Cosmic Dust On The Moon

With the use of satellite technology, scientists are capable of measuring the amount of cosmic dust filtering into the earth's atmosphere each year. Scientists have speculated that over the estimated billions of years of earth history, fifty or more feet of cosmic dust may have fallen. *(Figure 7)* Because of the erosion created by the earth's environmental conditions, an accumulation of this depth could not possibly be found in any one location.

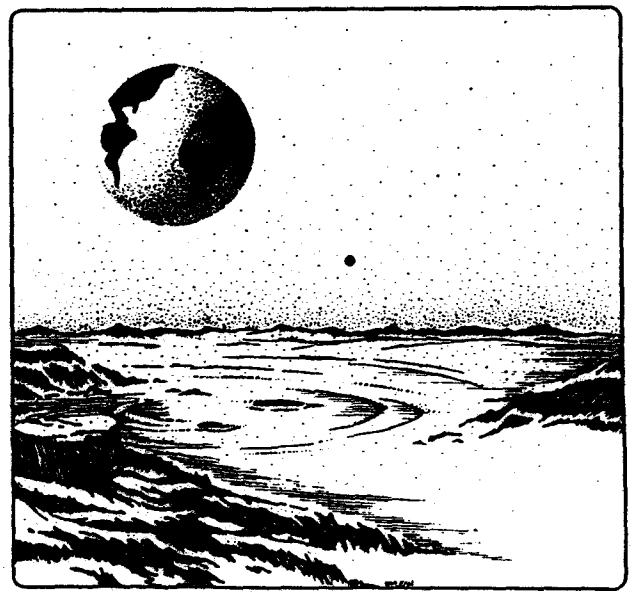

Figure 7:
If cosmic dust has fallen on the moon for over 4.5 billion years there should be an accumulation of more than 50 feet of dust.

The factor of accumulating cosmic dust, caused a great deal of concern for the initial explorations that took place to the moon. Unlike the earth, the moon is not subject to erosional processes created by wind and water. Because most evolutionary scientists believe the earth and the moon are of similar age, it was expected lunar landing modules would encounter a problem trying to land in over fifty feet of cosmic dust. As a result of this projection, based upon the assumed millions of years of age for the earth and moon, engineers in charge of design of the lunar landing modules, constructed large pads so the space probes would not sink deep into the dust.

When the first landing on the moon was accomplished, scientists were shocked to find the expected accumulation of dust was not present. In fact the dust was only a few inches thick, indicating a period of accumulation less than 10,000 years. *(Figure 8)* Creationists, like Dr. Werner Von Braun, had predicted this all along, based on his view of a young earth and universe as outlined by the creation account. Assuming the present rate of accumulation is the same as it was in the past, the amount of accumulated cosmic dust indicates the age of the moon, and therefore the earth, can not be as old as evolutionists have suggested.

Earth's Magnetic Field

Another method of geochronology which shows a young age for the earth, is the measurement of the strength of the earth's magnetic field. Analysis of the data recorded over the past 130 years, indicates the strength of the magnetic field has been getting weaker and weaker each year. *(Figure 9)*

If we were to draw a graph using the data which has been collected, and making the assumption that the rate of magnetic decay has been the same in the past as it is today, the strength of the earth's magnetic field would have been equivalent to a magnetic star only 10,000 years ago. Obviously no life could possibly exist under these conditions. If the graph was extrapolated back as far as 30,000 years, then the magnetic

strength of the earth would have been sufficient enough to generate temperatures in excess of 5000 degrees Celsius. This temperature is sufficient to melt or vapourize the elements of the earth. According to this method of geochronology, there is evidence to show the earth can not be as old as suggested by the evolution model.

Figure 8:
Explorations on the moon have revealed the presence of only several inches of cosmic dust indicating less than 10,000 years of accumulation.

Another important factor which must be considered as a result of the earth's decreased magnetic field, is the effect this condition would have on the Van Allen radiation belts that surround the earth. *Figure 10)* These belts are very important in determining how much cosmic radiation comes in upon the surface of the earth. Cosmic radiation in turn is an important factor in determining the rate of radioactive carbon 14 formation. Carbon 14 is a method used for dating organic

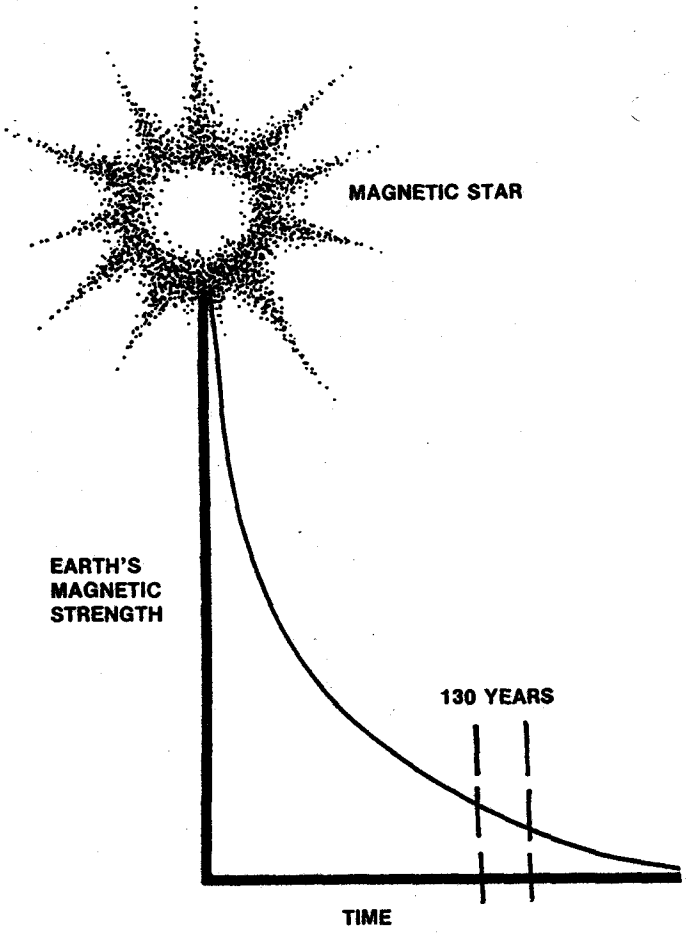

Figure 9:
The earth's magnetic strength is decreasing with time. Measurements over the past 130 years recorded a 14% decrease, indicating the earth's magnetic strength decays by one-half every 1400 years. If this decay has remained constant, 10,000 years ago the earth's magnetic strength would have been equivalent to that of a magnetic star. No life could have survived on earth with magnetism of that intensity.

material, and is based on the assumption that the amount of radioactive carbon in the earth's atmosphere has always been constant. If there has been any fluctuation of the earth's magnetic field in the past, then the accuracy of this method would be highly suspect. We will discuss this area in more detail when we look at the area of radiometric dating, later in this book.

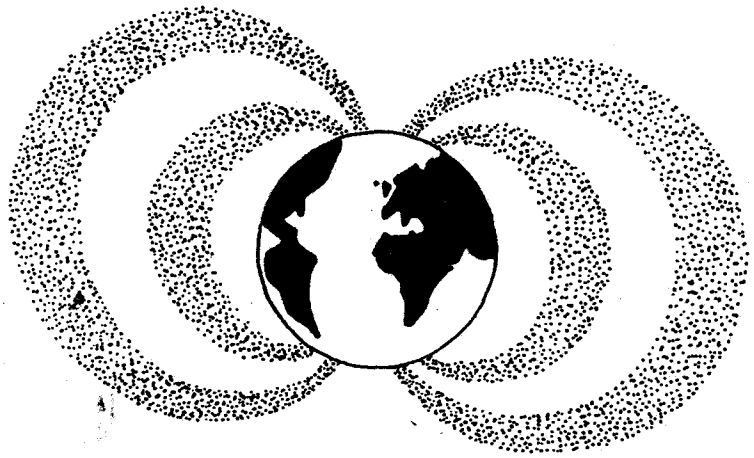

Figure 10:
The strength of the Van Allen radiation belts around the earth is dependent upon the strength of the earth's magnetic field. If the earth's magnetic strength has been decreasing over time, the Van Allen radiation belts have not remained constant. This important factor poses serious questions concerning the reliabilty of the Carbon 14 dating method.

The Shrinking Sun

There are numerous other methods which indicate the earth and universe are much younger than what is commonly accepted. For example, measurement of the size of the sun in recent years, indicates the sun is shrinking. *(Figure 11)* If we extend this present rate of shrinkage back in time, we find that one million years ago, the sun's size would have been so large, the radiation coming from it would have made life impossible on earth.

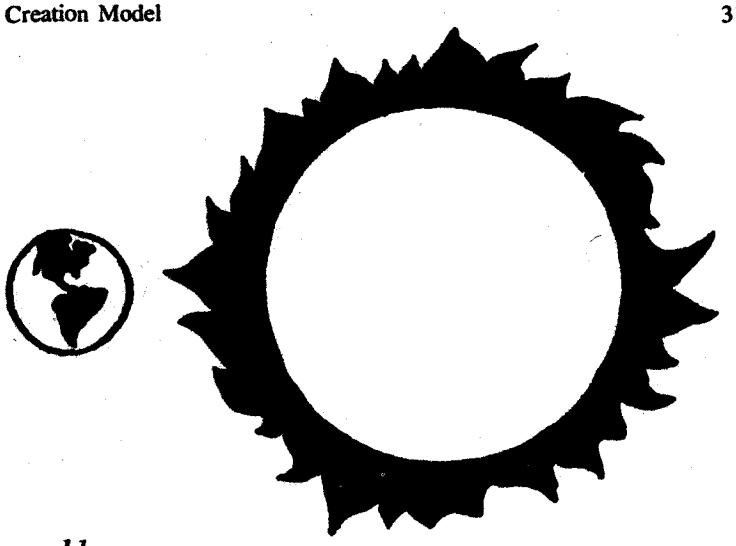

Figure 11:
The sun is shrinking at a rate of 0.1% per century or the equivalent of 5 feet per hour. At this rate, 100,000 years ago, the sun would have been twice as large as it is today. The size and radiation of the sun 1,000,000 years ago would have made life on earth impossible; 20,000,000 years ago the sun would have been large enough to touch the earth.

Comets

The presence of comets in our solar system indicates an age much younger than expected. Scientists have assumed the solar system and the comets associated with it are approximately the same age. We know each time a comet circles the sun, the solar winds tear debris off the cometary body. If comets have been circulating in the solar system for billions of years as has been suggested, then they should have been completely dissipated by now. In fact, some studies have indicated this would take place in 10,000 years or less.

Erosion of Continents

The erosional processes of wind and water provide another important factor indicating a young age for the earth. *(Fig. 12)*

Figure 12:
The present rate of wind and water erosion, would erode continents to sea level within 14 million years.

Given the present rate of erosion, the continents could be completely eroded to sea level within 14 million years. Although 14 million years is a lot longer than the age of the earth proposed by the Creation model, it is less than one half of one percent of the age proposed by the evolution model.

Oil and Gas Deposits

Another interesting observation supporting the concept of a young earth, pertains to the extremely high pressures associated with oil and gas deposits beneath the earth's surface. *(Figure 13)* Many of these deposits are surrounded by porous material which would allow the dissipation of high pressures over the millions of years of time. The high pressure which remains gives a clear indication that petroleum deposits can not possibly be as old as theory suggests.

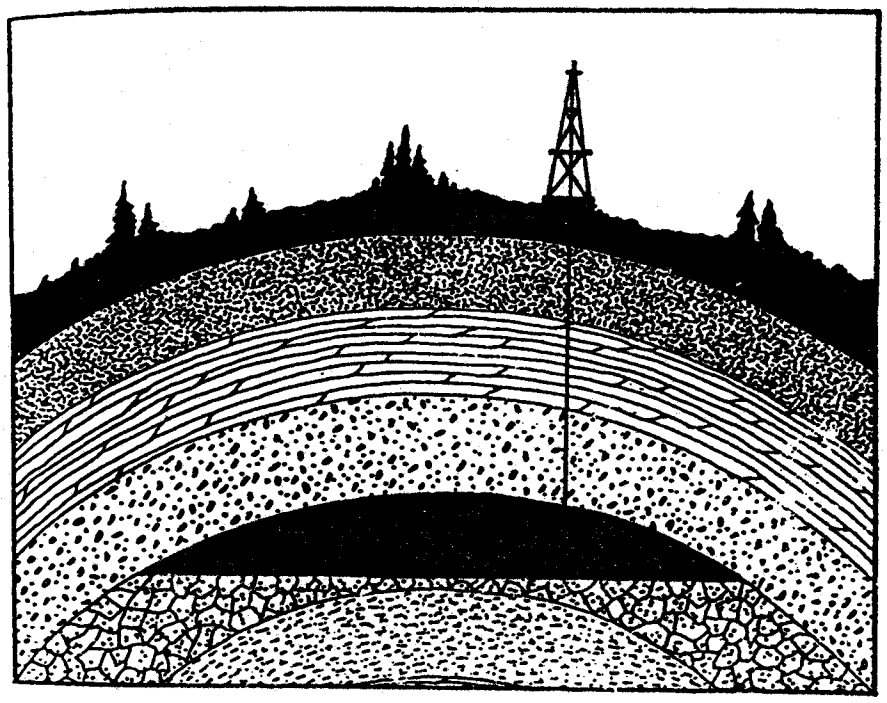

Figure 13:
Oil and natural gas are found in deposits of porous rock and sand. The extremely high pressure found in many of these porous reservoirs would have dissipated by now if these deposits were more than 10,000 to 100,000 years old.

still aknowledged by the majority of scientists today as accurate and reasonable.

Sample	C-14 Date (yrs. before present)	Geological Date (yrs. before present)
sabre tooth tiger	28,000	100,000 - 1,000,000
mammoth	11,000	20,000 - 35,000
natural gas	14,000	50,000,000
coal	1,680	100,000,000

It is obvious there is a very large discrepency between the Carbon-14 dates and the dates proposed by the geological column. However, both these dating methods are accepted as accurate and dependable by those who support the evolutionary theory, even though one obviously contradicts the other.

As we have examined the observable evidence regarding the question of the age of the earth, we have seen there are sufficient grounds to support the concept for a young earth. As we have seen, the majority of methods of geochronology indicate the earth is young. The radiometric techniques for dating the fossils and layers of the earth are not as reliable as we have been told. It is obvious you do not have to be classified as a religious kook or fanatic, if you hold to the Biblical concept of a young earth. According to the creation model, the earth is young. The observable evidence agrees.

THE CANOPIED EARTH

The Bible indicates in the first chapter of Genesis that the original earth was very much different from the earth as we know it today. *(Figure 19)* One of the important features mentioned, is the presence of an envelope or layer of water surrounding the earth. Genesis Chapter 1:6-7 states:

> *"And God said, Let there be a firmament in the midst of the waters, and let it divide the waters from the waters. And God made the firmament, and divided the waters which were under the firmament, from the waters which were above the firmament: and it was so."* K.J.V.

Examining these two verses in more detail, will help give us a better understanding of what the Bible tells us the original earth was like. We are told that a 'firmament" divided a layer of water which was above, from a layer of water below. *(Figure 20)* The word "firmament" is referring to the atmospheric layer surrounding the earth. The scriptures clarify this in verse 20 by stating:

> *"Let the waters bring forth abundantly the moving creature that hath life, and fowl that may fly above the earth in the open firmament of heaven."*

The condition described to us in these two verses could best be illustrated as a ball of water surrounding the earth. As a result of this unique situation, the earth would be protected by a canopy of water which would produce a subtropical greenhouse effect.

The Greenhouse Effect

The presence of a layer of water surrounding the original

Figure 19:
According the the Bible, the original earth was surrounded by a layer of water. This diagram illustrates what the canopied earth may have looked like from a viewpoint in outer space. A section of the canopy has been removed to show the three dimensional perspective.

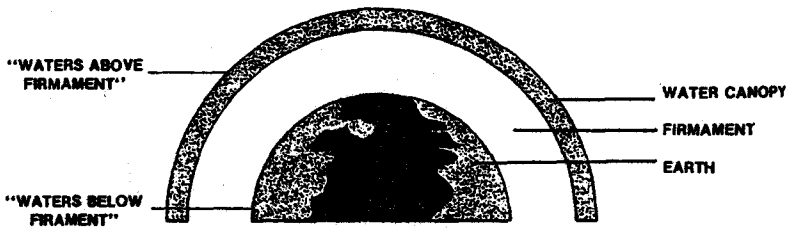

Figure 20:
A sectional view of the canopied earth illustrates the separation of the earth from the watery layer by a firmanent.

earth would produce a number of environmental factors very much different from what our present earth experiences. In order to better understand the canopy model, let's examine some of the features which a layer of water around the earth would produce.

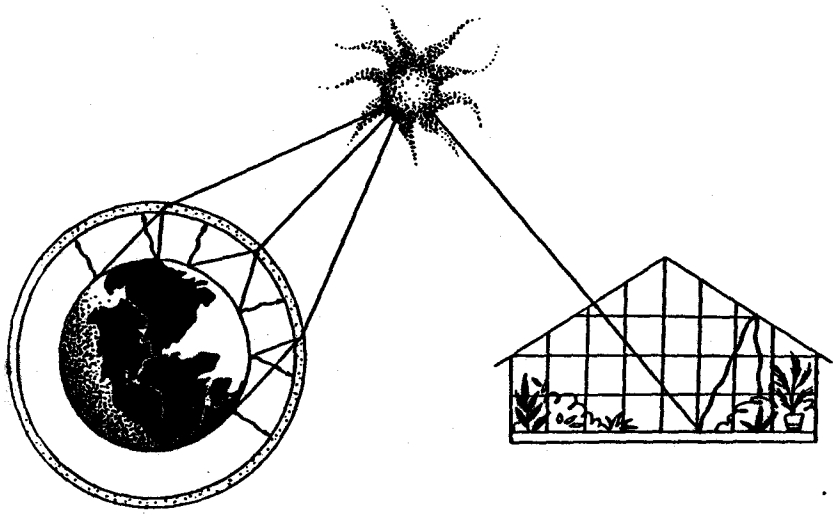

Figure 21:
The presence of a watery canopy surrounding the original earth would have provided a greenhouse effect. Long wave radiation from the sun would pass through the water canopy and be scattered in many different directions. Radiated heat from the earth's surface in the form of short wave radiation would be trapped inside the canopy creating conditions similar to the environment produced in a greenhouse. Subtropical environment conditions would have existed from pole to pole.

Sunlight, or long wave radiation would pass through the layer of water in the upper atmosphere and be diffused and scattered in many different directions. Light would reach all latitudes with an equal intensity.

Radiated heat from the earth's surface, in the form of short wave radiation, would be trapped inside the watery canopy. This would produce a greenhouse type environment over the entire surface of the globe. As a result, there would be a subtropical climate from pole to pole. Subtropical plant and animal life would exist over the entire surface of the earth. *(Figure 21)*

The canopy surrounding the earth would produce a very stable climate. There would not be extreme climatic differences like those we experience today as a result of unequal heating of the earth's surface. Under present atmospheric conditions, sunlight coming in upon our planet, strikes the earth more directly at the equator than it does at the polar regions. This condition causes it to be hotter at the equator and cooler towards the polar regions. *(Figure 22)*

Differentiation of temperatures around the globe produces differences in atmospheric pressures, which in turn results in the production of winds. As winds move back and forth across the globe attempting to balance differences in pressure, precipitation results when cold and warm air masses meet.

Because of the uniform temperatures produced by a canopy, the original earth would have had very humid, moist conditions but there would not have been any rain. It is interesting that the Bible states in Genesis 2:5-6: "The Lord God had not caused it to rain upon the earth, and there was not a man to till the ground. But there went up a mist from the earth, and watered the whole face of the ground." According to the Biblical model, before the time of the flood, there was no rain.

A layer of water surrounding the earth would filter harmful cosmic radiation which penetrates the earth's atmosphere. *(Figure 23)* Long wave radiation would be able to pass through the canopy layer but short wave radiation like ultraviolet light would not. The canopy of water would have functioned the same way the ozone layer protects the earth today from short

wave radiation. Water is often used as a shield to protect living things from the ill effects of radioactive material in atomic research plants.

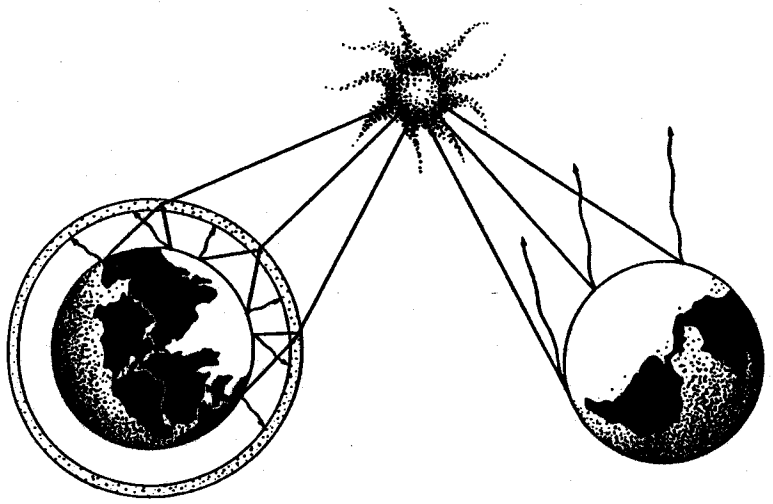

Figure 22:
A canopied earth would have produced a stable climate from pole to pole as a result of the equal heating of the earth's surface. The abscence of a canopy allows for unequal heating of the earth's surface causing extreme climatic differences.

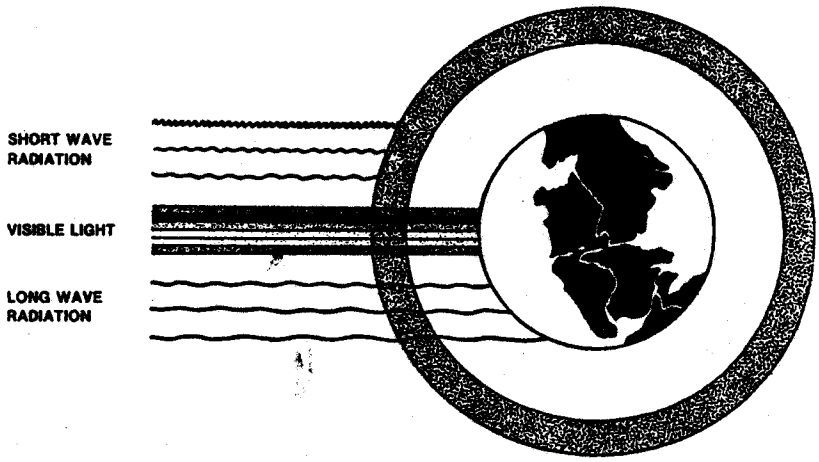

Figure 23:
A watery layer around the earth in the past would not allow the passage of harmful short wave radiation to reach the earth.

Short wave radiation is extremely harmful to life. As well as causing degenerative genetic changes to take place within the chromosomes of cells, short wave radiation is responsible for accelerating the aging process. Under the protection of a canopied earth, we should find that plants and animals could grow much larger, be healthier, more vigorous, and live longer life spans.

Evidence For A Canopied Earth

As with any other model or theory, the authenticity or the degree of acceptance, can only be measured by testing it against the observable evidence. We have looked at some of the major environmental conditions created by a layer of water surrounding the earth. Now we will look at some of the evidence which lends credibility to the model of the canopied earth.

Subtropical Life From Pole To Pole

The canopy model suggests subtropical life would have lived from pole to pole as a result of uniform temperate conditions all over the world. Is there any evidence to indicate life lived under these kind of conditions in the past? Examining the fossil record gives us numerous examples of organisms which have lived in the past. It soon becomes obvious that climatic conditions must have been very much different in the past than they are today.

For example, fossils of palm tree leaves have been found on the northern tip of Vancouver Island, Canada. *(Figure 24)* These leaves are found encased in volcanic rock, indicating they were destroyed as a result of being quickly covered over by a volcanic eruption. Certainly, this type of subtropical vegetation does not grow in this area today. Obviously, the climate must have been much different in this area in the past.

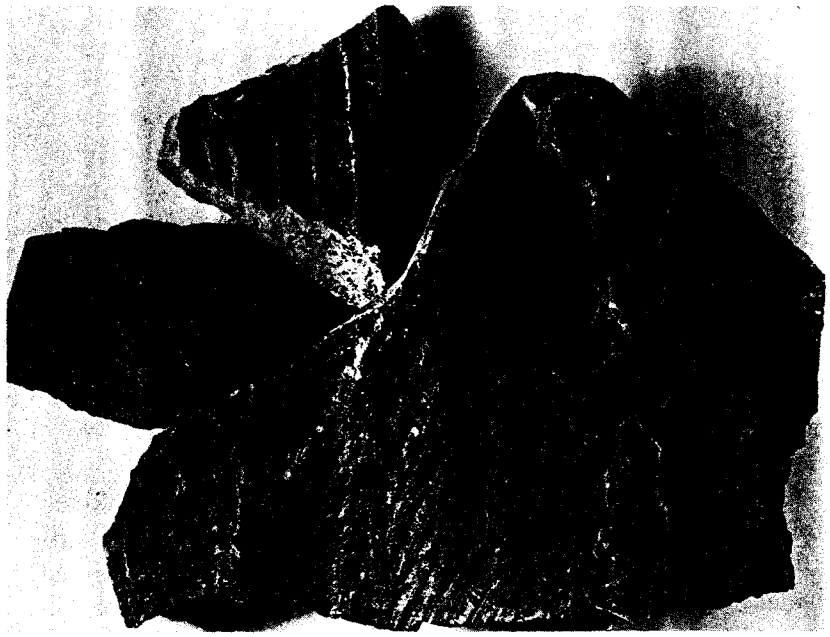

Figure 24:
This fossilized imprint of a portion of a palm tree leaf was found near Port Hardy, British Columbia, Canada. The leaf has been encased by a flow of molten volcanic rock.

Another area we could look at is the New Siberian Islands, situated north of Russia, within the Arctic Circle. *(Figure 25)* Scattered throughout these islands are found the remains of tropical forests, gigantic fruit trees with green leaves and fruit frozen in the ice, as well as the remains of mammoths and other mammals. Obviously, this kind of life does not exist in this part of the world today. These findings were reported in the book, The Mysteries Of The Frozen Mammoths, page 76, written by Charles H. Hapgood.

The Spitzbergen Islands, north of Norway, and also within the Arctic Circle, is another area where subtropical life has been found preserved. Donald Patten, on page 110 of his book, The Biblical Flood And The Ice Epoch, mentions palm tree leaves ten to twelve feet in length have been found in a fossilized condition in this area, and also fossilized subtropical marine life of various kinds. *(Figure 26)*

Numerous finds have been made in Alaska to indicate life was much different in that area in the past than it is today. The National Geographic issue of March 1972, has an interesting article about the Alaskan tundra. In this article, the reader is told about the remains of gigantic camels, lions, horses, mammoths, tigers, sloths and bison found frozen in layers of ice and mud. *(Figure 27)* Life like this does not live in this part of the world today, yet as the evidence reveals, it did in the past.

In the extreme southern hemisphere, very near the South Pole, the fossilized remains of luxuriant forests with tree trunks over three feet in diameter have been found. This is reported on page 44 of the book, Those Astounding Ice Ages, by Hooker. Trees do not grow in this area today. Once again, the observable evidence confirms the Biblical model of a canopied earth. Subtropical vegetation and animal life in the past has lived from pole to pole.

Large Plants And Animals

What about the suggestion that plant and animal life would

be much larger in the past? If a canopied earth existed in the past, there should be numerous examples of gigantic plants and animals occurring in the fossil record. Let's look at some of these examples.

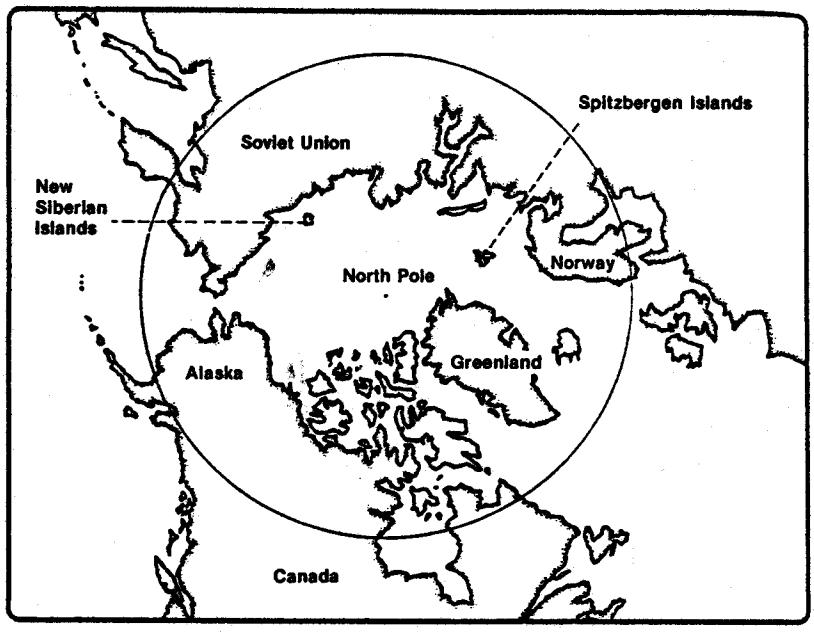

Figure 25:
A prominent feature of the fossil record is the abundance of fossils within the polar regions which are characteristic of life living in a subtropical environment. Obviously, the climatic conditions in the polar regions must have been much different in the past than exist today.

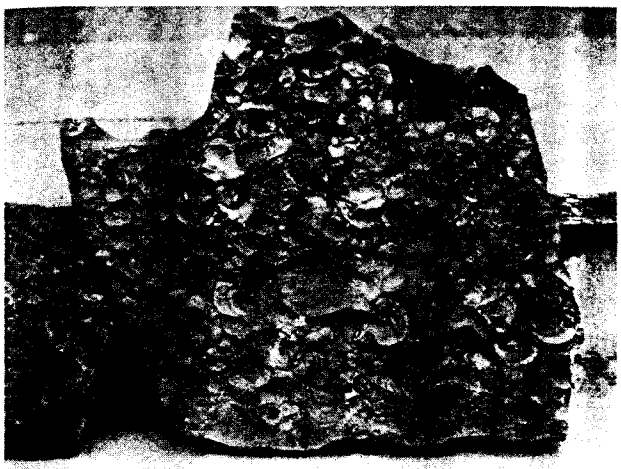

Figure 26:
Fossilized remains of subtropical marine organisms have been found in the Spitzbergen Islands. These islands are located north of Norway and within the Arctic Circle.

Figure 27:
This frozen baby mammoth was dug out of the Arctic muck by Alaskan miners searching for gold. These great animals are often found with the last mouthful of food they were eating still in their mouths, indicating the freezing process must have occured instantly.

The book, The Green Kingdom, published by Childcraft, illustrates a number of drawings of plants that lived in the past. These drawings are based on information gathered from the fossil record. *(Figure 28)* On page 206, moss-like plants which grew nearly three feet tall are shown. Today, moss plants grow approximately two or three inches tall. On page 209, plants that look like huge asparagus stalks are shown. They grew over forty feet tall. The root systems of these plants are similar to the hair-like root systems of onion plants we see today. Obviously the roots of these plants did not have to go deep into the soil in order to get moisture, nor anchor themselves against winds and storms.

Horsetail reeds have been found in the fossil record that grew over fifty feet tall. Today the horsetail reed grows in marshy areas but only to a maximum height of four or five feet. Fern like plants grew in the past to heights of over fifty feet high, compared to the bush sized plants of today.

Insects have been found in the fossil record that are much larger than their counterparts of today. For example, cockroaches have been found one foot in diameter; dragonflies have been preserved with a wing span of three feet. *(Figure 29)*

Fossil remains of marine organisms are often much larger than their counterparts of today. In the Sundance Canyon, near Banff, Alberta, Canada, fossil clams have been found over two feet in length. Nautiloid shells have been found in the fossil record that are over nine feet in diameter. *(Figure 30)* Today, their existing ancestors are only about eight inches in size.

Giant animal fossils of many different kinds have been found all over the world. A book called Giants From The Past, published by the National Geographic Society, shows many of these huge creatures of the past no longer existing today. Fossil remains of the hornless rhinoceros indicate it was over 17 feet tall. *(Figure 31)* Pigs grew to be the size of cattle; camels were over 12 feet tall; huge birds towered to a height

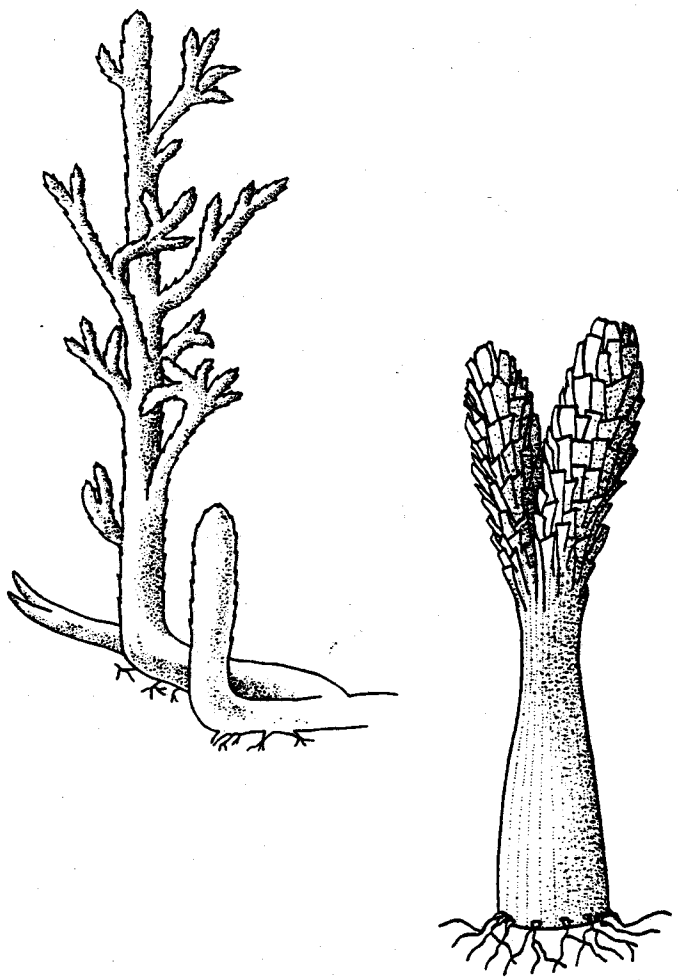

Figure 28:
The fossil record shows that plants living in the past were very different than plants living on earth today. Moss-like plants grew over three feet in height compared to the few inches they grow today. Plants that look like asparagus stalks grew over forty feet in height, yet were supported by a very delicate root system.

of over 11 feet; giant beavers grew to be the size of a pig; deer antlers measured over 12 feet in width. Ground sloths which grow to the size of an average monkey today, have been found in the fossil record over 18 feet in length. *(Figure 32)*

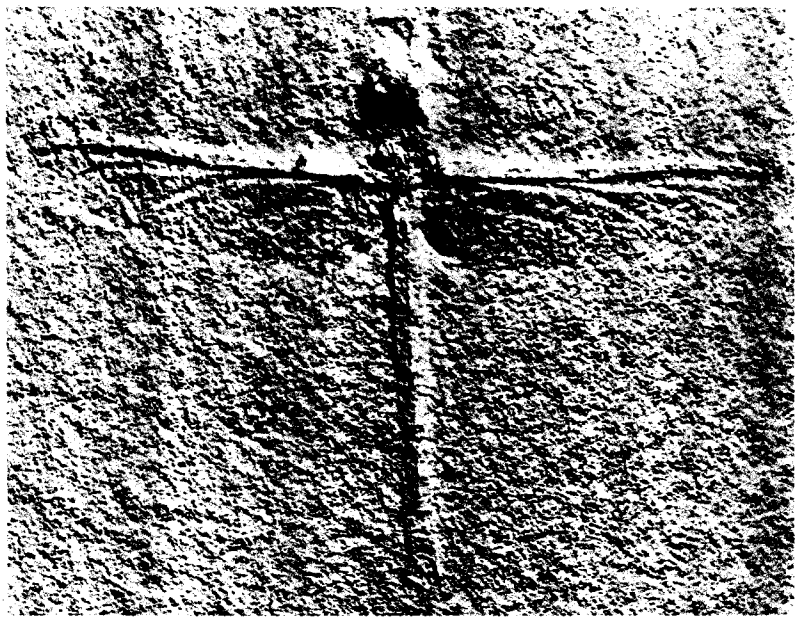

Figure 29:
The fossil record shows that dragonflies that lived in the past had wing spans as wide as three feet.

One of the most prominent features of the fossil record is the abundance of huge reptile creatures. *(Figure 33)* The most common reptile of the past is the dinosaur. Reptiles begin life by hatching from an egg, then growing larger and larger each year. The longer a reptile lives, the larger it gets. The dinosaur is one of the largest creatures that has ever lived on the face of this planet. In order for dinosaurs to have grown to the tremendous size as revealed by the fossil record, their life spans must have been much longer than reptile life spans of today. The protective canopy would certainly help to explain why the animals of the past grew larger and lived longer.

The Life Span Of Man

If the canopy model is correct, then there should be evidence to indicate the life span of man was much longer in the past. As we look at the scriptural account of the geneologies of men who lived upon the early earth, we see the average life span of original man was much longer than the average life span of man today.

If we look at a chart showing the life spans of men from Adam to Isaac, we would see a definite contrast for those who lived before, and those who lived after the flood of Noah. *(Figure 34)* The Bible mentions in Genesis chapter five, the average age of men who lived before the flood was approximately 900 years. After the flood, there is a marked deterioration of the long life spans. Within a 600 year period, the longevity of life tapers from the 900 year average down to approximately 175 years in length.

The canopy model helps us understand why man lived so long before the flood. At the time of the great flood of Noah, the canopy collapsed in upon the earth and provided one of the sources of the flood waters. The pre-flood earth canopy protected man from the harmful short wave radiation from the sun, which is known to accelerate the aging process. After the flood, when the canopy was gone, the earth would have been exposed to short wave radiation and life spans would

drop off sharply. As time has gone on, the short wave radiation would continue to cause degeneration to the genetic blueprints of life, and be passed on to subsequent generations. The aging process would continue to accelerate. Today the average life span of man is approximately 70 to 80 years of age, nowhere close to the 900 years that men were living before the flood.

Once again, we see the Bible has given us keys for understanding things which took place in the past. The scriptural insight into a pre-flood canopied earth, helps us understand the longevity of early man as recorded in the Bible and also many of the questions which result from observing the fossil record.

Figure 30:
The fossilized remains of a nautiloid shell found in the foothills of the Canadian Rockies reveals the gigantic size of these creatures in the past. Nautiloid species living today are usually only serveral inches in diameter.

Mysteries of the Bible

ıe Enduring Questions of the Scriptures

verybody loves a mystery. The greatest mysteries of all are in the greatest book of all: the le. MYSTERIES OF THE BIBLE exam- s stories and passages that puzzle fascinate us, make us curious to n more. This is a book that pro- es new findings about Bible times probes age-old historical enigmas. IYSTERIES OF THE BIBLE can serve companion to your family Bible, a terpiece for Bible study groups, an riguing introduction to the Bible those who have not yet discovered riches.

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- A Time Line of the complex orical period from 1000 to 500 B.C., ielp you find your way through the icacies of historical events.
- Two genealogies trace Hebrew ent from Abraham to the Tribes rael and show the influential se of David.
- Key to Gospel accounts of the f Jesus.
- Chart of the parables and where ıe Gospels they are to be found.
- A selection of favorite psalms.

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THE STORY BEHIND THE WORD

The fourth day of Creation, in a woodcut from an old Venetian Bible.

Firmament

The second day of Creation begins with God's enigmatic command, "Let there be a firmament in the midst of the waters." What is a "firmament"? This little-used English word is a translation of the Hebrew word *raqia*, but it captures little of the color of the original. The Hebrew *raqia* derives from the verb *raqa*, meaning to beat out or hammer out, and it conveys the vivid image of a metal surface hammered out like a copper or golden bowl.

God used this solid expanse to divide the waters of chaos from the lower waters of the earth. God called the solid dome "heaven," connoting "the skies." As the Book of Job observed, God "spread out the skies, hard as a molten mirror" (Job 37:18). It was in this dome that God set the sun, moon, and stars, and across this firmament that the birds flew (Genesis 1:17; 20). Under the firmament God pronounced the creation good; above it lay chaotic waters that could pour through the windows of heaven to destroy creation. Thus, the mighty firmament, visible day and night as the dome of heaven above the earth, proclaimed the glory and "handiwork" of God (Psalm 19:2). The world was enclosed and protected, since God's immeasurable power had spread the heavens "like a tent to dwell in" (Isaiah 40:22).

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Scientists get whiff of old, old air

New York Times News Service

PHOENIX — Tiny bubbles trapped in amber r 80 million years have given scientists their st direct look at the Earth's atmosphere in the ne of the dinosaurs, a mix of gases that appears amatically different from the air we breathe day.

A preliminary analysis suggests that the an- ent atmosphere may have been 50 percent cher in the oxygen that sustains the animal life the planet. That finding, to be presented here day at the annual meeting of the Geological ciety of America, is sure to astonish experts on obal climate and the evolution of life. They had sumed that the air then differed little from day's.

Until now, the oldest known samples of air were younger, the product of a 160,000-year-old core polar ice that was painstakingly drawn over the t five years from its resting place a mile below e Antarctic surface. But by crushing bits of ber and analyzing the faint breath of gas that capes, researchers appear to have opened an expected new window onto the history of the nosphere and the creatures it nourished.

As the technique is refined, the researchers, bert A. Berner of Yale University and Gary P. ndis of the United States Geological Survey in nver, hope through the study of other amber nples to assemble a detailed picture going back en farther. Microscopic air bubbles are not unu- l in amber, the resin from pine trees that has dened into yellowish translucent lumps. Some ber has been preserved for 200 million to 300 lion years.

It's very exciting," said James C.G. Walker of University of Michigan, an authority on the elopment of the Earth's atmosphere and ans. "I think it's a tremendously promising nique."

he researchers emphasize that their analysis ill tentative, particularly the surprising discovery of excess oxygen. But they believe that they have ruled out every possible alternative and that the amber bubbles reflect the composition of ancient air, folded into resin that oozed from the coniferous trees of the Cretaceous era.

Oxygen now makes up 21 percent of the atmosphere; the rest is mainly nitrogen, with a fraction of a percent of carbon dioxide and traces of many other gases. The Cretaceous amber, found in northern Manitoba, suggests an oxygen content as high as 32 percent. The rest is mainly nitrogen, as in the atmosphere today.

If confirmed, the discovery of an oxygen-rich atmosphere in the planet's past would intrude on the debate over a wide range of problems.

Extra oxygen would have been a great boon to animals trying to develop more efficient versions of the energy-generating chemistry of life. A given species might have been able to get by with smaller lungs, for example, and similar economies might have benefited organisms in many other ways.

A decline in oxygen content, on the other hand, would surely have affected species accustomed to a richer atmosphere. Some scientists speculated today that paleontologists studying the history of evolution may be tempted to look to the new research as a possible influence on the mass extinctions, including that of the dinosaur, that closed the Cretaceous era.

The primordial Earth, before the origin of life, had an atmosphere with no oxygen at all. It took billions of years for early organisms to free the oxygen that was bound to iron oxide and other minerals in the planet's surface.

That increase in oxygen over eons has been the only such trend that scientists have known. A higher oxygen content than today's has seemed unlikely, and some scientists have even argued that a level as high as 30 percent would have set off a global conflagration, vast forest fires burning in the enriched air.

"I can't believe we're living that close to th edge," Walker said. "If you get too much oxyge in the air, the world would become highly flan mable, but I think the threshold is probably higl er."

Oxygen continuously enters and leaves the at mosphere and oceans through a host of chemica and biological processes. Scientists have only re cently begun to appreciate the complexity of thi cycle of enrichment and depletion, and the role o living creatures in helping to regulate the atmos phere's content.

Geologists have had to deduce the composition of the atmosphere from chemical clues buried in the earth, like layers of decayed organic material Berner, acting on a suggestion by Edwin Roedder of the U.S. Geological Survey, decided to test amber, known mainly as a preserver of intact insects.

Bubbles in amber range from the size of a pinhead to a diameter of 10 microns, far too small to see with the naked eye. A 10-micron bubble contains barely a billion molecules of gas.

Besides the amber from Canada, the researchers have analyzed 25 million-year-old Dominican amber and 40 million-year-old Baltic amber. As a check on their technique, they have also tested modern resin from New Zealand. Unlike the oldest samples, the Dominican and Baltic ambers appear to match the composition of the modern atmosphere, although those results, too, are preliminary.

Many of the samples, both modern and ancient, share a peculiarity, a huge excess of carbon dioxide. Berner believes that some process of breathing, either plant or animal, replaces molecules of oxygen one for one by molecules of carbon dioxide.

The result is that the actual levels of oxygen and carbon dioxide vary unpredictably from sample to sample, but the total of the two gases remains constant.