The Miracle of Termites

HARUN YAHYA

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Introduction

In this world of ours live many kinds of amazing creatures.

In addition to the ants, honeybees, dogs, cats, flies, spiders, horses, chickens, seagulls, sparrows and other species we know so well, there are also many we have not yet encountered. In many parts of the globe, there are millions of kinds of living things which we have never heard of. Even if we learned their names, we would have nothing to which we could compare them.

The subject of this book is an insect that most of us aren't used to seeing in our environment. This insect is the termite, which resembles an ant in appearance and partially in the way it lives. But even though they look like ants, termites have very different characteristics—and abilities.

Some people may be surprised to find a book entirely about termites. What, they may ask, is there to tell about these small insects? But as you will soon see, this little-known creature has characteristics that may open people's minds to an entirely different horizon of ideas.

This book investigates that hidden world of termites, their physical characteristics and the marvelous social system that orders their lives. Having read all these details, you may well conclude that termites, like every other living creature in the world, offer a clear proof of God's being named the "perfect and incomparable" Creator.

He is God – the Creator, the Maker, the Giver of Form. To Him belong the Most Beautiful Names. Everything in the heavens and earth glorifies Him. He is the Almighty, the All-Wise. (Surat al-Hashr: 59:24)

Intelligent Design, in other words Creation
In order to create, God has no need to design

It's important that the word "design" be properly understood. That God has created a flawless design does not mean that He first made a plan and then followed it. God, the Lord of the Earth and the heavens, needs no "designs" in order to create. God is exalted above all such deficiencies. His planning and creation take place at the same instant.

Whenever God wills a thing to come about, it is enough for Him just to say, "Be!"

As verses of the Qur'an tell us:

His command when He desires a thing is just to say to it, “Be!” and it is. (Surah Ya Sin: 82)

[God is] the Originator of the heavens and Earth. When He decides on something, He just says to it, “Be!” and it is. (Surat al-Baqara: 117)

The Hidden World of Termites

Before delving into the details of a typical termite colony, it will be useful to describe the environments they live in. Termites live on almost every continent, except in Polar Regions. Sudden rain storms and ensuing floods, high temperatures and other negative conditions make their life a struggle, no matter where they live. But despite all this, as we shall see, creatures that live in these regions live in perfect harmony with their environments—indeed, in cooperative comfort.

The termites that live in tropical regions build nests that resemble giant sandcastles and live in truly enormous colonies. When you examine their nests, you may assume that the inhabitants move about in chaotic darkness—but in fact, they live in a perfect social order. Termite cities are not only perfect from their architectural point of view, but also in terms of their social organization.

Termite Cities

Visiting the tropics for the first time, you are sure to find unusual scenery and creatures you have never seen before. For example, in some remote areas of Africa, you will find formations that look like stalactites—natural formations of rock, emerging from the earth. But these rock-like formations are, in reality, hidden cities.

These miniaturized cities can reach a height of 4 to 5 meters (14 to 16 feet), and you may find several clustered in one place. They are actually termite nests, one of which can sometimes shelter more than a million inhabitants. Even a brief investigation will show the perfect organization that prevails in every single nest, no matter how enormous.

The nest’s structure allows it to adapt to constantly changing climactic conditions. Moreover, its organization enables it to be self-sufficient in supplying the inhabitants’ needs, so that they never need to bring things in from outside. Each nest features a perfect ventilation system, specific-purpose areas (separate rooms for the young, for maternity, for the queen’s room, and so on.) and agricultural zones that comprise parts of the termite colonies’ organization.

The social organization of individual termites in these cities is likewise excellent. The inhabitants are dedicated to their work and do their jobs speedily.

Even in termite colonies with millions of inhabitants, there is an established order, perfect in every aspect, that results from every member of the colony being meticulous in carrying out its duty. As with other creatures that live together, termites always help one another, providing excellent support in defense, communicating and finding nourishment.

Termite colonies contain three main castes or classes: there are soldiers, workers and a queen. The queen constantly lays eggs to increase the colony. The workers ceaselessly supply all the needs of the nest, and the soldiers protect the eggs from enemies and the nest as a whole from intruders. When necessary, all members of the colony share in the work of others, even though it is not their duty. But because of this communication and distribution of responsibilities, the number of termites in a nest can number more than one million, and still survive with no difficulty at all.

The following chapters detail the social organization of termite colonies and provide information about their habitat. But during this investigation, never forget that the creatures that perform all the tasks we'll be discussing are no larger than a few centimeters (2.54 centimeters=1 inch).

From time to time, we'll compare termites with human beings in order to demonstrate that termites' comfortable life and amazing social organization is hardly something they could have created by themselves. We'll provide various examples to invite your careful consideration. By "consideration," we don't mean a superficial glance, but to ponder upon the answers to the questions of why and how these creatures accomplish such extraordinary things and establish such a disciplined social life.

In the course of a day, many questions enter people's minds, and they must ponder them to think of solutions. They may wonder about work, school, office or classmates, family and personal matters that concern everyone, about the characters in a film they saw, individuals they met on the street or events they read about in books or saw on television. They think about what to cook for dinner and what he had gone through in the past. But with all these things occupying their minds, people should think correctly and effectively. They must ask questions and think if they are to find answers. And so, the examples of termites given in this book and the questions they raise should urge you to think and consider. In many verses in the Qur'an, God stresses how important it is that people think about the creatures and events in their environment as evidence for faith:

Your God is One God. There is no god but Him, the All-Merciful, the Most Merciful. In the creation of the heavens and earth, and the alternation of the night and day, and the ships which sail the seas to people's benefit, and the water which God sends down from the sky – by

which He brings the earth to life when it was dead and scatters about in it creatures of every kind – and the varying direction of the winds, and the clouds subservient between heaven and earth, there are Signs for people who use their intellect. (Surat al-Baqara: 163-164)

Termites are just one species out of millions, from which thinking people can glean some important truths.

Community Organization among Termites

When millions of people live together in one place, problems are sure to occur.

For examples, problems arise with construction, transportation, and communication and food sources. Through the years, of course, many solutions have been devised and been put in place to relieve the effects of these problems. But none of them has been totally or permanently solved.

Human beings are the only creatures on Earth granted the abilities to think, calculate and draw conclusions. For this reason, it is natural for us to make plans, to have the foresight to build structures to make our lives more comfortable and to apply creative solutions to our various needs. But the fact is, some creatures can do the same things even better than human beings can—which is indeed cause for consideration! These creatures have no intelligence or consciousness and sometimes they do not even have a brain; yet, they erect structures and establish organizations comparable—and in many ways superior—to any that human beings can create. Surely this, too, is food for thought!

Many species in nature have successfully established an organized common life. For example, consider the so-called “social insects”—ants, bees and termites.

But when we compare the ordered lives of termites with that of these other insects, we can see that termites’ social order is more complex than that of bees, and more closely organized than that of ants—and more coordinated and problem-free than most human social systems!

Every activity in the colony, from nest-building to communication and defense, is effected with intelligent calculation and deliberate planning. Such calculated planning is something that comes only with education and knowledge; this tells us that some kind of knowledge has informed and shaped the activities of termites. How have termites come to possess this knowledge that teaches them what to do from the moment they hatch? What is the source of the awareness in their activity? How to explain that such a tiny insect possesses abilities that are thought to belong only to human beings?

Answers to these questions will emerge from the examples that follow, as we examine the lives of termites.

Termites—Experts in Their Field

All the members of any termite colony share one common goal—to perpetuate the nest; and every member carries out its duty flawlessly. Termite colonies are composed of “castes,”—groups that specialize in various activities;

and each caste may have more than a million members. Every group is physically different from the others and has its own particular duties to perform.

Termite species are classified into three groups, according to where they live: underground, above ground termites and drywood termites. Each of these groups has a different kind of colony life. If you look into at a termites' nest, you will see some termites that have different appearances, because each nest is divided into four castes:

1. The king and queen: The queen has a different appearance from other members of the colony and she is very important for all of them. The growth of the colony depends on the queen.

2. Alates or swarmers: These termites have wings; they are the alates that will later fly off to mate. When they actually become kings and queens, they will lose their wings.

3. Workers: With their wings and strong jaws, workers form the largest number of termites. Their duties in the colony are to build the nest, find food and tend to the general order of the nest.

4. Soldiers: Smaller in numbers are the soldiers, whose only duty is to protect the nest.

According to the type of termite, the soldiers have different qualities; some soldiers in some species have a proboscis that secretes a sticky liquid useful in escaping aggressors. Other soldiers have big heads and large jaws; they attack everything that tries to get into the nest.

Now let's look more closely at the other members of the termite colony.

The Alates

The alates' bodies are blackish-brown in color. They have two wings on either side of their bodies, one of the major differences that distinguish them from other members of the colony. Two other characteristics that distinguish the alates are their visual and procreative abilities. Those members that can reproduce develop twice a year, but only at certain seasons of the year.

The alates wait in their own dark chamber until they're ready to leave the nest. This is important for the security of the colony and to prevent chaos. If there were more than one prospective king or queen in the nest, discipline would break down and confusion would take over in the colony. For this reason, worker termites take ample precautions so that there is only one king and one queen in the nest.

One of these precautions involves keeping the alates closed up in their own areas. But when the time comes, the candidates must emerge. They leave the nest by way of special tunnels constructed by the workers, so that they can leave the colony without having to enter the nest and cause confusion. They leave the nest

with the first rains, for with rains, the young alates' wings develop and they can move in the tunnels. Once they fly, some of them may never come back. The alates are weak flyers and can not go more than 500 meters (1,500 feet) from the nest.[1] On their first-ever flight, many of them get eaten by birds and reptiles or otherwise lose their way. Those that do manage to survive lose their wings after their flight is over and construct a hidden burrow that will house the colony. When the king and queen mature, they enter a life-long bond, reproducing to found the colony. As with all other operations and processes in a colony, all termites know their duties very well and there is no question of rebellion. The future kings and queens never abandon the nest; they are aware of their responsibilities and do what they need to do to establish new colonies.

The Importance of the Queen

The main difference between the queen and other termites is that she has wings. These wings are not permanent, but are a sign of her status. The mature queen begins to establish a colony in the spring; she then leaves the nest in search of a king and in her search, uses fluids called pheromones from her body to attract him. After a short flight, she alights on the ground, raises her body and emits a secretion from her glands. From one gland on her back, she secretes a fluid that can attract a king from a distance of 20 cm (7 inches), from her thorax, she secretes another pheromone that's effective up to a distance of 3 cm (1.1 inches).

After the king and queen have come together, they go in search of a place where they can mate. The dig a tunnel, dig a mating chamber and later begin to construct a nest. The queen first lays 5 eggs; the first termites that hatch from these eggs are nurtured by the king and queen to be workers.[2]

The queen has an incredible reproductive capacity. One species of termite (an African species, *Macrotermes natalensis*) whose queen lays 30 thousand eggs each day;[3] that is, one every three seconds. Even an old queen can lay egg the same rate. A queen may live to be between 25 and 30 years, producing tens of millions of eggs in her life.

As with a colony of bees and ants, it is the queen that ensures order and continuity. There is a queen in the center of every termite colony. The king and queen live in a special room in the nest where they are looked after by the workers. This room, the heart of the colony, is the most vulnerable place in the nest and therefore, the best protected. The queen has grown too large to move;

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[1] "Isoptera;" http//info.e.ac.uk/~gjlramel/isoptera.html

[2] Christopher O'Toole, *The Encylopedia of Insects*, New York: Facts On File Publications, 1986, p. 35.

[3] Denis Crawford, "An Eggsellent Adventure;" http://www.csiro.au/helix/thehelix/pastissues/Th101Insecteggs.pdf; Karl Von Frish, *Animal Architecture*, New York: Harcourt Brace, p. 124.

when she began laying eggs, her body hugely enlarged up to 14 cm (5.5 inches) long and 3.5 cm (1.4 inches) across.[4] Since she is unable to feed herself, other members of the colony take care of her. The workers responsible for feeding the queen satisfy her needs unfailingly, always at the right time.

Even though she cannot move, the queen keeps tight control over her nest's order, security and the many needs. In the following chapters, we'll examine exactly how the queen is able to do this by herself.

Information Exchange Between the Queen and the Workers

Although the queen doesn't communicate directly with the other termites, she knows what her nest requires. Even her body has attained a length of 10 cm (5.5. inches) and she must lie motionless throughout the egg-laying period, she knows the needs of the nest; she is aware if there is any confusion and what class of termite is needed to remedy it.

How can she remain aware of such an extraordinary trove of information? This is a clear proof of the faultless and flawless functioning of a system created by God.

As stated earlier, the queen is fed by the workers, and during this feeding, what is happening in the colony is transmitted to her uninterruptedly. The workers give her this information through secretions. All termites produce secretions on their bodies, by which the queen is informed of the state of the colony. When a worker is feeding her, the queen becomes aware of the needs of the colony. For example, if a soldier is killed in an attack, the queen receives news of it through chemicals secreted by the worker feeding her.

If many soldiers have been lost, as a first precaution the queen secretes a compound that causes young termites to develop into soldiers, which chemical is delivered to the young termites by the workers. In this way, it is determined to what caste the young termites will belong.

It is necessary to analyze a fluid in order to determine what it contains and to do so, a laboratory is required. Instruments used for the analysis must be able to detect the contents of the fluid; and of course, those doing the analysis must be trained in the field and have the requisite knowledge. The queen termite analyzes the fluids in a very short time and does so throughout her whole life. She secretes the fluid appropriate to particular needs, ensuring the proper organization for the survival of her colony's hundreds of thousands of termites. The termites carrying the substance secreted by the queen know what they must do because they can perceive the code hidden in the secretion and recognize its significance. Therefore, all other termites in the colony have the same ability to analyze.

This is one of the wonders of a termite colony. In the colonies, it is not clear from the moment of their birth what caste the individuals will belong to and what kind of work they will do. At birth all the larvae are undifferentiated. The larvae's future duties and responsibilities will be determined by the present needs of the colony, according to which the queen secretes a substance which the workers deliver to the larvae.[5]

Clearly, the queen cannot determine what individuals her colony requires. For what seems to be thought, judgment and decision making on the part of the queen, there is only one explanation: Her activities must be under the control of some power. The queen's supervision of the nest is under God's inspiration. It is He Who teaches every living creature on Earth how they are to behave.

And in your creation and all the creatures He has spread about there are Signs for people with certainty. (Surat al-Jathiyya:4)

Worker Termites

The workers that care for the nest are infertile, blind and wingless. Soft-bodied and cream-colored, they reach adolescence in one year, with a lifespan of between 3 and 5 years.

Except from egg-laying and defending the nest, worker termites do all the other chores; they construct the tunnels and chambers, expanding and repairing them when necessary. Until they come of age, as larvae they need to be cared for. The queen, equally unable to supply her own needs, must also be looked after. Again, the workers tend to all this. Some species of termites feed on fungus, which the workers grow right there in the nest. So workers also serve as the farmers of the colony and, in short, provide for all their colony's daily needs.[6]

That the workers laboring endlessly are infertile is a problem for evolutionists because—as we shall show in the following chapters—self-sacrifice on the part of the workers is the foundation of the order in the nest. Barren termites, living only to work for the other members of the nest, pose a big problem indeed for the evolutionists' claim that nature is a battleground.

Infertile Termites Contradict Darwin's Theory of Evolution

Charles Darwin admitted that such complex behavior in some creatures is "by far the most special difficulty which my theory has encountered."[7]

Why is the activity of social insects "the most special difficulty" for the theory of evolution? To explain, we must examine the illogicality of the evolutionists' claims—an illogicality that they themselves often admit.

Evolutionists claim that complex behavior such as termites display has come about through the mechanism of natural selection. This amounts to the supposition that creatures learn certain behavior through experience. When, in time, this behavior proves to be good and advantageous for the species, it becomes adopted through the mechanism of natural selection. Later on, this same advantageous behavior is inherited by later generations.

The following considerations show why these claims are untenable:

First of all, the behavior that many species display cannot be attributed to experience. For example, the first thing a newly-hatched cuckoo does, even before it can open its eyes, is to push the other eggs out of the nest. Certainly this behavior cannot be learned; when the cuckoo bird hatches, it perceives no other creature in its vicinity, but it already knows what to do with the other eggs. In other words, the cuckoo had this knowledge even before it was born.

Even if we suppose that a bird learned this behavior through experience, there would be no genetic possibility of one's passing it on to subsequent generations. The acquired abilities would belong only to that creature. Just as the child of a trained surgeon could not become a doctor without being trained himself, learned behavior cannot be passed on genetically to a creature's offspring. Considering this, we can see how untenable and unscientific evolutionist claims truly are.

There is another important consideration: Behavior patterns of the workers assigned to do almost everything in a termite nest require collecting information, calculation, planning ability and judgment. These behaviors cannot be inherited because the workers are infertile! They cannot pass on their characteristics genetically. So even if we suppose that a worker termite can learn the behavior appropriate to it—which is impossible—the worker still couldn't pass it on to the next generation because it cannot produce any new generation. Among social insects, only the queen has the ability to reproduce and pass on her genes to the generation after her. But her features are not sufficient to perpetuate the colony's existence. It could not survive without the cooperation, discipline and self-sacrifice of the workers and the soldiers. As soon as they hatch, these tiny insects know very well what they have to do. Who, then, teaches them how to carry out their activities?

These are questions still awaiting answers from evolutionists. Charles Darwin was well aware of the problems; in his *On the Origin of Species*, he admitted the difficulties that the behavior of social insects posed to his theory:

If a working ant or other neuter insect had been an ordinary animal, I should have unhesitatingly assumed that all its characters had been slowly acquired through natural selection; namely, by individuals having been born with slight profitable modifications, which were inherited by the offspring, and that these

again varied and again were selected, and so onwards. But with the working ant we have an insect differing greatly from its parents, yet absolutely sterile; so that it could never have transmitted successively acquired modifications of structure or instinct to its progeny. It may well be asked how it is possible to reconcile this case with the theory of natural selection?[8]

As with the ants that Darwin mentions in the above quotation, so it is with termites: all the workers are infertile. Evolutionists cannot explain this phenomenon.

It's of course possible for an infertile creature to develop certain characteristics, learn useful behavior patterns and acquire experience in the course of its life—but this is of no value for the theory of evolution. Ali Demirsoy, an evolutionist professor, comments on this matter:

. . . As we said earlier, the fact that an individual may survive successfully does not say very much from the evolutionary point of view. The important thing is to produce many offspring thereby contributing genes to the gene pool. No matter how long an individual lives, if they [*sic*] do not produce offspring, they are unimportant from the point of view of evolution. For this reason, the death of these individuals is called "genetic death." [9]

"Genetic death" means the end of the generation of that creature. But worker termites have survived millions of years without changes and have been able to perpetuate their existence even though they are barren. These facts belie all the claims put forward by evolutionists.

Our previous examples showed that the behavior of termites, ants, bees and other creatures that live communally cannot be explained by any such distorted evolutionary mechanism as natural selection. There is only one explanation: God, with His infinite power and knowledge, has created every living creature on the face of the Earth.

The Basic Reason for the Order in the Nest

Every member of a termite colony knows what task it must do and performs it flawlessly. Because these insects display no selfishness, they live in a perfectly ordered colony.

A similarly peaceful order, found in all social insects, is worth careful consideration. We have spoken about the importance of the self-sacrifice of termites in the maintenance of a stable order in their nests.

It is often to be noticed in the behavior of creatures that they are willing to put their own lives in danger for the sake of their offspring or another without considering their own needs. There are so many examples of this kind of behavior that evolutionist scientists are forced to admit it.

For example, the evolutionist Peter Kropotkin wrote about solidarity among animals in a book entitled *Mutual Aid: A Factor in Evolution,* showing how successful ants and termites were as a result of their helping one another:

Their [the ants' and termites'] wonderful nests, their buildings, superior in relative size to those of man; their paved roads and overground vaulted galleries; their spacious halls and granaries; their corn-fields, harvesting and "malting" of grain; their rational methods of nursing their eggs and larvae . . . and, finally, their courage, pluck, and superior intelligence—all these are the natural outcome of the mutual aid which they practice at every stage of their busy and laborious lives.[10]

Note that this evolutionist writer speaks of "mutual aid." This is the behavior of a blind insect a few centimeters long without the capacity for thought. It is natural for human beings to help one another, devise plans together, put them into effect and to develop new systems and technology to make life easier; but it cannot be considered natural for insects to do this. If a creature with no capacity for thought shows intelligence, it means that some power is directing it; that a force drives it to devise intelligent plans and sacrifice itself for others.

That power is God's infinite intelligence and might.

THE TERMITE ARMY

Every country of the world fears the possible outbreak of war and civil chaos. Nations continually produce new strategies and armaments to counter this threat and defend themselves, and departments of defense put aside significant amounts in their budgets for developing new weaponry.

There are similar defense efforts in the world of nature. All creatures that live in colonies have well-equipped armies, in which every soldier has a different function, and their defense strategies are highly intelligent. With the armies of social insects, their most notable characteristic is that every individual strives to do its duty to the point of putting its own life at risk.

Termites' armies are composed of groups of many soldiers. Soldiers look much like worker termites; they are blind and wingless, with soft bodies a few centimeters in length. But despite their small physical size, they have some amazing techniques at their disposal.

Soldier Termites

Their only duty is to protect their colony. But to protect the nest, this tiny defense army exposes itself to all manner of dangers, to the point of sacrificing their own lives. And they do not care how large the enemy is. For example, when the nest is invaded by its biggest enemies, ants and anteaters, a "suicide squad" goes into action to remove the threat. Many termites will die in the course of the defense, and we will examine this self-sacrificial behavior among termites in a later chapter.

The bodies of soldier termites vary according to their species, but each has a physical design totally appropriate to their duties. For example, African termites have razor-sharp jaws; South American termites have a squarish head and a lower jaw longer than their whole body, which they use to kill their enemies. Some termites in Malaysia explode themselves like suicide bombers, drowning the aggressor in a dark yellow fluid. Worker termites of some species in Africa and South America protect the colonies in a different way. These workers squirt a fluid from their intestines at an enemy; as a result, their inner organs explode, and they die.[11]

Soldiers of nearly all termite species have large, muscular jaws which they use to tear an enemy to pieces. The sizes of soldier termites' jaws are roughly the same, but the shape of their heads varies according to species. These differences are sometimes quite striking. Certain soldiers have long heads, while those of

[11] Bilim ve Teknik, *Gorsel Bilim ve Teknik Ansiklopedisi* (Visual Science and Technology Encyclopedia), Gorsel Yayınlar, Vol.1, Istanbul, 1986, p. 289.

other species are powerful and hard. The reason for this difference is the various fighting techniques among termites. For example, termites with long heads use them to squirt sticky fluid at an aggressor.[12] Termites with large heads use them as barriers to plug up holes in the nest and prevent enemies from entering. Their heads, resembling capsules, are much larger than the rest of their body. Though they may look awkward, they have a surprising ability to defend their nest.

Termites' Battle Strategy

To ensure the colony's survival, security is of the utmost importance. Besides using their sharp jaws to wound an enemy, termites normally use chemical weapons in their various strategies to paralyze an enemy, explode themselves on top of an enemy, and secreting a poison that affects an attacker's physical structure.

Thanks to all these special features, termites have managed to survive for millions of years. But today's chemical weapons experts have been able to produce these only after constant effort. Serious efforts are required to produce even the most basic chemical substance. In the light of this, we must answer the question of how the bodies of termites produce these chemical weapons. According to the theory of evolution, these chemical substances came into being spontaneously—that is, by chance. But even a little consideration will reveal how illogical this claim is.

The theory of evolution claims that termites did not originally have a chemical-production system in their bodies, but slowly developed it later as a result of random events. But as the examples in the following pages will show in detail, every aspect of these claims logically contradicts the others.

Indeed, for a termite's chemical weapon system to function at all, both the chemical itself and the organ that produces it must have come into being at the same time. In addition, it's vital that this organ has safeguards to keep the poison from spreading to other parts of the termite's body. And because the way poison is used varies according to the species, there must sometimes be a channel or conduit immune to the poison leading to the termite's head from the organ where it is produced. Besides this, there must be some muscular system or mechanism that lets the termite eject the poison at an enemy.

Evolutionists claim that organs and systems like these have come into being by chance. Random events allegedly produced whatever chemical formula was required and created a system to produce that chemical substance in the body of the first termite; later, other chance events occurred, producing substances that in turn produced chemical substances, one by one. The organs and other systems in the termite's body developed immunity from the poison. In this way, one chance

event followed after another for millions or even hundreds of millions of years, until termites finally emerged as we know them today.

Elaborating this fairytale scenario makes it clear just how illogical these evolutionist claims are. Chance events cannot create even the single cell of a living being, let alone a fully-formed creature. Chance would first have to create the cells of the creature, combine them and form them into organs. It would have to give each organ its special qualities and, in order that the species could continue to exist, would have to encode the information enabling these functions into the genes of the cells of each creature. Of course, this would be impossible.

Contrary to the evolutionists' claim, termites did not arrive at their present form through a specific process over time. For example, if just one element of their chemical-weapons system did not function correctly, the entire system would not work properly, and the termite would be killed. So only one explanation remains: The termites' chemical weapons system must have been created in its entirety, all at once. That is, they have possessed this system ever since they came into being.

But termites can do more than just produce chemical substances and use them as weapons; they also have unique feeding habits with an appropriate digestive system and the ability to establish chemical communication. In other words, their fine-tuned, highly sophisticated systems must have been created all at once. It is God, the Creator of every living thing in nature, Who has given termites their special characteristics. His power is infinite and He knows how to create every species.

Say: "Who is the Lord of the heavens and the Earth?" Say: "God." Say: "So why have you taken protectors apart from Him who possess no power to help or harm themselves?" Say: "Are the blind and seeing equal? Or are darkness and light the same? Or have they assigned partners to God who create as He creates, so that all creating seems the same to them?" Say: "God is the Creator of everything. He is the One, the All-Conquering." (Surat ar-Ra'd:16)

Smearing Poison on Their Bodies

One stratagem that termites use in battle is to smear their bodies with poison. Some species synthesize a very strong poison that they store in their bodies without suffering any harm. The poisons produced by termites differ according to species, and the way each species uses it is also different.

For example, soldiers of the subfamily of Rhino-termitidae kill an aggressor by smearing its body with poison. This species has a shorter lower jaw and long upper jaw, with ends like a brush. This special mouth structure is quite effective in allowing the termite to smear the body of any aggressor. And since a soldier

termite can store up to 35% of its body weight in poison, the amount it secretes can kill thousands of ants.[13]

Prorhinotermes also smears poison as a defensive strategy. This species of termite lives in Florida, and the jaws of the workers contain a poisonous substance called *nitroalkene*. Another species, the *Schedorhinotermes*, lives in Africa and produces a compound called *vinyl ketone*—a substance that when breathed or swallowed, causes death. When it comes into contact with the skin or the eyes, it causes severe irritation.[14] Termites produce this most effective poison, causing a collapse of the central nervous system, and store it in their bodies without suffering any harm.

Termites in Guyana synthesize a very fast-acting substance called *B-ketoaldehydes*. The Armitermes produce a poison called *molecular string* and use substances called *esters* and *lactones* as chemical weapons. As you can see, the structures of each of these poisons has a different chemical formula.

However, one common feature of these poisons is that all are electrophylic—that is, they combine with the electron-rich biological molecules on the bodies of aggressors to cause fatal physical deterioration. For millions of years, termites have been producing these poisonous substances, many of which are unnamed and whose purposes are as yet not understood.

Termites are not more than a few centimeters in length. They are blind, live most of their life underground and have only a rudimentary brain. But they secrete from their bodies a substance designed to stop the functioning of the physical system of an aggressor. Is it possible to maintain that a termite created such a system by its own will? Imagine someone telling you a story like this:

“Long ago termites did not have these systems, but one day a termite decided to develop a method of defense against its enemies. The most logical thing to do was to find a method to destroy the enemy’s internal systems. Sometimes the enemies were bigger and stronger than the termite itself. Then it decided to produce poison in its own body, assuming that it would be much easier to subdue an enemy this way without expending much effort. It developed various formulas for the poison. To do this it collected the requisite substances in a special secretion gland in its body and began to produce the poison. But before this, it did not forget to develop a layer to the secretion gland to prevent itself from being harmed by the poison. It also gave itself immunity from the poison when it was expelled from its body . . .”

This scenario is so silly that even a child would not believe it. Termites cannot make decisions or perform chemical operations. But evolutionists’ claims are no different. They maintain that termites did not originally have these poison-producing systems, but produced it in their own bodies one day in response to a need. As a matter of fact, evolutionists claim that coincidences produced these

systems. But neither a process of blind chance nor a tiny insect we call a termite can conceive, plan and put any system into effect. God is the Creator of heaven and Earth and everything in between; it is He Who endowed termites with their defense system.

Another Amazing Method of Defense

Macrotermites live in Africa where they build their nests in the shape of mounds. In this species, the soldiers defending the colony are females, infertile, and smaller than other termites in the nest. The somewhat larger protectors of the queen, king and larvae are responsible for preventing intruders from entering the inner chambers where these reside. These protectors were created for battle, with heads designed like shields and sword-sharp lower jaws. In large soldiers, 10% of their body weight is composed of internal secretions. These secretions are made up of long chains of carbon compounds such as *alkanes* and *alkenes*, and stored in large sacs in the front part of their bodies. Enemies attack these termites at their peril, because the cost of attacking the colony is more than just a few wounds from the soldiers' sword-like lower jaws. The soldiers do not stop at that, but smear the open wounds with an oily chemical compound resembling paraffin composed of *alkanes* and *alkenes*.[15] Even though the termites' enemies often do not receive life-threatening wounds, scientists have noticed that they die shortly afterwards.

Researchers examining this interesting phenomenon have recognized an amazing fact: the intruders do not die because of the size of the wound they receive, but through loss of blood. The substance the termites secrete disables the intruders' blood-clotting ability.

For example, ants have a fluid in their bodies called *hemolymph* that functions like blood. When wounded, their bodies produce a chemical substance that causes the hemolymph to solidify and the wound to heal. The termites' poisonous secretion renders this chemical substance ineffective.[16]

It is certain evidence of creation that an insect between 1 and 2 cm (0.3 to 0.7 in) long knows the bodily secretions of another creature, is aware of a formula that will destroy the composition of those secretions and produces in its own body a substance with this formula. Without appropriate training, not even human beings can learn the essential elements of which the bodies of other creatures are composed and how to destroy those elements. First, they must be familiar with those creatures' anatomical structure. But even this is not enough; they must gain even more knowledge in order to put into practice what they have already learned.

Of course, chemical materials must be produced with the help of technological instruments, under strict conditions, in special places and with expert assistance. However, termites produce these chemical substances in their bodies without any help at all.

There are many more aspects to these operations, but the facts are clear. A creature like a termite cannot discover chemical formulas or create such a system on its own; it is God Who has created termites. It is He Who inspires in them what they are to do and how they should do it. Like every other creature, termites act according to God's inspiration. He reveals this truth in the following verse:

. . . There is no creature He does not hold by the forelock . . . . (Surah Hud: 56)

Termites That Spew Out Glue

Of the 2,000 species of termites, 500 live in tropical zones and among these, some have soldiers that spew out a sticky, gluey substance. There are two noticeable aspects here: First, some soldier termites produce chemical compounds in their bodies which turn into glue that when spat out, is strong enough to corrode metal and will penetrate mortar or low-grade concrete. But the termite produces and stores this very dangerous glue in its body without harm.

A second interesting point is how the termites squirt the glue from special passages on their foreheads called nasal channels. They spray the glue on their enemies, which causes the aggressor to lose consciousness briefly. Before the spray wears off, the termite takes advantage of this time to launch a second attack against the intruder, during which it either paralyzes or kills the enemy. [17]

In order for this substance to be effective, it is important to hit the enemy. But like other termites, soldier termites are blind. So how can they hit their targets?

The termite's system is totally fail-safe. The delivery channel and secretion glands of worker termites, together with their antennae, are very similar to heavy radar-guided weapons that can track a target, zero in on it and strike. Termites' antennae function just like these devices. The termite soldiers know how to use them very well and never miss their targets.

Examining these chemical weapons' molecular structure, we notice something else: In these remarkable chemical substances are carbon compounds. How have termites been able to discover the formula of these compounds? Who does the formula belong to? We suggest all these questions in order to make you wonder and think.

In order to produce such sophisticated weapons, several biochemists must work in the most modern laboratories. Some of them develop new formulas; others test these formulas in various experiments. As opposed to the endless work and expense that human beings go through, when the need arises to produce new chemical substances, termites can easily synthesize in their bodies these extremely complex compounds. In addition, they use these compounds expertly

as weapons against their enemies. This is a cause for consideration. Any intelligent and aware person will understand that such complex creatures could not have come to be by chance.

How many Signs there are in the heavens and Earth! Yet they pass them by, turning away from them. Most of them do not believe in God without associating others with Him. (Surah Yusuf: 105-106)

Termite Suicide Squads

The soldiers of many termite species are willing to risk their lives to prevent harm coming to their colony. One of these is a very interesting species that lives in the Malaysian rain forests. These termites are bombs in motion anatomically and behaviorally. In their bodies they have a sac containing chemicals that render their enemies helpless. If one of these termites is seized by an invading ant or other creature, the muscles in its thorax contract strongly, tearing the secretion gland and drowning the aggressor in a dark yellow fluid.[18]

Another example of interesting battle tactics are some worker termites that live in South America. When these termites squirt intruders with a substance in their intestines, their internal organs are torn apart and they die.[19]

If nature is the arena of a life-and-death struggle, as evolutionists claim, in which every creature struggles to survive, why would an insect sacrifice itself?

Self-Sacrificing Termites Disprove the Theory of Evolution

This kind of self-sacrifice found in termites clearly refutes Charles Darwin's claim that only the "stronger will survive." The idea that weaker individuals are eliminated is one of evolution's basic assumptions. The basis of this mechanism is that physically strong creatures survive to perpetuate subsequent, stronger generations while the others die off. In nature, according to this claim, creatures engage in a mortal struggle with one another, and the weaker are starved out or killed off by the stronger. The natural-selection mechanism posits that creatures are concerned only with their own personal food, shelter and security.

Even without considering other creatures, the self-sacrifice seen in termites is enough to refute this claim. If this evolutionists' claim were true, there would be no cooperation or self-sacrifice among creatures; only conflict. But termites show that on the contrary, they are willing to risk their lives for other individuals in the colony.

Many creatures in nature put their individual lives in danger as they sacrifice themselves for other members of their group; sometimes they even display concern for creatures not of their own species.

John Maynard Smith, a noted evolutionist, sums up the disagreement among evolutionists about self-sacrificial behavior among species:

Here one of the key questions has to do with altruism: How is it that natural selection can favor patterns of behavior that apparently do not favor the survival of the individual? [20]

In his book *Evrim Kurami ve Bagnazlik* (The Theory of Evolution and Bigotry) Cemal Yildirim, a noted Turkish proponent of evolution, writes that animal behavior cannot be explained by natural selection. He gives the example of a mother animal's love for her babies:

Can a mother's love be explained by the blind process of natural selection, which has no spiritual aspects? For such questions, it's hardly possible for Darwinist biologists to give satisfactory answers.[21]

There is only one explanation for how creatures without a reasoning mind can feel compassion and mercy and display self-sacrificial behavior and a species-protective instinct. It is God Who gives creatures these characteristics. In the Qur'an, He gives examples from the animal world and reveals that they act under His inspiration. Birds, butterflies, ants, tigers, elephants, whales, giraffes—in short, all living things in nature—act under His inspiration. Everything in the universe, both animate and inanimate, exists by His word. Everything we see around us shows us God's infinite power and knowledge and proves that He has no partners in creating.

This is a plain fact that everyone with intelligence can understand. God reveals this truth in the following verse:

. . . The Lord of the East and the West and everything between them if you used your intellect. (Surat ash-Shu'ara':28)

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[20] John Maynard Smith, *The Evolution of Behavior*, *Scientific American*, December 1978, Vol. 239, no. 3, p. 176.

[21] Cemal Yildirim, *Evrim Kurami ve Bagnazlik* (The Theory of Evolution and Bigotry) (Ankara: Bilgi Publishing House, January 1998), p. 185.

A FASCINATING NUTRITIONAL SYSTEM

Termites' nutritional needs differ from those of other creatures, because their staple is cellulose—an energy-rich source of carbohydrates found in green plants. But because cellulose is thick and difficult to decompose, most insects cannot digest it.

The digestive enzymes secreted by most animals cannot break down this thick carbohydrate. Termites are one of the rare creatures that have the ability to digest cellulose and actually nourish themselves with wood, which to us is wholly indigestible.

But something else makes this nutritional system even more remarkable. The termites themselves have no ability to break down cellulose in wood; they can do so only because of microorganisms living in their guts.[22]

These organisms, each the size of a micron, perform their complex chemical functions in this fashion:

Symbiosis: a Balance Within a Balance

Among the many examples of symbiosis in nature is that of termites and the unicellular protozoa living in their intestines. The flagellates that live and move about with their flagella in the termites' intestines possess special enzymes able to break down the cellulose of the ingested wood and making it utilizable for themselves and their hosts. This process takes place in a special section of the termites' intestinal tract that has widened to form a fermentation chamber. The flagellates multiply profusely, supplying their hosts with not only digestible carbohydrates but also with their necessary protein—because the surplus population of these small organisms is itself digested in the termites' gut.[23]

These single-celled protozoa could not survive on their own and so they become attached to termites and other insects. On the other hand, if these single-celled creatures did not exist, termites could not digest the cellulose in wood and provide energy for themselves.

For this reason, the two creatures must have come together at the same time. If termites were born in the absence of these single-celled creatures, they would die from being unable to digest their food. But as usual, evolutionists assert that these creatures came into existence in various ways through some imaginary process of evolution and later decided to enter into a symbiotic relationship with one another. But then, evolutionists are bound to answer the question of how

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[22] Prescott, Harley, Klein, *Microbiology*, McGraw Hill, ABD, 1999, p. 567.
[23] Karl Von Frish, *Animal Architecture*, New York: Harcourt Brace, p. 127.

termites and the protozoa could manage to survive before they encountered each other.

What contradicts evolutionist claims in this symbiosis is that these two creatures must have come into existence at the same time. Evolutionist claims assume that creatures are in a state of constant development, choosing whatever ways of behavior are most beneficial and advantageous for them. This being the case, the symbiotic relationship between termites and their protozoa presents a problem for evolutionists. Why do these single-celled creatures attach themselves to termites, break down cellulose and give it to their hosts to ensure their survival?

These two different creatures living together and complementing each other's physical systems is clear proof that they could not have come into existence—much less together—by chance. Everywhere we are confronted by the evident fact that the world functions according to a flawless system. This implies that Someone ensures this order; it is God Who has created the whole universe in all its perfection. He has the infinite power to know the needs of every creature on Earth and endows them with the systems they need.

He has inspired termites to know what they must eat; He created protozoa for the benefit of termites, and placed these creatures within their tiny bodies to ensure their survival. In the Qur'an, God tells us that He feeds all living creatures:

There is no creature on the Earth which is not dependent upon God for its provision. He knows where it lives and where it dies. They are all in a Clear Book. (Surah Hud: 6)

Nutritional Habits of Other Members of a Termite Colony

Another interesting thing about termite colonies is that the workers feed the queen, the king, the soldiers and the larvae.

The workers perform this duty, providing every member of the colony without fail with the nourishment they need. Especially the queen and soldier termites would go without food if the workers did not feed them. When she begins laying eggs, the queen becomes so heavy that she cannot move and needs to be fed by others. The soldiers' head has a structure appropriate for defending the nest; their mouths are more suited to repelling intruders than to eating and therefore, they too must be fed by the workers. Also, the larvae are fed for a while by the workers with food they had digested themselves. This is very important because, in this way, the workers "seed" the bodies of the new termites the vital microorganisms they will need to digest cellulose. And a short while later, as they grow larger, the new termites become able to digest their own food, thanks to the protozoa that the workers put into their systems.[24]

As you see, the workers are responsible for the care of most of the other termites. In nourishing their colony, they show a high degree of self-sacrifice—clear proof that the claims of the theory of evolution are basically untenable. If the natural world were merely an arena of conflict where only the strong survive, the workers would let the other starve and might even kill them. But termites act totally opposite to the claims of evolutionists, feeding the whole colony tirelessly, without ceasing and with no hope of reward.

It seems remarkable that soldier termites are fed by the workers, because the soldiers would appear to be the strongest members of the colony. Evolutionists cannot explain why these stronger individuals have been dependent on workers for their survival for millions of years.

As stated earlier, one basic aspect of the theory of evolution is the idea of natural selection, that the strong must struggle to survive. Meanwhile, as claimed, over long billions of years, they developed the qualities they needed for survival. If we apply this same mythological claim to termites, we'd expect the soldiers to acquire the necessary traits and eliminate their nourishment problems. Evolutionists regard one creature's dependence on another as a disadvantage. But as we can see clearly in the fossil record, and contrary to what evolutionists claim, termites have not undergone any physical change in 250 million years; they have continued to survive as termites.

In one moment of creation, God made soldier termites with their special endowments and a mouth structure that prevents them from feeding themselves. At the same moment, He made worker termites with their selfless industriousness, and the queen with her astounding reproductive ability.

The attentiveness of worker termites to the duties inspired in them and their care for feeding the whole colony are manifestations of God's signs. In the Qur'an, God tells us that He feeds all creatures:

How many creatures do not carry their provision with them! God provides for them and He will for you. He is the All-Hearing, the All-Knowing. (Surat al-'Ankabut: 60)

COMMUNICATION IN A TERMITE COLONY

Social life in a termite colony is flawless. The termites act together simultaneously as one body and cooperate in performing all functions of the community. And, if we consider that sometimes termites live with at least one million others, we can easily understand the importance of a system of communication that allows termites to provide a working area, come together and join forces against intruders and manage all the other needs of the colony in perfect harmony. This communication system is based on the exchange of chemical signals through smell or taste.

Now, let’s compare the functioning of a million-member termite community with that of a human community of the same size.

Think of more than 1,000,000 human beings living and working together in one place. Imagine that they fulfill their cleaning, ventilation, temperature and nutritional requirements all by themselves.

Performing such functions with such a large number of individuals would certainly take a lot of time and labor. A well planned organization would be required to avoid confusion and breakdowns in the system. There would have to be a very good communication and labor-distribution systems.

It is extremely difficult for one million human beings to work together as one. Indeed, problems arise when only 30 or 40 people try to live together in a group. To establish order in such an organization would take at least a good amount of time.

Human beings are the only creatures in the world with intelligence. They have the powers of judgment and technological skill, and they can plan for the future. A termite is an insect 1 to 2 cm (0.3 to 0.7 of an inch)-long. This comparison is to show how important it is for termites to live together successfully in a colony. As you'll see in later pages, termites lack the intelligence that would allow them to build skyscrapers and install heating/cooling systems.

About 1 million termites, and sometimes more, manage to perform these feats with no problems, showing that they have a well-organized communal life and a very good system of communication. We may well be curious about a communication system that lets one million individuals work together as one. Termites are blind; how do they understand one another? How can they create a work area? How can they build magnificent towers without any confusion? Being blind, how can they recognize enemies? How can they fight together against one? The answers to these questions provide a key to a very important truth.

The Source of Termites' Communication System

Termites' established society depends on a system of mutual communication. But they have no trouble in exchanging information. All essential activities such as building, finding food, recognizing others belonging to the same nest, following tracks, physical development, sounding the alarm against intruders and defending the nest are determined—as with other insects—through chemical signals.

As with other insects, termites use chemical secretions called pheromones to communicate. Every colony has its own particular smell. For example, when the colony is invaded, the queen is informed when the workers smear secretions on the food they bring her. She in turn secretes an alarm secretion which orders soldiers to go to the site of the intrusion. In addition, when workers find a new source of food, they leave a secret chemical scent that other members of the nest can follow, leading them to find the new source of food.

As said before, the number of individuals in each caste and the proportion of workers to soldiers are also determined by means of chemical secretions. The queen determines whether the developing larvae will become soldiers, workers, or prospective kings or queens, according to the needs of the colony; and by means of secretions, she informs the workers as to which class the larvae belong.[25]

Besides communicating by chemical secretions, termites also have very sensitive antennae. A series of cells on their antennae can perceive scents, allowing termites to recognize one another and to perceive the smell of other insects not of their species.

Termites' Special Barcode

Insects have a protective covering called the *chitin-protein layer*. This layer contains glands that exudes hydrocarbon molecules with a special scent that termites are able to perceive. This is how they can detect a foreign insect trying to enter the nest.

How does their scent-detection ability work? To answer this, we can compare termites with a scanner that's able to read barcodes (the special price and destination codes on merchandise).

Just as the computers in a company's security system can recognize the code inscribed on security cards, so termites can tell the difference between the scent of an ant and that of another termite. Termites' antennas are so sensitive that they can detect by its scent whether another termite is a member of their colony. In addition, every termite species and even every nest within the same termite species has its own odor. The fact that termites can differentiate these scents makes them experts in the art of "smelling." And their antennae serve as the most effective means of monitoring the security of the nest.

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[25] "Termites;" http://ianrwww.unl.edu/ianr/pubs/extnpubs/insects/g1062.HTM#biology

Scientists have investigated how blind termites can know when another insect tries to enter their nest and how they can recognize that other termites are not members of their colony. Chemical analyses (spectrometry and gas chromatography) of the scent that termites exude have definitely shown that different species of termites (e.g. *Reticulitermes santonensis* and *Reticulitermes lucifugus grassei*) exude different scents.[26]

Besides this, when researchers transferred the shell or carapace of a termite from one nest onto a termite from another nest, they found that every time the foreign termite carrying the scent of the first nest tried to enter the second one, it was expelled.

Such expertise in smelling is not an ability that termites could have acquired later in their development. Every termite must have been born with this system already in place, because blind termites couldn't have survived without their antennae. Their ability to find directions and to defend themselves and the colony all depends on their antennae's ability to recognize signals sent by the queen. This also shows that termites' antennae were created at the same time as their secretion glands, together with all the other components that make up their systems.

[26] "Korler ama her şeyi koku sayesinde biliyorlar" ("They are blind but are able to know everything through smell"), *Cumhuriyet Bilim Teknik* (Cumhuriyet Science and Technique Supplementary), no: 419, p. 16.

A Creature that can Break Through a Security System

Though termites' security precautions are extremely effective, this does not prevent every intruder from entering the nest. In spite of all its security precautions, there is another species of ant that's able to enter into the colony.

How they can do this is amazing: The Ponerine subfamily of ant exudes the scent not of an ant but of a termite! Thus it is able to penetrate the termites' security system and wander freely throughout the nest. Being blind, the termites detect these ants' scent and mistakenly think they are "members of the family."

This very effective ability of ants to fool termites is an example of a flawless and impressive creation. This "ant success story" raises the especially interesting question of how the ants discovered the termites' special scent. Can one creature possibly duplicate the chemical substances in the body of another? How did these ants know about the termites' security system in the first place? And how do they know that they can wander freely among termites, once they secrete this scent? But above all, how did they gain the ability to produce in their own bodies chemical substances found in the bodies of termites?

There is only one answer to all these questions: Some Power has informed these ants about the termites' security system. This Power knows how both ants and termites are made, because He has designed and created these ants' physical systems. God is the incomparable Power that created both these creatures. He knows everything, and has total knowledge of all creation:

Everyone in the heavens and Earth belongs to Him. All are submissive to Him. It is He Who originated creation and then regenerates it. That is very easy for Him. His is the most exalted designation in the heavens and the Earth. He is the Almighty, the All-Wise. (Surat ar-Rum: 26-27)

Another Means of Communication

Termites also communicate using sound. By striking the walls of the tunnels with their heads, worker and soldier termites produce vibrations throughout their nest that summon other termites. The other termites feel this reverberation with extremely sensitive feelers in their legs.

The termites know that they will produce a reverberation throughout the nest by striking the tunnel walls with their heads and that this message will be understood by the other termites. This method of communication resembles Morse code. Of course, someone must be trained in Morse code; no one can learn the code spontaneously by chance and make random sounds that others can

understand. Both the sender and the receiver must know the code, or no matter how important the message, it can't be understood.

Just as Morse code cannot be learned spontaneously, so termites cannot have discovered their communication code by chance. Termites must know this communication system from the moment they are hatched. So, to suppose that termites acquired this ability by themselves and by chance is unscientific and illogical.

Receptors are not formed on a creature's body by chance. Chance cannot help signals emitted by one creature understood by another. In short, no creature acquires its traits by chance.

This communication system is taught to termites; or rather, it is inspired into them. In the Qur'an, God gives the example of a honeybee; He tells us that this creature moves by His revelation:

Your Lord revealed to the bees: "Build dwellings in the mountains and the trees, and also in the structures which men erect. Then eat from every kind of fruit and travel the paths of your Lord, which have been made easy for you to follow." From inside them comes a drink of varying colors, containing healing for humanity. There is certainly a Sign in that for people who reflect. (Surat an-Nahl: 68-69)

Like the honeybee, every creature on earth moves by God's revelation and is totally subject to Him.

THE WONDROUS ARCHITECTURE OF THEIR NESTS

Termites are best known for their ability to build magnificent nests out of the ground more skillfully than a human being could. The skill of these tropical architects is undisputed in building cities that seem to appear out of nowhere. Their ease in finding building materials and technical skills are amazing. Every species of termite builds different kinds of nests suitable to their needs. These nests can be found inside trees, on or under the ground.

Nests that are shaped like mountains are architecturally very complex. The construction of all the nests begins underground, where compartments become more spacious as they approach the surface. A cross-section of a termite nest would show that the inside resembles a sponge composed of countless cells 2.5 cm (0.9 inches) in size, or smaller. These cells are joined by narrow passages only large enough for termites to pass through. Termites thrive in an atmosphere whose temperature and humidity are constant, with a carbon dioxide content of between 5 and 15%. In such an environment, human beings would lose consciousness, but termites survive easily.[27]

Specially Sheltered Nests

Termite nests are designed to isolate their inhabitants from the harsh, constantly changing external conditions in tropical regions. No matter what the conditions outside, the temperature and humidity remain stable inside the nest.

In order to provide insulation, termites cover their mountain-like nests with a compact layer of building material that functions like an outer shell of reinforced concrete and helps to regulate the nest's interior climate in accordance with the requirements. For the eggs, it's essential that the temperature inside the nest remain constant.[28] Termites must be very careful to protect the queen's eggs, and this roof serves to ensure that the temperature is right. The roof also protects the colony from intrusions by other creatures, since the outer walls are very hard and firm. The inner galleries are much softer, made of a material that almost has the consistency of cardboard.[29]

Somehow, termites know that the temperature of the nest must remain constant and how to make the best insulation to maintain it. In areas where intruders are always liable to attack, termites know the right materials to use.

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[27] C.B.P.C. Publishing Ltd., *Hayvanlar Ansiklopedisi - Bocekler* (Animal Encyclopedia - Insects), p. 185.
[28] Karl Von Frish, *Animal Architecture*, New York: Harcourt Brace, p. 129.
[29] *Ibid.*, pp. 129, 144.

Besides this, they have the marvelous ability to measure the temperature inside their nest.[30] When one sees the evidence of God's creation in tiny creatures like these, one must remember not to praise or admire them, but only to praise and admire God Who created them with their talent. Only God is worthy to be praised:

He is the Living – there is no god but Him – so call on Him, making your religion sincerely His. Praise be to God, the Lord of all the worlds. (Surah Ghafir:65)

Noticing the wonderful construction in termite nests, scientists have done various experiments with them. In one, they divided in two a termite nest in the process of being built and prevented the two groups of termites from having any contact with each other. The result was not two different nests, but two halves of the same nest. When the two finished halves were put back together, all the tunnels that the termites had built connected with one another.[31]

There is no doubt that this was miraculous. Just imagine that you gave two groups of human workers each a pile of sand and commissioned each of the two groups to build half a sandcastle, without giving either of the groups instructions or supplying them with a plan. Would each be able to make an exact copy of the other half of the sandcastle? Of course not. Now in addition, imagine that these workers you've commissioned are blind. The enterprise would be even more impossible! These two groups couldn't built identical halves of a sandcastle after thousands, or even hundreds of thousands, of attempts. Where human beings with their intelligent awareness could not succeed, sightless termites can complete the construction of nests hundreds of times larger than themselves.

This fact cannot be avoided; termites do not behave by their own will, knowledge or expertise. They are clearly inspired. And it is Almighty God Who inspires them.

Features of the Termite Architects

The architects of termite colonies are the white, wingless workers. Though blind, they are very sensitive to light. They immediately notice any holes in the nest through which light can enter and are experts in stopping them up. They also show the same expertise in obtaining the materials needed to construct their nests.

First they make secretions and mix this fluid with grains of sand, earth and pieces of wood; then they use their mouths and legs to shape this material into

[31] Alia Izzet Begovic, *Dogu ve Bati Arasinda Islam* (Islam between East and West), Nehir Publishing, Istanbul, 1992, p. 70.

small balls. Then they fix each of these balls into their proper places. Gradually these turn as hard as cement.[32] This material from which termites build their nests is so strong and resistant that humans beings often cannot break it with their hands. Some termite nests have to be destroyed by picks and shovels, even dynamite.

Blind Engineers and Architects

Considering the stages in human construction, or even the stages in learning how to do construction, illustrates the magnitude of the work done by termites.

To become an architect, a person must go through years of training. When he puts into practice what he has learned, he must first draw up blueprints for each construction. In making these plans, he must think long and hard and make complex calculations and sketches to determine the resilience of the proposed structure. Then, at each stage of construction, he must bring in other architects, construction engineers, mechanical engineers, skilled workers, experts in construction, and others who have undergone special training. But termites are tiny insects with no architectural training, and it is miraculous that they are even more expert at construction than human beings.

When we compare the architectural skill of termites with that of humans beings, keep one important point in mind.

Could a blind architect construct a building? Could a blind architect draw up plans for a building 300 times larger than himself, hand the plans to a blind foreman, and have him perform the construction using blind workmen? Of course, such would be impossible. No one would claim that people blind from birth could construct skyscrapers requiring complex mathematical calculations and technical knowledge. The construction of even the simplest building requires consideration of such details as pressure, resistance, foundation structure, ventilation systems and emergency exits. And those who handle these details are experts who are able to see.

To complete this comparison, let’s play with this possibility: If a team composed of blind workers, architects and engineers has completed a construction, what possibilities come to mind? Could anyone assert that the building came about by chance? Or would it be assumed that the blind workers involved, if not experienced, had received special training, and that someone had directed their work? First of all, blind workers could not build such a structure; but if they did, someone would have to have trained them, showed them how to manage each stage of the construction and supervised their every step. It would be illogical to think that blind persons could construct any towering building without close supervision.

In the same way, it is unthinkable that termite nests could come into existence by chance.

Termite Skyscrapers

Termites construct skyscrapers up to 7 meters (22 feet) high. Comparing the size of a termite with the height of its nest, it's no exaggeration to call it a skyscraper.

Comparing human buildings with termite constructions, we come up with some incredible figures. In order to get an idea of the proportions of the nests that termites make, we can compare them to the Empire State building in New York City.

The construction of that building started in 1930 and took 14 months to complete; it was the tallest building in the world until the World Trade Center was built in 1972. It was built by four expert construction companies and rose to a height of 443 meters (1,453 feet).

It occupies an area of 8,000 square meters (9,567 square yards, or 86,111 square feet) and 16 different plans were drawn up before construction started. The foundations were dug to a depth of 10.5 meters (34.4 feet), from which 28,500 truckloads of earth were removed. After construction ended, 10 million bricks were used; 112,000 meters (367, 454 feet) of water pipes and 5,181,000 meters (5,181,000 feet) of telephone cable were installed. These are the materials that went into the construction of a skyscraper.[33] Now, let's return to the termite's nest.

Termites are only 1 to 2 cm (0.3 to 0.7 of an inch) long, but they make giant nests 7 meters (22 feet) high. If compared to buildings made by human beings, their nests would be twice the present height of the Empire State building. The magnificence of the termite's work is obvious. But when we examine the details of a nest's construction, we see more clearly the perfection of its structure.

The Stages in Construction of a Termite Nest

Termites live for years under the ground and, as the colony reaches a certain population, the nests expand towards the surface. Normally, between 1 and 2 million termites live in a single nest, working and breathing together. They have a great need for oxygen; so, if the nests were not ventilated and the humidity level stable, they could not survive. Therefore, they must construct their nest to supply these needs.

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[33] National Geographic, *Harikalar Dunyasi* (The World of Wonders), Dogan Publishing House, Istanbul, 1999, p. 190.

Termites live comfortably in earthen structures without windows or openings for air to pass through. So, let's examine the amazing stages of the construction of a termite nest.

Immediately after heavy rains especially, small mounds of soil will suddenly appear in areas where there had been no termite mounds before. A nest starts as a small mound, but can rise to a height of 5 to 6 meters (15 to 19 feet) in the course of months or even years.

Random piles of earth are brought into the nest and used to expand it. These piles of earth become the central columns that will support the nest. When these piles reach a certain height, construction stops. When these earth columns are brought sufficiently close together, they are bound together at the top by a circular band.

As the mound rises in the process of construction, convection air currents rising through the channels serve as invisible construction piers and workers weave strong walls around these currents.[34]

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[34] Bilim ve Teknik, *Gorsel Bilim ve Teknik Ansiklopedisi* (Visual Science and Technology Encyclopedia), Gorsel Publishing House, Istanbul, 1986, Vol. 5, p. 963.
[4] Christopher O'Toole, The Encyclopedia of Insects, New York: Facts On File Publications, 1986, p. 35.
[5] "Termites;" http://oldsci.eiu.edu/physics/Ddavis/fam/Insects/Termites.html
[6] Karl Von Frish, *Animal Architecture*, New York: Harcourt Brace, p. 137.
[7] Charles Darwin, *The Origin of Species*, Chapter VIII., "Instinct."
[8] Charles Darwin, *The Origin of Species*, Chapter VIII., "Instinct."
[9] Prof.Ali Demirsoy, *Yasamin Temel Kurallari Genel Biyoloji/Genel Zooloji* (Fundamental Laws of Life, General Biology / General Zoology), vol. I, Ankara, 1993, p. 605.
[10] Peter Kropotkin, *Mutual Aid: A Factor of Evolution*, Chapter 1.
[12] C.B.P.C. Publishing Ltd., *Hayvanlar Ansiklopedisi - Bocekler* (Animal Encyclopedia - Insects), p. 186.
[13] Bilim ve Teknik, *Gorsel Bilim ve Teknik Ansiklopedisi* (Visual Science and Technology Encyclopedia), Gorsel Yayınlar, Vol.1, Istanbul, 1986, pp. 290-291.
[14] "Material Safety Data Sheet;" http://www.mathesongas.com/msds/MethylVinylKetone.htm.
[15] Bilim ve Teknik, *Gorsel Bilim ve Teknik Ansiklopedisi* (Visual Science and Technology Encyclopedia), Gorsel Yayınlar, Vol.1, Istanbul, 1986, p. 289.
[16] *Ibid.*
[17] John Scatt Saunders, Chemical Wars, Baltimore: Science Books Limited, October 1988, pp. 271-276.
[18] Bilim ve Teknik, *Gorsel Bilim ve Teknik Ansiklopedisi*, Gorsel Yayınlar, Vol.1, Istanbul, 1986, p. 289.
[19] *Ibid.*
[24] "The Life Cycle of the Termite;" http://members.Aol.com/rvf3rd/tcycle.html.
[30] *The Guinness Encyclopedia of the Living World*, Guinness Publishing, Italy, 1992, p. 160.
[32] Bilim ve Teknik, *Gorsel Bilim ve Teknik Ansiklopedisi* (Visual Science and Technology Encyclopedia), Gorsel Publishing House, p. 955.

Because of this, the nest is more than just a pile of earth; it becomes a complex structure through the careful step-by-step application of technology. Finally, a wonderful example of free architecture emerges with a ventilation system, controlled humidity, and a connected series of tunnels and passages. Construction is perfect at every stage, without the slightest error. While construction continues, the other members of the colony live comfortably. At every stage, ventilation channels, tunnels and passages are put accurately in place. At no stage are any errors made that would put the colony in jeopardy.

These mounds are built to be hard and strong; when they are joined and the dome is complete, the mounds serve as scaffolding. Those in the middle, apart from their top sections, are then eliminated. (Once joined, these will form the top of the dome.) Clay is used for the inner construction, or to construct the mound more quickly.

The outer structure or the dome is important not only to protect the inner structure of the nest from rain or external damage; it's also important to stabilize and maintain the temperature and humidity levels—crucial for the hatching of eggs and care of the young.[35]

How is it, then, that these blind creatures can construct these architectural masterpieces? How can the nest's order be technically maintained even when it is under construction? How can the humidity be regulated at every stage, and how are the construction activities monitored and directed?

In order for such a well-organized system to exist, certainly there must be a "will" directing the termites, inspiring them to do their work and giving them directions. Of course, this will does not belong to the termites; it belongs to God. He is the Almighty Lord of all; He Who directs every living creature, inspiring in them the work they must do.

Everyone must think twice when he sees God's intelligence manifested in these tiny creatures. We must recall the basic purpose of life and try to direct our lives according to the will of the Lord of all.

The Qur'an tells us that believers consider the creatures that God has created and learn from them. In this book, we hope to show the wondrous talents of just one of the millions of species that God has created, to remind you that there is no power apart from God and to invite you once again to turn to Him. God says in the Qur'an:

The kingdom of the heavens and Earth belongs to God. God has power over all things. In the creation of the heavens and the Earth, and the alternation of night and day, there are Signs for people with intelligence: those who remember God, standing, sitting and lying on their sides, and reflect on the creation of the heavens and the Earth: "Our Lord, You have not created this for nothing. Glory be to You! So safeguard us from the punishment of the Fire." (Surah Al Imran:189-191)

Termites' Nest-Repair Techniques

When we first glance at a termite's nest, it may appear to have been constructed without a plan, as if heaps of earth have been piled up randomly. But this impression does not last long; soon it becomes clear that these apparently random piles of earth form a nest with a very complex order.

Even if all termite nests resemble one another in their general features, they have an infinite variety and delicacy of design. At each given stage, you cannot imagine the complexity that you will encounter at the next one.

One characteristic of worker termites is that they quickly fit or adapt any variation in the construction plan into the overall structure.

In one experiment, a small hole was made in the roof of a Nasute termite nest. How would the termites repair it? After a pause of several minutes, one soldier cautiously emerged from the tunnel, inspected the extent of the damage with great care, and withdrew. Soon several soldiers appeared and took up positions at the top and bottom end of the opening. Only their pointed noses and their wavering antennae were visible. More soldiers lined up along both sides of the damaged section.

Next, a group of workers appeared and began to repair the damage, starting at both ends. Only now and then did the tip of an abdomen become visible between two soldiers, as a worker deposited a large drop of excrement on the edge of the broken tunnel, and soon after a head pressed a small soil particle into the excrement. Systematically, brick by building brick, the damage was repaired in only a few hours.[36]

Termites' talents are not limited to repair work. These insects also have the technology to make paper that they use in the construction of their nests. They use paper pulp made of masticated wood mixed with saliva or excrement, not only for the outer walls of their dwellings, but also for the construction of their living, breeding, and storage chambers—including a royal cell as the centerpiece.[37]

Utility Rooms in the Nest

[36] Karl Von Frish, *Animal Architecture*, New York: Harcourt Brace, p. 146.
[37] *Ibid.*, p. 144.

Examining the various sections of a termite nest, we see the queen's chamber and around it, a row of small rooms in which the larvae are nursed. Beside these are storage rooms where little pieces of leaves are stored.

The chamber in which the queen and the king live is between 15 and 17 cm (6 to 7 inches) in length. This room is the center of the nest, with several openings in the walls of the nest through which worker and soldier termites can come and go. But these openings are too small to admit the larger queen and the king. They spend their whole lives in this room, where all their needs are supplied. They are fed from mouth to mouth by the worker termites that can easily pass through the openings. The workers take the eggs laid by the queen, carry them to the nearest larva nursery and care for them there. The king is always at the queen's side and fertilizes her eggs at the right time.

One of the most interesting rooms in the nest is the agriculture room.

Agriculture in a Skyscraper

In these magnificent termite structures, some rooms are used for agriculture. Here extra leaves are stored, and a kind of agriculture is practiced.

During the night, termites collect leaves and seeds from the outside and store them in some of the countless underground passages they have constructed. But termites cannot stand light and dryness. For this reason, it is difficult for them to collect leaves and bits of plant material on the open ground. Termites build underground passages between 2 and 4 meters (6 to 13 feet) deep, by which they carry organic material into the nest.

This organic material, used in the place of soil, is composed of rotting leaves and pieces of wood; termites mix it with secretions and grow fungus in large specially designed rooms.

In order to ensure the productivity of their fungus gardens and for the health of the colony in general, temperature and humidity in the mounds must be kept constant. The growth of the fungus raises the temperature around it to a point that could ruin the temperature balance created in the nest; this elevation in temperature must be corrected at all costs. So termites install a ventilation system to manage the heat they produce by themselves and through the metabolism of the fungus in their gardens.

Termites' Natural Air-Conditioning System

Nests are between 3 and 4 meters (9 and 13 feet) high and contain about two million termites. All of these two million termites eat, work and breathe in their nest, so of course, these individuals consume a lot of oxygen. Without ventilation they would all suffocate within twelve hours. How, then, does a termite colony survive living in a hard-covered nest with no windows?

Termites do not themselves act as ventilators as, for instance, bees do when they ventilate the hive by fanning with their wings. The ventilation system of the nest is completely automatic. Air in the fungus chambers is heated by the fermentation process taking place there. Like any tightly packed group of breathing animals, the termites themselves cause a rise in temperature. This continuous stream of hot air rises within the main tower by pressure and is forced into the ducts system of the ridges. The exterior and interior walls of these ridges are so porous that they enable an exchange of gasses to take place. Carbon dioxide escapes, and oxygen penetrates from outside. These ridges with their system of ducts might be called the *lungs* of the colony. The air is cooled during its passage through the ridges; this cooler, regenerated air now flows into the air hole resembling a cellar by way of the lower system of wide ducts. From there, it returns to the nest and replaces the rising warm air.[38]

This fresh air is rich in oxygen, rushing into the nest at the rate of 12 cm (4.72 inches) a minute and keeping the temperature at a stable 30□C (86 F).[39]

Because of this perfectly functioning system, the annual temperature in the nest varies by less than half a degree. It takes each day 1,500 liters of air to supply a medium-sized termite nest. If this oxygen was delivered by the entry of air directly into the nest, the temperature and humidity would be too high for the termites to survive.

For this reason, termites do not use that kind of simple ventilation; instead, they have put much more complex systems in place. As we see, in order for termites to carry out their choice, they would need at least a very good engineer, a good designer and many individuals with experience in many branches of knowledge. Consider that to install such an air conditioning system, termites would have to have expertise in meteorology, geology, art, and interior design, among other branches of knowledge.

It’s irrefutable that termites can never acquire by themselves or by chance much less by training, sciences that rely on intelligence, awareness and a broad education. But nevertheless, termites can apply very intelligent methods to find solutions—not only to ordinary problems but also to ones that arise unexpectedly.

Termites’ “Emergency Measures”

In every termite colony, techniques are adapted to the area under construction. In extraordinary situations, the termites work in harmony to develop new tactics. For example, when ventilation was seriously impeded, the termites managed within forty-eight hours to build new structures atop the mound that

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[38] *Ibid.*, p. 141.

[39] Bilim ve Teknik, *Gorsel Bilim ve Teknik Ansiklopedisi* (Visual Science and Technology Encyclopedia), Gorsel Publishing House, p. 964.

looked somewhat like small pointed hats and had exceptionally porous walls so that they functioned as a new ventilation system.[40] In this way, the system was repaired without any adverse effects being experienced in the colony.

To see how termites respond in emergency situations, take the examples of the species *Macrotermes* and *Odontotermes*, which ventilate their nests with a series of chimneys. These chimneys are open at the top and are connected with ventilation shafts reaching through the nest into the ground below, where they are closed at the end. Normally, these cavities are completely separated from the nest proper by thin walls which, presumably, are permeable to air. No termites enter them except during periods of construction or repair. The chimneys often collapse during heavy downpours. At such times, many termites quickly gather and start repairing.[41]

Another Problem, Another Solution: Natural Humidifying

Apart from the ventilation, there is also the problem of water supply. Much water is needed for the nest because termite bodies have membrane-thin skin that needs a constantly humid atmosphere. The humidity level must be between 89 and 99%. Besides water for the consumption of the termites, water is also needed for making mortar for the construction of the nest.[42]

Some desert termites dig 40 meters (131 feet) under the earth to find water which they allow to evaporate up into the nest.[43] Some other species solve the problem by bringing moist clay into the nest. Besides this, how the nest mound is constructed also helps provide humidity. The thick, moisture- impermeable walls, covered with a layer of clay, prevent evaporation.

Without exception, every aspect of termite behavior is intelligent, planned and calculated, requiring judgment and decision making. But it is not logical to think that these are qualities inherent in termites. They cannot display intelligence, think or make decisions. What, then, is the source of this awareness among them?

It is God, the Creator of everything animate and inanimate in the universe, Who has inspired in termites how to plan intelligently and how to react in suddenly changing situations.

Everyone in heaven and Earth prostrates to God willingly or unwillingly, as do their shadows in the morning and the evening. Say: "Who is the Lord of the heavens and the Earth?" Say: "God." Say: "So why have you taken protectors apart from Him who possess no power to

[41] *Ibid.*, pp.142-143
[42] *Ibid.*, p.143
[43] *Ibid.*, p.144

help or harm themselves?" Say: "Are the blind and seeing equal? Or are darkness and light the same? Or have they assigned partners to God who create as He creates, so that all creating seems the same to them?" Say: "God is the Creator of everything. He is the One, the All-Conquering." (Surat ar-Ra'd:15-16)

Different Nests for Different Species

The outer appearance of termites' nests varies according to the climate where they are located. For example, some species in tropical rainforests put on roofs with overhanging eaves which make their tall mounds, look like pagodas and which serve to keep off the torrential rains. This shape of nest resembling mushrooms is peculiar to tropical termites, and termites living in arid zones do not use this technique to build their nests.[44]

No African termites build nests with such large roofed mounds. Some of them do build graceful nests in the trunks of trees and then cover them with a dome to protect them in heavy rainfalls.

Underground nests can be quite complicated in structure. For example the species *Apicotermes gurgulifex* that lives in the Congo builds a nest resembling a giant pinecone 50 cm (19.5 inches) under ground. In the interior of the nest are flat chambers joined by a central spiral path. The inside has a complicated structure made up of multistoried galleries separated by 1 mm thick walls. The nest is protected against intruders by infertile, adult soldiers with large heads and jaws.

Many narrow channels enter the galleries from outside. These channels are too narrow for termites to pass through; like the chimney of the *Macrotermes*, these channels function as a gas-exchange system. They also form a thin roof to prevent rain from entering the nest. When entering or leaving their nest, the termites use a tunnel in the mound.

The arid outback of northern Australia where the sun shines every day is home to the "compass termite" (*Omitermes meridionalis*). It builds its 5 meter (16,40-foot) high termitaria with one long axis always running North/South and the one short axis East/West.[45] This architectural detail is extremely important. Looking at the general lay of the land, you can see more clearly why these termites would built such a nest. In the outback, trees are rare; this means there is no shade from the sun. If these termites' nests were not built in this special way, they would be exposed to all the sun's rays, and it would be difficult for the termites to endure the light and heat. But the special orientation of their nests solves this problem.

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[44] *Ibid.*, p.138

[45] "Termites (The Isoptera);" http://info.ex.ac.uk/~gjlramel/isoptera.htm.

The result is that the termitaria has a large surface area facing the sun in the morning and afternoon, but only a very small surface area receiving sun in the middle of the day, thus helping produce a steady temperature for the longest possible time.[46]

Anyone who has lost his way in the outback can easily find due north by looking at the orientation of these termite nests. Of course, this raises the question of how blind termites with no compass or other direction- finding device can accomplish this. How can these tiny creatures with no capacity for thought or judgment make such calculations?

Blind termites have the ability to make architectural plans, calculate the movement of the sun in relation to their nest and construct it accordingly and make the desired use of the structure. All these activities require awareness and point to the existence of a Being with intelligence and the power of judgment. Termites can do things that even human beings cannot: They can find their directions without any assistance. When we examine where this intelligence comes from, it becomes clear that this intelligence does not belong to termites and that it did not come to be through blind chance.

Like all creatures in the world, God created termites too. He provided such examples as lessons for human beings and to make us think. Every intelligent person must listen to the voice of his conscience and turn to God as the source of all beauty. God is forgiving, and His justice is infinite.

Your Lord knows best what is in your selves. If you are righteous, He is Ever-Forgiving to the remorseful. (Surat al-Isra’: 25)

CLEANER TERMITES

In some areas where wooden houses predominate, termites have become a nightmare, but actually they are very useful creatures. They play an important role in maintaining the ecological balance. They carry dead plants, dead insects and animal waste into their underground nests. This is very important because otherwise there would be countless numbers of dead insects littering the ground. But as if with a silent hand, termites and other creatures quietly and quickly dispose of these dead insects. In this way, the ground is cleaned of excess material.

If the ground were not cleaned by termites and other insects, it would become a continually growing waste dump, and every day it would be more difficult for the sun and minerals to reach the soil.

Termites have another use apart from cleaning the ground. They are among the rare creatures that can digest plant material; and as they decompose the cellulose in plants, they help in the formation of methane. As the protozoa in the termite's digestive system decompose the cellulose, they release methane gas. In 1932, a scientist by the name of Cook first discovered that termites produce methane. Later in 1982, another scientist by the name of Zimmerman was able to calculate the amount of gas they produce.[47]

Dr. Roger Gold, an entomologist, said that "Cellulose is a very inert ingredient in the environment that is hard to break down . . . and if it were not for termite flatulence, then we could not be able, as human beings, to survive on this planet."[48]

Scientists who have studied this matter say that termites are a source of atmospheric methane. Methane (CH_4) makes up a considerable part of the atmosphere; it plays a role in the atmospheric absorption and chemical interactions occurring in both the stratosphere and the troposphere. All of these things exert an influence on the Earth's climate.[49]

To summarize termites' contribution to the production of methane gas: First, a study of the geographical distribution of the total weight and population (biomass) of termites throughout the world was made; then the relation between the general distribution of the termites' gas and their biomass was studied. The

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[47] "Termites as a Source of Atmospheric Methane;" http://www.physics.iastate.edu/gc…ers/1996/atmoschem.brockberg.html

[48] "Termites can actually be beneficial;" http://agnews.tamu.edu/stories/ENTO/Feb2697c.html

[49] "Termites as a Source of Atmospheric Methane;" http://www.physics.iastate.edu/gc…ers/1996/atmoschem.brockberg.html.

result showed that termites produce 4% of the methane and 2% of the carbon dioxide in the world's atmosphere.[50]

Besides this, termites cause nitrogen, phosphorus, sulfur and other minerals to be released into the soil from the plant material they take into their nests. These minerals mix with the soil and become available for other plants and animals in the area.

And as termites enter and exit their nests, they turn the soil over and aerate it, allowing oxygen to enter. They also allow penetration by the suns' rays and by the moisture that's so important for the countless organisms that live under the ground.

Do you not see that everyone in the heavens and Earth glorifies God, as do the birds with their outspread wings? Each one knows its prayer and glorification. God knows what they do. (Surat an-Nur: 41)

Conclusion

From the examples given so far, we can see that termites live in perfectly ordered colonies. Every termite knows its duty and carries it out without error; and they behave self-sacrificially towards one another. Scientists have done much research about termites and written books about their findings; and the lack of any confusion in the termite system leaves them amazed.

Among these scientists, there are certainly evolutionists who have studied termites. All the proofs of faith they see in these creatures, they ascribe to chance; they ask “Who?” “Why?” and “How?” but they cannot find answers to their questions. You may read any chapter of an evolutionist book, but you will always find the same classic interpretations. These books propose various theories and make various claims, but their evidence is lacking. For example, Professor Ali Demirsoy, an evolutionist, explains why social insects live in colonies:

Social insects have organized among themselves to produce a unit of life . . . An ant nest resembles a multi-celled colony consisting of more than one individual. As with multi-celled organisms, no individual in the nest has the ability to survive on its own. That is because specific classes in the nest have specialized to perform specific jobs (recall honeybees and termites). Reproduction, fertilization, feeding, and defense in certain circumstances are all carried out by particular classes. In other words, the various functions of an organism capable of living on its own are divided among the various classes in the nest. Here, in order to succeed in the evolutionary stage already referred to, there has been an attempt to develop a brain and consciousness. Thus there has been an experiment with individuals whose progress has been prevented being able to make evolutionary progress in a different way. Progress at a specific level has thus been established. For example, care of the young, awareness of time, understanding in various forms, and temperature adjustment have all developed in an amazing way. In summary, when progress is prevented or blocked, there have been attempts for the society to develop consciousness. . . .”[51]

[5151] Prof. Ali Demirsoy, *Yasamin Temel Kuralları Genel Biyoloji/Genel Zooloji*, (Fundamental Laws of Life, General Biology / General Zoology), Vol. I, Ankara, 1993, p. 190.

In this paragraph, Dr. Demirsoy claims that, in order for social insects to live together, duties must be allotted to various classes. The brains and the awareness of the insects must be developed, and individual termites must make experiments. But as we can see, he offers no explanation for things like how termites care for their young, their sense of time, how they understand one another and how they regulate temperature. These abilities have simply developed in an “amazing way.”

At this point, we must ask some questions of evolutionist scientists:

First of all, who develops these insects’ awareness?

Who made them perform these supposed experiments?

Did the first termite sit down one day and start to think? Did it decide that a community was needed, and plan the social organization of a termite colony? Did other termites somehow appear to move into the colony and decide to go along with the first termite’s plans?

Let’s suppose that the first termite was a worker—infertile, so that it could not found a colony. No matter what qualities it was endowed with, none of them would remain after it died. The situation would not change if we supposed that the first termite was a soldier; it too would have certain problems to overcome. It would not be able to eat, because of the size of its jaw that was designed for battle. This would make it very difficult, if not impossible, for it to survive. If we suppose that the original termite was a queen, again, she would need workers to feed her, and a

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In this world of ours live many kinds of amazing creatures.

In addition to the ants, honeybees, dogs, cats, flies, spiders, horses, chickens, seagulls, sparrows and other species we know so well, there are also many we have not yet encountered. In many parts of the globe, there are millions of kinds of living things which we have never heard of. Even if we learned their names, we would have nothing to which we could compare them.

The subject of this book is an insect that most of us aren’t used to seeing in our environment. This insect is the termite, which resembles an ant in appearance and partially in the way it lives.

Some people may be surprised to find a book entirely about termites. What, they may ask, is there to tell about these small insects? But as you will soon see, this little-known creature has characteristics that may open people’s minds to an entirely different horizon of ideas.

king to fertilize the eggs to propagate the species. How is it, then, that social insects were so eminently successful in founding a colony?

Termites have lived in colonies for millions of years without changing; 250 year-old termite fossils prove this. All the termites that have lived throughout this period have the same characteristics as termites living today: 150 million years ago, worker termites were self-sacrificial; fed the larvae, the soldiers and the queen; and, although blind, they built nests many meters high. Without exception, the characteristics of termites today are largely the same as those of every other termite.

All this points to an obvious fact: termites appeared all at once. That is, they were created by God.

The common characteristics of termites are all exhortations to faith. They deepen a believer's faith, draw him closer to the Lord and increase his fear and love for Him. Telling others about these truths is an important act of worship. These facts increase a believer's closeness to God; they also may soften the heart of a non-believer and cause him to think and take heed. Every individual has the responsibility to bring others to faith and assist them to lead morally good lives. A good way to carry out this responsibility is to share truth and wisdom by pointing out to others the excellence of God's creation. The purpose of this book has been to stir up reader's awareness of the existence and greatness of God through the example of a tiny species that He has created. Every person of faith must now heed this reminder and turn to the Lord:

That is God, your Lord. There is no god but Him, the Creator of everything. So worship Him. He is responsible for everything. Eyesight cannot perceive Him, but He perceives eyesight. He is the All-Penetrating, the All-Aware. Clear insights have come to you from your Lord. Whoever sees clearly, does so to his own benefit. Whoever is blind, it is to his own detriment. I am not here as your keeper. (Surat al-An'am:102-104)

[35] Erich Hoyt and Ped Schultz, Insect Life, John Wiley and Sons. Inc., New York, 1999, p.161
[40] Karl Von Frish, *Op. cit., Animal Architecture*, New York: Harcourt Brace, p. 143.
[46] *Ibid.*
[50] "Biomass of Termites and Their Gaseous Emissions;"
http://www.atm.ch.cam.ac.uk/~mgs/termites.html.