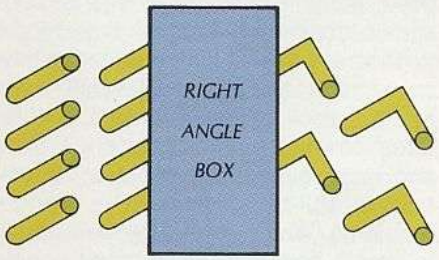



FIG. A FIG. B

Then suppose we join the L's together at random. We can see that the final configuration *C* has no greater form than that which was explicitly specified in the system going from *A* to *B* to *C*. In other words, for *C* to have a specific, complex structure, we have to supply specific, complex information to create that structure. A random pairing of L's cannot produce a complex, organized pattern.

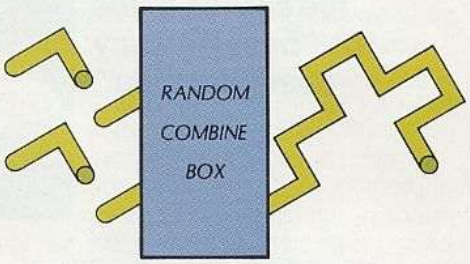



FIG. C

For example, if we wanted to generate the structure below, (*D*) we would have to supply explicit information at each step of the operation.

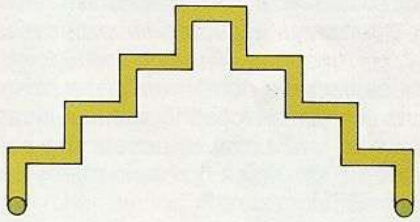


FIG. D

In other words, all the information specifying the final structure must be available throughout the development of the structure. The basic mathematical theorems of Kolmogorov and Chaitin[1] governing so-called complexities of formal systems confirm this argument. In general, all of this proves that something simple cannot create something complex by a random process. And when we apply this conclusion to the current theory of evolution, we see that random atoms and molecules couldn't possibly have developed into complex living forms without an outside source of information.

As we have seen, known scientific principles such as those of thermodynamics, mathematics, and logic con-

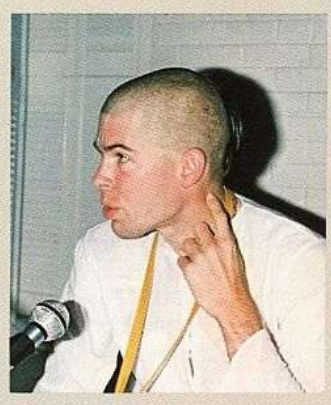
*(continued on page 12)*

1. G.J. Chaitin, "Information—Theoretic Computational Complexity," *IEEE Transactions*, Institute of Electrical and Electronic Engineers, IT-20 (1974), pp. 10–15.

# Two Ph.D.'s for Kṛṣṇa

*Mādhava dāsa: "The materialists' theory that matter is the source of life isn't based on any observed data."*





*Sadāpūta dāsa: "They have faith in chance, and we have faith in God. That's what it comes down to."*

**BTG:** You were both working scientists with Ph.D.'s when you joined the International Society for Krishna Consciousness. Mādhava, you were a chemist at the National Bureau of Standards. Sadāpūta, your doctoral dissertation had just been accepted for publication by the American Mathematical Society. These days we don't usually see scientists like you advocating spiritual ideas. How did you come to accept the philosophy of Kṛṣṇa consciousness as scientifically sound?

**Mādhava dāsa:** When I first came into contact with Kṛṣṇa consciousness, I heard Śrīla Prabhupāda say something I'd never considered before. He said that everything could be understood in terms of a personal basis, rather than an impersonal basis. I began to understand that personalism was superior to impersonalism, because personality could include impersonality, but impersonality could not include personality. Śrīla Prabhupāda's concept was more all-encompassing, consistent, and rational. So I accepted it.

**Sadāpūta dāsa:** I pursued science for many years. The object of science, I felt, was to find out what the absolute truth is. Otherwise, what's the use of research? So I primarily studied mathematics, which I saw as the basis of the other sciences. But by graduate school I had come to the conclusion that mathematics was not leading me to the truth, but to the void. It seemed to be only an arbitrary game of operations played with symbols on pieces of paper. I became frustrated because I realized there had to be something beyond mathematics, which didn't make sense according to my scientific training, but which was nevertheless very important. So I investigated various sources of information outside the scientific realm—yoga, spiritual groups, and so forth—and then I came to Kṛṣṇa consciousness. It was what I'd been looking for.

**BTG:** Do you think other scientists will be able to accept Kṛṣṇa consciousness as you have?

**Sadāpūta dāsa:** Yes, if they consider it with an open mind.

**BTG:** What impact do you want your present work to have?

**Mādhava dāsa:** First, we want to expose other scientists to Kṛṣṇa conscious ideas. Also, we think that people in general will also be interested in how two former academic scientists view Kṛṣṇa consciousness. There's a lot of interest now in the limits of science. More and more people are questioning science's ability to solve the world's problems. We've seen science's ability to create problems. Now many people doubt it will be able to get us out of that situation. They feel that science has been overrated and they're beginning to look at wider and wider perspectives to understand what's going on. In psychology, the Gestalt movement has become popular because it doesn't try to analyze consciousness in terms of behaviorism or atomism. In scientific theory we're seeing a lot of emphasis on how the observer influences what he's observing. In every scientific experiment, the consciousness of the observer has to be accounted for, but present theories don't explain how. In addition, there are problems now in understanding the fundamentals of mathematics and of reason itself. There's also a general trend toward trying to understand consciousness and the higher psychology of living beings. A recent study conducted by the American Association for the Advancement of Science showed a great deal of public interest in phenomena that can't be explained by the known laws of science, such as psychokinesis, telepathy, Kirlian photography, and so on.

**BTG:** Could you tell us something about your present scientific work?

**Mādhava dāsa:** We're trying to solve a fundamental problem—the problem of the origin of life. Today, most scientists say that matter creates life. But from our point of view—from the spiritual scientists' point of view—it's the other way around: life creates matter. We feel we have the advantage because we can observe life creating matter. For instance, a lemon tree can manufacture a drop of lemon juice. But of course a drop of lemon juice can't create a tree. So we're collecting the necessary scientific evidence to verify our everyday observation. On the other hand, the materialists' theory that matter is the source of life isn't based on any observed data. It's simply a mental construct, a theory with no hard evidence to support it.

**BTG:** But doesn't quantum mechanics support the theory that matter produces life?

**Sadāpūta dāsa:** No. Some people say it does, but we disagree. Quantum mechanics is the most widely accepted theory on the structure of matter. It was developed in the period from 1900 to about 1930. If you look in the library, you'll see that all the science books published today claim that quantum mechanics applies in every material situation. Most scientists say it's universal. But actually, quantum theory has been empirically verified by only very limited laboratory experiments. Although quantum theory is great for simple situations like that, it's not mathematically feasible to apply it to anything more complex. For instance, theoretical chemists admit that they can't apply quantum mechanics exactly to any molecule more complex than the diatomic hydrogen molecule, which is a very simple molecule. All they can do is assume it will work with bigger molecules. But a law that applies to one molecule won't necessarily apply to another. Still, they're gambling that quantum mechanics will. And to make matters worse, they're assuming that the human body, which is inconceivably complicated, functions according to the theories of quantum mechanics. Such an assumption is irresponsible. No one can say that the nerve cells of the brain, for example, work in that way. Well, no one *should* say it—but they do anyway. Many scientists even say there can't be a soul because the presence of a soul would violate some "well-established" physical laws. But when you get right down to it, no one can tell if those laws really do apply to living organisms or not.

**BTG:** You've brought up an interesting question. Why do so many scientists take it upon themselves to defeat religion? They say that as mankind progresses in scientific knowledge, he no longer has any reason to believe in God or the soul. But you're saying there's nothing inherent in science to prove this.

**Mādhava dāsa:** That's right. The materialists' attitude is based on an error in judgment. They base all their work on the unspoken assumption that everything has an impersonal basis. In other words, their belief that we can explain everything in terms of matter is just that—only a belief, not the result of an experiment. When we analyze a materialistic scientist's statements, we find that his concept of matter is not empirical, as he claims, but metaphysical. So it seems that the materialists are simply trying to replace a spiritual religion with a material one, of which they will of course be the new high priests.

**BTG:** But haven't the material scientists created life in the laboratory?

**Sadāpūta dāsa:** To my knowledge, the farthest they've gone so far is to take apart a virus, put the parts into a test tube, and watch them recombine. Is this creating life? First of all, whether or not you can call a virus "life" is a difficult question. To many people, viruses seem more like chemicals than living organisms. Second, the scientists didn't create the virus anyway. They took it apart, and when they juxtaposed the molecules, they recombined. Their accomplishment wasn't so remarkable, really, although it took a lot of work.

**BTG:** Can you demonstrate in the laboratory how life creates matter?

**Mādhava dāsa:** Yes. Several investigators have observed a remarkable phenomenon called *biological transmutation* that is experimentally verifiable and that can't be explained in terms of our present physical and chemical theories. It occurs every day, in animals and plants. Most scientists in modern textbooks don't discuss biological transmutation because it doesn't conform to their present theories. What happens is this: when you put a seed into soil and add water and nutrients, the seed begins to grow. Now, after a certain amount of time, the chemical composition of the germinated seed will be different from an ungerminated one. But after you analyze them, you see that this difference can't be explained by any additions of water or nutrients, or by any chemical reactions we can infer. The chemical difference between the growing and nongrowing seeds has to be explained in some other way. And no one knows what that explanation might be. Somehow the living seed actually creates not only compounds, but also basic *elements,* out of other elements. This is comparable to what happens inside a nuclear reactor or a hydrogen bomb! To think that a tiny seed does this as a matter of course, by its life energy alone, is inconceivable to the materialistic mind. But anyone with an open mind will admit that the process of life is a mystery to us. It's beyond our present understanding. Life doesn't obey the laws of chemistry or physics.

Furthermore, Heisenberg discovered in 1927 that beyond a certain minuteness of atomic structure, we can't be certain of both the position and the velocity of particles. In other words, our ability to investigate the ultimate nature of things with our present methods is limited. Beyond that limited range, we have to say that the world is inconceivable. Besides that, especially at the atomic level, the instruments we use always disturb whatever we're looking at. So we can't really talk about the structure of nature as it is. All we can talk about is the structure of our investigations, which is a different thing entirely.

**Sadāpūta dāsa:** Yes. For instance, in Newton's study of gravitation, he spoke of an attraction between two bodies separated by space. But what is it that goes through space to hold the two bodies together? No one has ever answered this question. When Newton first presented his theory of gravitation, scientists and philosophers rejected it as mysticism.

**Mādhava dāsa:** The conclusion is that within the universe there's an energy at work, a life energy. We can't see it, but it must be there. Many great scientists have concluded that the energy which moves the universe is spiritual. And they have accepted that there is a supreme controller behind the universe. Einstein thought that way. And so did Galileo.

**BTG:** But most scientists don't think that way.

**Mādhava dāsa:** Right. They exclude God by assuming that the material energy is working on its own without any outside help. However, by analyzing the activity of the material energy, we can see that it doesn't perform according to materialistic theories. Other elements must be considered.

**BTG:** Doesn't the theory of evolution do away with the necessity for God, or any spiritual purpose, in the development of nature?

**Sadāpūta dāsa:** Evolutionists justify their views by saying, more or less, "If it didn't happen our way, we'd be forced to accept a supernatural explanation, and that we refuse to do." That's their best argument. But how did the eye evolve? They say, "It had to evolve by chance mutations, because otherwise we'd have to suppose divine creation." They have faith in chance, and we have faith in God. That's what it comes down to.

*(continued from page 9)*
firm that life comes from life, not from matter. Also, it is a fact of experience that a living plant comes from another living plant, an amoeba comes from an amoeba, a dog from a dog, and a human being from another human being. On the other hand, no one has ever observed a living entity coming from dead matter. Despite all this evidence, however, most scientists still cling to the theory that life comes from matter. Why?

The strongest arguments of the evolutionists are based on the fossil record. However, objective analysis of the fossil record reveals a different story than the one the evolutionists would have us believe. First, it is an admitted fact that after one hundred years of digging, practically no fossils of intermediate species (the famous "missing links") have ever been found to confirm the Darwinian evolution-of-species theory. Second, fossil records do show that an entire system of highly evolved marine lifeforms appeared abruptly at the beginning of the Cambrian age. There are thousands of feet of fossil-free sedimentary rock below the Cambrian stratum. Indeed, no undisputable pre-Cambrian fossils have been found anywhere in the world. Although evolutionists have many imaginative explanations for this sudden appearance of complex marine life, available evidence clearly does not confirm their theory that life originated from matter and gradually evolved into more and more complex forms.

In addition to the insufficient evidence upon which the evolutionists base their theories, their methods are suspect. Foremost among these are the conflicting dating processes used by archaeologists—especially the use of radioactive isotopes such as carbon 14.[2] Besides this, there are a great number of false claims of various evolutionists that point up the highly speculative nature of their whole theory. For example, Haeckel's "primordial muck," supposedly the stuff that first generated life, turned out to be no more than a combination of inorganic salts. His error was discovered only after the idea had been widely circulated and had created a stir in scientific circles. Another embarrassment for evolutionists was the story of "Piltdown man." After being accepted for forty years, Piltdown man proved to be a hoax—a "fossil" planted by someone seeking name and fame and interested in supporting evolution. Yet the evolutionists are no more certain now about the age of man than in the heyday of Piltdown man. Their constantly changing dating schemes regularly push the "original" man farther and farther back into the past. Finally, even the most well known evidence supporting the evolutionists' theories has recently been called into question. For instance, several investigators have pointed out that the famous series showing how the horse evolved, which still appears in many young people's textbooks, is erroneous and misleading:[3] the actual fossils betray abrupt and unchronological changes.

How can the scientific community continue to ignore all the evidence presented against Darwinian evolution? Because they've been conditioned to accept it as fact. Psychologists have discovered that this conditioning, or expectancy, plays a very important role in perception. For example, if you place a thermometer in some hot water, you expect the mercury to rise in the tube, and that's what you see. But actually the mercury in the column first drops and then rises—because the glass of the thermometer expands more rapidly than the mercury at first. So our expectation has colored our perception. Similarly, scientists expect archaeological and other evidence to confirm Darwinian evolution, and this is

2. Colin Renfrew, "Carbon 14 and the Prehistory of Europe," *Scientific American*, Vol. 225 (October 1971), pp. 63–72.

3. Norman Macbeth, *Darwin Retried; an Appeal to Reason* (Boston: Gambit, 1971), p. 15.


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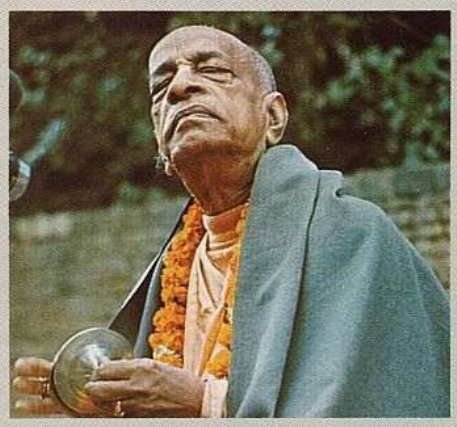



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what they perceive, despite insufficient evidence.

An even more deep-rooted reason for adherence to the Darwinian theory of evolution is that it provides a very convenient basis for hedonism, a life view free of concern for future consequences or morality. Aldous Huxley once said, "I had motives for not wanting the world to have meaning.... For myself, as, no doubt, for most of my contemporaries, the philosophy of meaninglessness was essentially an instrument of liberation. The liberation we desired was simultaneously liberation from a certain political and economic system and liberation from a certain system of morality. We objected to the morality because it interfered with our sexual freedom."[4] When someone believes that life comes from matter rather than from spirit, his concern for morality diminishes considerably. If all life is merely a complex combination of chemical reactions, and if there is thus no supreme creator and controller, what need is there for moral restraint? This is not a new philosophy. In ancient Greece, Epicurus postulated that everything was simply a combination of atoms and the void—nothing more. Today the word *epicurean* describes a person whose main activity is enjoying fine food and drink. The conclusion is that Darwinian evolutionary theory, with its implication that life comes from matter, is a philosophy that justifies unrestricted sense gratification, but it is by no means scientific.

Thus we have seen how the theory that life originated from matter is dubious on many grounds. First, no one has ever actually observed such an event. On the contrary, every day we see living organisms producing other living organisms—trees produce trees, dogs produce dogs, and so on. Second, living systems defy the laws of thermodynamics, proving that life is a principle separate from matter. Third, by the laws of mathematics and logic we concluded that a random combination of chemicals could not have produced complex living organisms without an outside source of information. In addition, we noted some of the more flagrant discrepancies in the evolutionists' argument: the virtual absence of both pre-Cambrian fossils and "missing links" between species, and Piltdown man, Haeckel's muck, and the misleading diagrams showing how the horse evolved. Finally, we noted how the scientists' expectations and their deep-rooted hedonistic motives make their observations and conclusions less than impartial.

Although materialistic science has spread throughout the world, recently it has been challenged by thoughtful scientists, philosophers, and other intelligent people. Notably, the famous psychologist Carl Jung investigated the Western philosophical concept of *matter* and found that there is no clear definition of the term. Jung concluded that the term *matter* is no more than a symbol we attach to our observations of reality, and he saw no reason why we couldn't see reality as spiritual (that is, conscious) rather than material. Further, many researchers are discovering phenomena that simply defy explanation by the standard laws of mathematics, chemistry, and physics. For instance, the newly recognized field of parapsychology concerns psychic phenomena such as ESP (mental telepathy), psychokinesis ("mind-over-matter"), and reincarnation. These phenomena suggest the need for a new understanding of nature—one that will explain the things around us in terms of a conscious cause.

We find such an explanation in India's ancient *Vedas.* These books, which are about five thousand years old in written form and still older in oral tradition, describe that the underlying principle and source of life is personal consciousness, or spirit. Today, our tendency is to accept that everything is simply impersonal energy, and therefore that is all we see. But if we accept a personal, conscious background of existence, then we can understand that there must also be a Supreme Person, God. God explains Himself through the *Vedas,* and the *Vedas* come to us through the spiritual master, who, as part of a line of spiritual masters, delivers the Vedic message unchanged (Bg. 4.2).

Because our mind and senses are imperfect and cannot perceive spirit, we cannot know God, the Supreme Absolute Truth, by induction or mental speculation. The only way to overcome such difficulties is to approach a bona fide Vedic authority (one who has himself transcended the limitations of the senses and mind) and begin practicing real science—practical realization of the Vedic wisdom as taught by the spiritual master. In other words, in the Vedic sense, scientific method means to approach the spiritual master and follow his instructions.

This process is actually very practical. The spiritual master prescribes a process of spiritual discipline, and the student carries it out according to the directions given. If he experiences the predicted result, then the student draws the conclusion that the spiritual master was right. If the spiritual master is actually bona fide, then the result will be positive. This procedure is quite similar to an honest scientist's reporting his results along with his experimental method. Anyone who wants to verify the result can perform the same experiment himself. When the same result is reproduced by several scientists, it is called scientific. However, there is one very basic difference between the methods of materialistic and Vedic science: the materialistic scientist relies totally on speculation and data coming through his imperfect senses to arrive at his conclusions, while the spiritual master relies on a perfect, divine source of knowledge. The bona fide spiritual master receives his knowledge directly from the supreme knower, God, or through the disciplic succession from God Himself.

But how can we know whether someone who claims to be a spiritual master is bona fide or not? According to the Vedic literatures, a genuine spiritual master must meet the following three qualifications: (1) He must teach according to the system of *parampara,* or disciplic succession. In other words, he must have received instruction from a bona fide teacher, who also received instruction from a bona fide teacher, etc. He must be able to trace his disciplic succession back to God Himself. A bona fide teacher will therefore never present anything that has not been presented by his predecessor teachers. (2) He must teach according to the authorized Vedic literature. All his conclusions must be supported by the Vedic scriptures. (3) His arguments and conclusions must agree with those of other teachers of spiritual knowledge already accepted as authoritative. So we find that the teachings of a bona fide spiritual master are in accord with the teachings of great saintly personalities like Jesus, Muhammad, Rāmānuja, or Moses.

All of these qualifications are met by His Divine Grace A.C. Bhaktivedanta Swami Prabhupāda, the spiritual master of the International Society for Krishna Consciousness. He is scientifically presenting the Vedic description of the origin of life and matter. According to the *Bhagavad-gītā,* which Śrīla Prabhupāda has presented in an English translation with extensive commentary, life is

4. Aldous Huxley, "Confession of a Professed Atheist," *Report,* Vol. III, No. 9 (June 1966), p. 19.

eternal—it is never created or destroyed (Bg. 2.12). In addition, the *Kaṭha Upaniṣad* (2.2.13) explains that there is a supreme eternal living force who is supporting the infinitesimal living forces. The *Brahma-saṁhitā* (5.1) describes Him as Kṛṣṇa, the supreme controller, who possesses a purely spiritual body composed of *sac-cid-ānanda* (eternity, knowledge, and bliss). And what is matter? Again from the *Bhagavad-gītā* (7.4) we learn that Kṛṣṇa is the source of the eight separated energies that make up what we call the material energy, or matter. These eight energies are developed by a gradual process from pure consciousness, or Kṛṣṇa consciousness, into (1) false ego (based on our desire to be separated from Kṛṣṇa), (2) intelligence, (3) mind, (4) ether, (5) air, (6) fire, (7) water, and (8) earth. Everything that we experience is a combination of these two kinds of energy—the superior, conscious living entities and the inferior, inanimate material elements. And above both of them is God, Kṛṣṇa, guiding and controlling all.

In the Thirteenth Chapter of the *Bhagavad-gītā,* God explains how He has expanded Himself into every atom of the world as the Parabrahman, or Supersoul (Bg. 13.16). Material nature works under the directions of the Supersoul, who is omniscient and thus perfectly aware of the desires and activities of every living being. According to how we act during our lifetime, we create a certain state of mind, or consciousness. This consciousness is understood in detail by the Supersoul, and He awards us a suitable body in our next life. There are 8,400,000 different kinds of bodies (species) to accommodate the different mentalities of the living beings. So evolution is not a process of physical development, but of conscious development—from almost unconscious stages like trees or fungi, up through simple moving creatures like insects, up through birds, then four-legged animals, and finally to man.

When we reach the human form, we are at a juncture, for it is only in the human form that we have an intelligence keen enough to understand how to get free of the vicious cycle of birth and death. Human intelligence is meant for inquiring into this most important subject, not for developing extravagant means for sensual enjoyment. The method for liberation is one of purification—purification of our mind by hearing the sacred message from a bona fide source, and purification of our heart by rendering service to God. Anyone truly interested in finding the ultimate limit of knowledge, as well as attaining an eternally blissful life, must take up this process of devotional service to God.

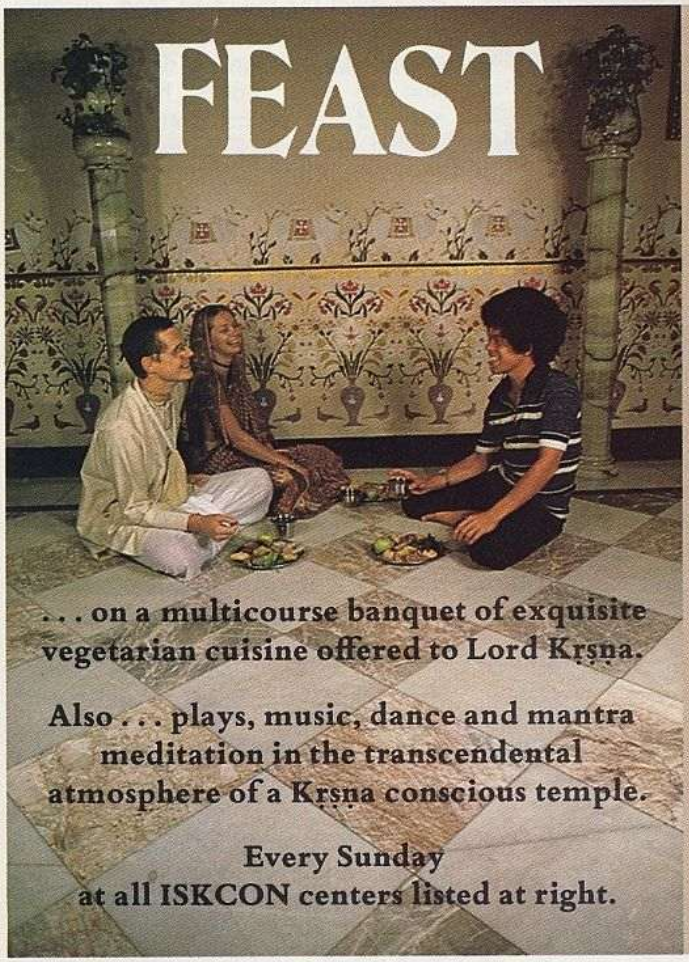
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*All three men are now coauthoring a book on the origins of life and matter to be published by the Bhaktivedanta Book Trust.*


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